Supplement S1 – Grab Sampling Sites

Sample	Sample Type	Country-Region	Locality	Coordinates, Elevation
S1000	Hematite (Fe2O3)	Chemical	Laboratory	
S1005	Sand pit	Spain - Las Canarias - Lanzarote	La Mala	29° 05' 50.50" N, 13° 27' 43.92" W, 39m
S1006	Sand pit	Spain - Las Canarias - Lanzarote	La Mala	29° 5'49.79"N, 13°27'44.83" W, 33m
S1007	Sediment	Spain - Las Canarias - Lanzarote	Mirador del Rio	29°13'39.86"N, 13°28'20.92"W, 350m
S1008	Soil	Spain - Las Canarias - Lanzarote	Vega de Femes	28°55'22.71"N, 13°45'52.71"W, 300m
S1009	Surface soil	Mali	above Bamako	12º41'17"N, 8º01'39"W, 554m
S1010	Surface soil	Mali	Bamako	12º41'17"N, 8º01'39"W, 554m
S1011	Surface soil	Mali	West Bamako	12º41'17"N, 8º01'39"W, 554m
S1013	Surface soil	Cabo Verde	Ponta Fiúra, Sal Island	16°51'3.63"N, 22°54'54.37"W, 12m
S1014	Surface dust	China	NW China, 500 km north of Taklamakan	45º03'47.4"N, E84º42'11"E, 268m
S1016	Surface dust	China	NW China, 530 km north of Taklamakan	45º23'22.6"N, 84º48'33.5"E, 267m
S1017	Green dust	China	Daemon City, Xinjiang, 650 km north of Taklamakan	46º07'30.8"N, 85º44'11.6"E
S1018	Green dust	China	Daemon City, Xinjiang, 650km north of Taklamakan	46º07'34"N, 85º44'17.6"E, 305m
S1019	Playa dust	USA	Owens Lake, CA	36°28'2.86"N, 118° 1'41.49"W, 1109m
S1022	Playa deposit	Namibia	Etosha, Fischer Pan	18°43'35.92"S, 17° 0'43.89"E, 1086m
S1023	Playa deposit	Namibia	Etosha, Stinkwater	18°37'54.38"S, 16°49'44.48"E, 1085m
S1024	Playa deposit	Namibia	Etosha, Lookout	18°56'26.60"S, 16°29'34.79"E, 1088m
S1025	Dune sand	Morocco	Lake Iriki	29°50'17.02"N, 6°30'44.51"W, 450m
S1027	Soil	Spain - Las Canarias - Gran Canaria	Galdar	28° 8'43.17"N, 15°37'47.77"W, 172m
S1033	Calima dust? Pockets in lava	Spain - Las Canarias - Fuerteventura	Fuerteventura, Pozo Negro, off road FV-420	28° 19' 42.42"N, 13° 54" 41.27" W, 30m
S1034	Calima dust? Pockets in lava	Spain - Las Canarias - Fuerteventura	Fuerteventura, Pozo Negro, off road FV-420	28° 19' 40.47" N, 13° 54" 43.63" W, 31m
S1035	Clay soil near gabias (8 FV)	Spain - Las Canarias - Fuerteventura	La Ampuyenta, off FV-20	28° 27' 02.00" N, 14° 00" 03.68" W, 289m
S1038	Playa dust	Botswana	Makgadikgadi Pan	21º12'32.42"S, E24º51'30.47"E, 912m
S1039	Playa dust	Botswana	Makgadikgadi Pan	21º01'18.02"S, 24º21'38.41"E, 916m
S1040	Playa dust	Botswana	Nxai Pan	20º07'02.03"S, 24º45'54.37"E, 914m
S1041	Playa dust	Botswana	Nxai Pan	19º53'28.45"S, 24º45'43.88"E, 928m
S1042	Surface Soil	Chile	Atacama, Yungay (Rock Garden)	25°56'56.89"S, 70°27'45.81"W, 777m
S1045	Playa suface soil	USA	Black Rock playa, Northern Nevada	40º45'10.57"N, 119º13'59.38"W, 1196m
S1049	Playa surfave dust	Chad	Bodélé Depression	16º08'08.34"N, 18º35'55.80"E, 266m
S1050	Playa surface dust	Chad	Bodélé Depression	16º13'16.38"N, 18º36'23.82"E, 270m
S1051	Playa surface dust	Chad	Bodélé Depression	16º13'16.38"N, 18º36'23.82"E, 270m
S1052	Peavine Mtn diatom layer	USA	Peavine, hillside outcrop, white diatomaceous shale	39º32'50.58"N, 119º54'46.53"W, 1650 m
S1053	Peavine Mtn oxide layer	USA	Peavine, sedimentary outcrop, yellow limonite soil	39º32'45.30"N, 119º54'56.62"W, 1617m
S1055	Loess Plateau	China	Jiuzhoutai Mtn summit, 6.5 km NW of Lanzhou City	36º06'09.77"N, 103º46'56.91"E, 2032m
S1056	Riverbed surface deposit	Australia	Cooper Creek, Lake Eyre, South Australia	28º31'20.28"S, 137º55'24.60"E, -6 m
S1057	Riverbed surface deposit	Australia	Warburton River, Lake Eyre, South Australia	27º46'56.64"S, 137º50'01.32"E, 2m
S1058	Lake inflow surface deposit	Australia	Lake Frome, South Australia	30º38'13.2"S, 139º39'21.6"E, 1 m
S1060	Loess deposit	Serbia	Batajnica, Danube	44º55'28.59"N, 20º19'10.67"E, 95m
S1062	Loess deposit	Serbia	Kostolac, Lignite pit	44º44'11.95"N, 21º14'43.11"E, 71m
S1064	Loess deposit	Serbia	Stari Slankamen, Lowest Loess section	45º07'55.85"N, 20º15'48.96"E, 94m
S1065	Fireclay (milled)	USA	Carbondale red clay, Amador County, California	undisclosed
S1066	Road dust (milled)	USA	Arizona road dust	undisclosed
S2001	Surface soil	Djibouti	Lemoniére, Site 1	11º32'34.32"N, 43º09'35.72"E, 8m
S2002	Surface soil	Afghanistan	Bagram, Site 2	34º56'25.59"N, 69º17'6.87"E, 1475m
S2003	Surface soil	Afghanistan	Khowst (Salerno), Site 3	33°21'54.96"N, 69°57'14.87"E, 1158m
S2004	Surface soil	Qatar	Al Udeid Air Base (Abu Nahlah Airport), Site 4	25° 7'4.50"N, 51°18'59.63"E, 35m
S2005	Surface soil	UAE	Al Dhafra, Site 5	24°14'40.61"N, 54°32'51.45"E, 11m
S2006	Surface soil	Iraq	Joint Base Balad (Anaconda), Site 6	33°56'38.64"N, 44°21'23.37"E, 46m
S2007	Surface soil	Iraq	Camp Victory, Site 7	33°15'17.09"N, 44°13'26.87"E, 34m
S2008	Surface soil	Iraq	Tallil (Camp Adder), Site 8	30°56'12.04"N, 46° 5'14.89"E, 4m
S2009	Surface soil	Iraq	Tikrit (Contingency Operating Base Speicher), Site 9	34°40'31.27"N, 43°33'16.94"E, 129m
S2010	Surface soil	Iraq	Taji, Site 10	33°31'16.01"N, 44°15'25.25"E, 40m
S2011	Surface soil	Iraq	Al Asad, Site 11	33°47'28.25"N, 42°27'24.38"E, 174m
S2012	Surface soil	Kuwait	Northern Kuwait (Camp Buehring), Site 12	29°41'52.56"N, 47°25'23.34"E, 132m
S2013	Surface soil	Kuwait	Central Kuwait (Camp Ali Al Salem), Site 13	29°21'17.59"N, 47°31'29.72"E, 141m
S2014	Surface soil	Kuwait	Coastal Kuwait (Ash Shu Ayabah), Site 14	29° 2'21.11"N, 48° 7'55.31"E, 27m
S2015	Surface soil	Kuwait	Southern Kuwait (Camp Arifjan), Site 15	28°52'43.47"N, 48°10'9.03"E, 38m
S2016	Surface soil	Afghanistan	Helmand Province (Camp Leatherneck), Site 16	31°51'50.13"N, 64°11'42.75"E, 890m
S2017	Surface soil	Kuwait	Coastal Kuwait (Ash Shu Ayabah), Site 17	29º02'30.66"N, 48º07'04.79"E, 32m
S3003	Gunpad soil	USA	Yuma Proving Ground (YPG), AZ, Area 3835Z	32° 52' 27.06"N, 114° 12' 31.84"W, 208m
S3004	Gunpad soil	USA	Yuma Proving Ground (YPG), AZ, 26500R	32° 51' 48.62"N, 114° 10' 50.72"W, 215m
S3008	Desert pavement	USA	Roadrunner, Yuma Proving Ground, Yuma, AZ	32° 54' 25.43"N, 114° 21' 20.72"W, 152m
S3011	Unpaved road	USA	Ft. Carson, CO	38° 42' 30.79"N, 104° 47' 10.56"W, 1774m
S3016	Built dirt road	USA	Dugway Proving Ground, UT	40º 04' 36.84"N, 113º 10' 14.88"W, 1316 m
S3017	Built dirt road	USA	Dugway Proving Ground, UT	40º 11' 30.10"N, 113º 09' 50.05"W, 1313m

Supplement S2.1 – Optical Mineralogy on >38µm to <125 µm Particles

Sample	Locality	Optical Mineralogy (qualitative), on > 38 µm, < 125 µm sieved soil fractions		
	Country	Major 20-100%	Minor 5-20%	Trace <5%
S1000	Chemical	submicroscopic, oxides		
S1005	Spain - Las Canarias	calcite, quartz	muscovite, plagioclase, obsidian, pyroxene	
S1006	Spain - Las Canarias	calcite (shells), plagioclase	clino-pyoxene, brown obsidian, opaque oxides	
S1007	Spain - Las Canarias	quartz (coated)	clino-pyroxene (light green), plagioclase, obsidian (brown), oxides	
S1008	Spain - Las Canarias	plagioclase (oligoclase), orthoclase, quartz (coated)	clino-pyroxene	
S1009	Mali	oxides, quartz	calcite, muscovite, plagioclase	sphene
S1010	Mali	quartz (coated), oxides	plagioclase	
S1011	Mali	quartz (coated)	oxides	
S1013	Cabo Verde	plagioclase, clino-pyroxene, quartz (coated)		zircon
S1014	China	quartz (coated), calcite	plagioclase, amphibole (actinolite)	zircon
S1016	China	quartz (coated)	plagioclase, muscovite, calcite, amphibole (hornblende), oxides	
S1017	China	quartz (coated), muscovite, biotite	calcite, plagioclase, amphibole (hornblende), clino-pyroxene	
S1018	China	quartz, bioitite	plagioclase, microcline (perthite), oxides	zircon
S1019	USA	plagioclase, calcite, quartz (coated), biotite	amphibole (hornblende)	epidote
S1022	Namibia	quartz (coated)	calcite, plagioclase, muscovite, clino-pyroxene	tourmaline
S1023	Namibia	quartz (coated), calcite	plagioclase, amphibole (hornblende), orthoclase	
S1024	Namibia	calcite	quartz, plagioclase	amphibole

Supplement S2.1 – Optical Mineralogy on >38µm to <125 µm Particles

Sample	Locality	Optical Mineralogy (qualitative), on > 38 µm, < 125 µm sieved soil fractions		
	Country	Major 20-100%	Minor 5-20%	Trace <5%
S1025	Morocco	quartz (coated), calcite, orthoclase, oxides	plagioclase, amphibole (hornblende), orthoclase	
S1027	Spain - Las Canarias	quartz (coated)	orthoclase, amphibole, oxides	chlorite
S1033	Spain - Las Canarias	quartz (coated)	muscovite, calcite, amphibole, biotite, plagioclase, oxides	chlorite
S1034	Spain - Las Canarias	quartz (coated)	plagioclase, orthoclase, biotite, calcite, amphibole, oxides	
S1035	Spain - Las Canarias	quartz (coated)	orthoclase, perthite, biotite, obsidian	
S1038	Botswana	quartz (coated), orthoclase	amphibole (hornblende), plagioclase, calcite, oxides	
S1039	Botswana	quartz (coated), orthoclase, calcite	muscovite, plagioclase, amphibole	epidote
S1040	Botswana	quartz, calcite	plagioclase, amphibole (hornblende), orthoclase	
S1041	Botswana	quartz (coated)	amphibole, plagioclase, biotite, muscovite, oxides, calcite	
S1042	Chile	plagioclase, amphibole, quartz (coated)	orthoclase, calcite, biotite, gypsum, oxides	
S1045	USA	clay clusters	calcite, quartz, amphibole (hornblende), plagioclase	
S1049	Chad	quartz, amorphous (diatoms)	orthoclase, plagioclase	
S1050	Chad	quartz, amorphous (diatoms)		
S1051	Chad	amorphous (diatoms)	quartz, plagioclase	
S1052	USA	amorphous (diatoms), quartz	biotite, plagioclase, pyroxene	
S1053	USA	quartz (coated), plagioclase	amphibole (hornblende), biotite, muscovite, oxides	epidote
S1055	China	quartz, calcite, muscovite, biotite	amphibole (hornblende)	chlorite

Supplement S2.1 – Optical Mineralogy on >38µm to <125 µm Particles

Sample	Locality	Optical Mineralogy (qualitative), on > 38 µm, < 125 µm sieved soil fractions		
	Country	Major 20-100%	Minor 5-20%	Trace <5%
S1056	Australia	quartz (coated)	plagioclase, gypsum, calcite	
S1057	Australia	quartz (coated)	pyroxene, plagioclase, oxides	
S1058	Australia	quartz (coated)	orthoclase, plagioclase, calcite, muscovite, biotite	
S1060	Serbia	quartz (coated), muscovite	biotite, plagioclase, orthoclase, oxides	chlorite
S1062	Serbia	quartz, muscovite	calcite, biotite, plagioclase, oxides	chlorite, zircon
S1064	Serbia	quartz (coated), muscovite	calcite, biotite, plagioclase, orthoclase (granophyre)	chlorite
S1065	USA	unidentified, submicroscopic	unidentified, submicroscopic	
S1066	USA	unidentified, submicroscopic	unidentified, submicroscopic	
S2001	Djibouti	calcite, plagioclase (andesine), clino-pyroxene	orthoclase, amphibole (hornblende), oxides	
S2002	Afghanistan	quartz (coated), biotite	plagioclase, muscovite, amphibole (hornblende), calcite	
S2003	Afghanistan	quartz (coated), calcite	clino-pyroxene, biotite, plagioclase, amphibole	
S2004	Qatar	calcite, quartz (coated)	clino-pyroxene, plagioclase, biotite, muscovite, amphibole	
S2005	UAE	calcite (foraminifera)	quartz, clino-pyroxene, plagioclase, anhydrite	
S2006	Iraq	quartz (coated), calcite	biotite, muscovite, clino-pyroxene, plagioclase	zircon
S2007	Iraq	quartz (coated), plagioclase	muscovite, biotite, calcite, amphibole (hornblende)	
S2008	Iraq	quartz (coatings), calcite	muscovite, clino-pyroxene, plagioclase	
S2009	Iraq	quartz (coatings), calcite	amphibole (hornblende), biotite, plagioclase	

Supplement S2.1 – Optical Mineralogy on >38µm to <125 µm Particles

Sample	Locality	Optical Mineralogy (qualitative), on > 38 µm, < 125 µm sieved soil fractions		
	Country	Major 20-100%	Minor 5-20%	Trace <5%
S2010	Iraq	quartz (coated), calcite, amphibole (hornblende)	plagioclase, biotite, muscovite	
S2011	Iraq	calcite	plagioclase, quartz, amphibole (hornblende), muscovite, oxides	
S2012	Kuwait	quartz, calcite	clino-pyroxene, plagioclase, orthoclase, muscovite, biotite, oxides	
S2013	Kuwait	quartz, calcite	plagioclase, orthoclase, biotite, muscovite, amphibole (hornblende)	
S2014	Kuwait	quartz, calcite	muscovite, clino-pyroxene, serpentine, zeolite (natrolite), plagioclase, amphibole (hornblende), oxides	
S2015	Kuwait	calcite, quartz, plagioclase	amphibole (hornblende), clino-pyroxene, oxides, orthoclase (granophyre)	
S2016	Afghanistan	quartz, calcite, orthoclase	biotite, amphibole, plagioclase	
S2017	Kuwait	quartz, calcite, plagioclase, orthoclase	muscovite, clino-pyroxene, biotite	
S3003	USA	quartz, biotite	muscovite, plagioclase, microcline, amphibole (hornblende)	
S3004	USA	quartz, calcite, amphibole (hornblende)	plagioclase, biotite, clinopyroxene, oxides	chlorite
S3008	USA	quartz, plagioclase, calcite	biotite, amphibole (hornblende), muscovite, clino-pyroxene, oxides	chlorite
S3011	USA	quartz (coated), plagioclase, calcite	amphibole (hornblende), biotite, muscovite, oxides	
S3016	USA	calcite, quartz, plagioclase	biotite, muscovite, granophyre, clino-pyroxene, oxides, orthoclase (granophyre)	
S3017	USA	quartz, calcite, plagioclase	biotite, muscovite, amphibole, oxides	

Supplement S2.2 – Mineralogy on <38 µm, Sieved Powders by XRD

Sample	Locality	Mineralogy (semi-quatitative) by XRD, on < 38 µm sieved soil fractions		
	Country	Major 20-100%	Minor 5-20%	Trace <5%
S1000	Chemical	hematite		
S1005	Spain - Las Canarias	calcite, quartz	illite	plagioclase, aragonite, dolomite, hematite
S1006	Spain - Las Canarias	calcite	quartz	aragonite, dolomite, plagioclase, halite, hematite
S1007	Spain - Las Canarias	illite, quartz	calcite, plagioclase, dolomite, kaolinite	hematite
S1008	Spain - Las Canarias	montmorillonite (illite)	muscovite (biotite), quartz, plagioclase, microcline,	calcite, goethite, hematite, illite, kaolinite
S1009	Mali	quartz, kaolinite, illite	hematite, goethite, kaolinite, illite	dolomite
S1010	Mali	quartz, amorphous	goethite (6.9%), hematite (1.72%), kaolinite	muscovite (biotite), K-feldspar
S1011	Mali	quartz	hematite, goethite, kaolinite, illite	calcite
S1013	Cape Verde	illite, quartz	plagioclase, carbonate apatite, halite, kaolinite	hematite
S1014	China	quartz, plagioclase	kaolinite, muscovite (biotite), calcite, montmorillonite	
S1016	China	quartz	kaolinite, muscovite (biotite), plagioclase, calcite, montmorillonite	
S1017	China	quartz	plagioclase, kaolinite, calcite, muscovite (biotite)	sepiolite (serpentine), halite
S1018	China	plagioclase, quartz	muscovite (biotite)	halite, sepiolite (serpentine)
S1019	USA	plagioclase, calcite	quartz, muscovite (biotite), kaolinite, sepiolite (serpentine)	amphibole, halite
S1022	Namibia	calcite, sepiolite	halite, quartz, dolomite	
S1023	Namibia	halite, thenardite, quartz	dolomite	calcite
S1024	Namibia	thenardite, halite	dolomite, calcite	sepiolite (serpentine), analcime

Supplement S2.2 – Mineralogy on <38 µm, Sieved Powders by XRD

Sample	Locality	Mineralogy (semi-quatitative) by XRD, on < 38 µm sieved soil fractions		
	Country	Major 20-100%	Minor 5-20%	Trace <5%
S1025	Morocco	quartz, illite	calcite	kaolinite, dolomite
S1027	Spain - Las Canarias	quartz	illite, K-feldspar, plagioclase	
S1033	Spain - Las Canarias	quartz	illite, kaolinite, plagioclase, K-feldspar, calcite	
S1034	Spain - Las Canarias	quartz, illite	plagioclase, kaolinite, K-feldspar	amphibole, hematite
S1035	Spain - Las Canarias	quartz, illite	K-feldspar, kaolinite, plagioclase	calcite, amphibole
S1038	Botswana	calcite, illite	quartz, K-feldspar	sepiolite, halite
S1039	Botswana	calcite	illite, quartz	sepiolite, K-feldspar, halite
S1040	Botswana	halite, trona	quartz, calcite	sepiolite or smectite-illite or vermiculite-illite, dolomite
S1041	Botswana	sepiolite	calcite, quartz	
S1042	Chile	quartz, illite	anhydrite, plagioclase, amphibole	gypsum, montmorillonite (amorphous)
S1045	USA	illite	calcite, quartz, kaolinite, halite, K-feldspar, sepiolite, amphibole	plagioclase (stilbite), amorphous
S1049	Chad	amorphous, calcite	quartz, kaolinite	K-feldspar, halite
S1050	Chad	amorphous, calcite	quartz, kaolinite	halite
S1051	Chad	amorphous, illite, kaolinite, quartz	sepiolite	
S1052	USA	amorphous, plagioclase, illite	stilbite, montmorillonite, quartz, sepiolite	
S1053	USA	plagioclase, quartz	palygorskite, montmorillonite, amphibole, (zeolite)	amorphous
S1055	China	quartz	illite, calcite, kaolinite, plagioclase	K-feldspar, dolomite, hematite

Sample	Locality	Mineralogy (semi-quatitative) by XRD, on < 38 µm sieved soil fractions		
	Country	Major 20-100%	Minor 5-20%	Trace <5%
S1056	Australia	quartz, illite	kaolinite, calcite	K-feldspar, palygorskite, gypsum, amorphous
S1057	Australia	quartz, amorphous, illite, kaolinite		(palygorskite, hematite, amorphous)
S1058	Australia	quartz, illite	kaolinite, halite, plagioclase, amorphous	dolomite, calcite
S1060	Serbia	quartz	montmorillonite/chlorite, muscovite (biotite), kaolinite, plagioclase	
S1062	Serbia	quartz	muscovite (biotite), kaolinite, dolomite, plagioclase, montmorillonite/chlorite	calcite
S1064	Serbia	quartz	muscovite (biotite), kaolinite, dolomite, plagioclase, montmorillonite/chlorite	calcite
S1065	USA	quartz, kaolinite	illite	hematite
S1066	USA	quartz		K-feldspar, plagioclase
S2001	Djibouti	plagioclase	montmorillonite, augite, ilmenite, magnetite, calcite, quartz	hematite, hornblende, amorphous, serpentine
S2002	Afghanistan	quartz	calcite, montmorillonite, plagioclase, muscovite (biotite), chlorite, amorphous	microcline, hornblende, dolomite, kaolinite, ankerite
S2003	Afghanistan	amorphous, quartz	chlorite, muscovite (biotite), plagioclase,	microcline, serpentine, hematite, hornblende, dolomite
S2004	Qatar	calcite	quartz, dolomite, illite, kaolinite, ankerite, amorphous	microcline, muscovite, hornblende, ilmenite, palygorskite, montmorillonite
S2005	UAE	calcite, quartz	plagioclase	muscovite (biotite), microcline, gypsum, chlorite, hematite
S2006	Iraq	calcite	quartz, muscovite (biotite), montmorillonite, chlorite, plagioclase, amorphous	dolomite, microcline, halite, kaolinite, gypsum, palygorskite, hematite
S2007	Iraq	calcite, quartz	kaolinite, plagioclase, dolomite,	amphibole, montmorillonite/chlorite, halite, palygorskite
S2008	Iraq	quartz, calcite	gypsum, plagioclase, montmorillonite, K-feldspar	chlorite, muscovite (biotite), hematite
S2009	Iraq	quartz, calcite	plagioclase, gypsum, microcline, montmorillonite	chlorite, muscovite (biotite), hornblende, kaolinite, dolomite, augite, bassanite, palygorskite

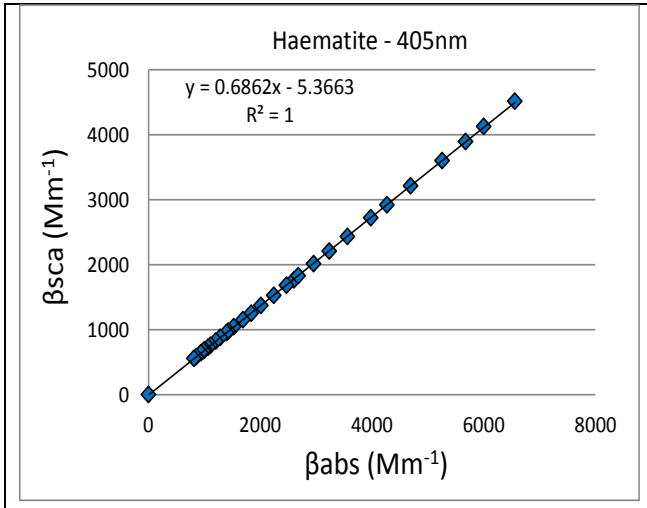
Sample	Locality	Mineralogy (semi-quatitative) by XRD, on < 38 µm sieved soil fractions		
	Country	Major 20-100%	Minor 5-20%	Trace <5%
S2010	Iraq	quartz, calcite	plagioclase, montmorillonite, muscovite (biotite), microcline, chlorite	gypsum, hornblende, kaolinite, dolomite
S2011	Iraq	dolomite	calcite, gypsum, quartz	montmorillonite, muscovite (biotite), kaolinite, hematite, halite, plagioclase, palygorskite
S2012	Kuwait	quartz, calcite	plagioclase, montmorillonite, microcline, palygorskite	chlorite, dolomite, serpentine, hornblende, muscovite (biotite), gypsum
S2013	Kuwait	calcite, quartz	plagioclase, montmorillonite, illite, kaolinite	chlorite, microcline, muscovite (biotite), hornblende, hematite, gypsum, palygorskite
S2014	Kuwait	quartz	calcite, plagioclase, microcline	muscovite (biotite), hornblende, kaolinite, chlorite, palygorskite, hematite
S2015	Kuwait	quartz	calcite, montmorillonite, plagioclase, K-feldspar	chlorite, hornblende, serpentine, palygorskite, muscovite (biotite), amorphous
S2016	Afghanistan	quartz	calcite, kaolinite, illite, orthoclase	plagioclase, palygorskite, gypsum, dolomite, amphibole
S2017	Kuwait	quartz, calcite	kaolinite, dolomite, illite, lizardite, K-feldspar, plagioclase	palygorskite
S3003	USA	quartz, plagioclase	calcite, muscovite (biotite), kaolinite	dolomite, montmorillonite/chlorite, gypsum
S3004	USA	quartz, calcite	plagioclase, muscovite (biotite)	kaolinite, K-feldspar, dolomite
S3008	USA	quartz, plagioclase	muscovite (biotite), calcite, K-feldspar	kaolinite, amphibole, dolomite
S3011	USA	quartz, plagioclase	muscovite (biotite), dolomite, kaolinite	calcite
S3016	USA	quartz, dolomite	calcite, plagioclase, aragonite, muscovite (biotite)	K-feldspar, hematite
S3017	USA	quartz, calcite	dolomite, plagioclase, aragonite	muscovite (biotite), K-feldspar, hematite

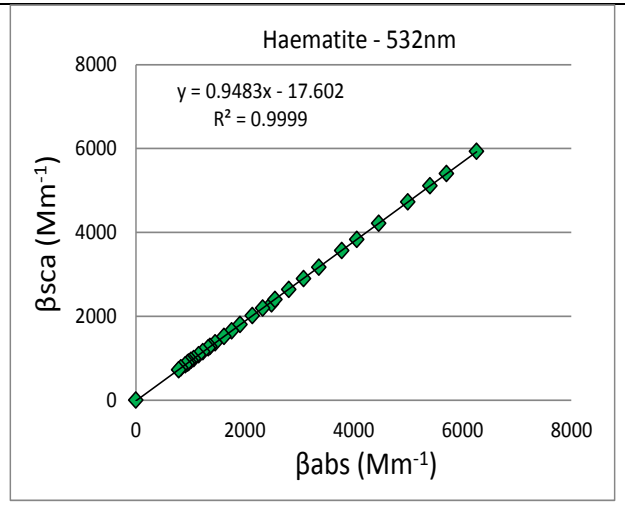
Supplement S2.3 – Particle Size Analysis of <600 µm Sieved Samples as Volume Percentages

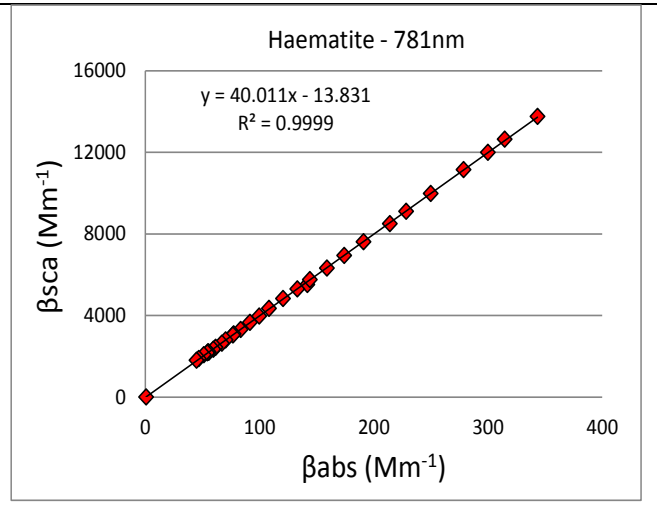
Sample	Country - Region	Locality	Particle Size Analysis (Vol. %)		
			Sand	Silt	Clay
S1005	Spain - Las Canarias - Lanzarote	La Mala	56.77	31.1	12.09
S1006	Spain - Las Canarias - Lanzarote	La Mala	84.88	8.9	6.18
S1007	Spain - Las Canarias - Lanzarote	Mirador del Rio	19.16	67.8	13.08
S1008	Spain - Las Canarias - Lanzarote	Vega de Femes	2.54	69.1	28.40
S1009	Mali	above Bamako	24.96	48.4	26.66
S1010	Mali	Bamako	32.68	52.3	14.99
S1011	Mali	West Bamako	24.62	49.7	25.68
S1013	Cabo Verde	Ponta Fiúra, Sal Island	52.21	30.9	16.87
S1014	China	NW China, 500 km north of Taklamakan	47.94	27.9	24.19
S1016	China	NW China, 530 km north of Taklamakan	9.75	58.9	31.37
S1017	China	Daemon City, Xinjiang, 650 km north of Taklamakan	19.73	71.3	8.93
S1018	China	Daemon City, Xinjiang, 650km north of Taklamakan	11.25	61.5	27.29
S1019	USA	Owens Lake, CA	56.70	36.6	6.70
S1022	Namibia	Etosha, Fischer Pan	48.61	37.6	13.83
S1023	Namibia	Etosha, Stinkwater	92.91	5.9	1.23
S1024	Namibia	Etosha, Lookout	8.36	51.7	39.92
S1025	Morocco	Lake Iriki	45.82	40.5	13.67
S1027	Spain - Las Canarias - Gran Canaria	Galdar	2.30	86.3	11.44
S1033	Spain - Las Canarias - Fuerteventura	Fuerteventura, Pozo Negro, off road FV-420	19.60	71.1	9.27
S1034	Spain - Las Canarias - Fuerteventura	Fuerteventura, Pozo Negro, off road FV-420	16.17	71.8	12.07
S1035	Spain - Las Canarias - Fuerteventura	La Ampuyenta, off FV-20	6.13	77.0	16.88
S1038	Botswana	Makgadikgadi Pan	53.27	40.6	6.17
S1039	Botswana	Makgadikgadi Pan	58.50	35.5	5.96
S1040	Botswana	Nxai Pan	73.03	24.5	2.44
S1041	Botswana	Nxai Pan	49.93	46.3	3.80
S1042	Chile	Atacama, Yungay (Rock Garden)	76.55	16.8	6.65
S1045	USA	Black Rock playa, Northern Nevada	3.23	59.4	37.37
S1049	Chad	Bodélé Depression	11.40	78.5	10.11
S1050	Chad	Bodélé Depression	6.11	81.3	12.64
S1051	Chad	Bodélé Depression	0.62	92.9	6.44
S1052	USA	Peavine, hillside outcrop, white diatomaceous shale	13.42	80.5	6.08
S1053	USA	Peavine, sedimentary outcrop, yellow limonite soil	19.29	62.0	18.69
S1055	China	Jiuzhoutai Mtn summit, 6.5 km NW of Lanzhou City	22.46	70.0	7.55
S1056	Australia	Cooper Creek, Lake Eyre, South Australia	46.75	36.2	17.05
S1057	Australia	Warburton River, Lake Eyre, South Australia	53.74	20.1	26.09
S1058	Australia	Lake Frome, South Australia	49.85	38.6	11.57
S1060	Serbia	Batajnica, Danube	17.13	73.5	9.36
S1062	Serbia	Kostolac, Lignite pit	14.31	75.9	9.75
S1064	Serbia	Stari Slankamen, Lowest Loess section	11.68	77.6	10.75
S2001	Djibouti	Lemoniére, Site 1	72.95	23.5	3.51
S2002	Afghanistan	Bagram, Site 2	24.82	62.2	13.02
S2003	Afghanistan	Khowst (Salerno), Site 3	29.54	57.8	12.66
S2004	Qatar	Al Udeid Air Base (Abu Nahlah Airport), Site 4	72.91	22.4	4.64
S2005	UAE	Al Dhafra, Site 5	96.20	2.9	0.93
S2006	Iraq	Joint Base Balad (Anaconda), Site 6	13.57	64.6	21.86
S2007	Iraq	Camp Victory, Site 7	14.21	60.4	25.43
S2008	Iraq	Tallil (Camp Adder), Site 8	80.27	17.8	1.91
S2009	Iraq	Tikrit (Contingency Operating Base Speicher), Site 9	53.95	38.4	7.67
S2010	Iraq	Taji, Site 10	69.57	24.3	6.17
S2011	Iraq	Al Asad, Site 11	69.92	21.5	8.60
S2012	Kuwait	Northern Kuwait (Camp Buehring), Site 12	75.70	19.5	4.79
S2013	Kuwait	Central Kuwait (Camp Ali Al Salem), Site 13	69.00	27.1	3.87
S2014	Kuwait	Coastal Kuwait (Ash Shu Ayabah), Site 14	87.28	10.3	2.45
S2015	Kuwait	Southern Kuwait (Camp Arifjan), Site 15	88.13	9.7	2.22
S2016	Afghanistan	Helmand Province (Camp Leatherneck), Site 16	55.33	37.5	7.14
S2017	Kuwait	Coastal Kuwait (Ash Shu Ayabah), Site 17	37.13	54.2	8.68
S3003	USA	Yuma Proving Ground (YPG), AZ, Area 3835Z	44.19	47.1	8.74
S3004	USA	Yuma Proving Ground (YPG), AZ, 26500R	60.80	33.5	5.66
S3008	USA	Roadrunner, Yuma Proving Ground, Yuma, AZ	52.34	38.5	9.20
S3011	USA	Ft. Carson, CO	55.46	35.7	8.79
S3016	USA	Dugway Proving Ground, UT	54.53	34.2	11.22
S3017	USA	Dugway Proving Ground, UT	46.97	39.2	13.86

Sample	Color	Munsell Color Index		Single Scattering Albedo SSA)		
		Hue	Value/Chroma	405 nm (blue)	532 nm (green)	781 nm (red)
S1000	Red	10R	4/8	0.407	0.487	0.976
S1005	Light brown	7.5YR	6/4	0.943	0.986	0.998
S1006	Very pale brown	10YR	7/3	0.964	0.992	0.999
S1007	Light reddish brown	5YR	6/4	0.936	0.982	0.998
S1008	Strong brown	7.5YR	4/4	0.868	0.963	0.995
S1009	Reddish brown	5YR	4/4	0.722	0.907	0.991
S1010	Reddish brown	5YR	4/3	0.729	0.889	0.981
S1011	Dusky red	2.5YR	4/4	0.689	0.876	0.988
S1013	Light brown	7.5YR	6/4	0.925	0.982	0.997
S1014	Light brownish gray	10YR	6/2	0.954	0.991	0.997
S1016	Pale brown	10YR	6/3	0.936	0.985	0.997
S1017	Weak red	2.5Y	6/3	0.955	0.991	0.996
S1018	Pinkish gray	5YR	7/2	0.953	0.993	0.997
S1019	Pinkish gray	5YR	6/2	0.948	0.988	0.995
S1022	White	2.5Y	8/1	0.991	0.997	0.999
S1023	White	2.5Y	8/1	0.984	0.993	0.997
S1024	White	2.5Y	8/1	0.989	0.996	0.999
S1025	Brown	7.5Y	5/4	0.905	0.975	0.996
S1027	Reddish brown	5YR	5/3	0.958	0.987	0.998
S1033	Brown	7.5YR	5/4	0.875	0.969	0.995
S1034	Brown	7.5YR	5/4	0.866	0.965	0.995
S1035	Yellowish red	5YR	4/6	0.916	0.979	0.997
S1038	Gray	10YR	6/1	0.945	0.975	0.994
S1039	Light brownish gray	10YR	6/2	0.965	0.987	0.997
S1040	Light gray	2.5Y	7/1	0.984	0.994	0.998
S1041	Grayish brown	10YR	5/2	0.962	0.981	0.995
S1042	Pinkish gray	7.5YR	7/2	0.945	0.986	0.998
S1045	Light gray	2.5Y	7/2	0.970	0.994	0.998
S1049	White	2.5Y	8/1	0.982	0.995	0.999
S1050	White	2.5Y	8/1	0.982	0.995	0.999
S1051	Light gray	10YR	7/2	0.972	0.991	0.998
S1052	White	10YR	8/1	0.982	0.995	0.999
S1053	Yellowish brown	10YR	5/4	0.923	0.989	0.998
S1055	Pale brown	10YR	6/3	0.912	0.978	0.995
S1056	Light brownish gray	2.5Y	6/2	0.969	0.992	0.998
S1057	Pale brown	10YR	6/3	0.965	0.991	0.998
S1058	Strong brown	7.5YR	5/6	0.870	0.962	0.992
S1060	Light yellowish brown	10YR	6/4	0.868	0.974	0.996
S1062	Light yellowish brown	10YR	6/4	0.893	0.981	0.996
S1064	Light yellowish brown	10YR	6/4	0.887	0.979	0.997
S1065	Yellowish red	5YR	5/6	0.629	0.864	0.991
S1066	White	7.5YR	8/1	0.957	0.983	0.994
S2001	Brown	7.5YR	4/3	0.871	0.963	0.995
S2002	Pale brown	10YR	6/3	0.848	0.952	0.993
S2003	Grayish brown	10YR	5/2	0.902	0.973	0.992
S2004	Very pale brown	10YR	7/3	0.932	0.984	0.997
S2005	Very pale brown	10YR	7/3	0.971	0.992	0.998
S2006	Yellowish brown	10YR	5/4	0.913	0.977	0.995
S2007	Pale brown	10YR	6/3	0.935	0.982	0.996
S2008	Very pale brown	10YR	7/3	0.958	0.988	0.997
S2009	Light yellowish brown	10YR	6/4	0.919	0.979	0.996
S2010	Dark yellowish brown	10YR	4/4	0.908	0.973	0.995
S2011	Very pale brown	10YR	8/1	0.948	0.988	0.997
S2012	Very pale brown	10YR	7/3	0.941	0.984	0.997
S2013	Pale brown	10YR	6/3	0.939	0.983	0.996
S2014	Very pale brown	10YR	7/3	0.942	0.983	0.994
S2015	Very pale brown	10YR	7/3	0.960	0.989	0.997
S2016	Light yellowish brown	10YR	6/4	0.928	0.982	0.996
S2017	Pinkish gray	7.5YR	6/2	0.914	0.973	0.988
S3003	Light brown	7.5YR	6/3	0.944	0.986	0.997
S3004	Light brown	7.5YR	6/4	0.940	0.986	0.998
S3008	Light brown	7.5YR	6/4	0.930	0.981	0.997
S3011	Brown	10YR	5/3	0.906	0.975	0.994
S3016	White	10YR	8/1	0.969	0.991	0.998
S3017	White	10YR	8/1	0.972	0.992	0.998

Sample S1000, Pure Hematite (Fe2O3)

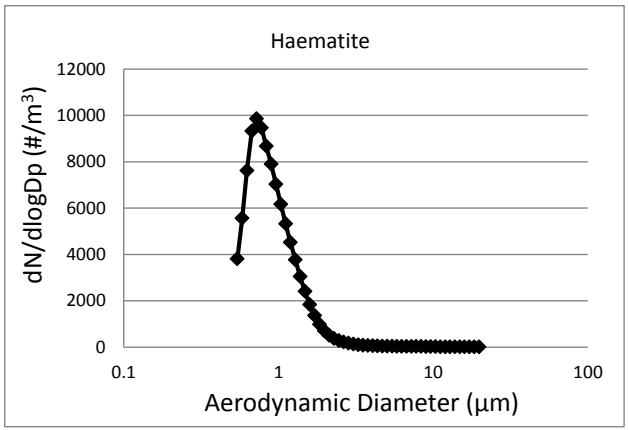






SSA (405nm) = 0.407 SSA (532nm) = 0.487 SSA (781nm) = 0.976

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.

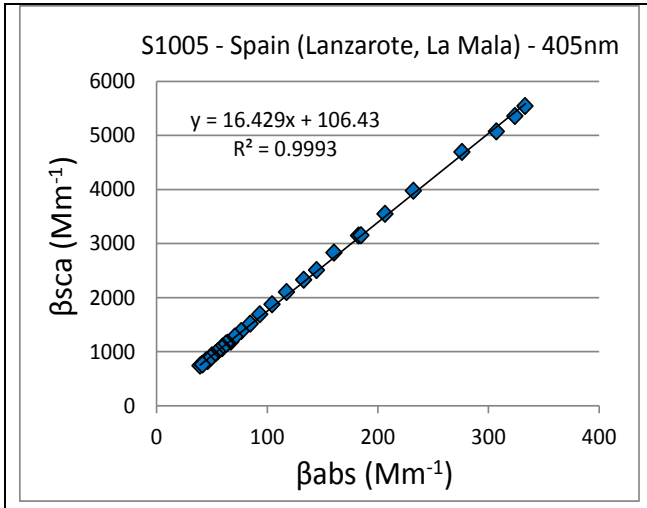


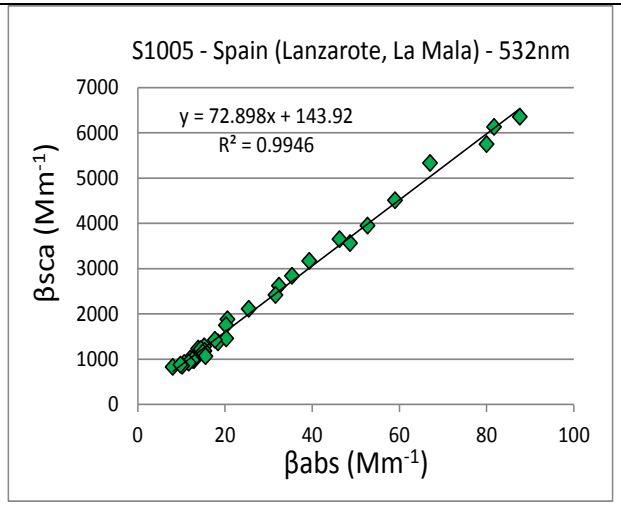
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
0.8441	0.9556	0.8927	0.7234	1.4052

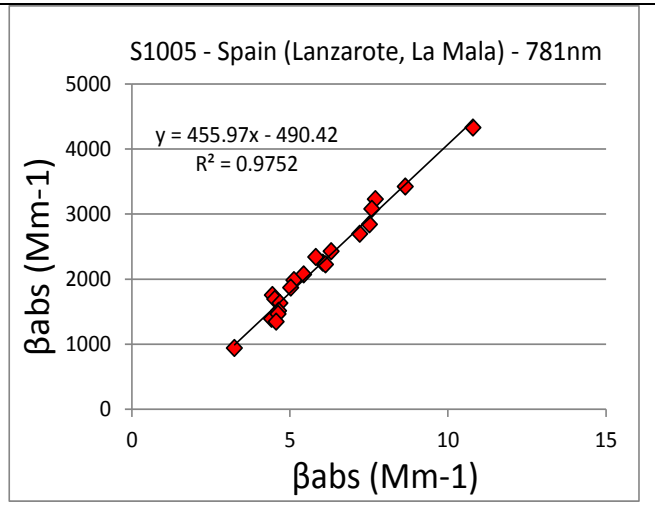
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	620	610	570	600
$PM_{2.5}/PM_{10}$	0.92	0.97	0.93	0.98
Average	0.95			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	1173.9		1369.9	
$PM_{2.5}/PM_{10}$	0.86			

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and beta gauge mass measurements, together with $PM_{2.5}/PM_{10}$ mass ratios.

Sample S1005, Spain (Lanzarote, La Mala)

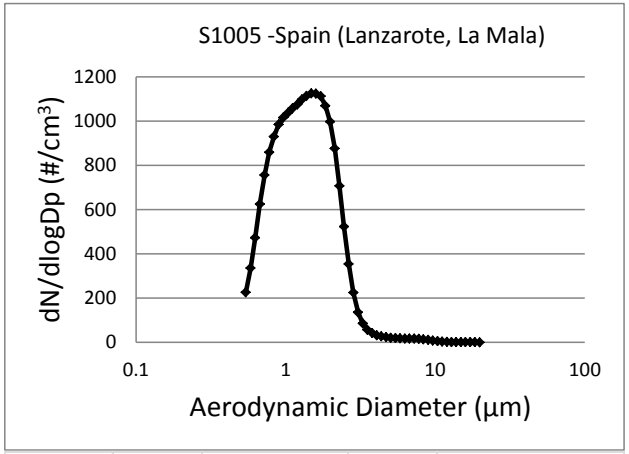






SSA (405nm) = 0.943 SSA (532nm) = 0.986 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.293	1.430	1.291	1.483	1.550

	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	7310	6560	1130	1140
$PM_{2.5}/PM_{10}$	0.15	0.16	0.17	0.17
Average	0.16			

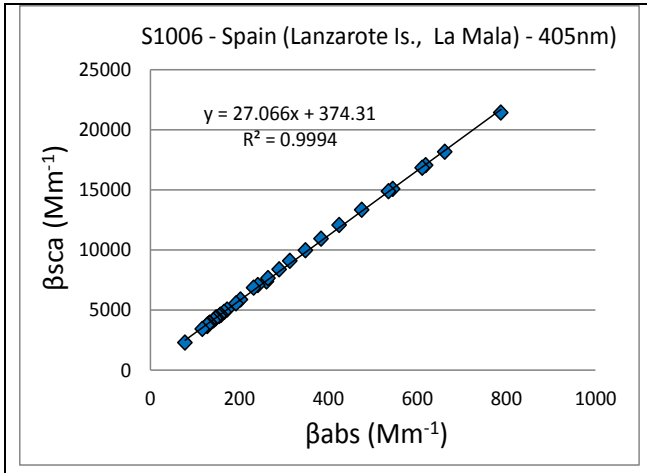
	Betagauge		
	PM2.5		PM10
Mass (µg/m³)	651.2		4531.4
$PM_{2.5}/PM_{10}$	0.14		

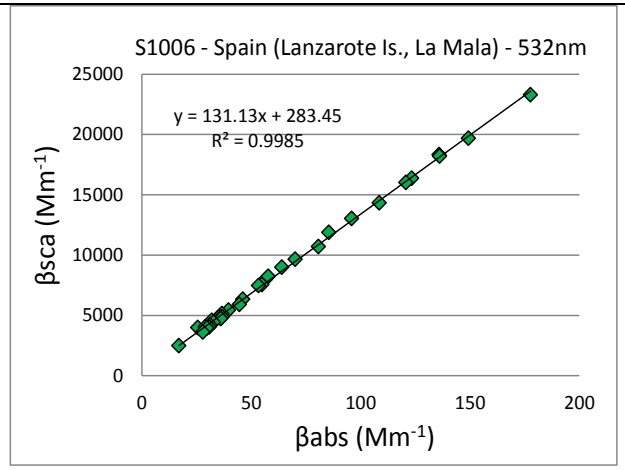
SEM Measured Aspect Ratio

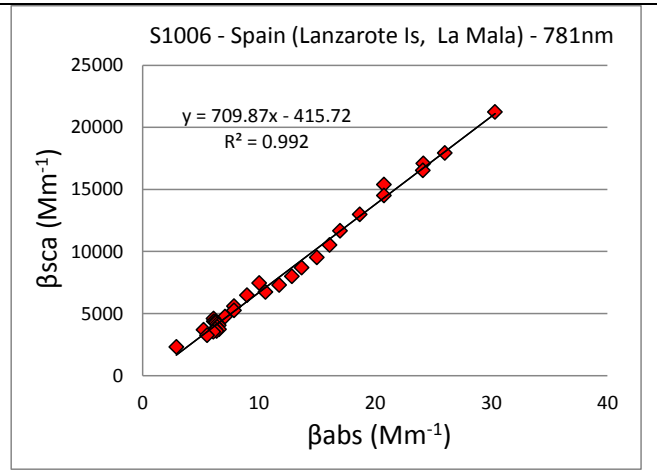
Sample #	Number of Particles	Min	Max	Geom Mean
S1005	1395	1.000	3.754	1.456

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1006, Spain (La Mala, Lanzarote, Canary Islands)

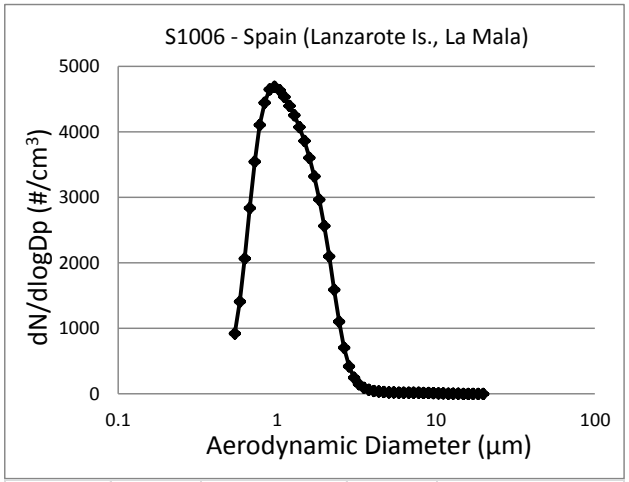






SSA (405nm) = 0.964 SSA (532nm) = 0.992 SSA (781nm) = 0.999

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.128	1.261	1.158	0.953	1.493

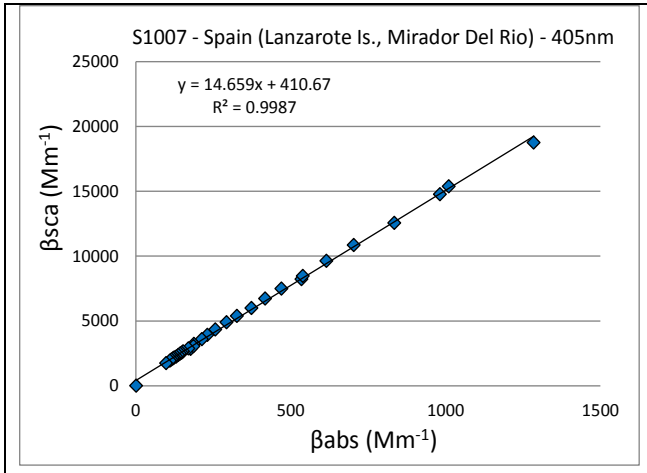
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	11590	10580	2870	2960
$PM_{2.5}/PM_{10}$	0.25	0.26	0.27	0.28
Average	0.26			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	411.6		1396.8	
$PM_{2.5}/PM_{10}$	0.29			

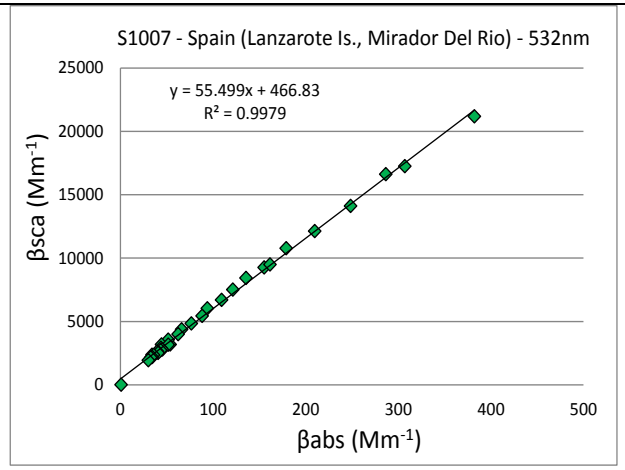
SEM Measured Aspect Ratio

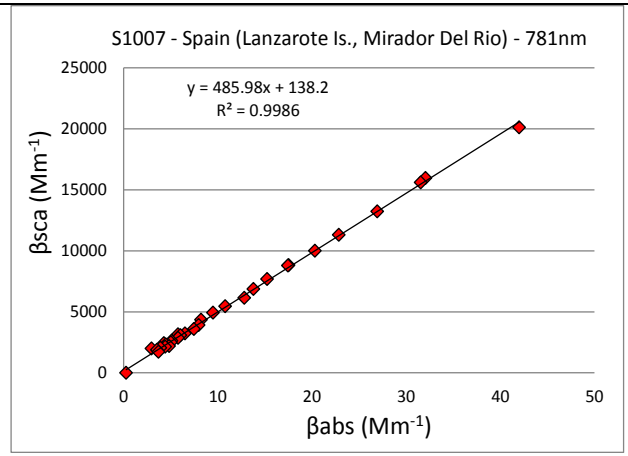
Sample #	Number of Particles	Min	Max	Geom Mean
S1006	1349	1.000	3.875	1.457

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1007, Spain (Mirador del Rio, Lanzarote, Canary Islands)

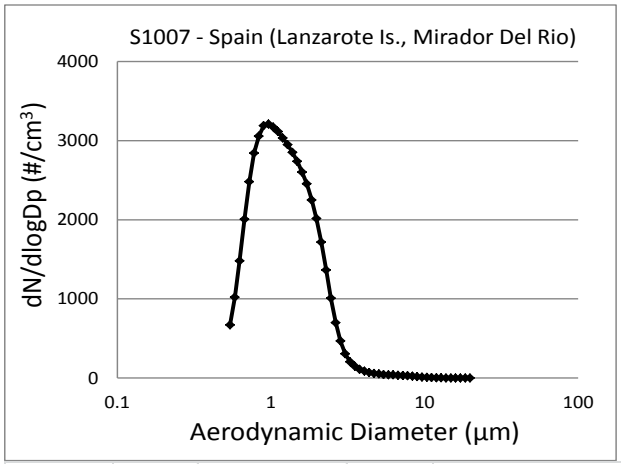






SSA (405nm) = 0.936 SSA (532nm) = 0.982 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.162	1.323	1.197	0.957	1.535

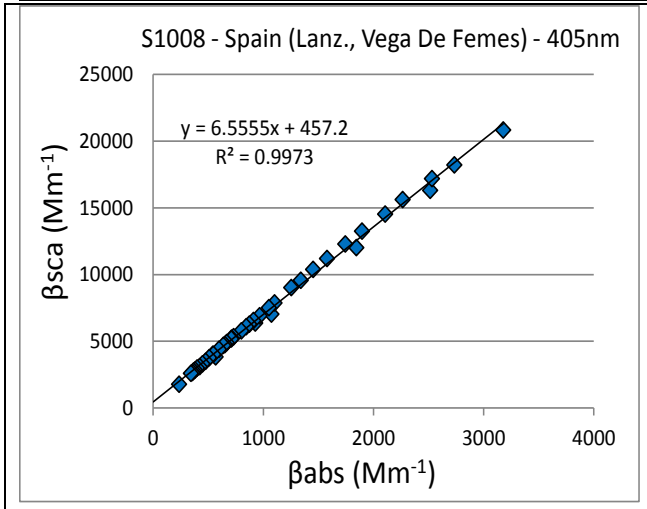
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	10710	9750	2230	2210
$PM_{2.5}/PM_{10}$	0.21	0.21	0.23	0.23
Average	0.22			
Betagauge				
	PM2.5		PM10	
Mass (µg/m^3)	2164.5		10869.1	
$PM_{2.5}/PM_{10}$	0.20			

SEM Measured Aspect Ratio

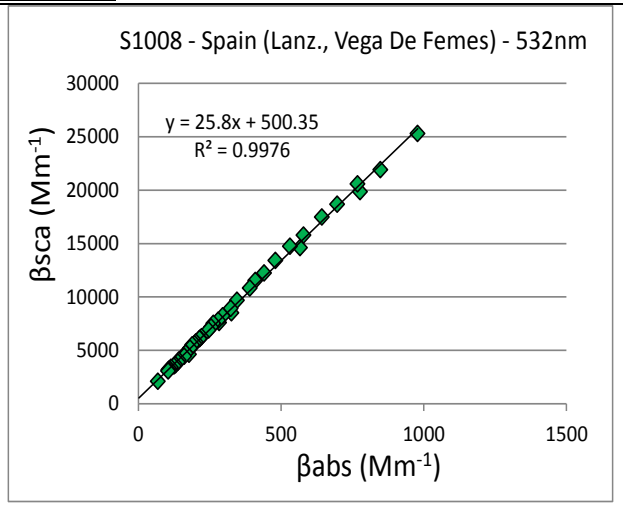
Sample #	Number of Particles	Min	Max	Geom Mean
S1007	1417	1.000	4.142	1.489

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

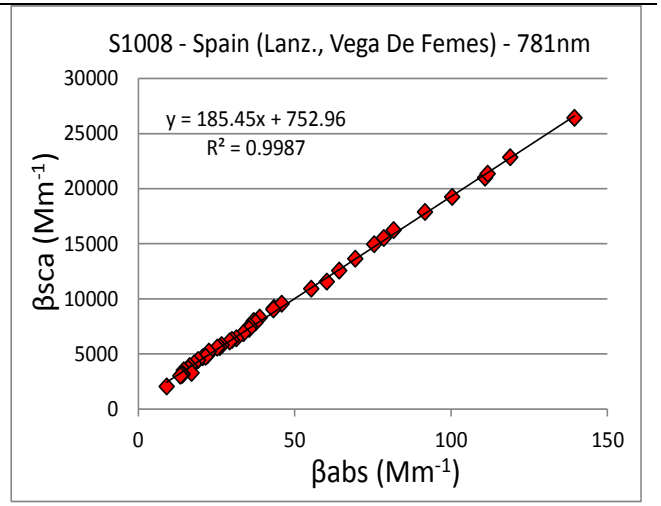
Sample S1008, Spain (Lanzarote, Vega De Femes)



SSA (405nm) = 0.868

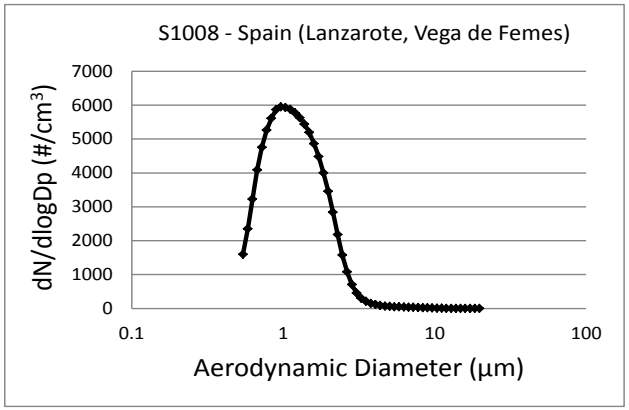


SSA (532nm) = 0.963



SSA (781nm) = 0.995

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.143	1.291	1.172	0.972	1.529

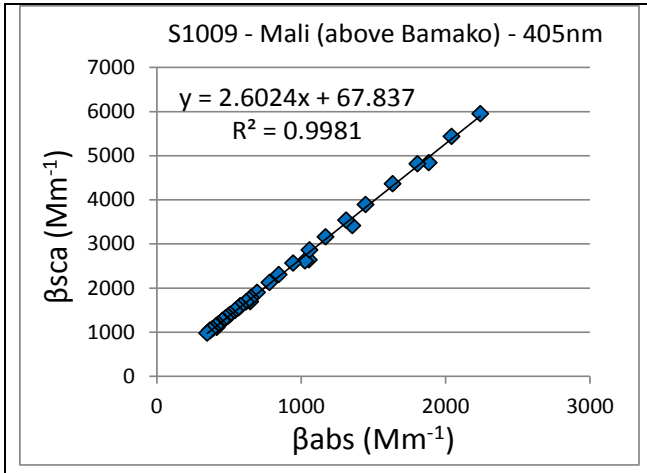
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	5140	4580	1380	1350
$PM_{2.5}/PM_{10}$	0.27	0.30	0.26	0.29
Average	0.28			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	300.2		888.2	
$PM_{2.5}/PM_{10}$	0.34			

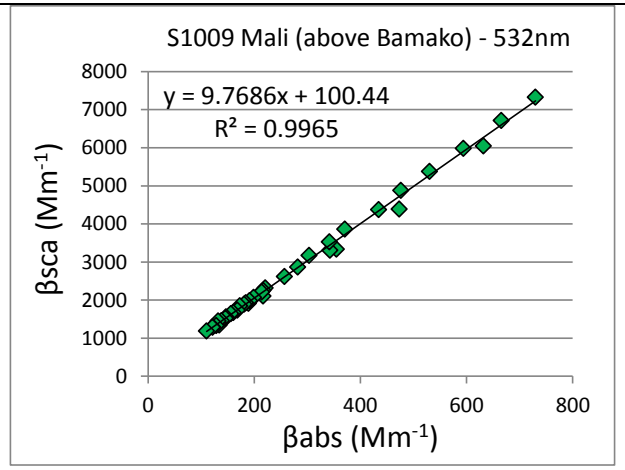
SEM Measured Aspect Ratio

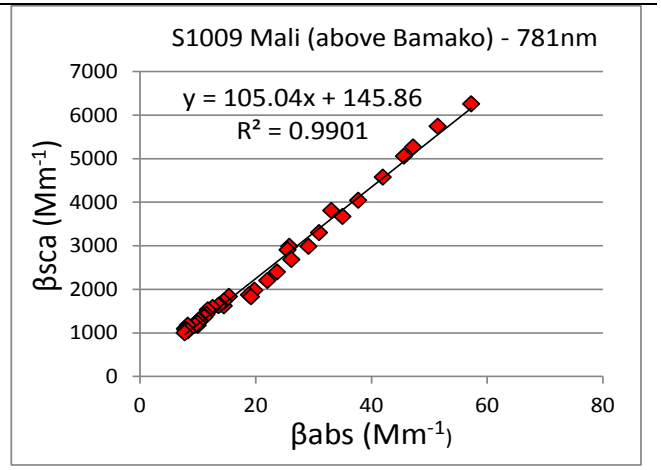
Sample #	Number of Particles	Min	Max	Geom Mean
S1008	1396	1.000	5.286	1.460

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1009, Mali (above Bamako)

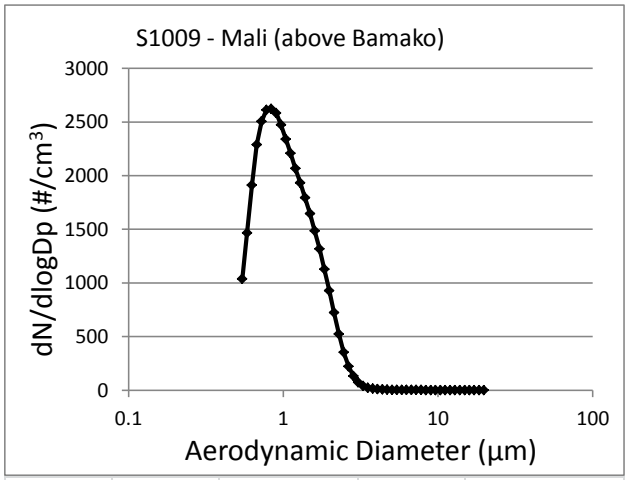






SSA (405nm) = 0.722 SSA (532nm) = 0.907 SSA (781nm) = 0.991

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
0.994	1.125	1.037	0.856	1.482

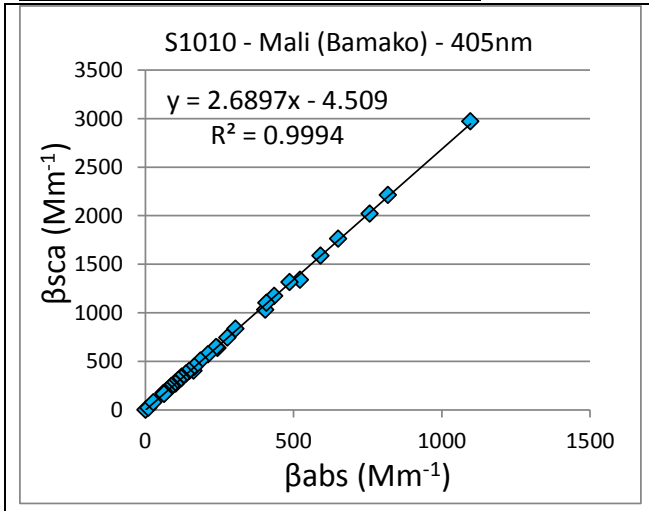
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	4100	3240	1330	1300
$PM_{2.5}/PM_{10}$	0.32	0.32	0.41	0.40
Average	0.36			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m^3)	534		1447	
$PM_{2.5}/PM_{10}$	0.37			

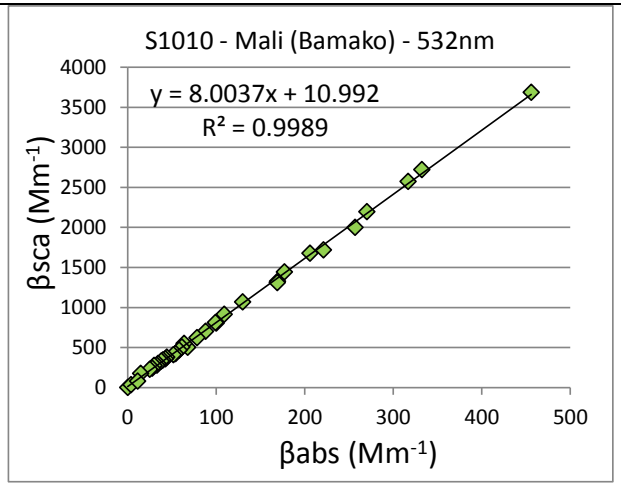
SEM Measured Aspect Ratio

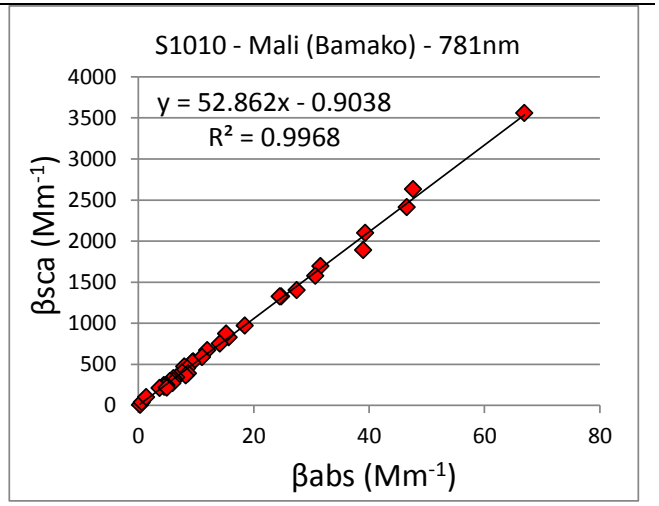
Sample #	Number of Particles	Min	Max	Geom Mean
S1009	1263	1.000	5.300	1.507

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1010, Mali (Bamako)

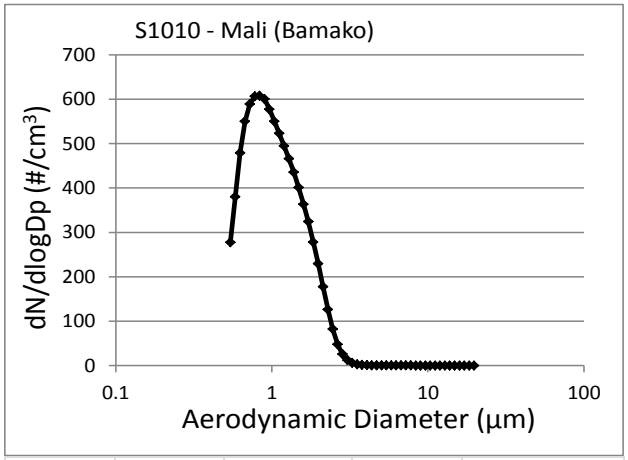






SSA (405nm) = 0.729 SSA (532nm) = 0.889 SSA (781nm) = 0.981

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.004	1.128	1.041	0.849	1.481

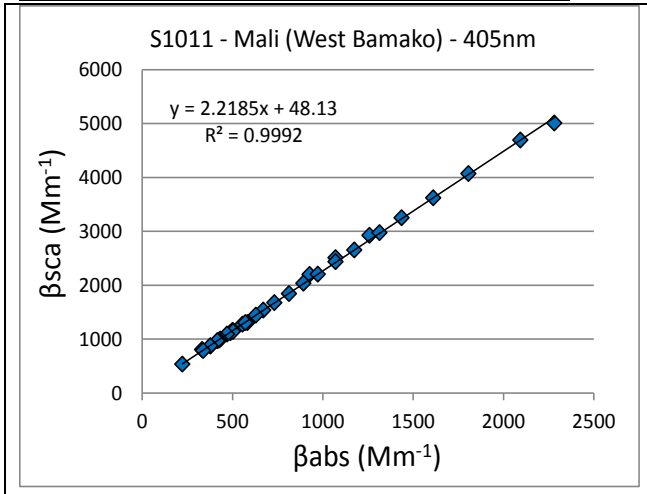
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	1350	1090	380	340
$PM_{2.5}/PM_{10}$	0.28	0.25	0.35	0.31
Average	0.30			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	514		1339	
$PM_{2.5}/PM_{10}$	0.38			

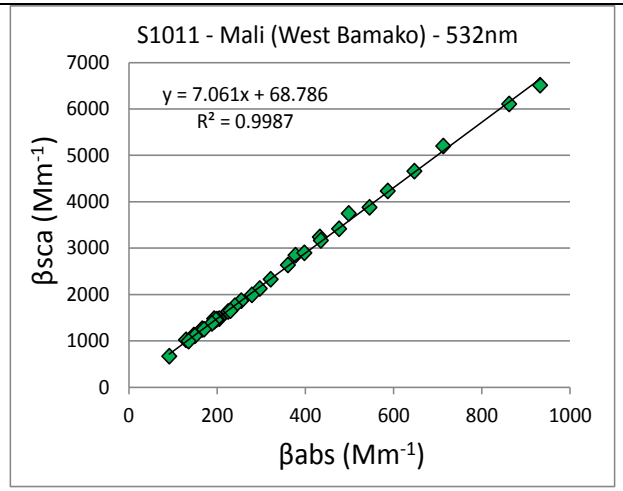
SEM Measured Aspect Ratio

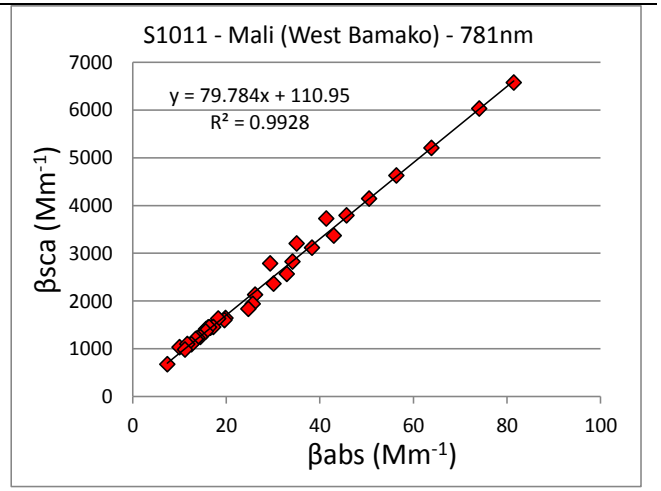
Sample #	Number of Particles	Min	Max	Geom Mean
S1010	1275	1.004	3.922	1.469

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1011, Mali (West Bamako)

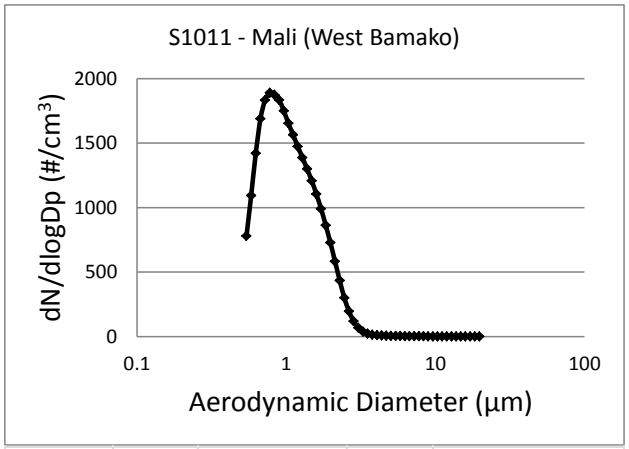






SSA (405nm) = 0.689 SSA (532nm) = 0.876 SSA (781nm) = 0.988

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
0.996	1.140	1.045	0.789	1.499

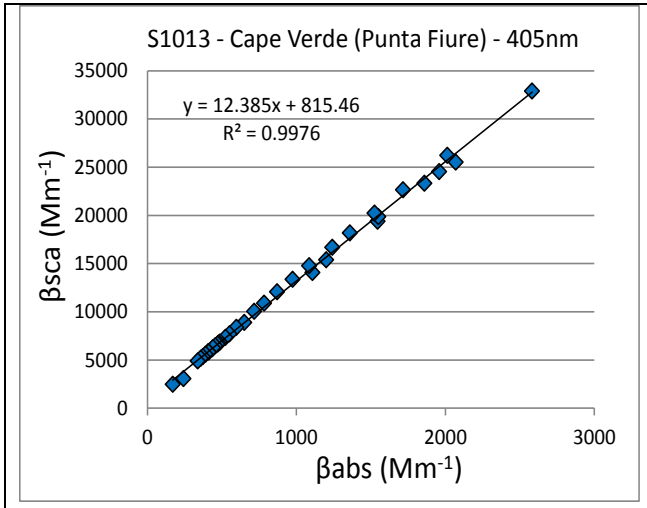
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	2510	2210	800	820
$PM_{2.5}/PM_{10}$	0.32	0.33	0.36	0.37
Average	0.34			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m^3)	409.9		1213.8	
$PM_{2.5}/PM_{10}$	0.34			

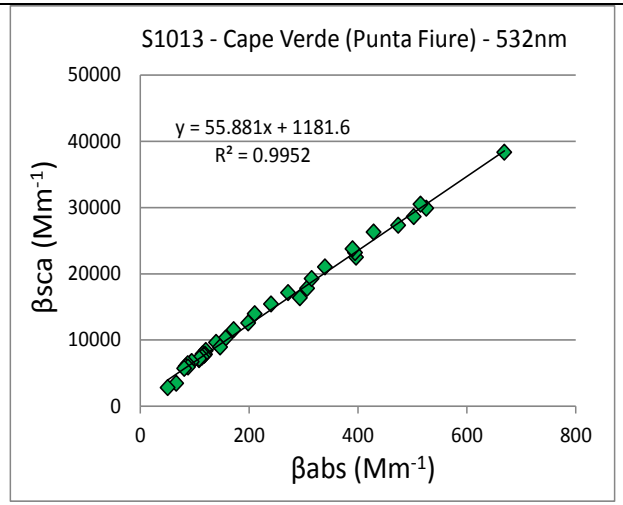
SEM Measured Aspect Ratio

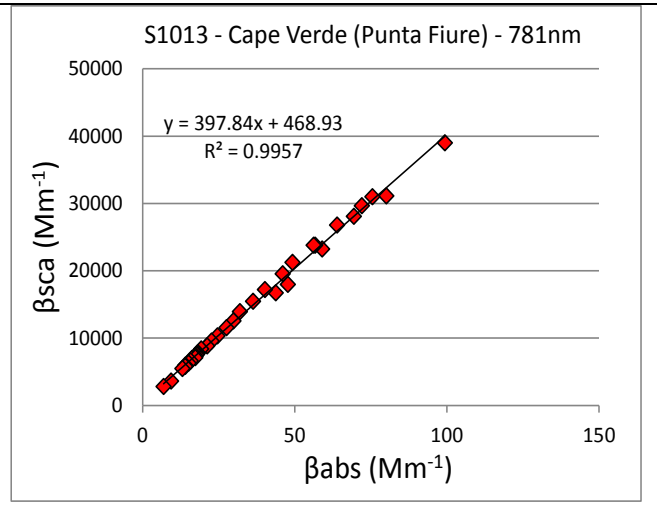
Sample #	Number of Particles	Min	Max	Geom Mean
S1011	1353	1.000	5.014	1.460

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1013, Cape Verde (Punta Fiure)

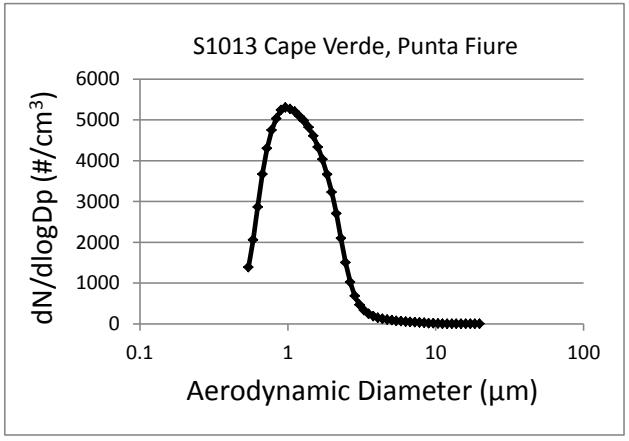






SSA (405nm) = 0.925 SSA (532nm) = 0.982 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.149	1.309	1.182	0.965	1.542

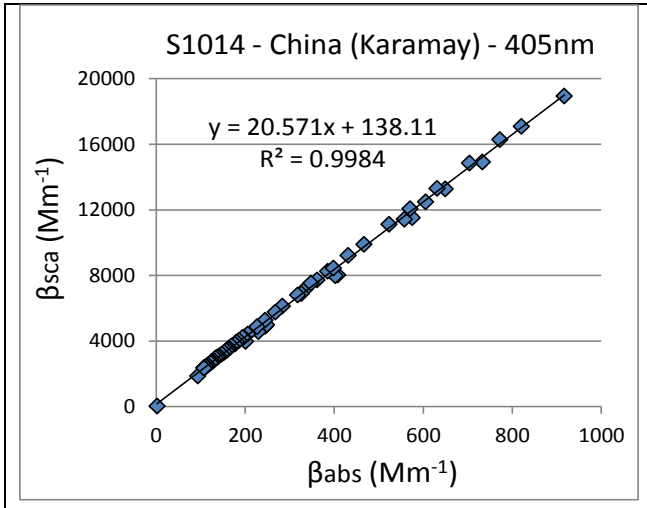
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	19130	16540	5420	5070
$PM_{2.5}/PM_{10}$	0.28	0.33	0.27	0.31
Average	0.30			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	179		793.6	
$PM_{2.5}/PM_{10}$	0.23			

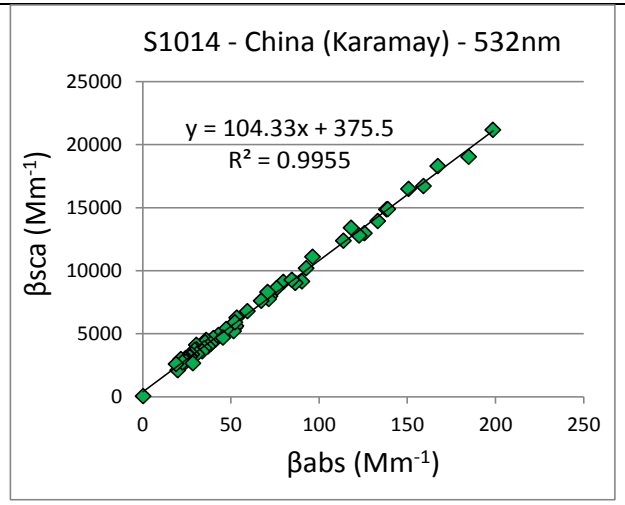
SEM Measured Aspect Ratio

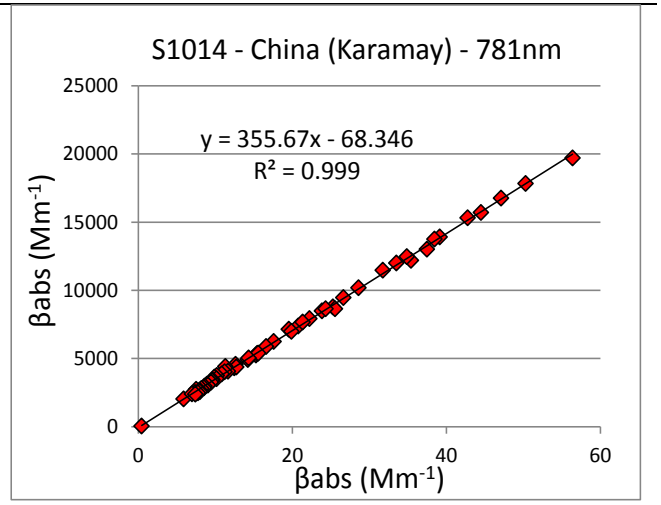
Sample #	Number of Particles	Min	Max	Geom Mean
S1013	1392	1.008	4.160	1.415

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1014, Northwest China (Karamay)

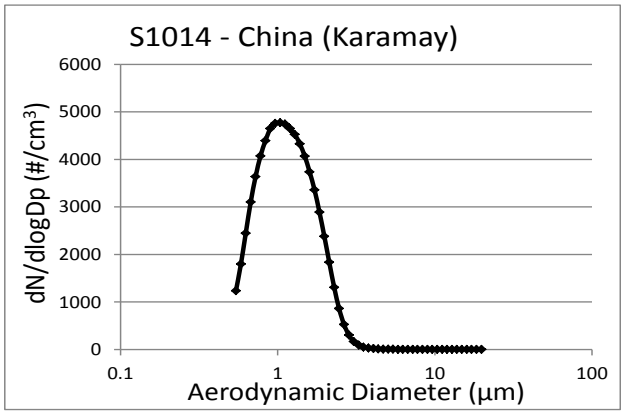






SSA (405nm) = 0.954 SSA (532nm) = 0.991 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median	Mean	Geo. Mean	Mode	Geo. Std. Dev.
(µm)	(µm)	(µm)	(µm)	(µm)
1.117	1.224	1.133	1.030	1.474

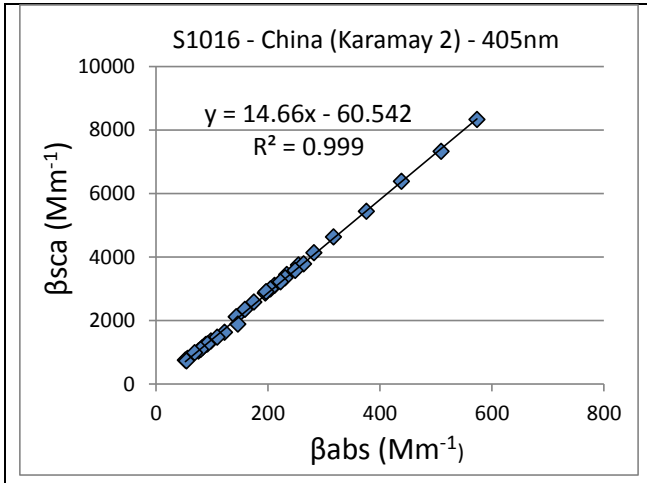
	Teflon Filters			
	PM2.5	PM2.5	PM10	PM10
Mass (µg)	1880	1800	5630	5050
$PM_{2.5}/PM_{10}$	0.33	0.32	0.37	0.36
Average	0.35			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	594		1840	
$PM_{2.5}/PM_{10}$	0.32			

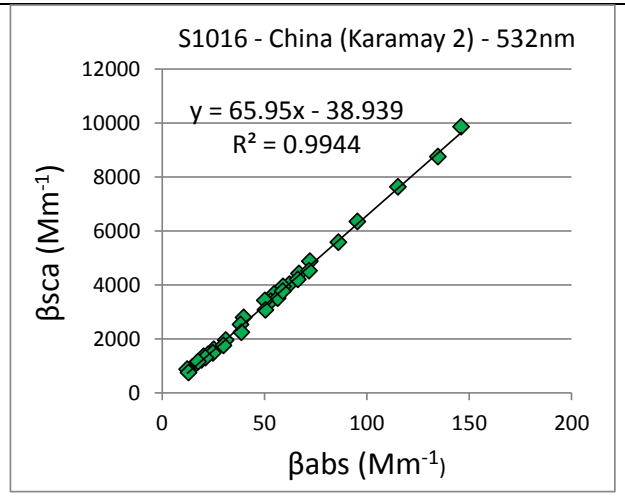
SEM Measured Aspect Ratio

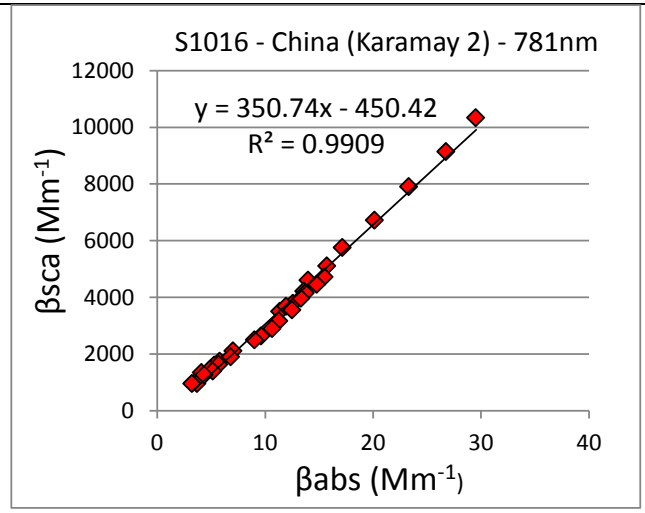
Sample #	Number of Particles	Min	Max	Geom Mean
S1014	2336	1.000	4.570	1.446

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1016, Northwest China (Karamay 2)

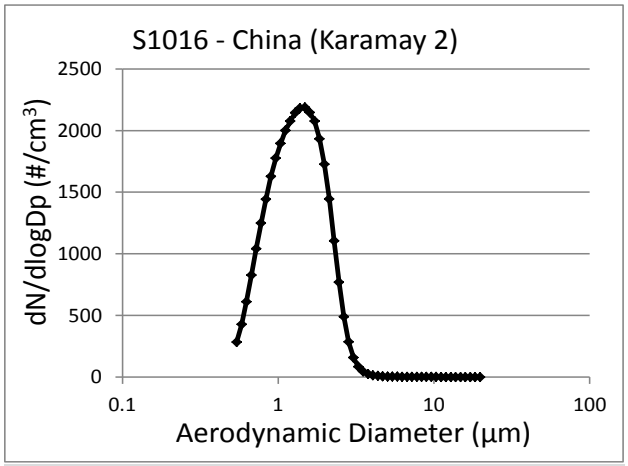






SSA (405nm) = 0.936 SSA (532nm) = 0.985 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.314	1.400	1.297	1.446	1.481

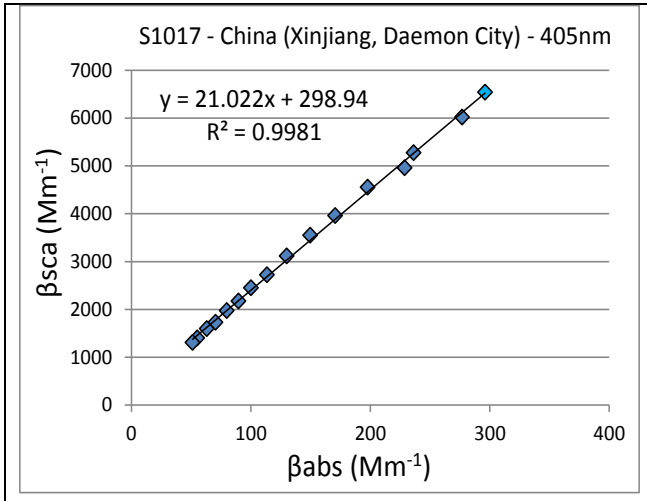
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	5910	5320	1660	1610
$PM_{2.5}/PM_{10}$	0.28	0.28	0.27	0.30
Average	0.28			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	700		3114	
$PM_{2.5}/PM_{10}$	0.22			

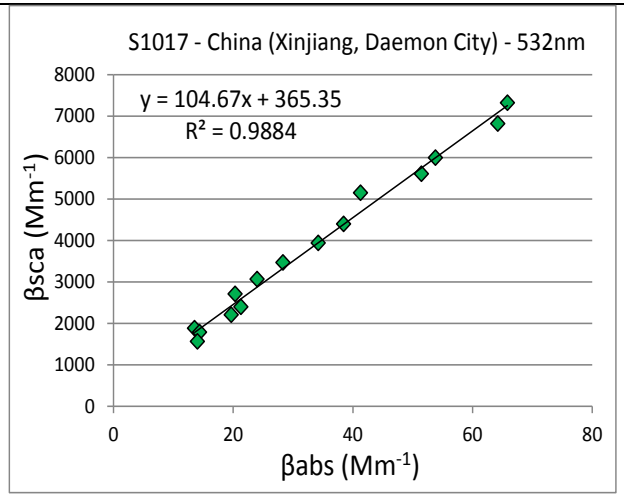
SEM Measured Aspect Ratio

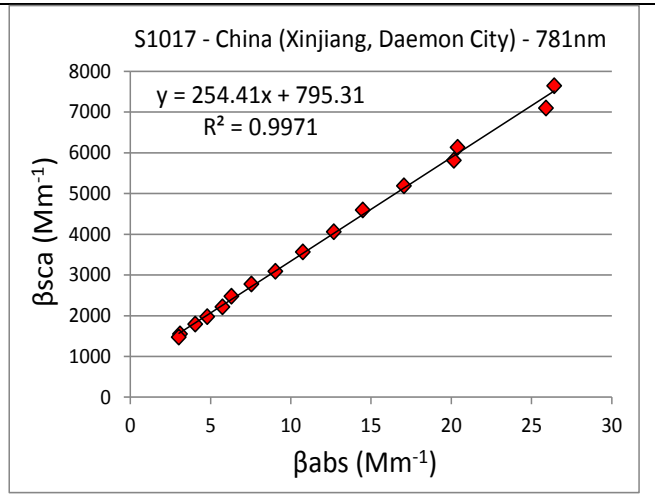
Sample #	Number of Particles	Min	Max	Geom Mean
S1016	2405	1.000	4.035	1.405

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1017, China (Xinjiang, Daemon City)

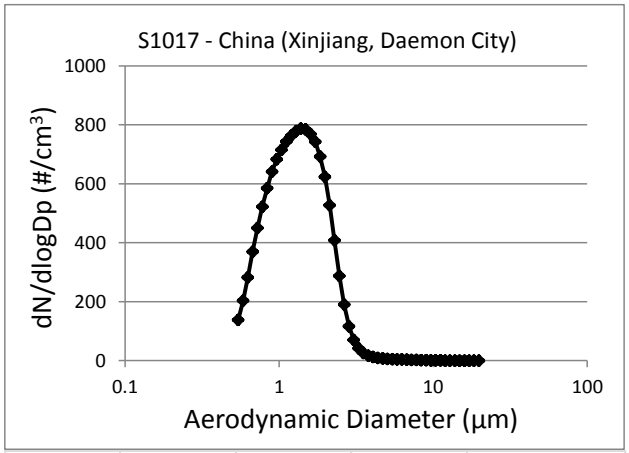






SSA (405nm) = 0.955 SSA (532nm) = 0.991 SSA (781nm) = 0.996

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.298	1.401	1.287	1.431	1.507

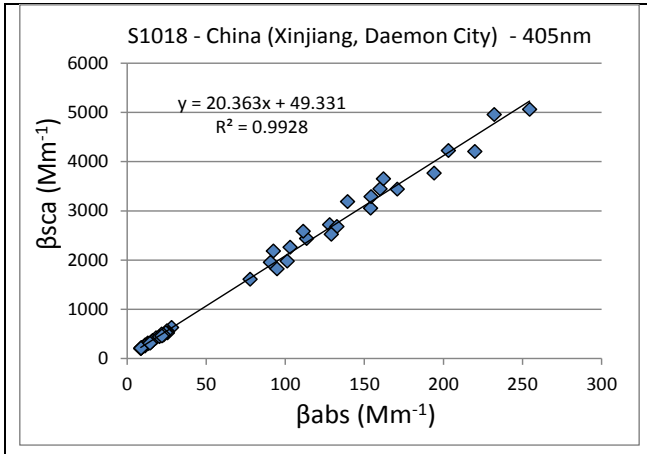
	Teflon Filters			
	PM 10	PM 10	PM 2.5	PM 2.5
Mass (µg)	1700	1900	450	390
$PM_{2.5}/PM_{10}$	0.23	0.21	0.26	0.24
Average	0.23			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	577.9		2562.1	
$PM_{2.5}/PM_{10}$	0.23			

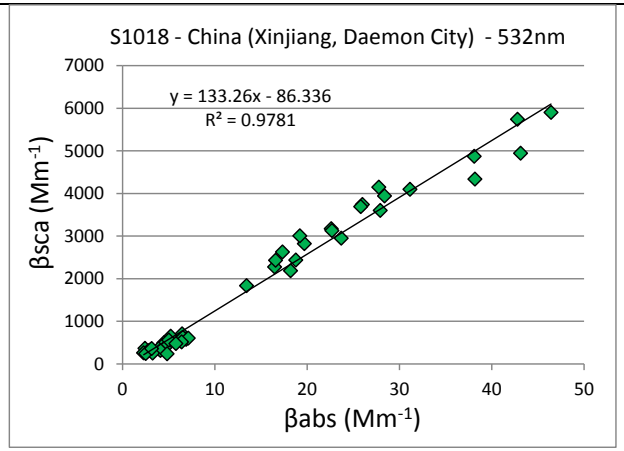
SEM Measured Aspect Ratio

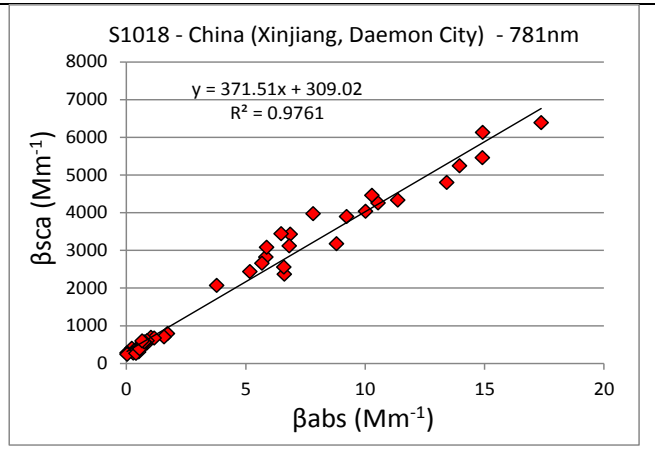
Sample #	Number of Particles	Min	Max	Geom Mean
S1017	1318	1.000	4.525	1.473

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1018, China (Xinjiang, Daemon City), 2nd sample

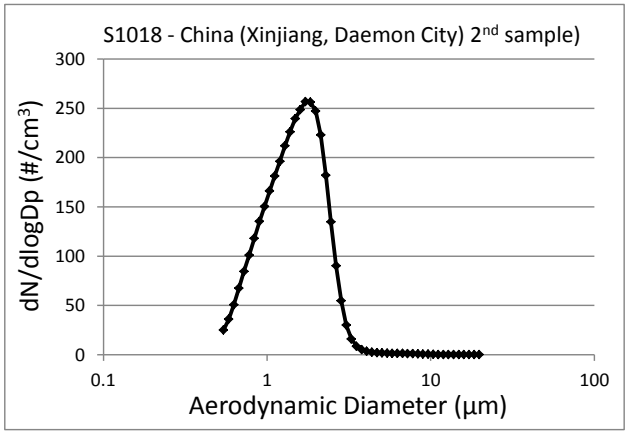






SSA (405nm) = 0.953 SSA (532nm) = 0.993 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.474	1.539	1.421	1.769	1.497

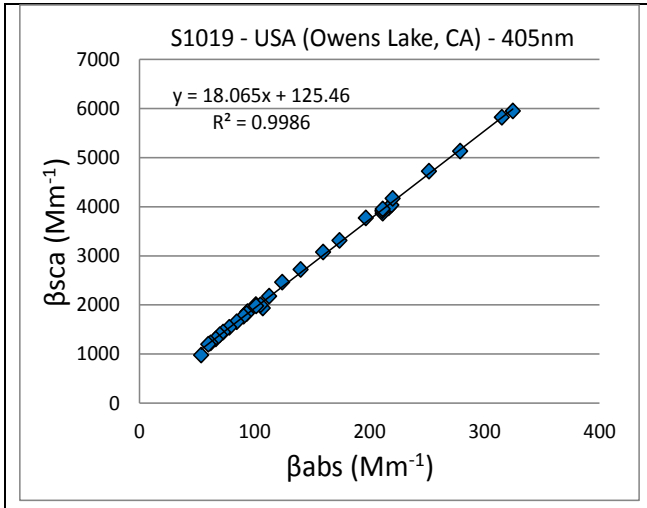
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	1410	1490	290	260
$PM_{2.5}/PM_{10}$	0.21	0.18	0.19	0.17
Average	0.19			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	588		2628	
$PM_{2.5}/PM_{10}$	0.22			

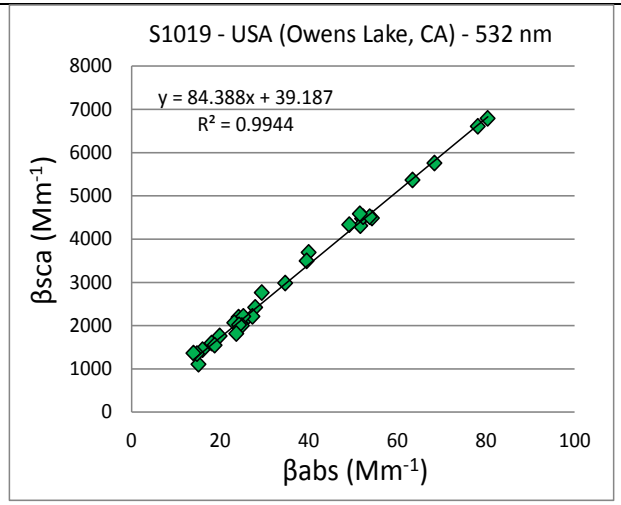
SEM Measured Aspect Ratio

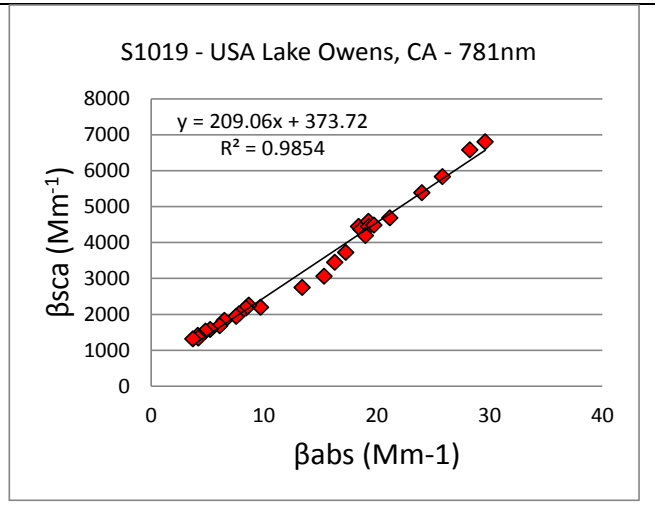
Sample #	Number of Particles	Min	Max	Geom Mean
S1018	2418	1.000	6.711	1.407

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1019, USA (Owens Lake, CA)

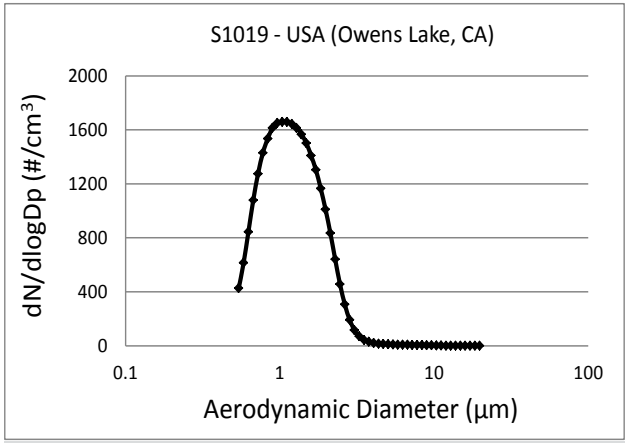






SSA (405nm) = 0.948 SSA (532nm) = 0.988 SSA (781nm) = 0.995

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.158	1.289	1.179	1.059	1.513

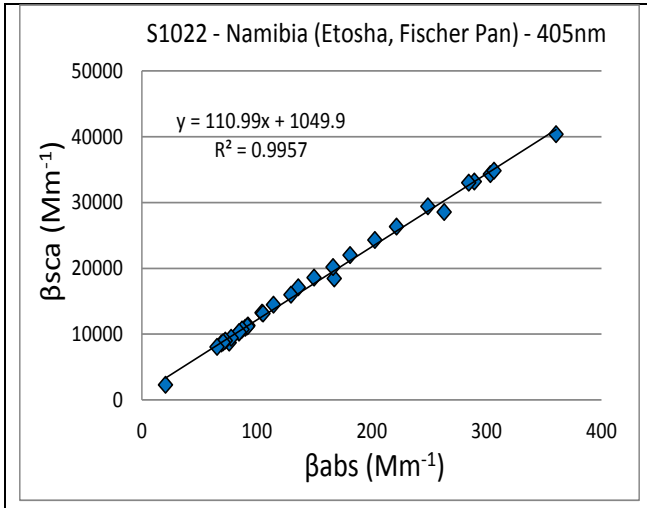
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	6210	5190	1170	1150
$PM_{2.5}/PM_{10}$	0.19	0.19	0.23	0.22
Average	0.21			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	369.1		1613.2	
$PM_{2.5}/PM_{10}$	0.23			

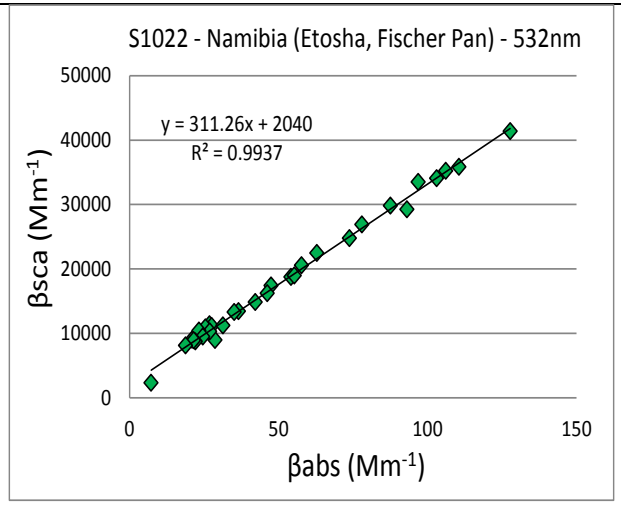
SEM Measured Aspect Ratio

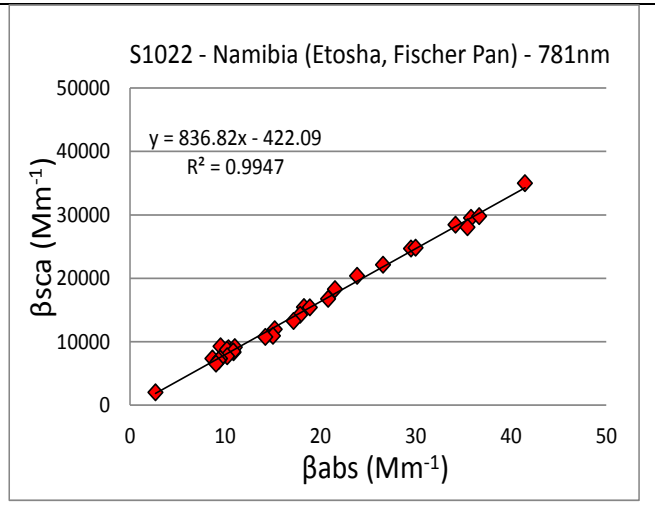
Sample #	Number of Particles	Min	Max	Geom Mean
S1019	1302	1.005	5.285	1.494

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1022, Namibia (Etosha, Fischer Pan)

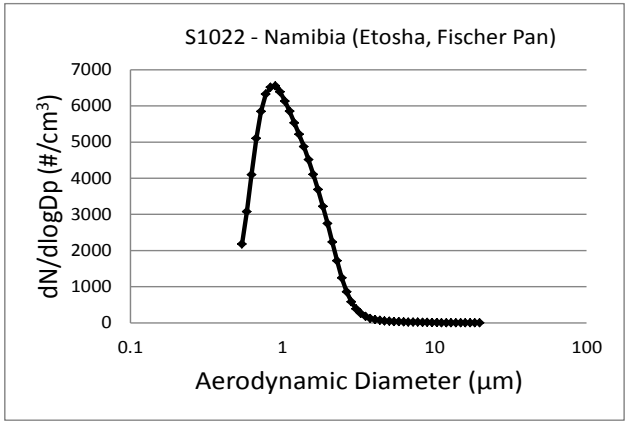






SSA (405nm) = 0.991 SSA (532nm) = 0.997 SSA (781nm) = 0.999

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.044	1.199	1.092	0.880	1.515

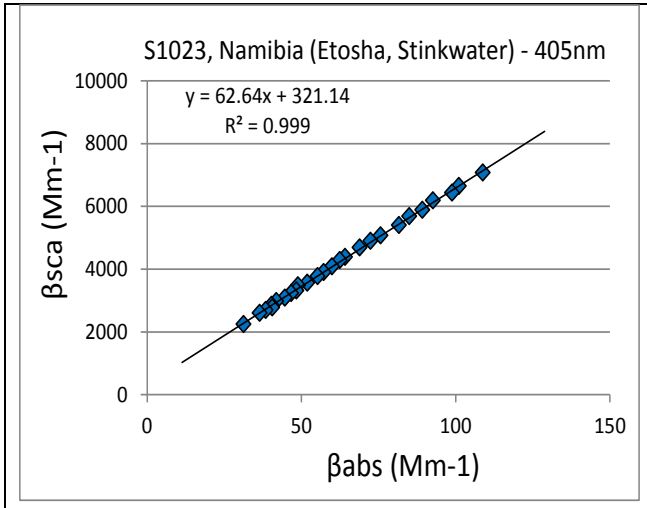
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	14130	13030	5060	4870
$PM_{2.5}/PM_{10}$	0.36	0.34	0.39	0.37
Average	0.37			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	215.7		605.4	
$PM_{2.5}/PM_{10}$	0.36			

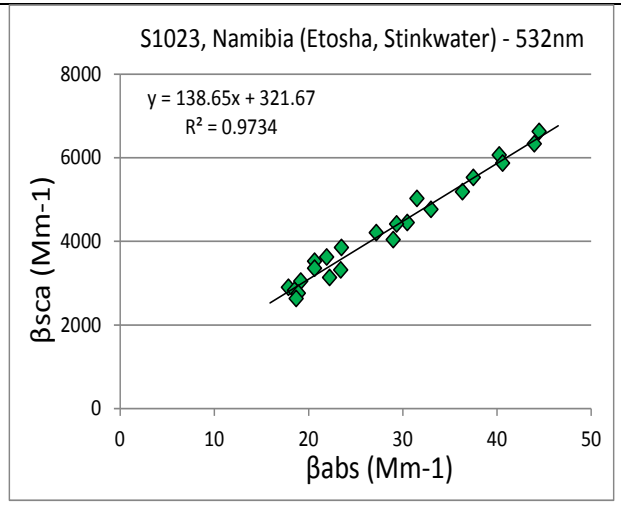
SEM Measured Aspect Ratio

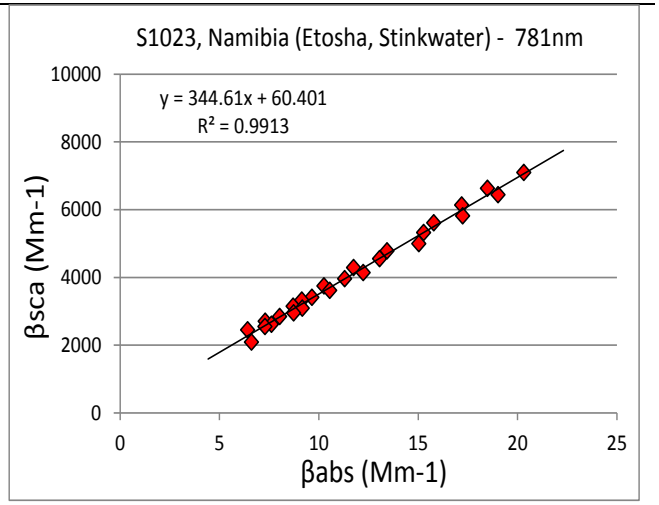
Sample #	Number of Particles	Min	Max	Geom Mean
S1022	1331	1.000	3.833	1.510

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1023, Namibia (Etosha, Stinkwater)

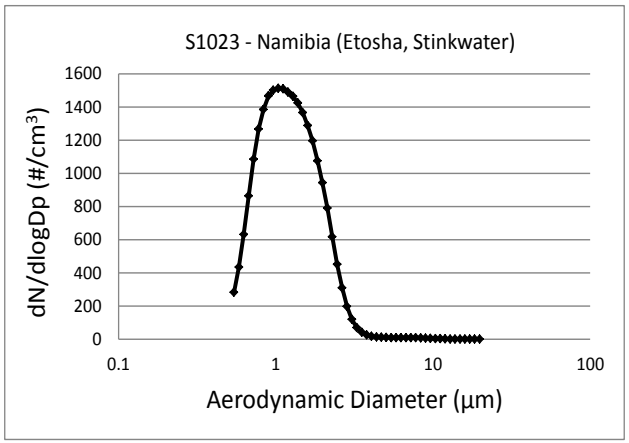






SSA (405nm) = 0.984 SSA (532nm) = 0.993 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median	Mean	Geo. Mean	Mode	Geo. Std. Dev.
(µm)	(µm)	(µm)	(µm)	(µm)
1.184	1.321	1.206	1.056	1.514

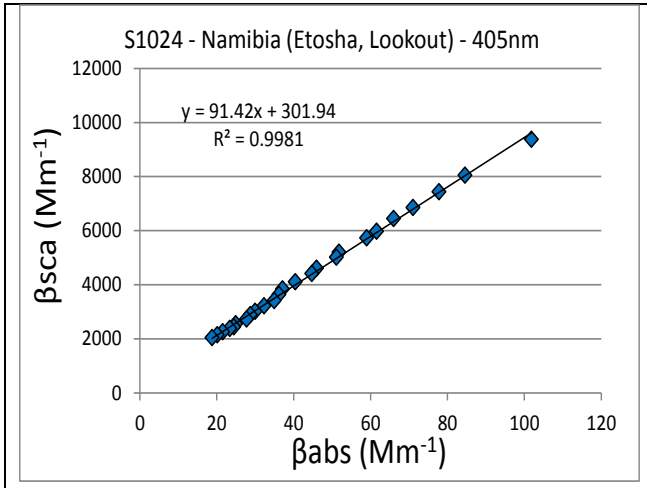
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	2140	2250	580	650
$PM_{2.5}/PM_{10}$	0.27	0.30	0.26	0.29
Average	0.28			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	1119.6		4316.4	
$PM_{2.5}/PM_{10}$	0.26			

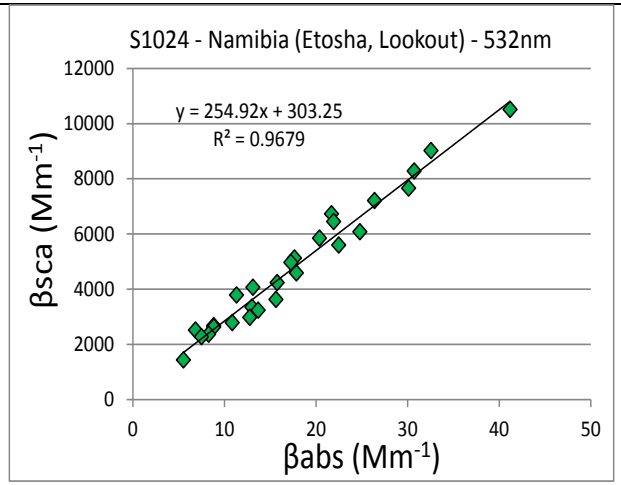
SEM Measured Aspect Ratio

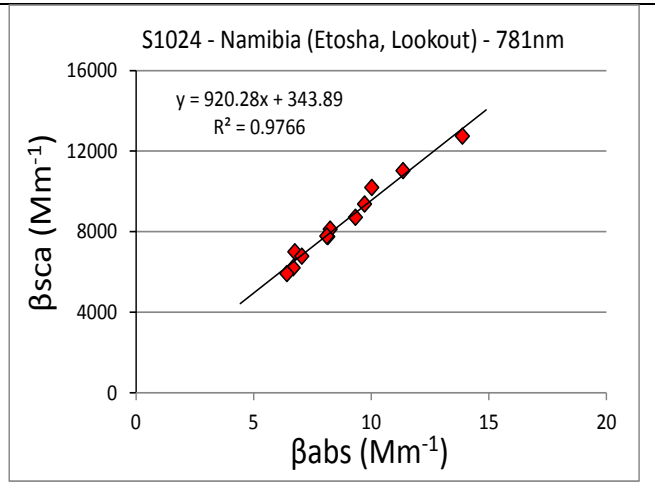
Sample #	Number of Particles	Min	Max	Geom Mean
S1023	1400	1.000	3.922	1.457

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1024, Namibia (Etosha, Lookout)

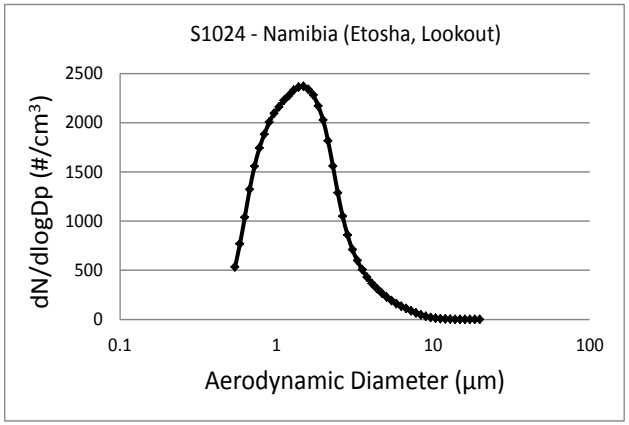






SSA (405nm) = 0.989 SSA (532nm) = 0.996 SSA (781nm) = 0.999

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.331	1.566	1.363	1.415	1.650

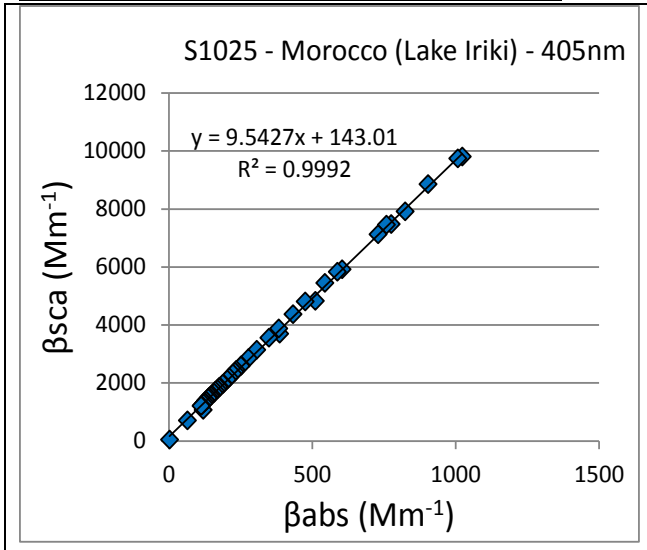
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	11050	8550	1730	1570
$PM_{2.5}/PM_{10}$	0.16	0.14	0.20	0.18
Average	0.17			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	487.9		3052.8	
$PM_{2.5}/PM_{10}$	0.16			

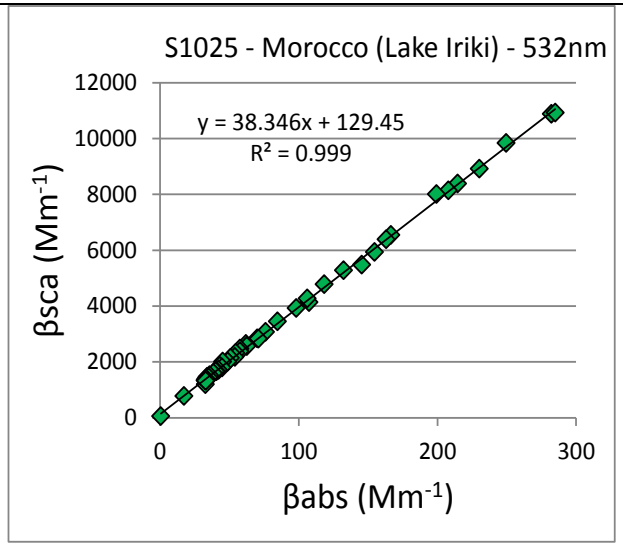
SEM Measured Aspect Ratio

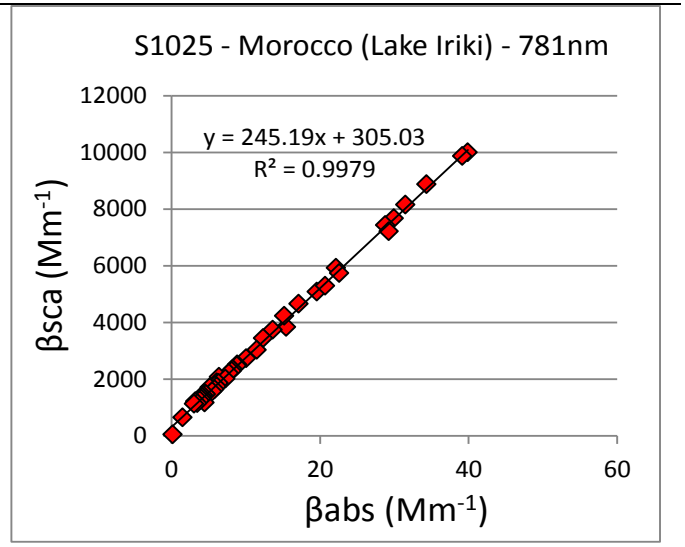
Sample #	Number of Particles	Min	Max	Geom Mean
S1024	1389	1.000	4.024	1.514

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1025, Morocco (Lake Iriki)

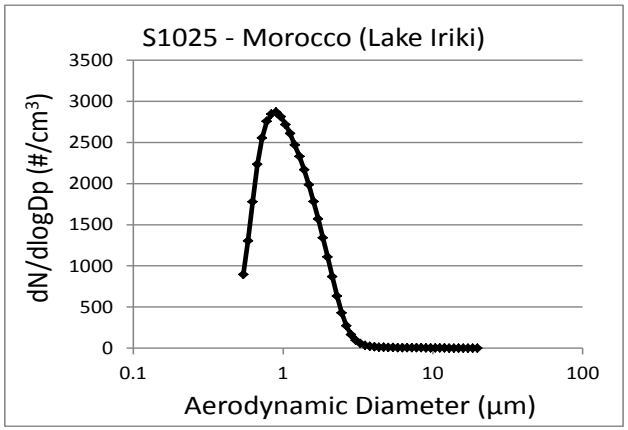






SSA (405nm) = 0.905 SSA (532nm) = 0.975 SSA (781nm) = 0.996

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median	Mean	Geo. Mean	Mode	Geo. Std. Dev.
(µm)	(µm)	(µm)	(µm)	(µm)
1.029	1.159	1.068	0.883	1.481

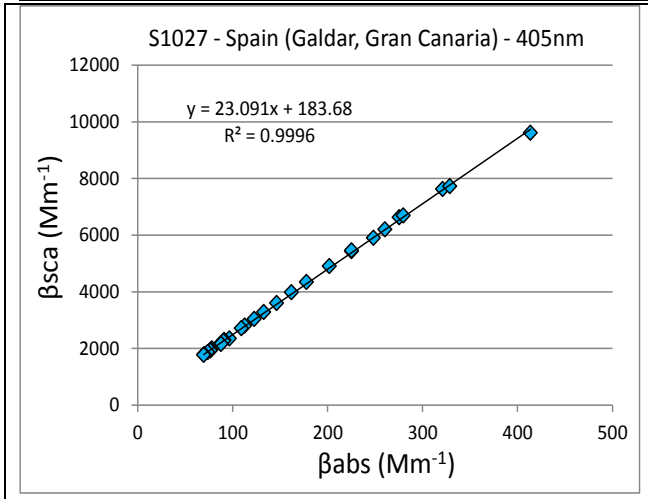
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	4460	3590	1320	1220
$PM_{2.5}/PM_{10}$	0.30	0.27	0.37	0.34
Average	0.32			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	712		2590	
$PM_{2.5}/PM_{10}$	0.27			

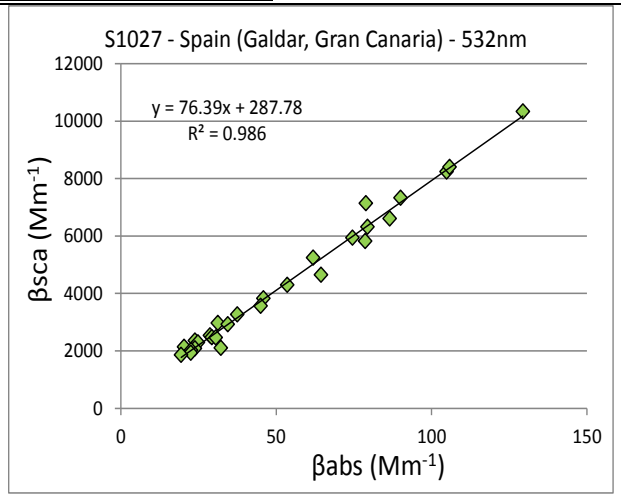
SEM Measured Aspect Ratio

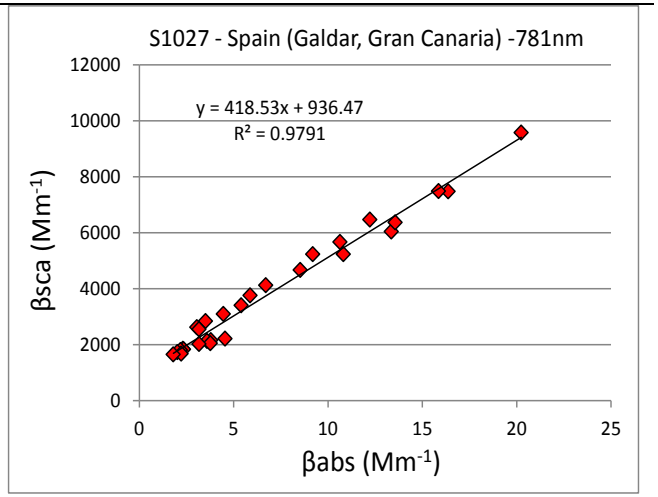
Sample #	Number of Particles	Min	Max	Geom Mean
S1025	1328	1.008	5.461	1.493

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1027, Spain (Canary islands, Galdar, Gran Canaria)

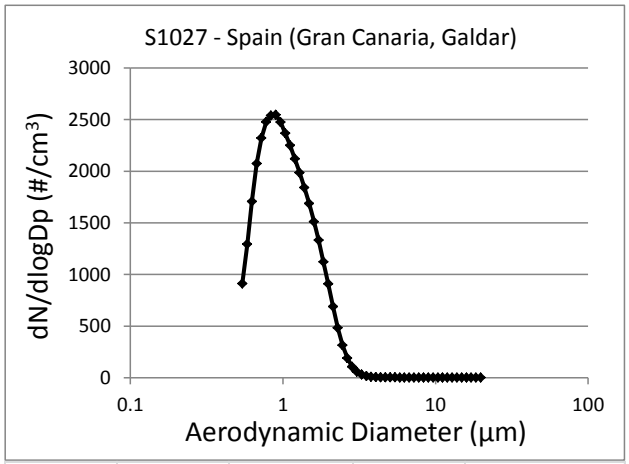






SSA (405nm) = 0.958 SSA (532nm) = 0.987 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.010	1.131	1.047	0.876	1.470

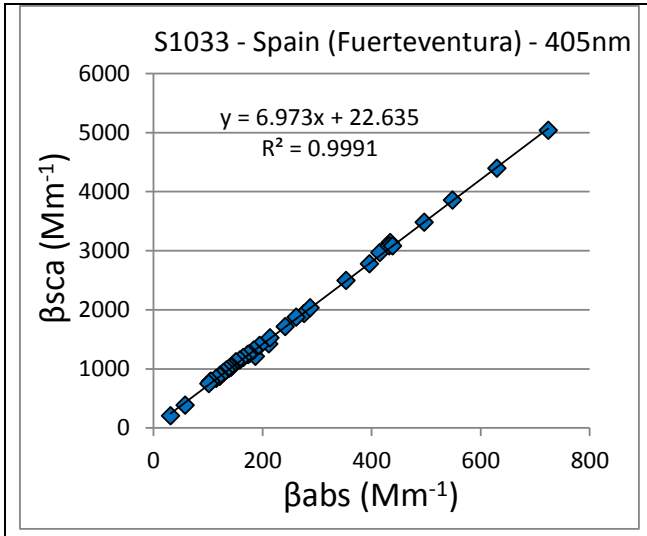
	Teflon Filters			
	PM 10	PM 10	PM 2.5	PM 2.5
Mass (µg)	5460	4540	1410	1310
PM2.5/PM10	0.26	0.24	0.31	0.29
Average	0.27			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m3)	478		1801.1	
PM2.5/PM10	0.27			

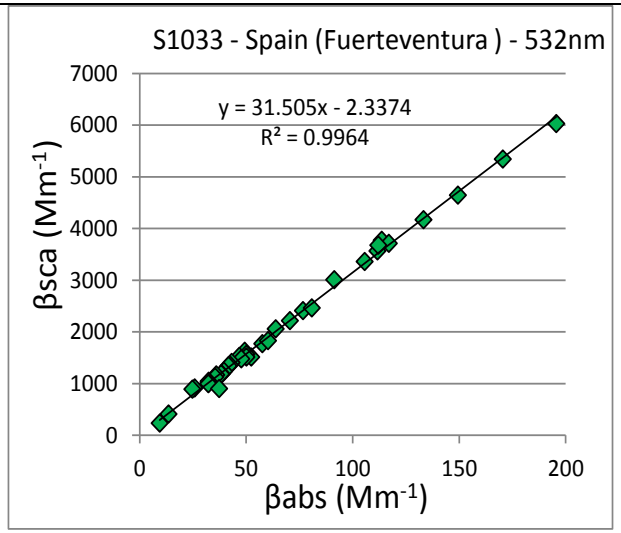
SEM Measured Aspect Ratio

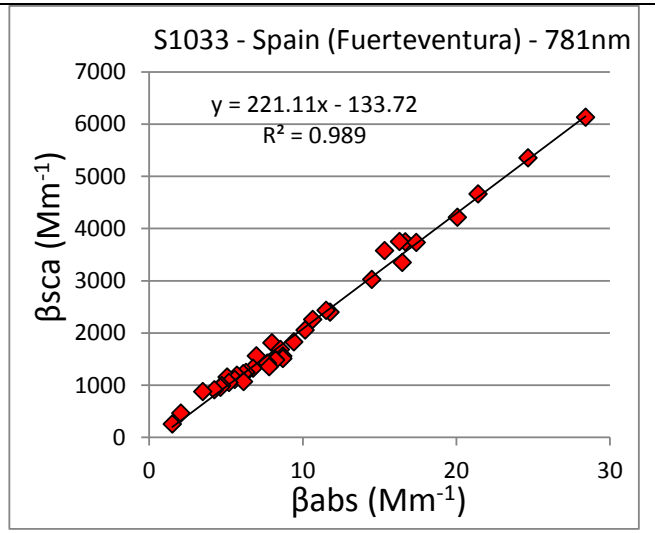
Sample #	Number of Particles	Min	Max	Geom Mean
S1027	1383	1.000	3.691	1.506

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1033, Spain (Canary Islands, Fuerteventura, Pozo Negro)

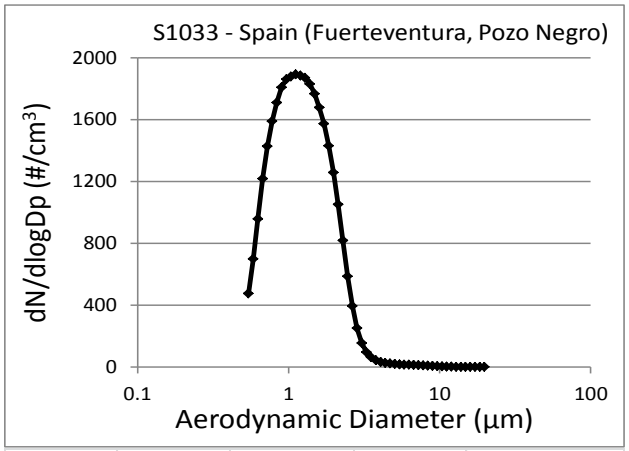






SSA (405nm) = 0.875 SSA (532nm) = 0.969 SSA (781nm) = 0.995

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.189	1.323	1.205	1.151	1.525

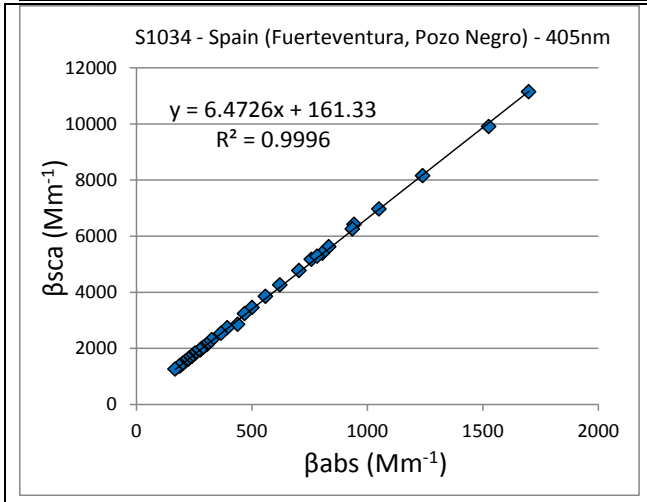
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	4420	3720	800	890
$PM_{2.5}/PM_{10}$	0.18	0.20	0.22	0.24
Average	0.21			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	419		2144	
$PM_{2.5}/PM_{10}$	0.20			

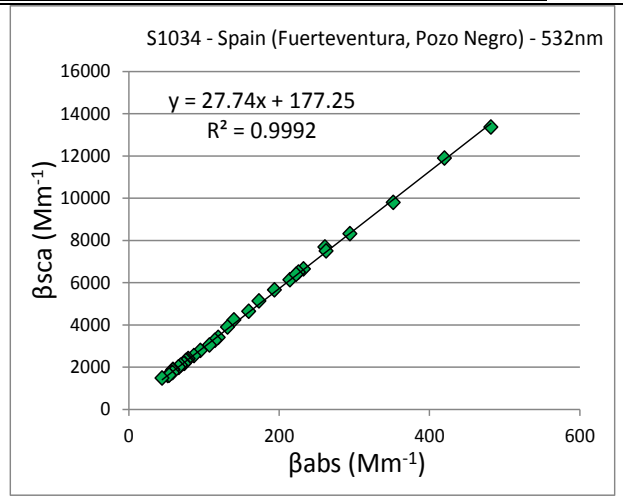
SEM Measured Aspect Ratio

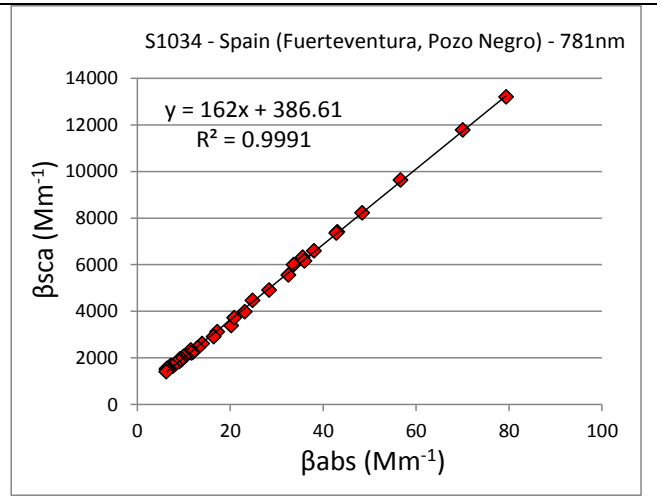
Sample #	Number of Particles	Min	Max	Geom Mean
S1033	1186	1.000	5.232	1.497

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1034, Spain (Canary Islands, Pozo Negro, Fuerteventura) 2nd Sample

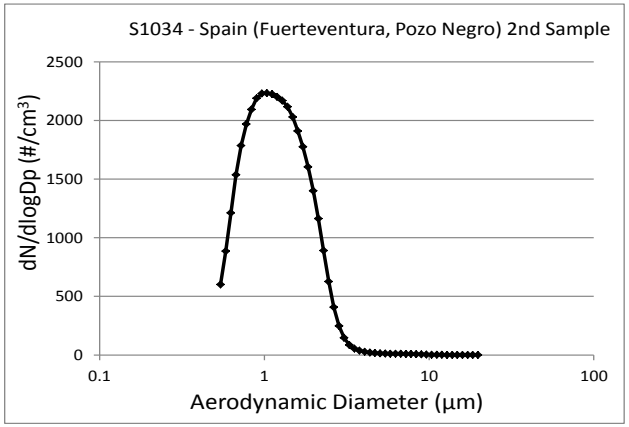






SSA (405nm) = 0.866 SSA (532nm) = 0.965 SSA (781nm) = 0.994

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.147	1.275	1.167	1.030	1.512

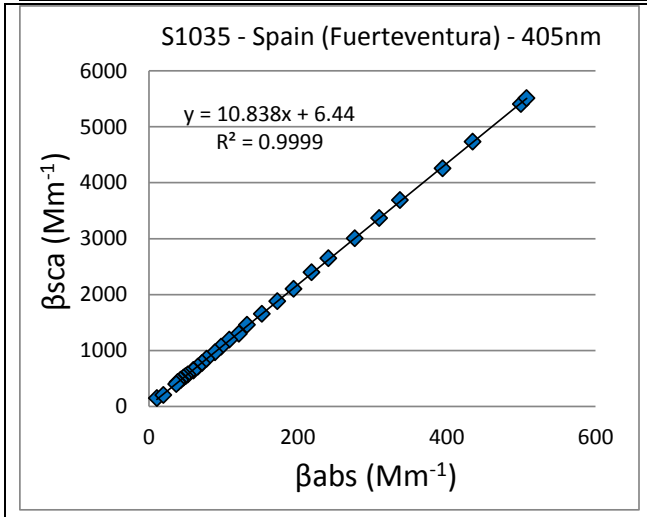
	Teflon Filters			
	PM 10	PM 10	PM 2.5	PM 2.5
Mass (µg)	7890	6750	1530	1500
PM2.5/PM10	0.19	0.19	0.23	0.22
Average	0.21			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m3)	453.7		2544.3	
PM2.5/PM10	0.18			

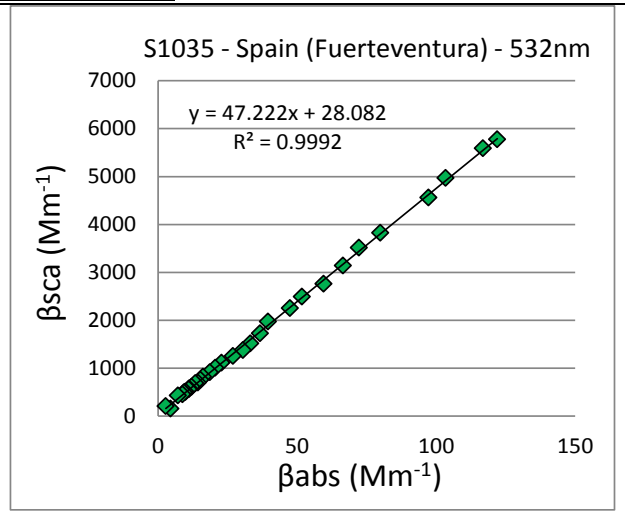
SEM Measured Aspect Ratio

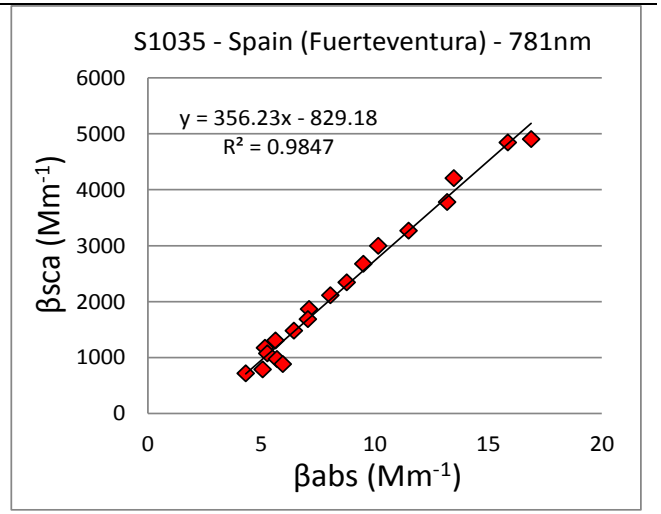
Sample #	Number of Particles	Min	Max	Geom Mean
S1034	1826	1.006	8.500	1.586

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1035, Spain (Fuerteventura, La Ampuyenta)

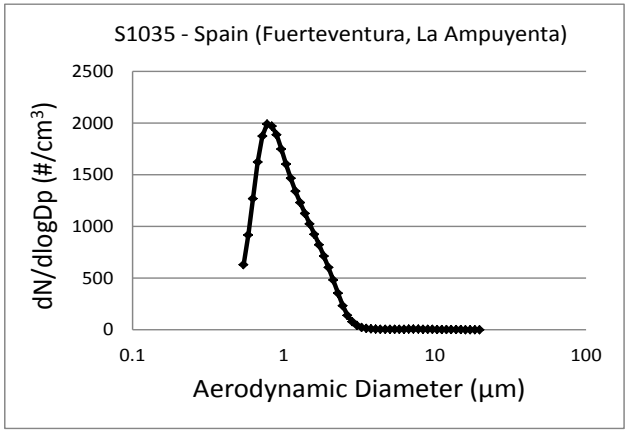






SSA (405nm) = 0.916 SSA (532nm) = 0.979 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
0.961	1.104	1.018	0.777	1.473

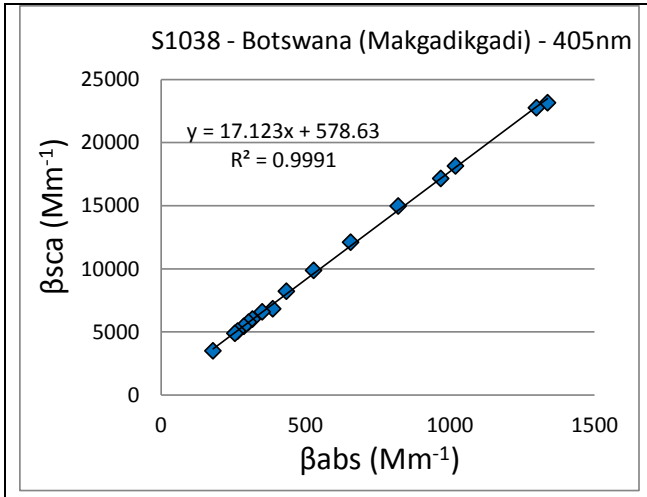
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	2210	2000	520	500
$PM_{2.5}/PM_{10}$	0.24	0.23	0.26	0.25
Average	0.24			
Betagauge				
	PM2.5		PM10	
Mass (µg/m^3)	528.2		1638	
$PM_{2.5}/PM_{10}$	0.32			

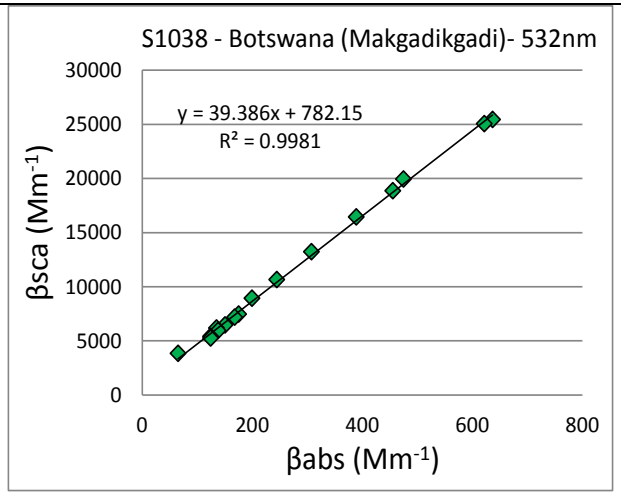
SEM Measured Aspect Ratio

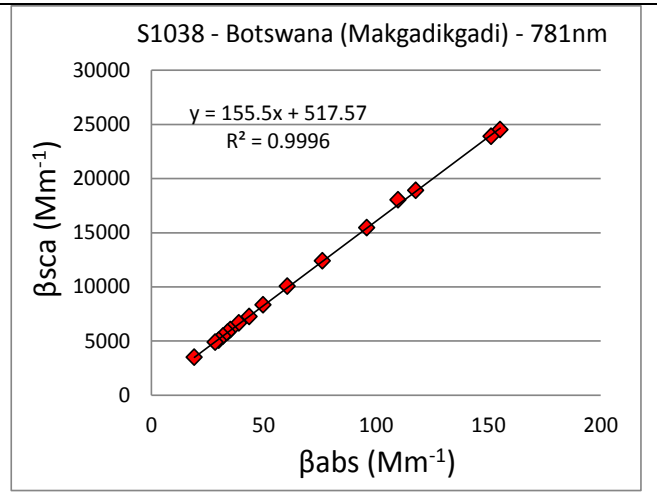
Sample #	Number of Particles	Min	Max	Geom Mean
S1035	1355	1.000	6.771	1.464

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1038, Botswana (Makgadikgadi Pan, Mopipi)

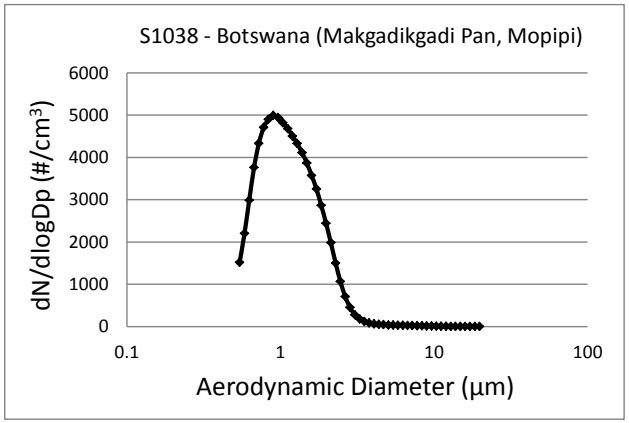






SSA (405nm) = 0.945 SSA (532nm) = 0.975 SSA (781nm) = 0.994

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.085	1.228	1.121	0.918	1.511

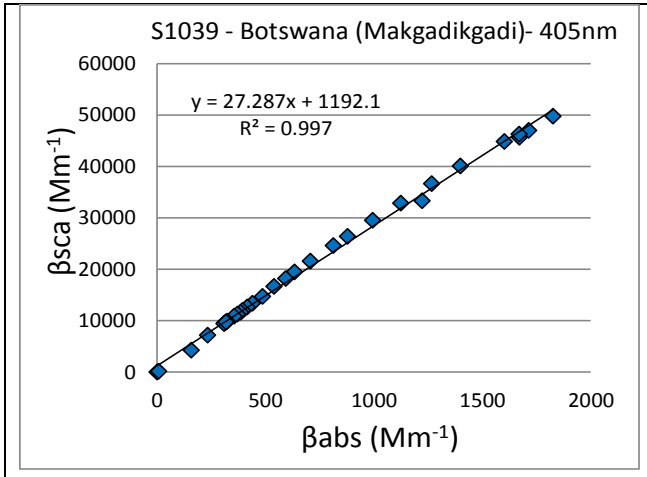
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	10630	9400	3160	3030
$PM_{2.5}/PM_{10}$	0.30	0.29	0.34	0.32
Average	0.31			
Betagauge				
	PM2.5		PM10	
Mass (µg/m^3)	210.1		642.7	
$PM_{2.5}/PM_{10}$	0.33			

SEM Measured Aspect Ratio

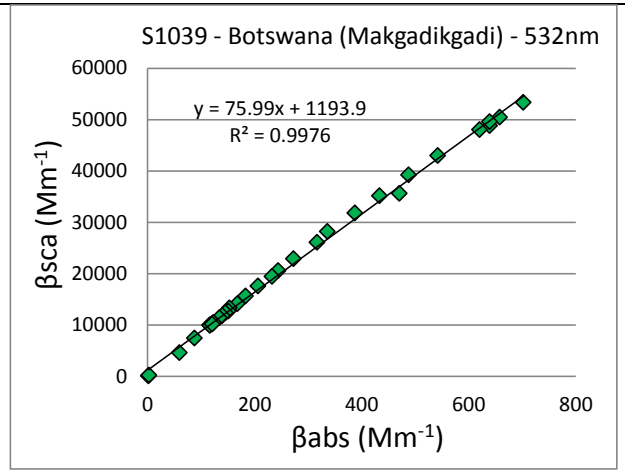
Sample #	Number of Particles	Min	Max	Geom Mean
S1038	1340	1.000	3.815	1.478

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

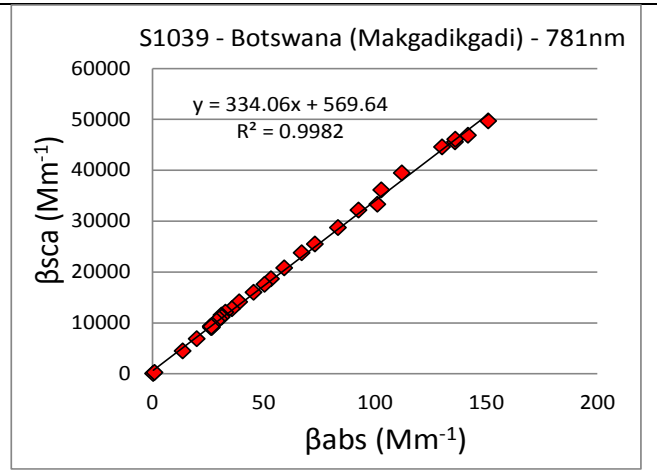
Sample S1039, Botswana (Makgadikgadi Pan,Rakops)



SSA (405nm) = 0.965

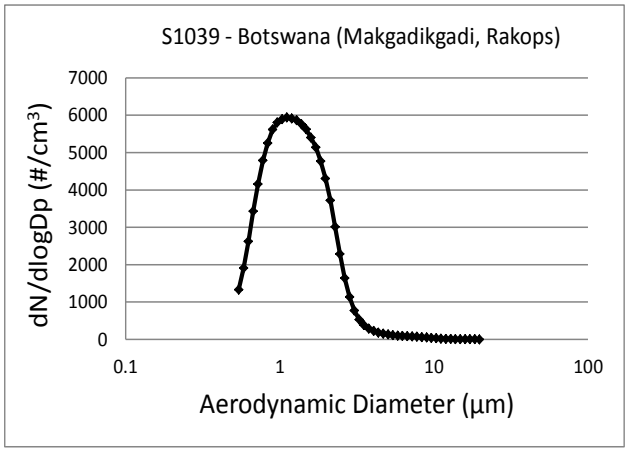


SSA (532nm) = 0.987



SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	18290	25390	7380	7460
$PM_{2.5}/PM_{10}$	0.40	0.41	0.29	0.29
Average	0.35			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m^3)	97.6		256.3	
$PM_{2.5}/PM_{10}$	0.38			

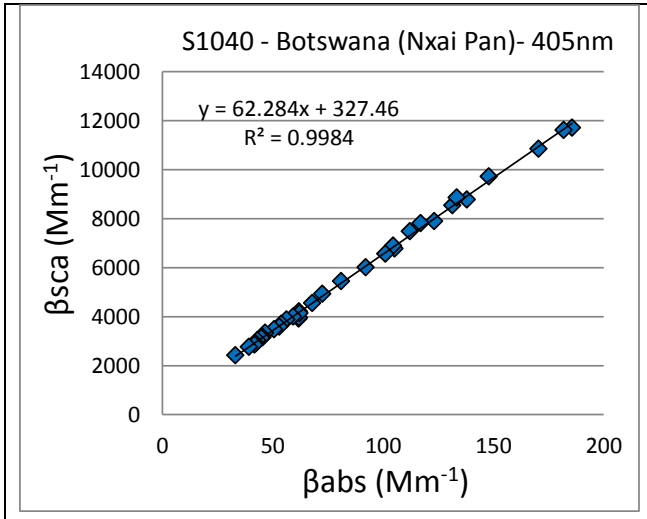
SEM Measured Aspect Ratio

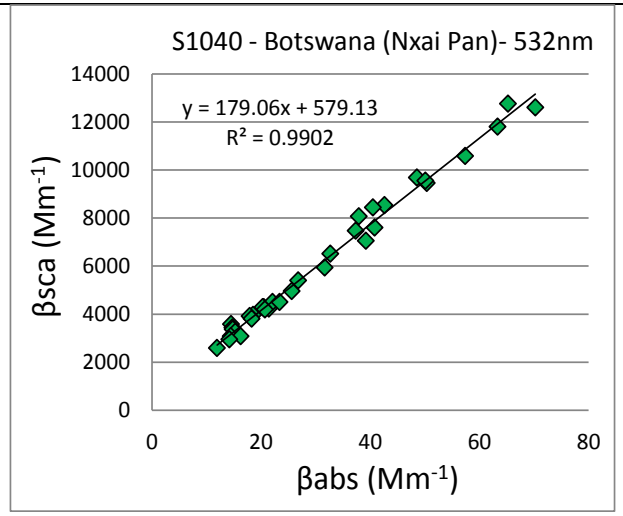
Sample #	Number of Particles	Min	Max	Geom Mean
S1039	1279	1.000	5.333	1.522

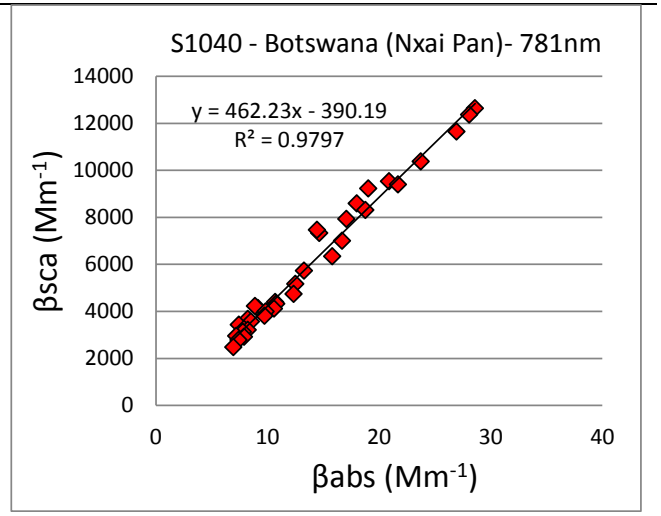
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.229	1.399	1.255	1.115	1.556

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1040, Botswana (Nxai Pan, Baines Baobabs)

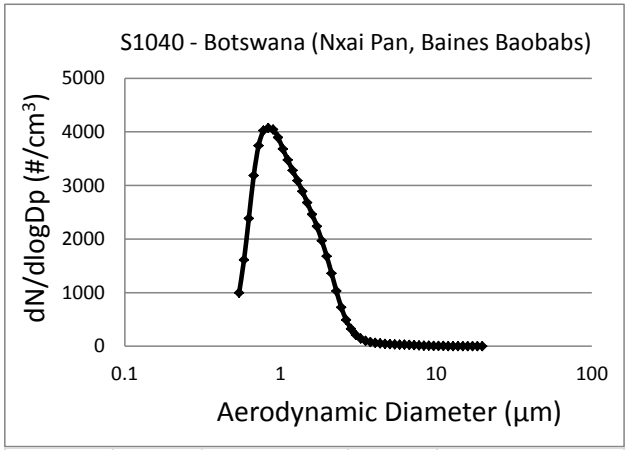






SSA (405nm) = 0.984 SSA (532nm) = 0.994 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.040	1.204	1.095	0.836	1.516

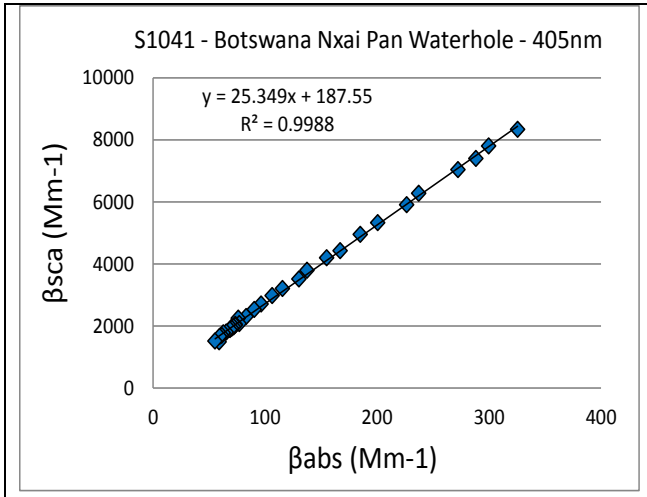
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	6320	5330	1370	1320
$PM_{2.5}/PM_{10}$	0.22	0.21	0.26	0.25
Average	0.23			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	377.2		1317.8	
$PM_{2.5}/PM_{10}$	0.29			

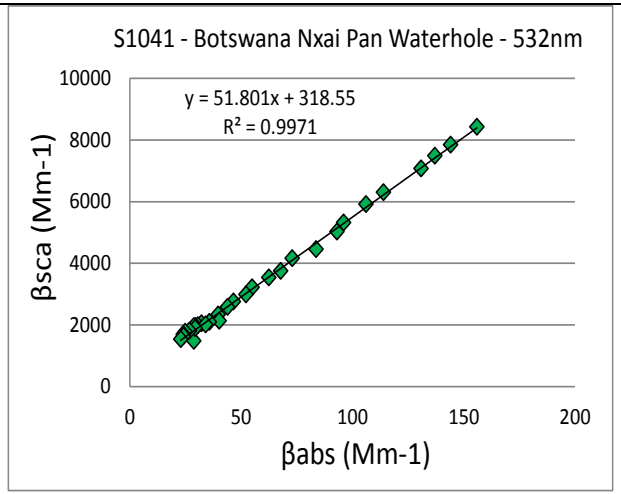
SEM Measured Aspect Ratio

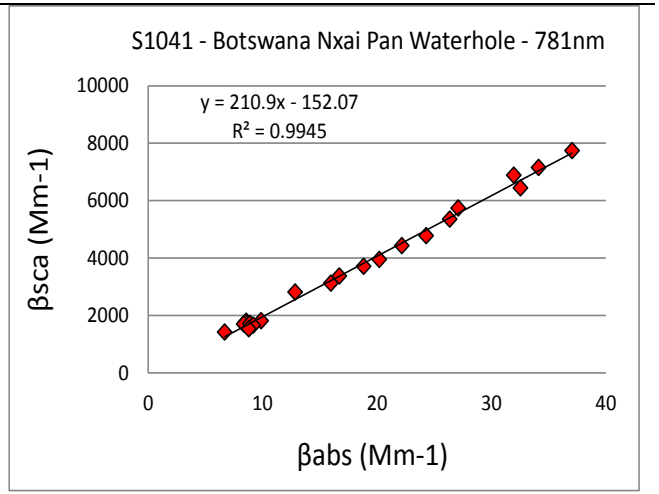
Sample #	Number of Particles	Min	Max	Geom Mean
S1040	1392	1.000	4.227	1.447

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1041, Botswana (Nxai Pan)

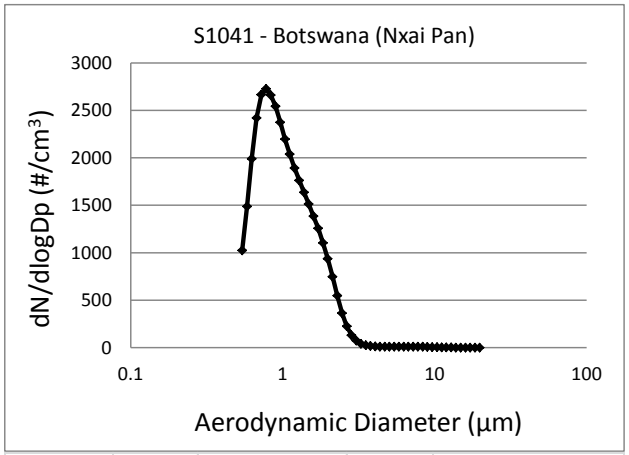






SSA (405nm) = 0.962 SSA (532nm) = 0.981 SSA (781nm) = 0.995

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
0.967	1.119	1.024	0.777	1.494

Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	5570	5170	1230	1220
$PM_{2.5}/PM_{10}$	0.22	0.22	0.24	0.24
Average	0.23			

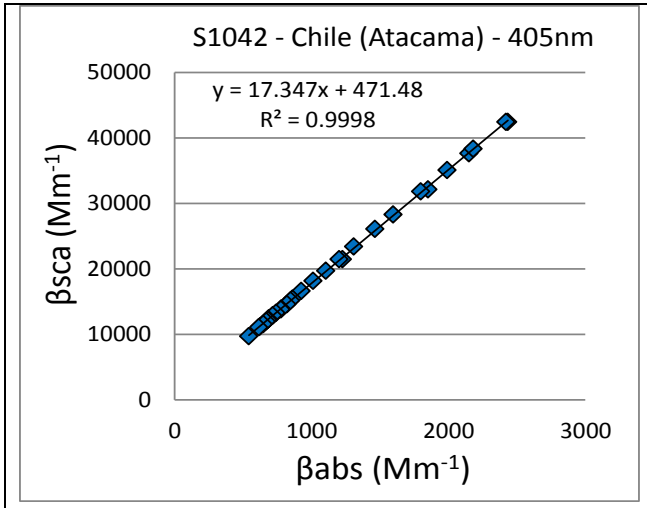
Betagauge			
	PM2.5		PM10
Mass (µg/m³)	190.6		806.5
$PM_{2.5}/PM_{10}$	0.24		

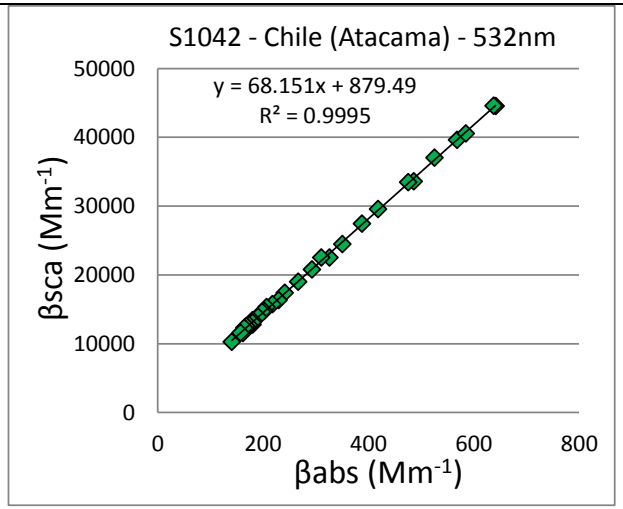
SEM Measured Aspect Ratio

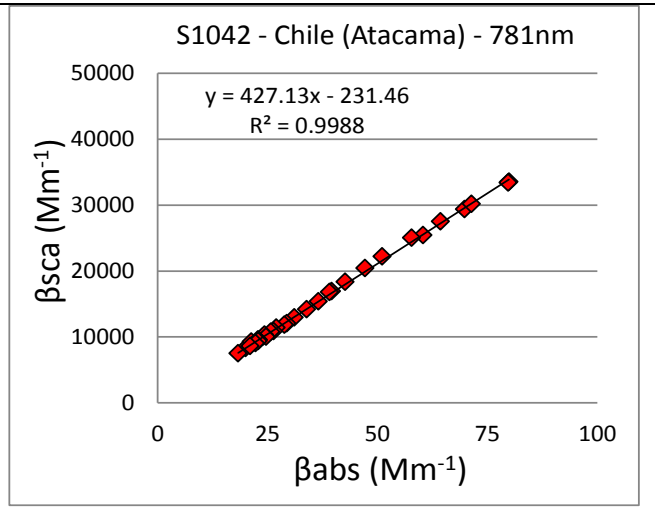
Sample #	Number of Particles	Min	Max	Geom Mean
S1041	1324	1.002	4.848	1.436

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1042, Chile (Atacama, Rock Garden)

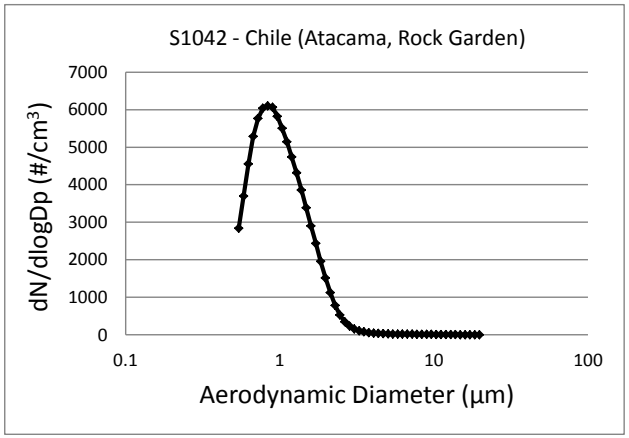






SSA (405nm) = 0.945 SSA (532nm) = 0.986 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
0.958	1.090	1.001	0.836	1.475

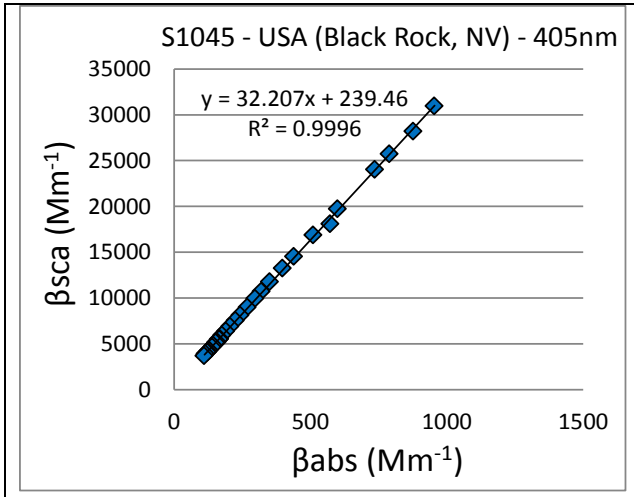
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	11810	10730	4350	-
$PM_{2.5}/PM_{10}$	0.37	0.41	-	-
Average	0.39			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	296.3		726.1	
$PM_{2.5}/PM_{10}$	0.41			

SEM Measured Aspect Ratio

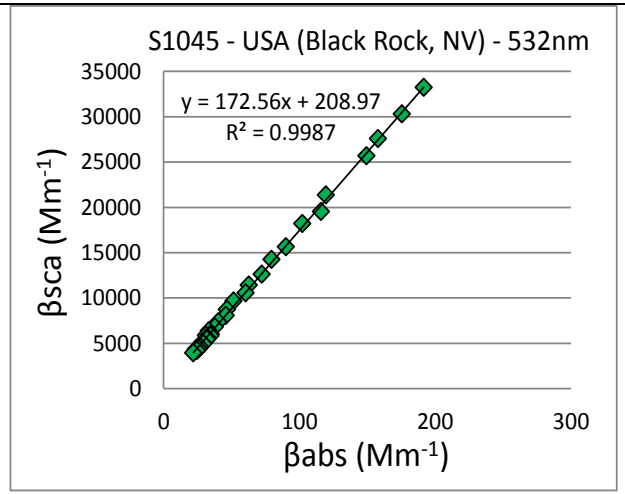
Sample #	Number of Particles	Min	Max	Geom Mean
S1042	1267	1.000	4.687	1.544

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

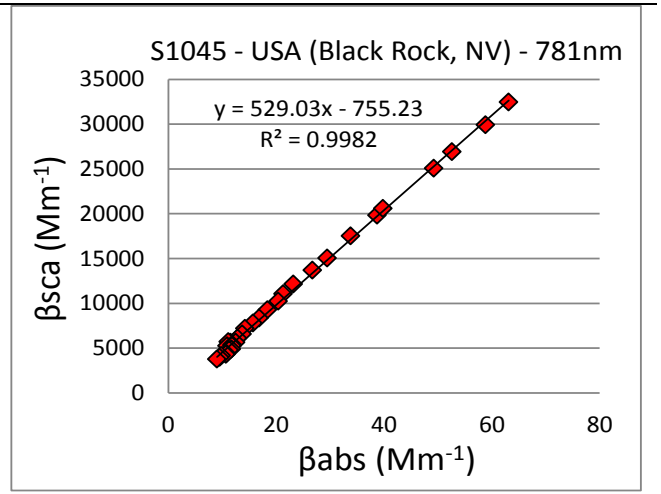
Sample S1045, USA (Black Rock, NV)



SSA (405nm) = 0.970

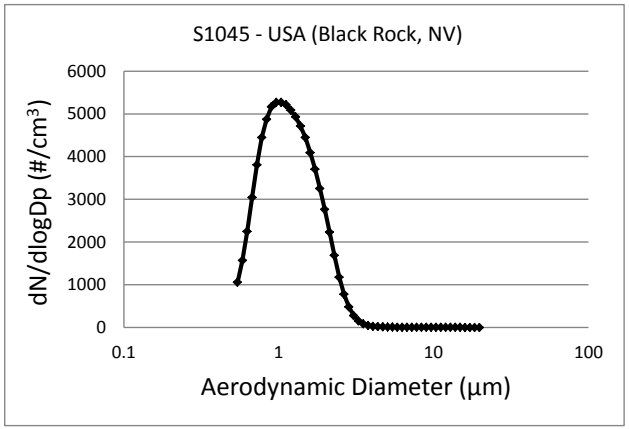


SSA (532nm) = 0.994



SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.134	1.253	1.157	0.994	1.480

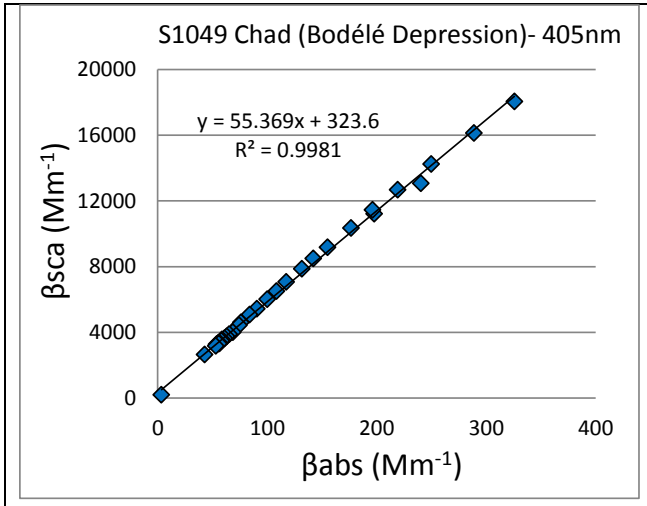
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	5910	5450	2590	2660
$PM_{2.5}/PM_{10}$	0.44	0.45	0.48	0.49
Average	0.46			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	204.9		384.8	
$PM_{2.5}/PM_{10}$	0.53			

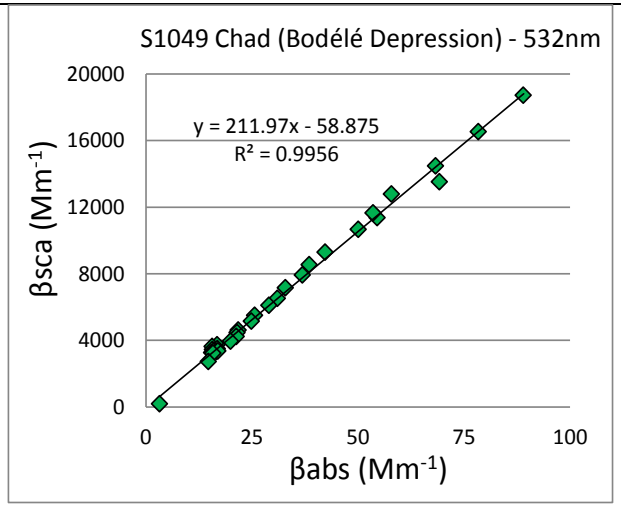
SEM Measured Aspect Ratio

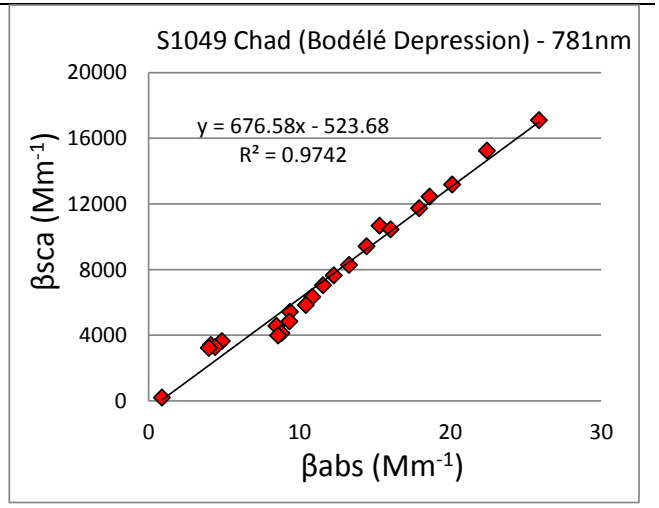
Sample #	Number of Particles	Min	Max	Geom Mean
S1045	1408	1.000	3.713	1.443

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1049, Chad (Bodélé Depression, Sample 44)

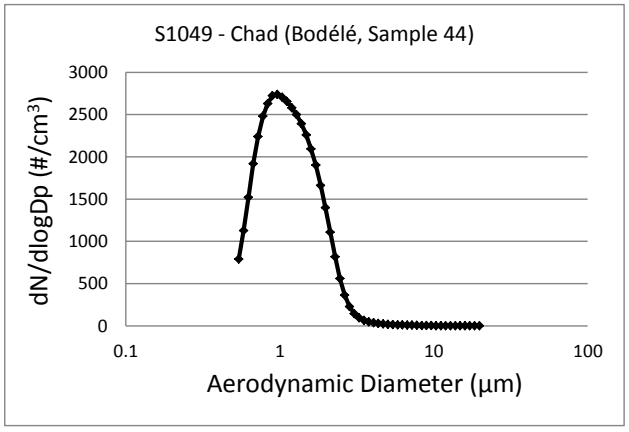






SSA (405nm) = 0.982 SSA (532nm) = 0.995 SSA (781nm) = 0.999

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.099	1.226	1.126	0.955	1.495

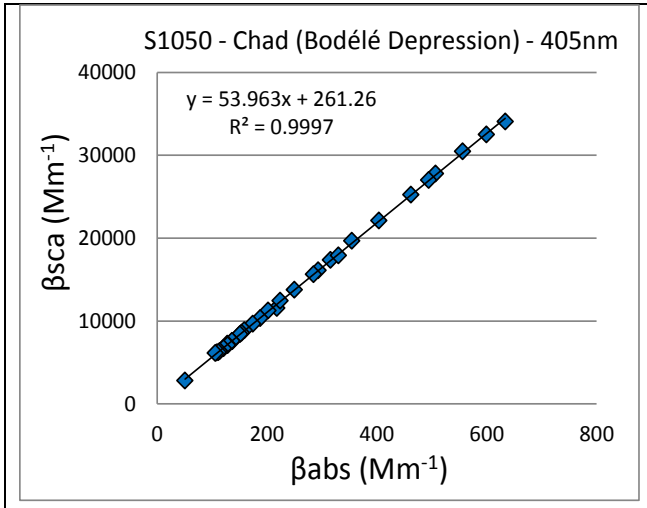
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	11450	na	2970	2920
$PM_{2.5}/PM_{10}$	0.26	0.26	-	-
Average	0.26			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m^3)	238.2		822.4	
$PM_{2.5}/PM_{10}$	0.29			

SEM Measured Aspect Ratio

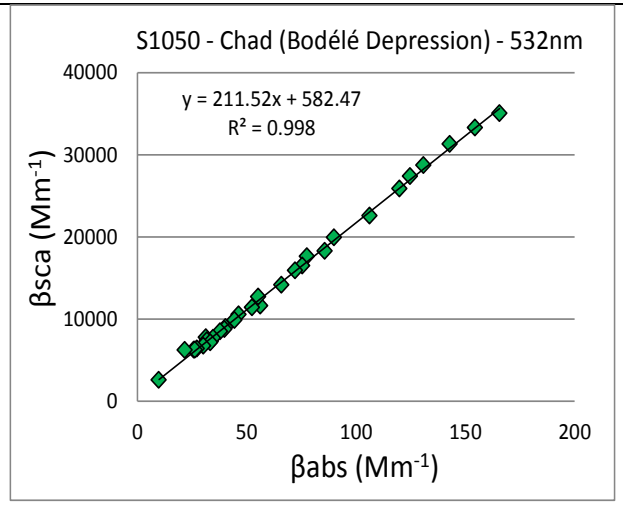
Sample #	Number of Particles	Min	Max	Geom Mean
S1049	1162	1.000	5.213	1.622

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

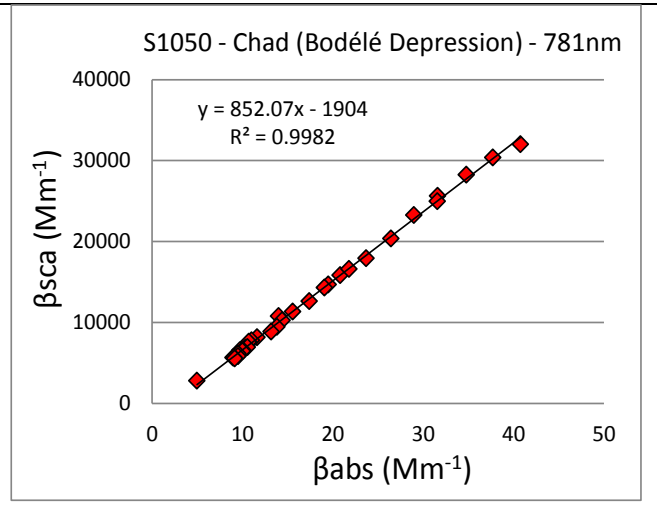
Sample S1050, Chad (Bodélé Depression, Sample 44B)



SSA (405nm) = 0.982

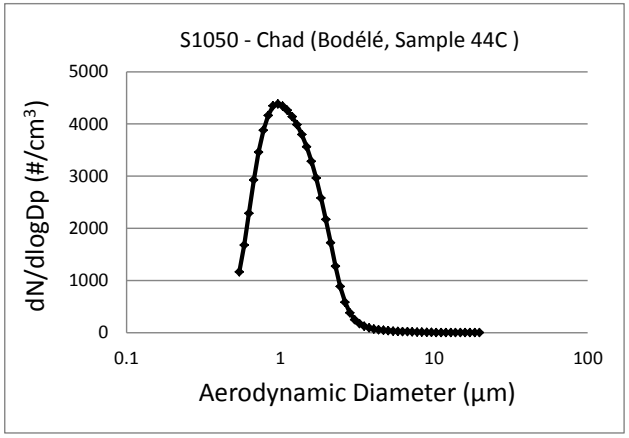


SSA (532nm) = 0.995



SSA (781nm) = 0.999

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.074	1.202	1.104	0.933	1.482

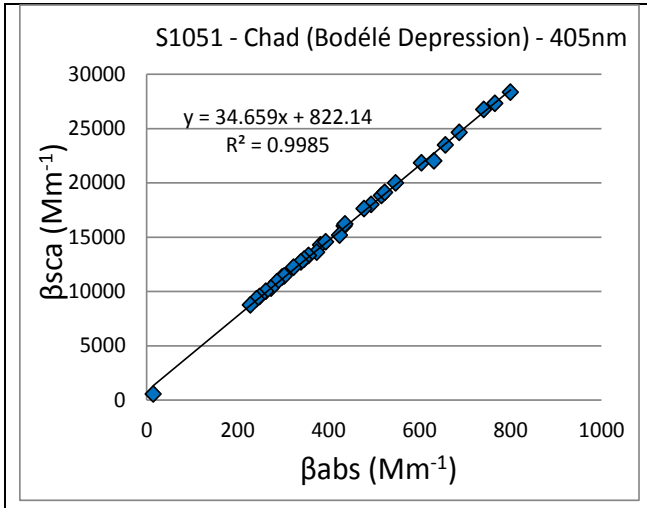
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	17330	16190	4450	4500
$PM_{2.5}/PM_{10}$	0.26	0.26	0.27	0.28
Average	0.27			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	3887.2		12775.3	
$PM_{2.5}/PM_{10}$	0.30			

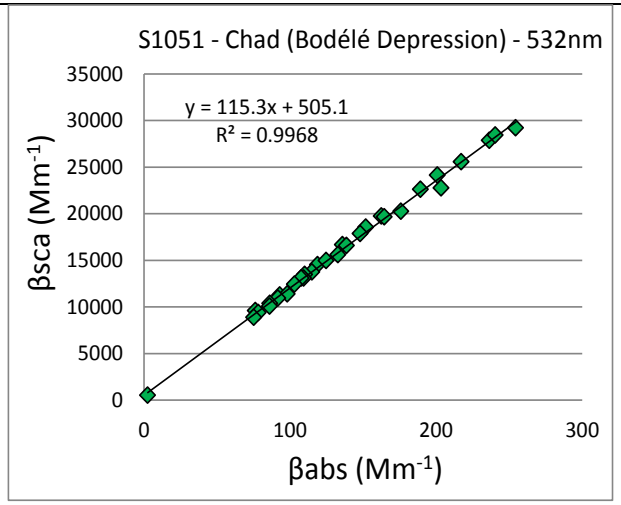
SEM Measured Aspect Ratio

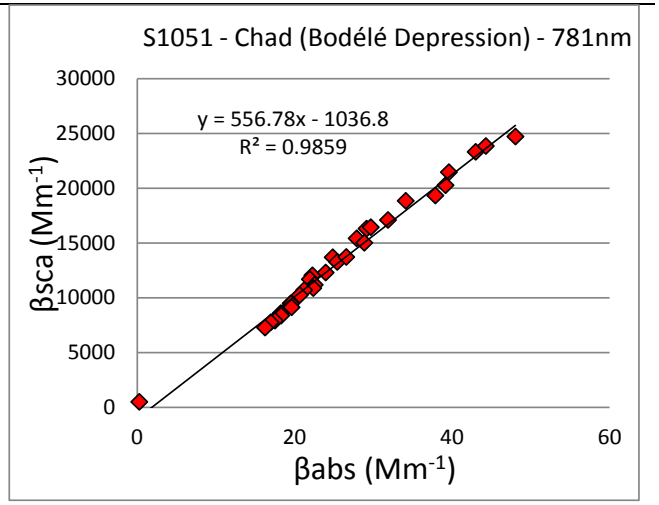
Sample #	Number of Particles	Min	Max	Geom Mean
S1050	1164	1.002	10.200	1.685

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1051, Chad (Bodélé Depression, Sample 44C)

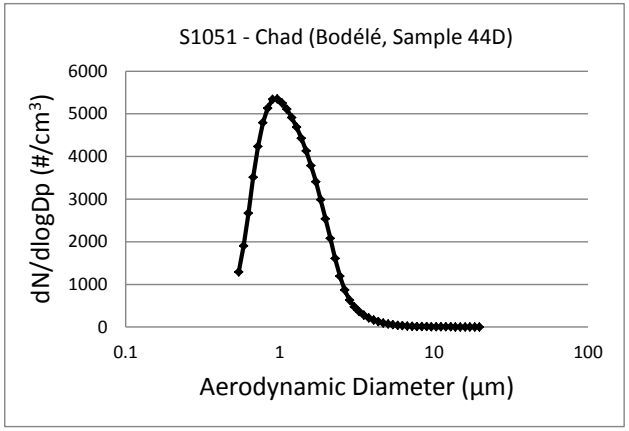






SSA (405nm) = 0.972 SSA (532nm) = 0.991 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.118	1.279	1.161	0.949	1.527

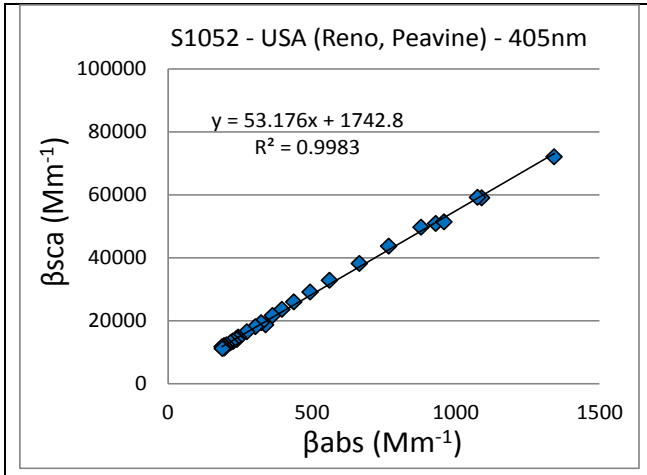
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	15580	13940	4120	4110
$PM_{2.5}/PM_{10}$	0.26	0.30	0.26	0.29
Average	0.28			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	166		508.4	
$PM_{2.5}/PM_{10}$	0.33			

SEM Measured Aspect Ratio

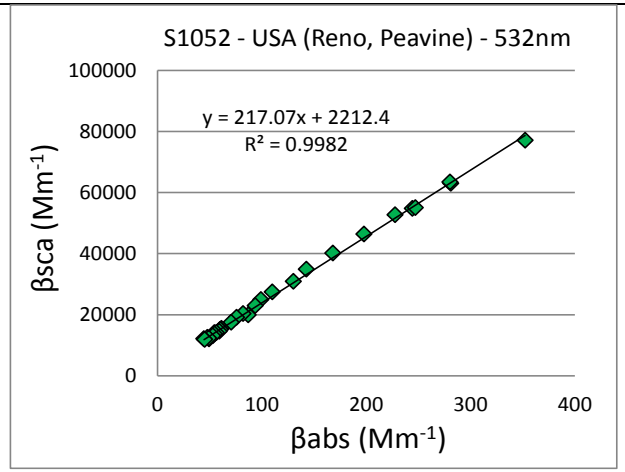
Sample #	Number of Particles	Min	Max	Geom Mean
S1051	1157	1.000	7.859	1.698

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

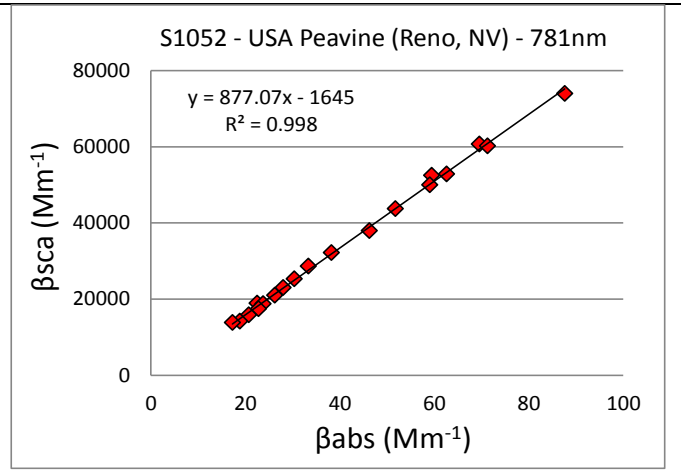
Sample S1052, USA (NW Reno, Peavine Mtn)



SSA (405nm) = 0.982

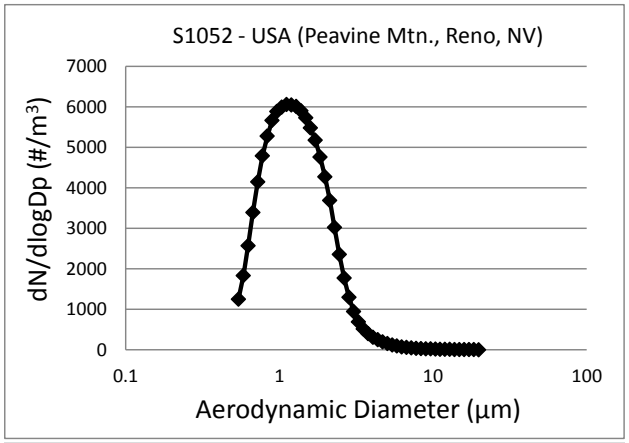


SSA (532nm) = 0.995



SSA (781nm) = 0.999

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.235	1.405	1.263	1.130	1.557

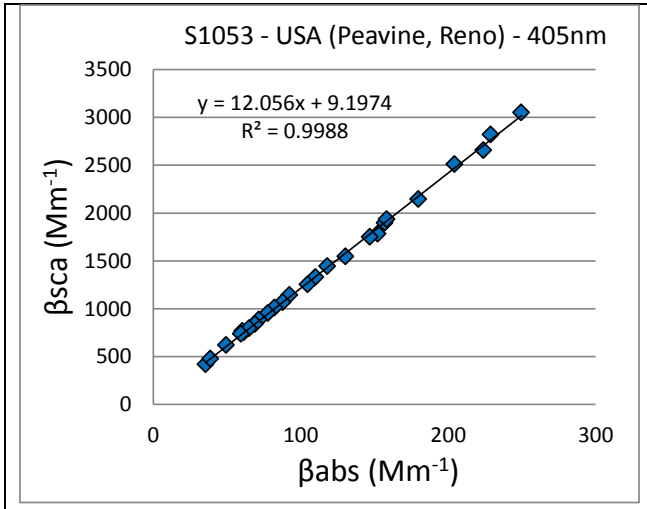
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	3600	5990	1520	1430
$PM_{2.5}/PM_{10}$	0.42	0.40	0.25	0.24
Average	0.33			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m^3)	648		1942	
$PM_{2.5}/PM_{10}$	0.33			

SEM Measured Aspect Ratio

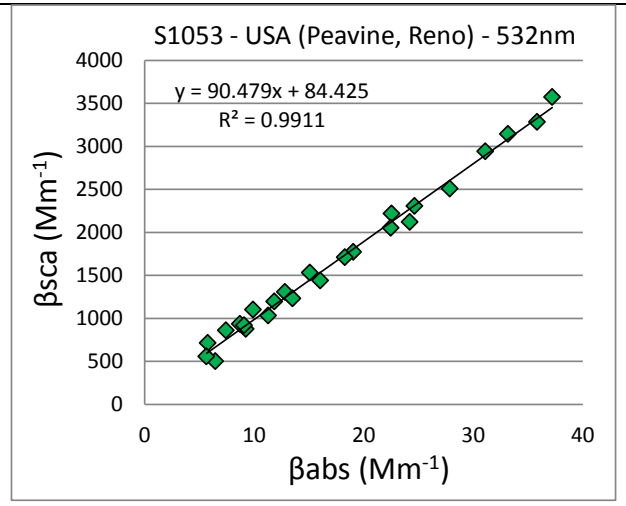
Sample #	Number of Particles	Min	Max	Geom Mean
S1052	1132	1.000	7.222	1.630

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

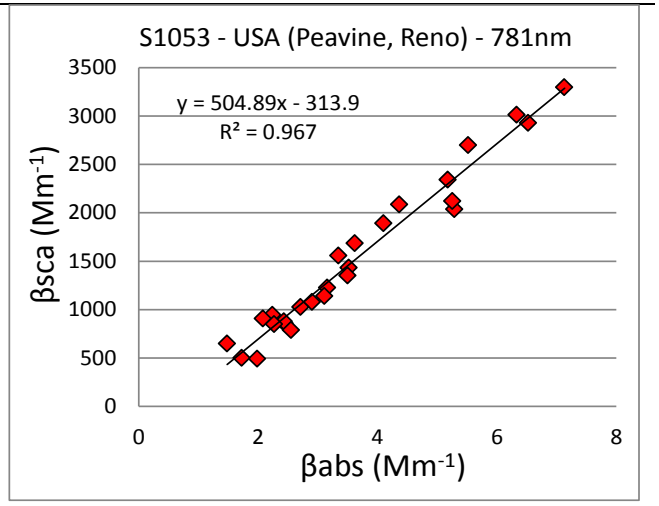
Sample S1053, USA (Peavine Mtn. Reno, NV)



SSA (405nm) = 0.923

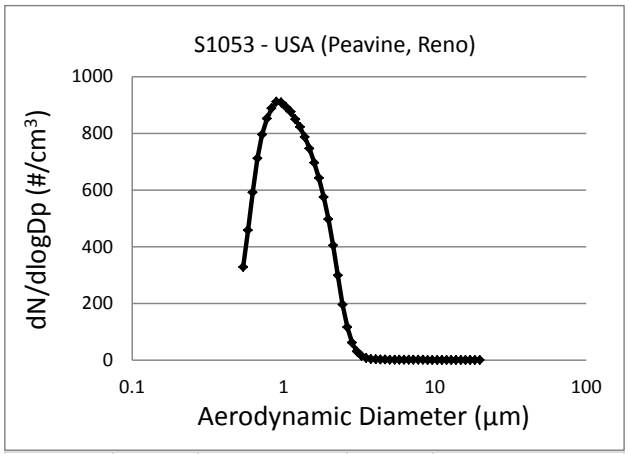


SSA (532nm) = 0.989



SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.083	1.201	1.106	0.947	1.488

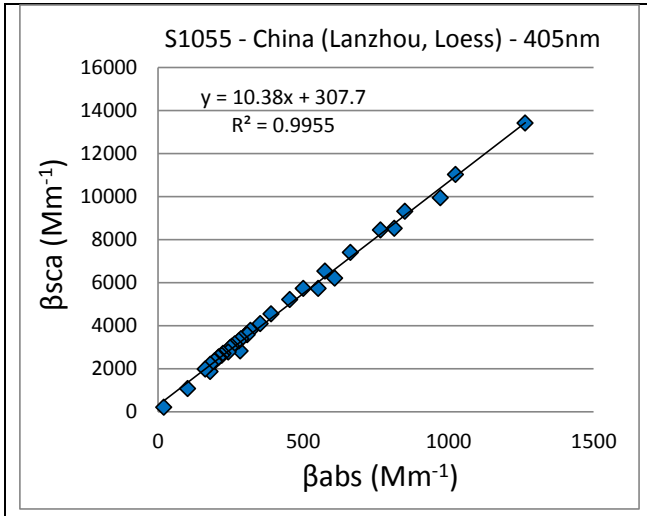
Teflon Filters				
	PM2.5	PM2.5	PM10	PM10
Mass (µg)	1860	2400	360	390
PM2.5/PM10	0.19	0.15	0.21	0.16
Average	0.18			
Betagauge				
	PM2.5		PM10	
Mass (µg/m3)	512.2		2302.9	
PM2.5/PM10	0.22			

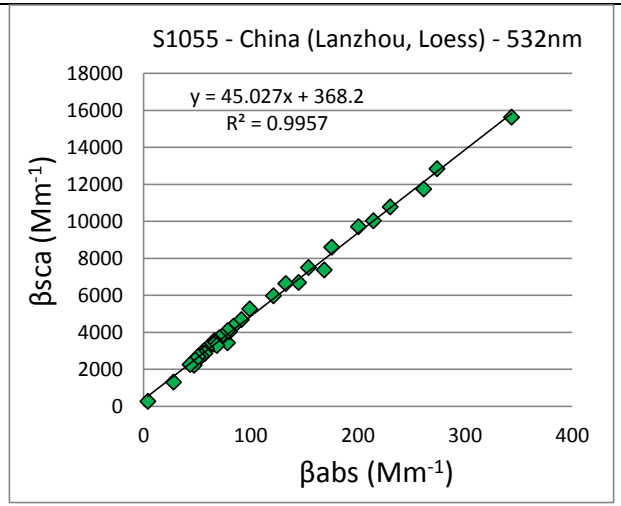
SEM Measured Aspect Ratio

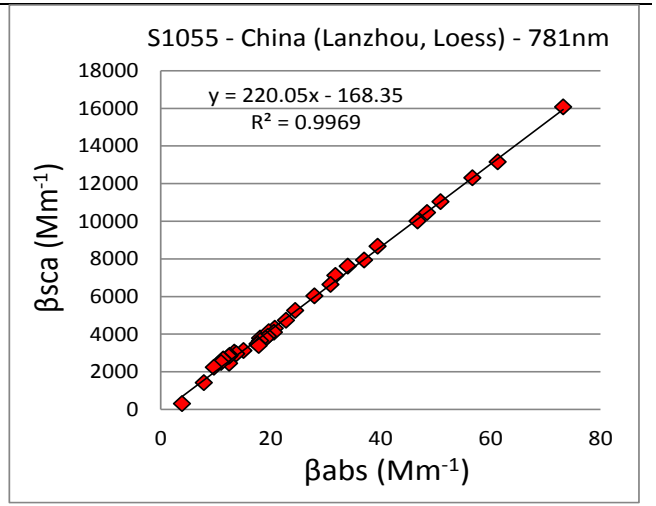
Sample #	Number of Particles	Min	Max	Geom Mean
S1053	2394	1.000	4.467	1.411

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1055, China (Lanzhou, Loess Plateau)

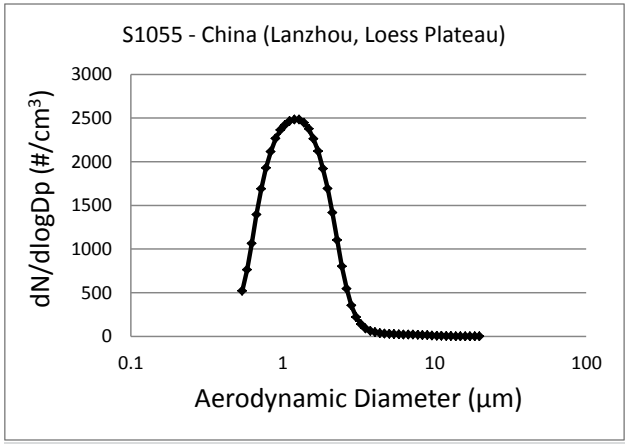






SSA (405nm) = 0.912 SSA (532nm) = 0.978 SSA (781nm) = 0.995

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.232	1.363	1.241	1.231	1.523

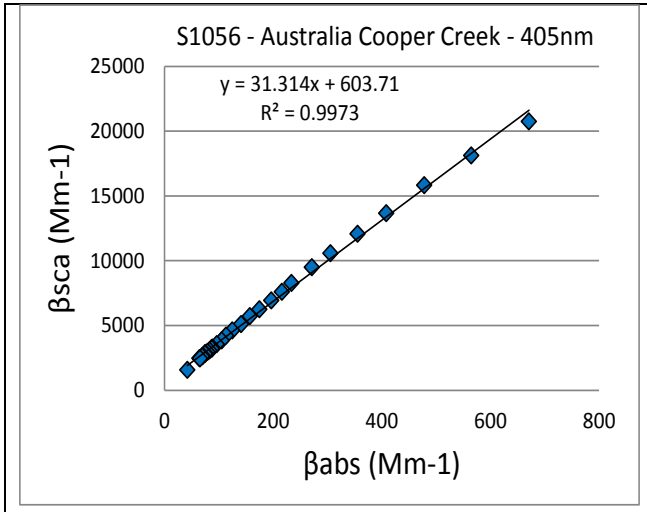
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	8800	7720	1830	1750
$PM_{2.5}/PM_{10}$	0.21	0.24	0.20	0.23
Average	0.22			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m^3)	467.7		2461.6	
$PM_{2.5}/PM_{10}$	0.19			

SEM Measured Aspect Ratio

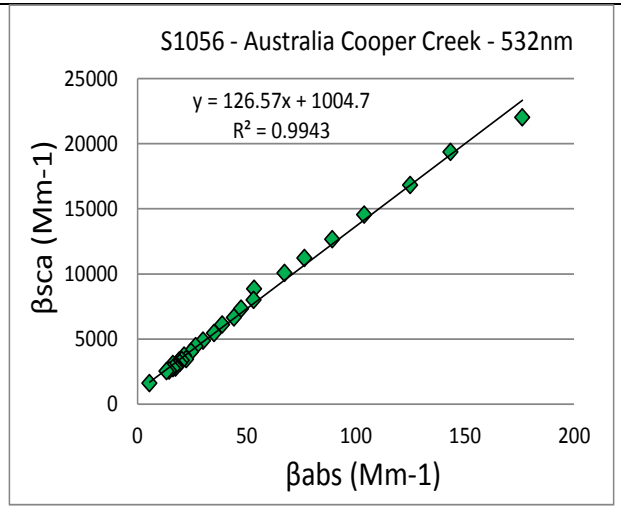
Sample #	Number of Particles	Min	Max	Geom Mean
S1055	1316	1.000	6.889	1.495

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

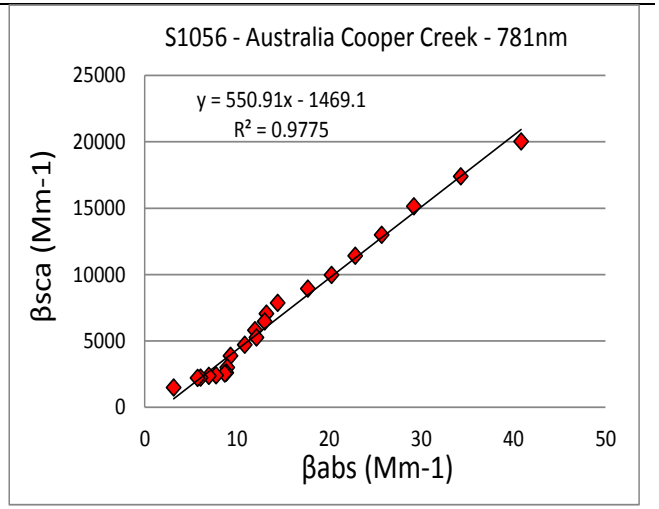
Sample S1056, Australia (Lake Eyre, Cooper Creek)



SSA (405nm) = 0.969

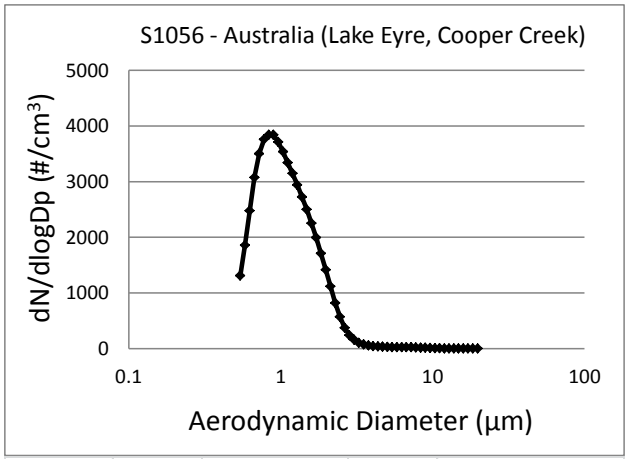


SSA (532nm) = 0.992



SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median	Mean	Geo. Mean	Mode	Geo. Std. Dev.
(µm)	(µm)	(µm)	(µm)	(µm)
1.013	1.159	1.060	0.859	1.495

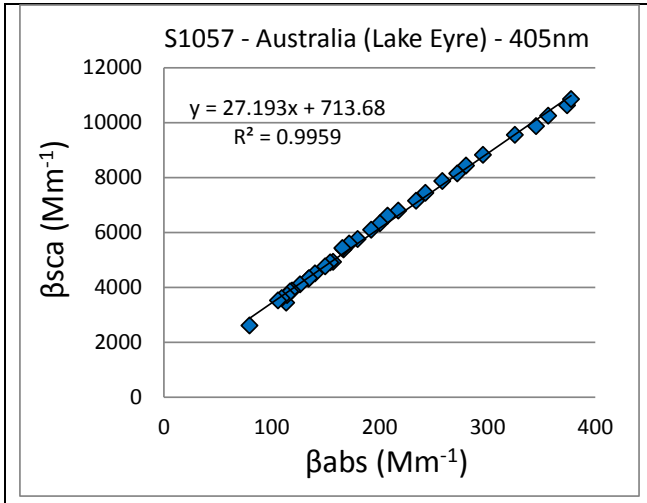
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	6300	5700	1490	1510
$PM_{2.5}/PM_{10}$	0.24	0.24	0.26	0.26
Average	0.25			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	166.5		615.8	
$PM_{2.5}/PM_{10}$	0.27			

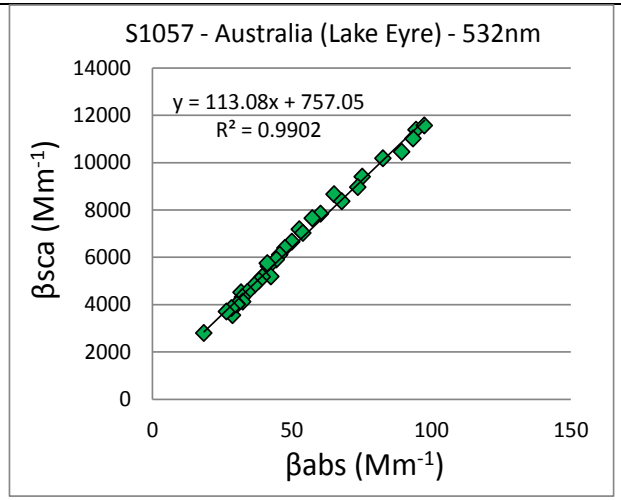
SEM Measured Aspect Ratio

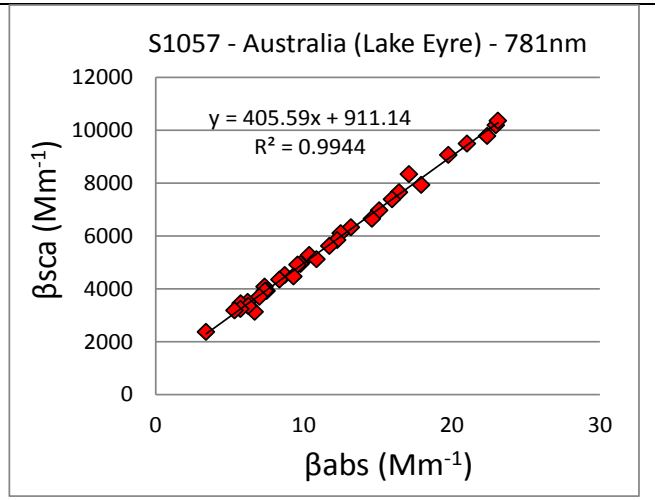
Sample #	Number of Particles	Min	Max	Geom Mean
S1056	1365	1.000	5.133	1.476

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1057, Australia (Lake Eyre, Warburton River)

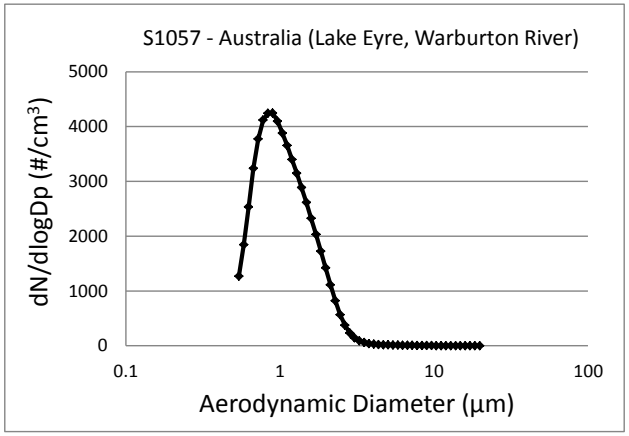






SSA (405nm) = 0.965 SSA (532nm) = 0.991 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.011	1.149	1.058	0.881	1.480

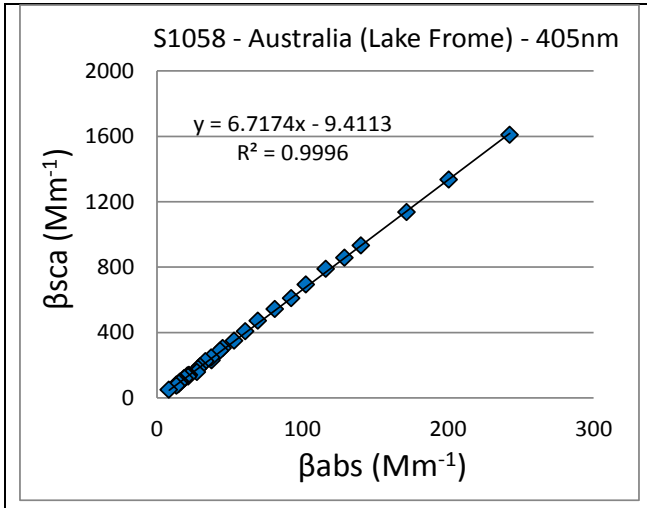
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	2240	2040	680	680
$PM_{2.5}/PM_{10}$	0.30	0.30	0.33	0.33
Average	0.32			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	173.3		632.2	
$PM_{2.5}/PM_{10}$	0.27			

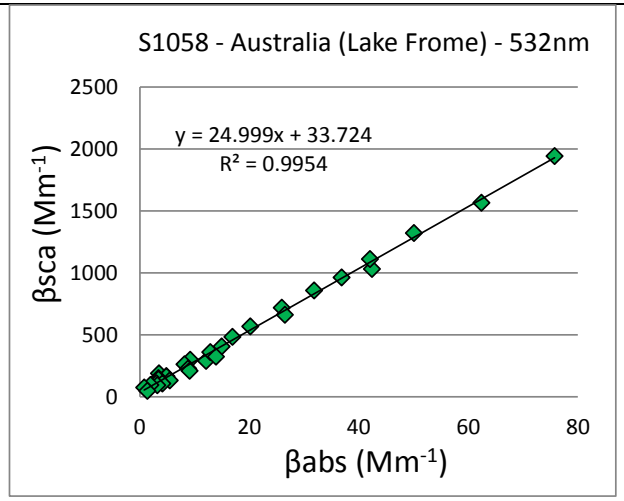
SEM Measured Aspect Ratio

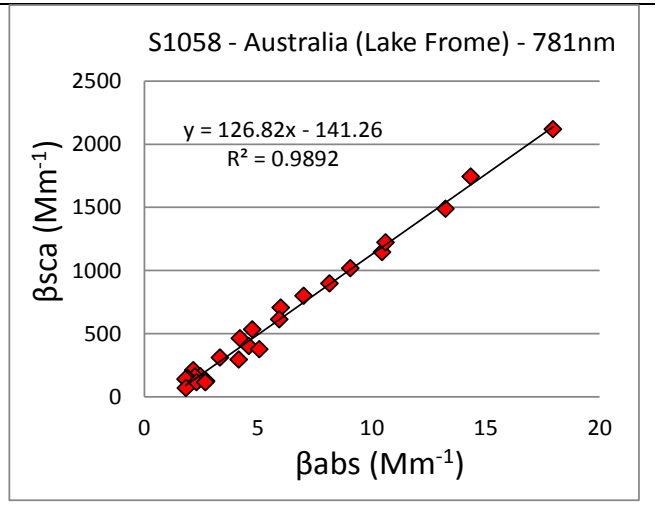
Sample #	Number of Particles	Min	Max	Geom Mean
S1057	1408	1.005	3.562	1.440

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1058, Australia (Lake Frome)

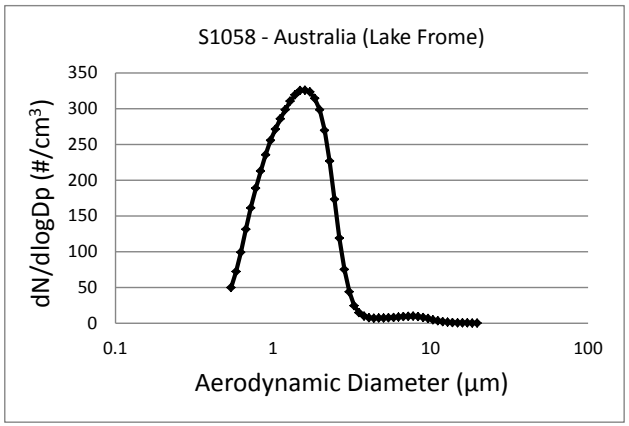






SSA (405nm) = 0.870 SSA (532nm) = 0.962 SSA (781nm) = 0.992

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.372	1.515	1.361	1.526	1.560

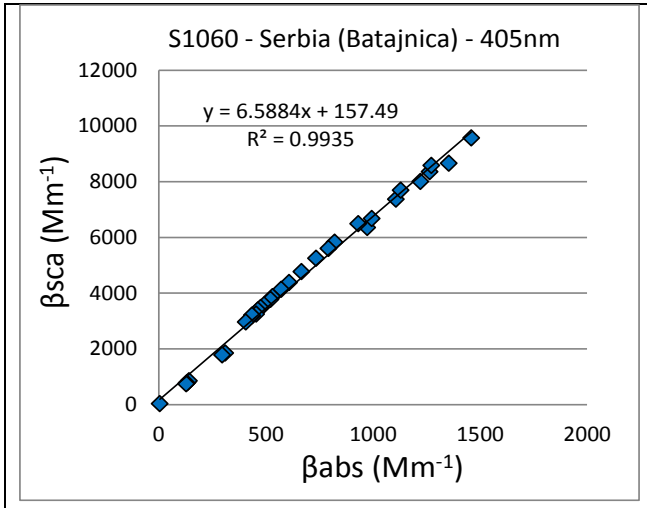
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	1740	1590	190	220
$PM_{2.5}/PM_{10}$	0.11	0.13	0.12	0.14
Average	0.12			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	589.5		2325.6	
$PM_{2.5}/PM_{10}$	0.25			

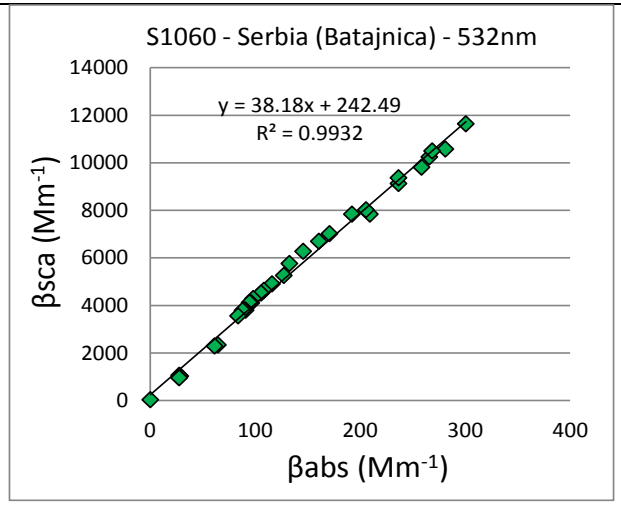
SEM Measured Aspect Ratio

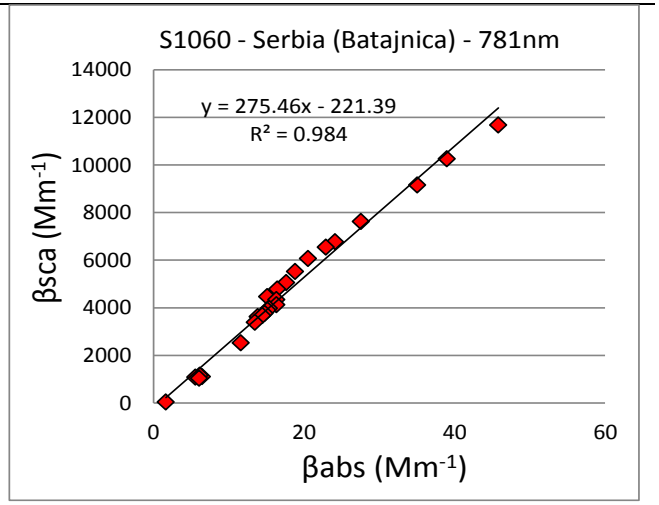
Sample #	Number of Particles	Min	Max	Geom Mean
S1058	1431	1.000	4.671	1.439

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1060, Serbia (Danude R., Batajnica, Loess)

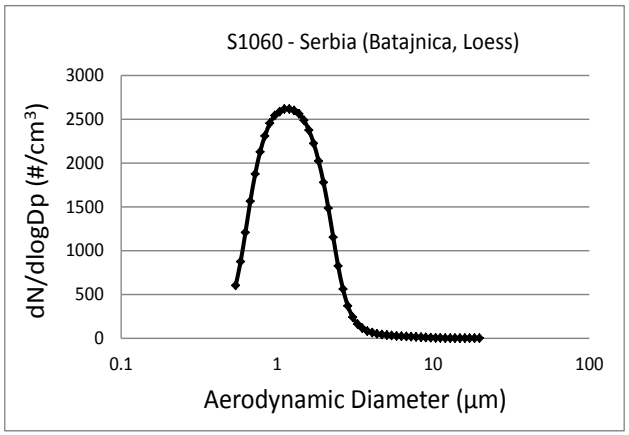






SSA (405nm) = 0.868 SSA (532nm) = 0.974 SSA (781nm) = 0.996

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.233	1.362	1.242	1.227	1.521

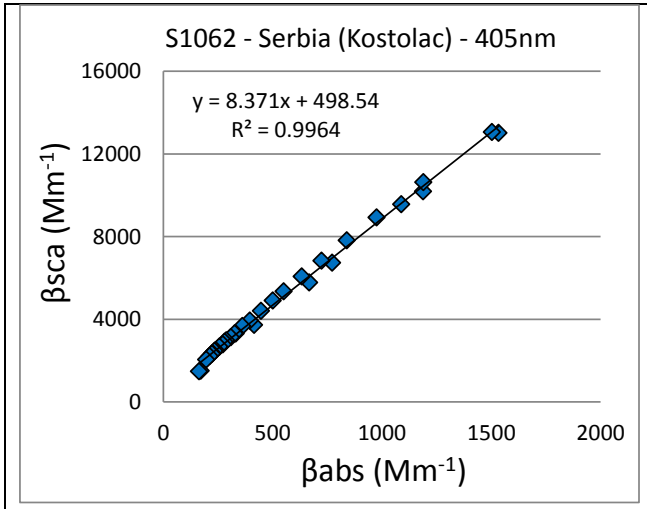
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	12220	10150	2340	2140
$PM_{2.5}/PM_{10}$	0.19	0.18	0.23	0.21
Average	0.20			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	675.5		2201.2	
$PM_{2.5}/PM_{10}$	0.31			

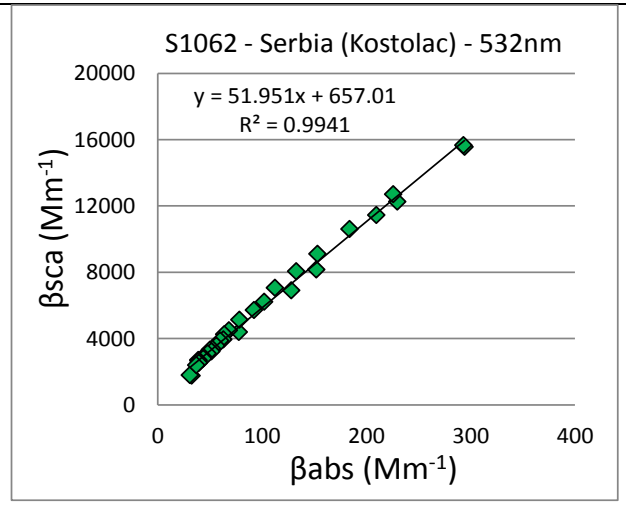
SEM Measured Aspect Ratio

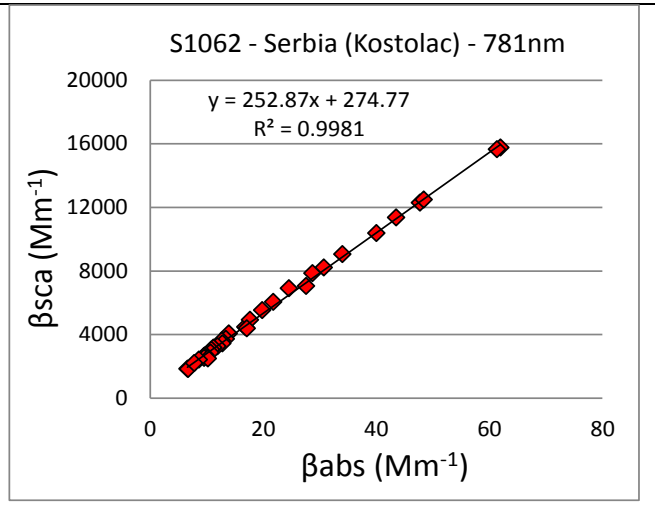
Sample #	Number of Particles	Min	Max	Geom Mean
S1060	1357	1.000	3.414	1.466

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1062, Serbia (Kostolac, Loess)

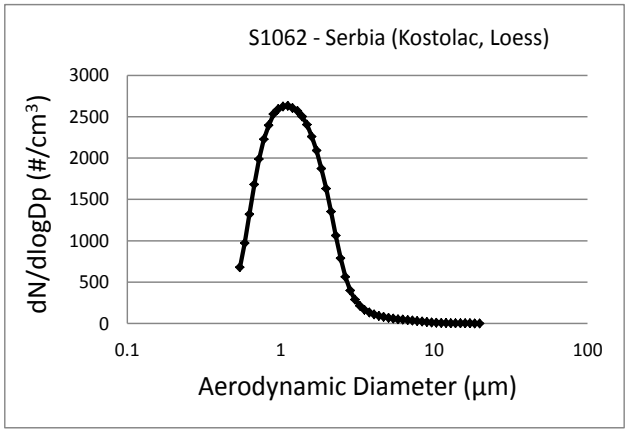






SSA (405nm) = 0.893 SSA (532nm) = 0.981 SSA (781nm) = 0.996

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.177	1.338	1.205	1.103	1.546

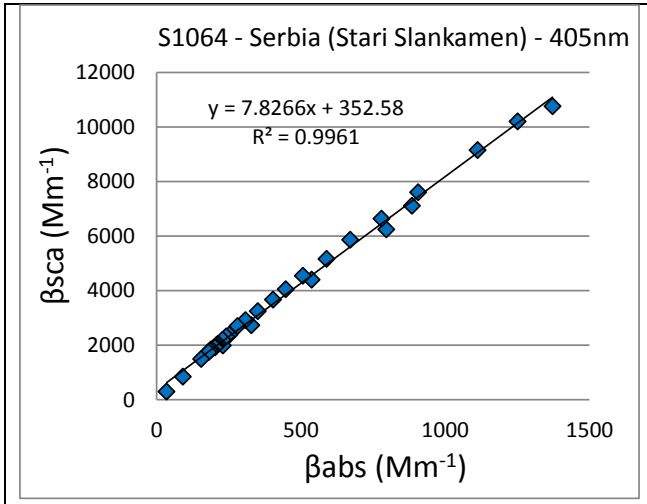
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	12820	11410	2010	-
$PM_{2.5}/PM_{10}$	0.16	0.18	-	-
Average	0.17			
Betagauge				
	PM2.5		PM10	
Mass (µg/m^3)	474.7		1416.7	
$PM_{2.5}/PM_{10}$	0.34			

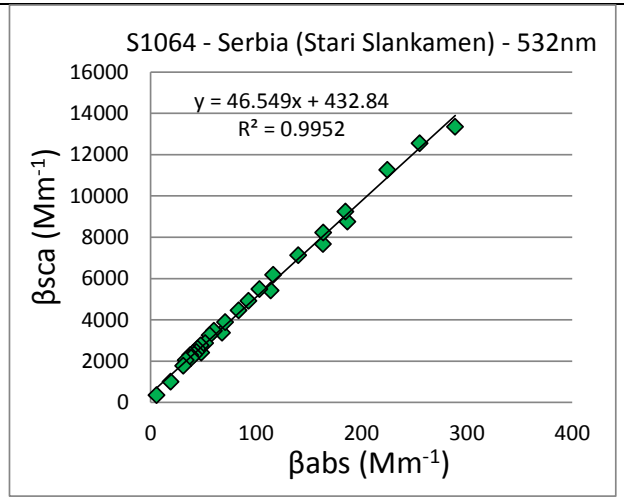
SEM Measured Aspect Ratio

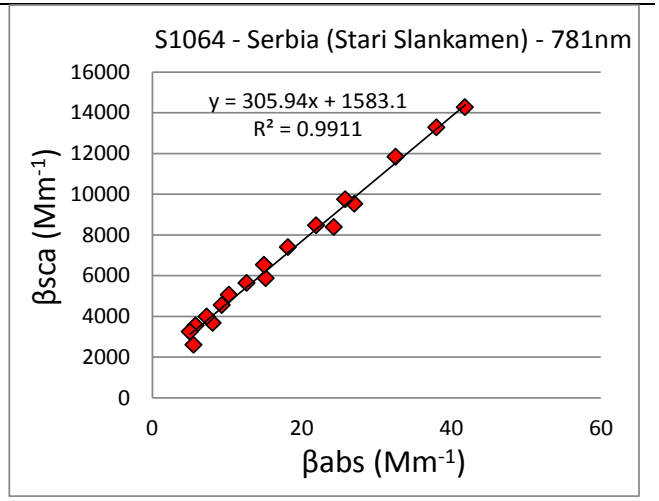
Sample #	Number of Particles	Min	Max	Geom Mean
S1062	1315	1.000	9.629	1.505

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1064, Serbia (Stari Slankamen, Loess)

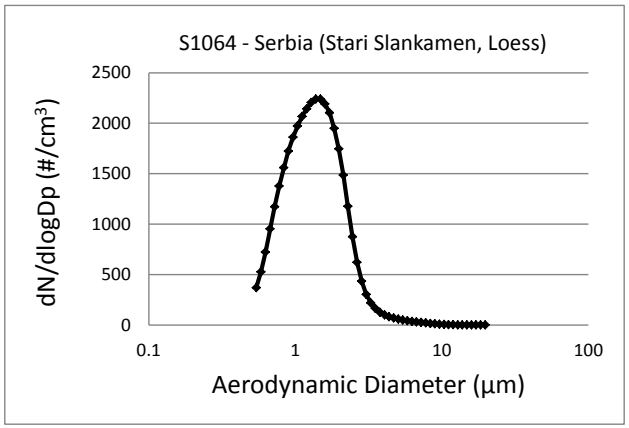






SSA (405nm) = 0.887 SSA (532nm) = 0.979 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.298	1.435	1.301	1.396	1.534

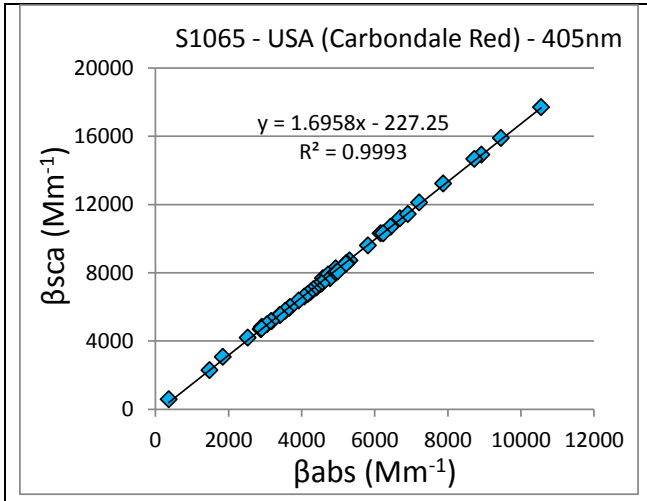
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	14010	13670	2390	2440
$PM_{2.5}/PM_{10}$	0.17	0.17	0.17	0.18
Average	0.17			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	513.7		1826.7	
$PM_{2.5}/PM_{10}$	0.28			

SEM Measured Aspect Ratio

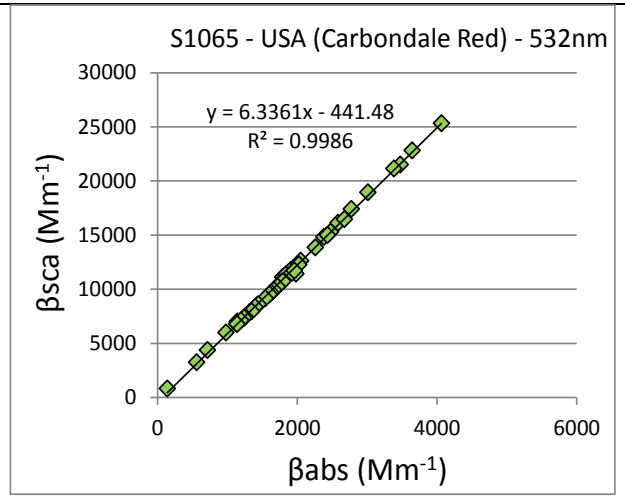
Sample #	Number of Particles	Min	Max	Geom Mean
S1064	1330	1.010	4.125	1.446

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

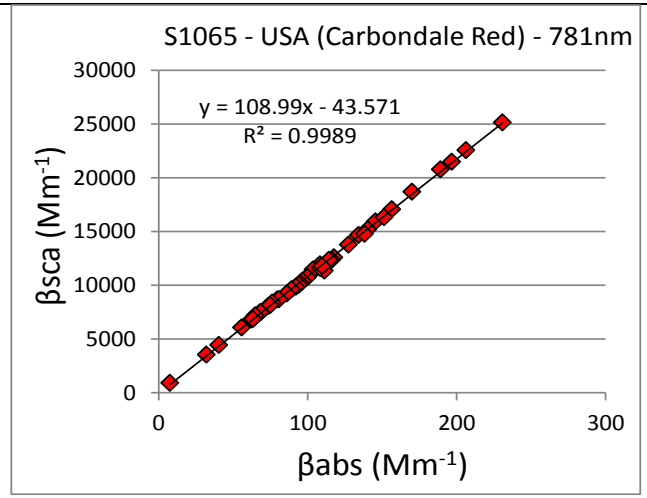
Sample S1065, USA (Amador Cty, California), Carbondale Red clay



SSA (405nm) = 0.629

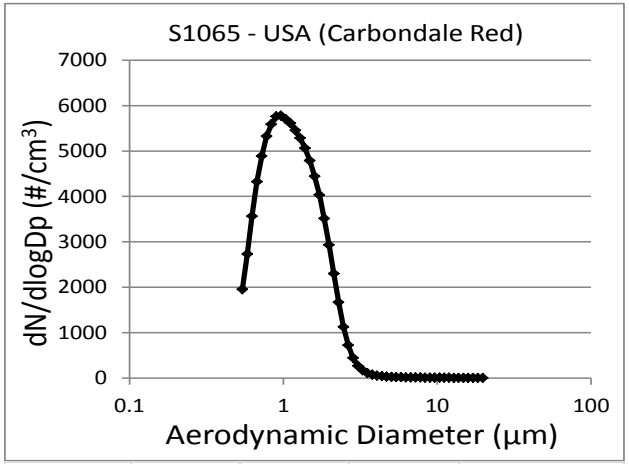


SSA (532nm) = 0.864



SSA (781nm) = 0.991

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.092	1.221	1.119	0.936	1.503

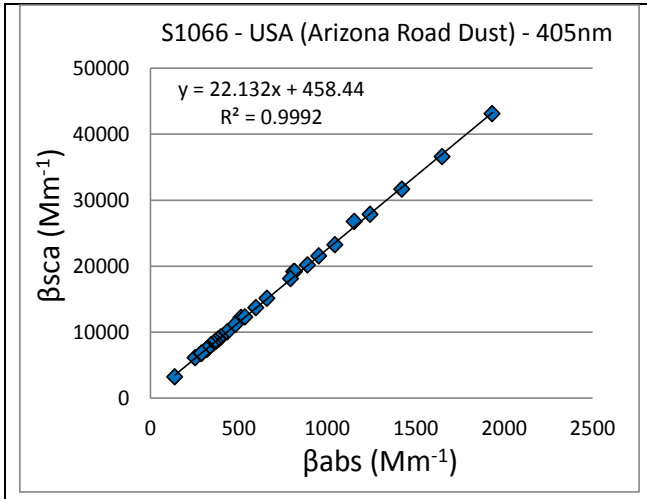
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	1260	1200	490	450
$PM_{2.5}/PM_{10}$	0.39	0.36	0.41	0.38
Average	0.38			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	965		2331	
$PM_{2.5}/PM_{10}$	0.41			

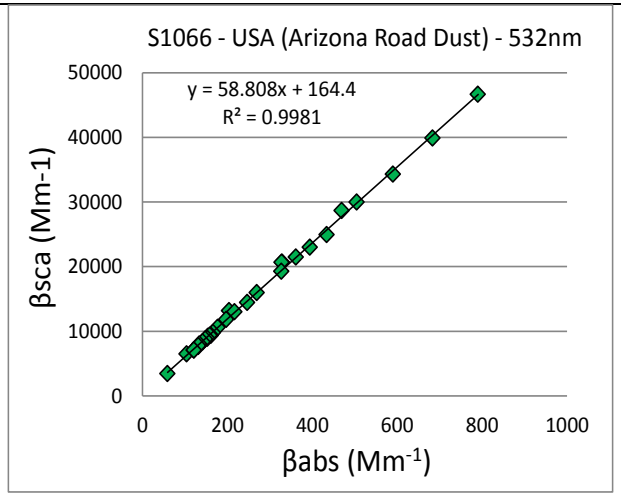
SEM Measured Aspect Ratio

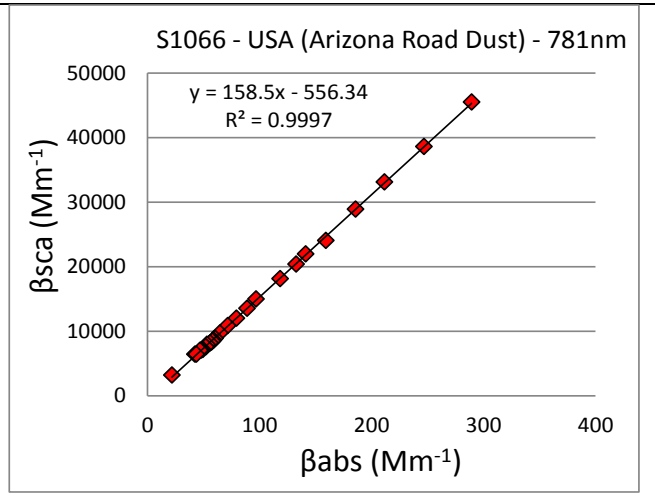
Sample #	Number of Particles	Min	Max	Geom Mean
S1065	1318	1.000	4.200	1.478

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S1066, USA (Arizona Road Dust)

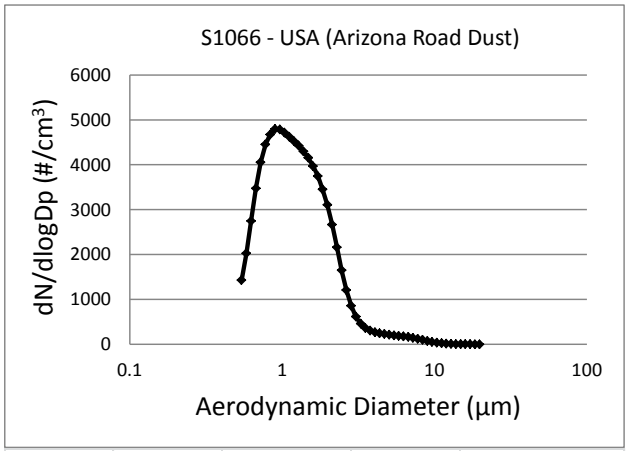






SSA (405nm) = 0.957 SSA (532nm) = 0.983 SSA (781nm) = 0.994

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.166	1.389	1.219	0.926	1.607

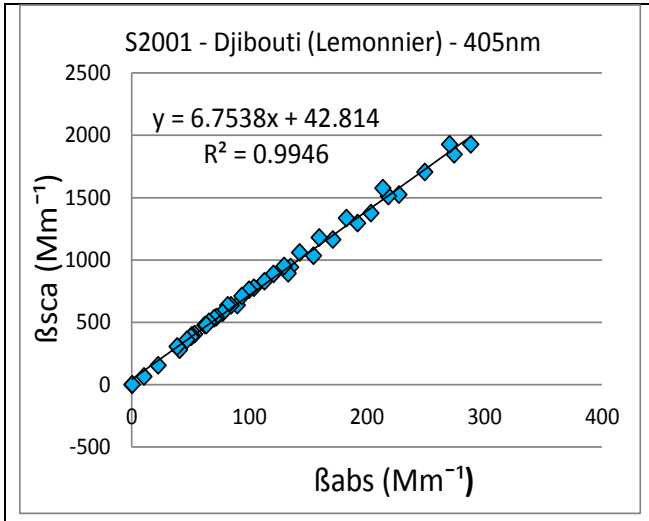
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	30590	25650	4420	4210
$PM_{2.5}/PM_{10}$	0.14	0.14	0.17	0.16
Average	0.15			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	226.3		1101.1	
$PM_{2.5}/PM_{10}$	0.21			

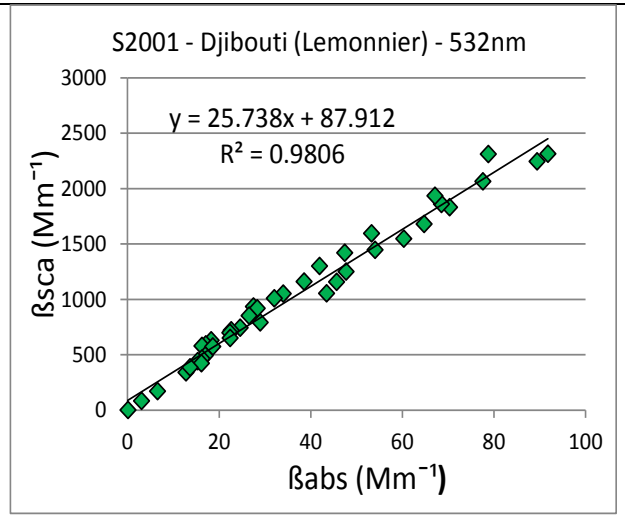
SEM Measured Aspect Ratio

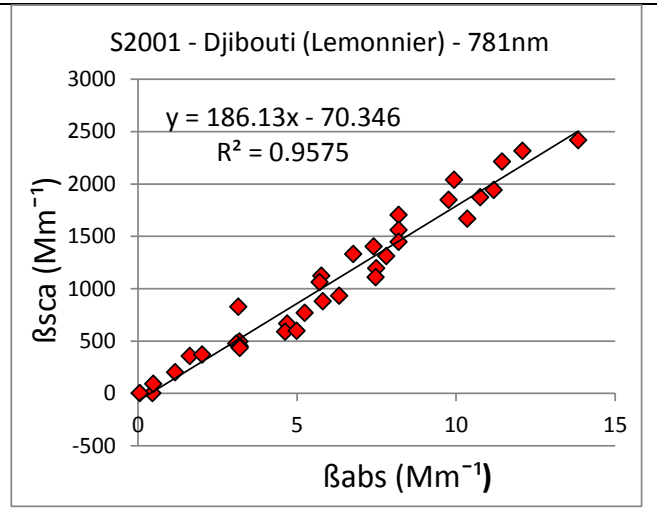
Sample #	Number of Particles	Min	Max	Geom Mean
S1066	1331	1.000	4.807	1.616

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2001, Djibouti (Camp Lemonnier)

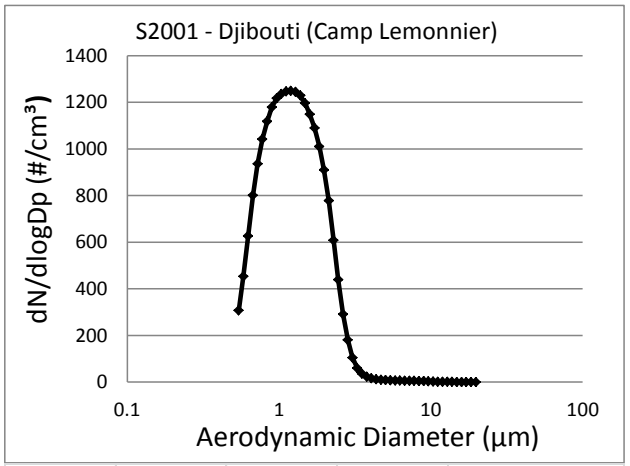






SSA (405nm) = 0.871 SSA (532nm) = 0.963 SSA (781nm) = 0.995

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.213	1.339	1.223	1.210	1.523

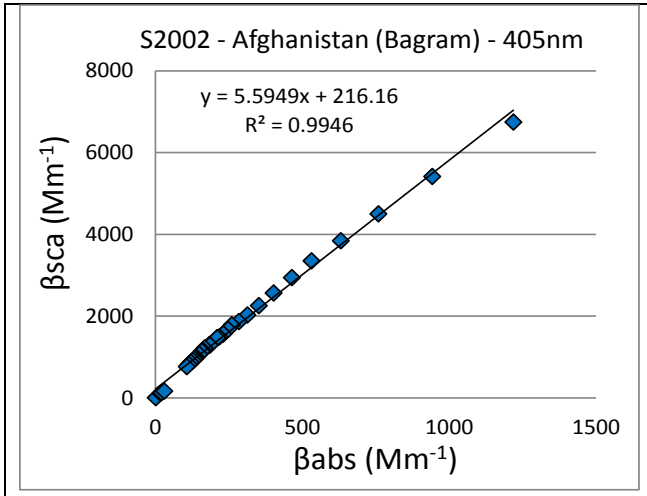
	Teflon Filters			
	PM 10	PM 10	PM 2.5	PM 2.5
Mass (µg)	2990	2660	670	620
PM2.5/PM10	0.22	0.21	0.25	0.23
Average	0.23			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m3)	736.4		3004.3	
PM2.5/PM10	0.25			

SEM Measured Aspect Ratio

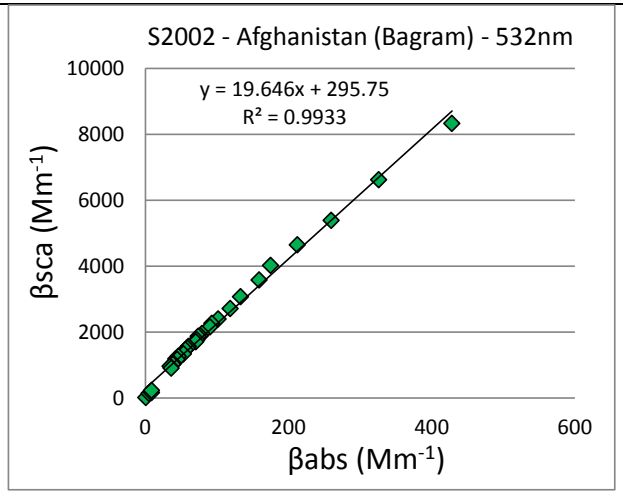
Sample #	Number of Particles	Min	Max	Geom Mean
S2001	1382	1.000	4.208	1.442

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

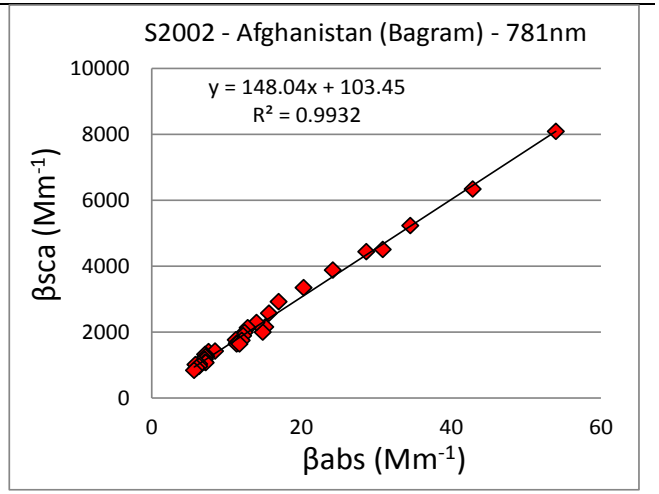
Sample S2002, Afghanistan (Bagram)



SSA (405nm) = 0.848

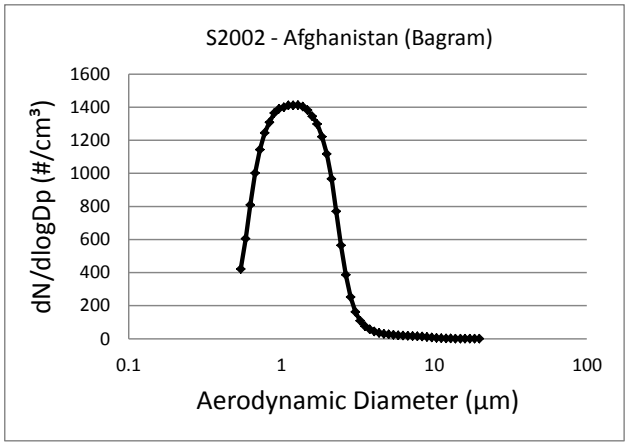


SSA (532nm) = 0.952



SSA (781nm) = 0.993

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



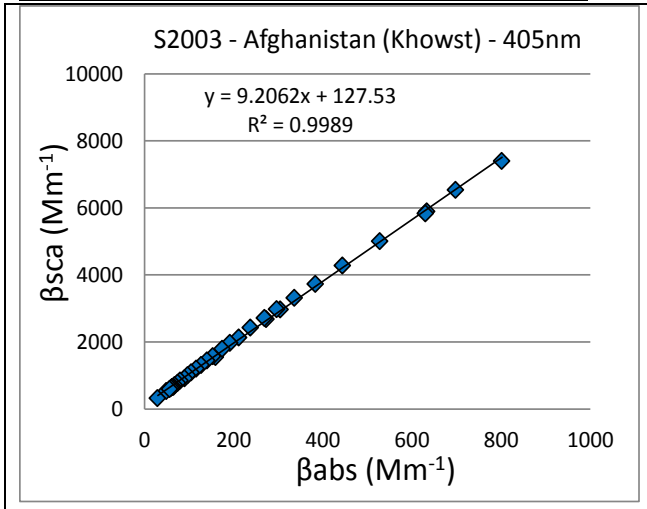
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.252	1.393	1.258	1.258	1.553

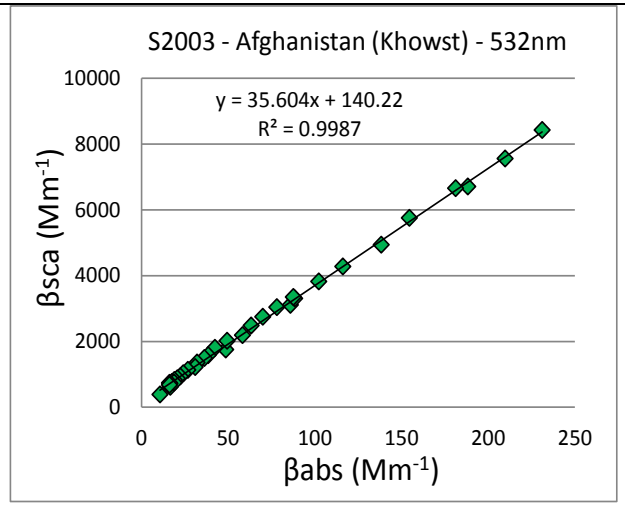
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	2230	5430	980	960
$PM_{2.5}/PM_{10}$	0.44	0.43	0.18	0.18
Average	0.31			

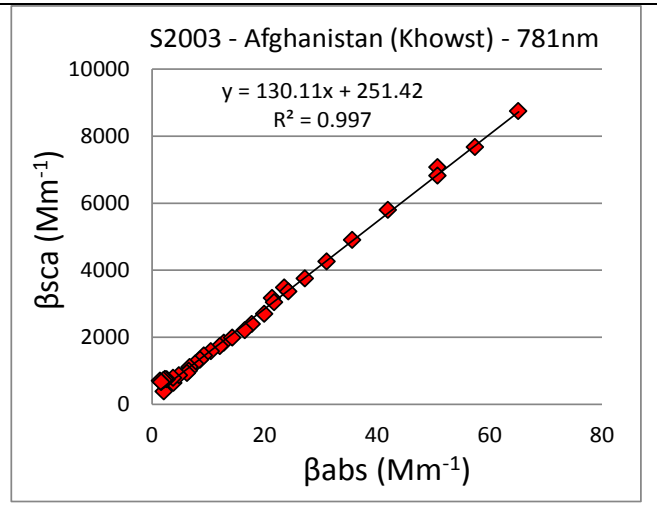
Betagauge			
	PM2.5		PM10
Mass (µg/m³)	730.3		4151.4
$PM_{2.5}/PM_{10}$	0.18		

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2003, Afghanistan (Khowst)

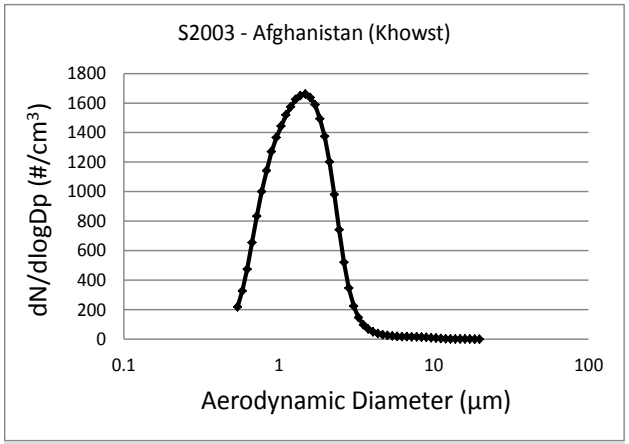






SSA (405nm) = 0.902 SSA (532nm) = 0.973 SSA (781nm) = 0.992

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



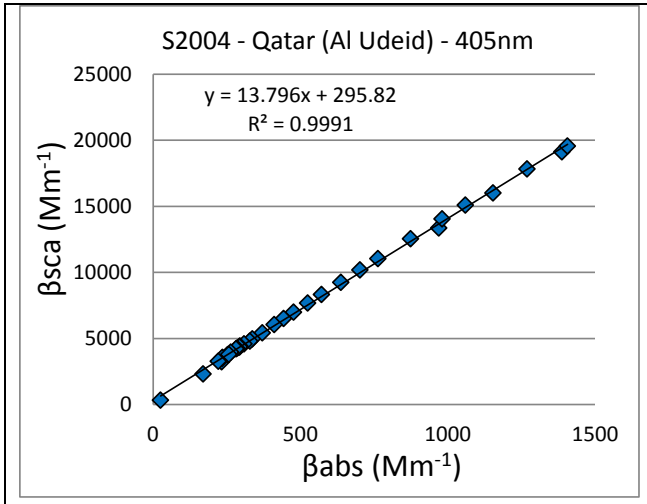
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.334	1.457	1.328	1.448	1.523

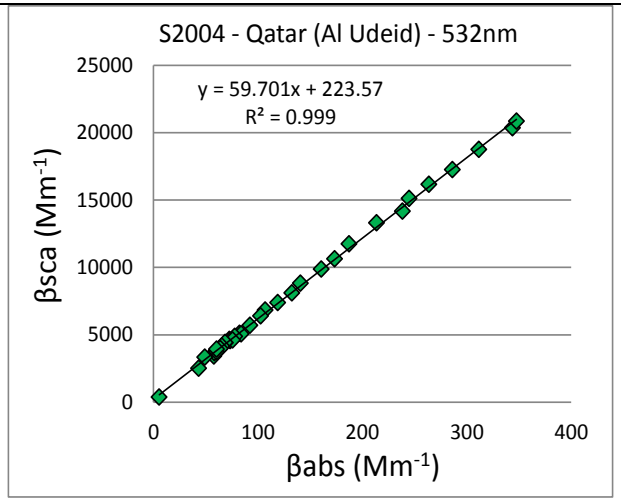
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	9880	na	na	na
$PM_{2.5}/PM_{10}$				
Average				

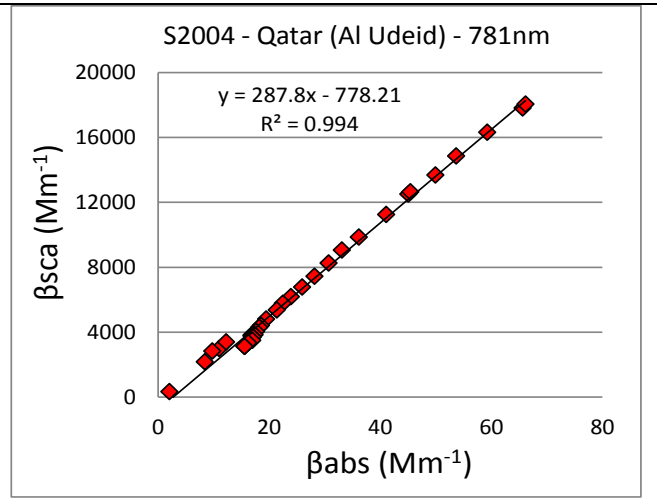
Betagauge			
	PM2.5		PM10
Mass (µg/m^3)	522.3		1975.1
$PM_{2.5}/PM_{10}$	0.26		

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2004, Qatar (Al Udeid)

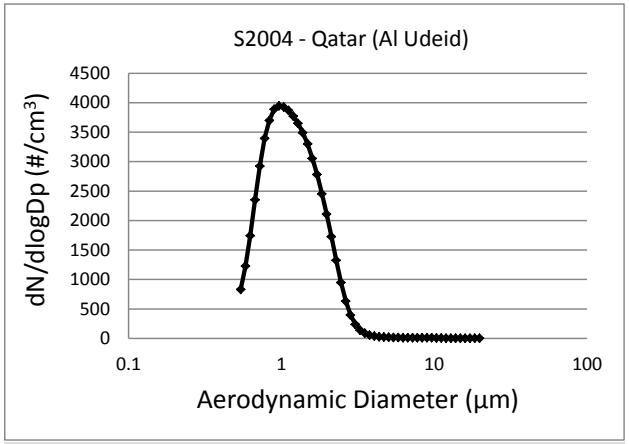






SSA (405nm) = 0.932 SSA (532nm) = 0.984 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.

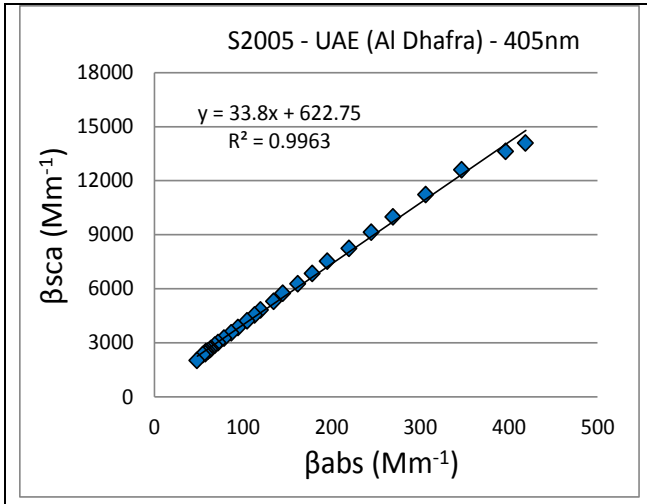


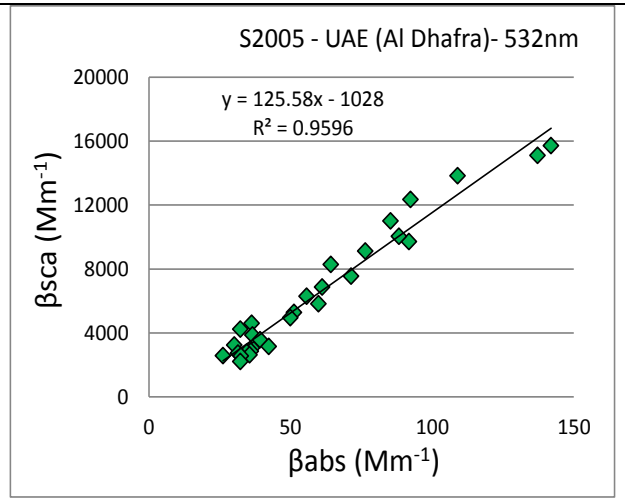
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.132	1.261	1.159	0.972	1.491

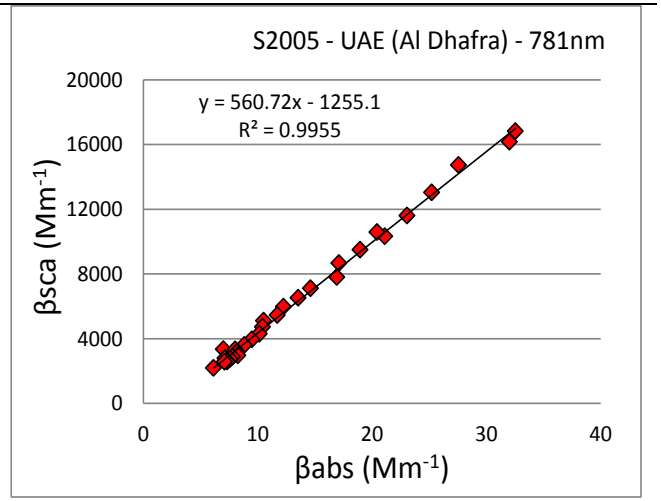
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	14330	12660	3200	3230
$PM_{2.5}/PM_{10}$	0.22	0.23	0.25	0.26
Average	0.24			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	380		1763.8	
$PM_{2.5}/PM_{10}$	0.22			

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2005, United Arab Emirates (Al Dhafra)

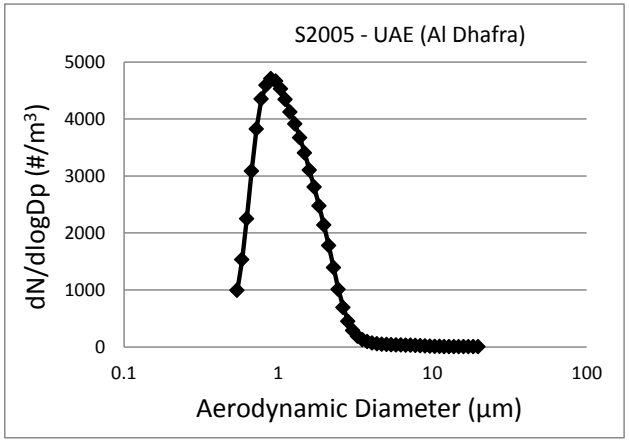






SSA (405nm) = 0.971 SSA (532nm) = 0.992 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



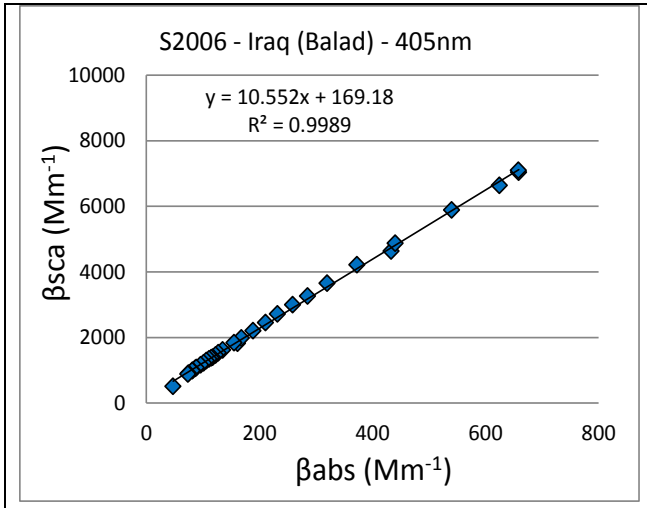
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.087	1.243	1.134	0.898	1.509

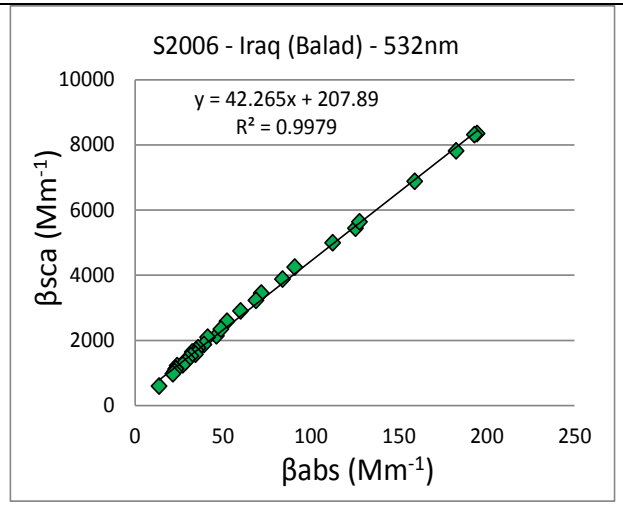
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	11580	10280	2270	2220
$PM_{2.5}/PM_{10}$	0.20	0.19	0.22	0.22
Average	0.21			

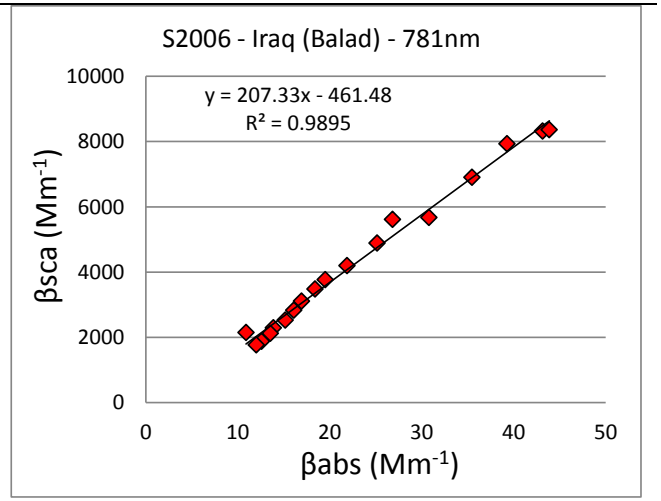
Betagauge			
	PM2.5		PM10
Mass (µg/m³)	207.7		1121.6
$PM_{2.5}/PM_{10}$	0.19		

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2006, Iraq (Balad)

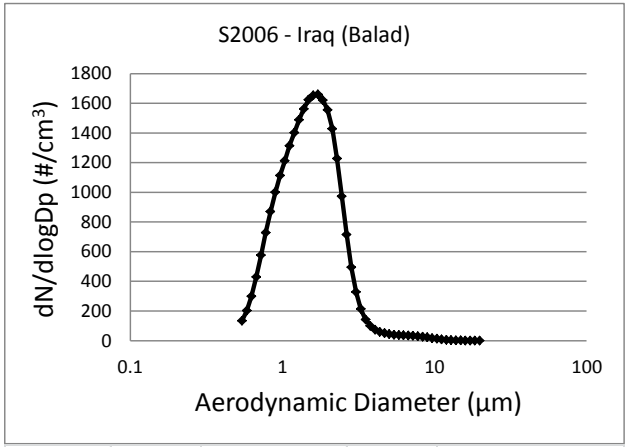






SSA (405nm) = 0.913 SSA (532nm) = 0.977 SSA (781nm) = 0.995

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



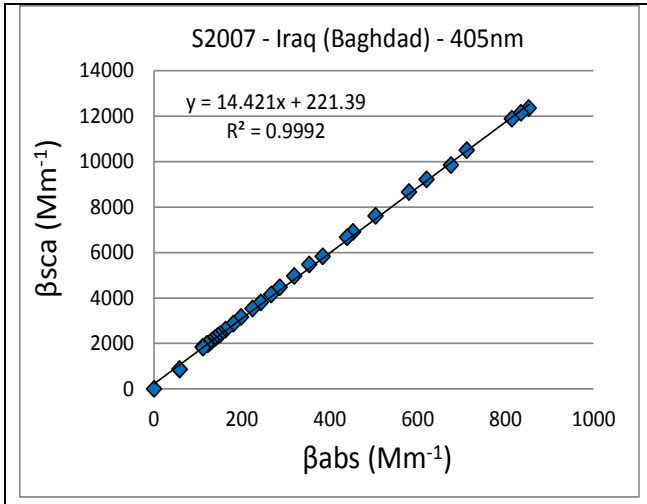
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.475	1.610	1.458	1.645	1.541

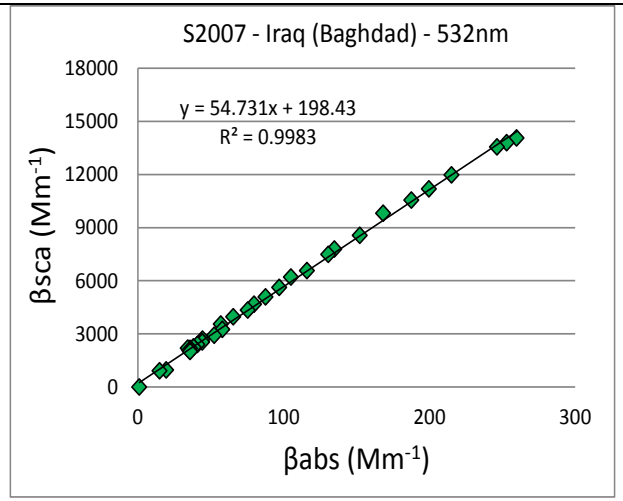
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	8370	7410	1430	1490
$PM_{2.5}/PM_{10}$	0.17	0.18	0.19	0.20
Average	0.19			

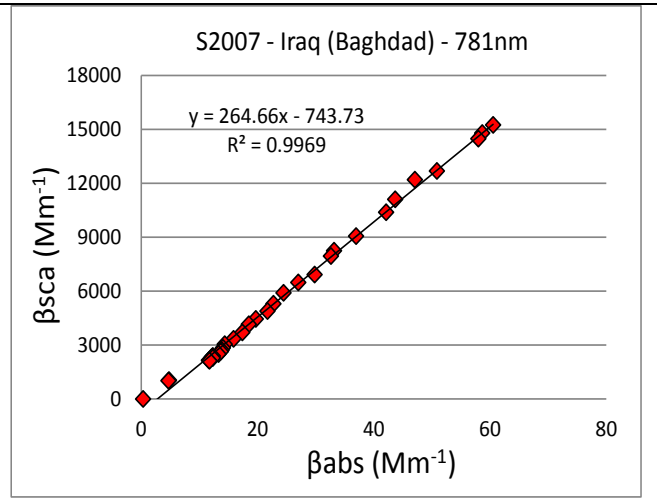
Betagauge			
	PM2.5		PM10
Mass (µg/m³)	586.9		3836.4
$PM_{2.5}/PM_{10}$	0.15		

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2007, Iraq (Baghdad, Camp Victory)

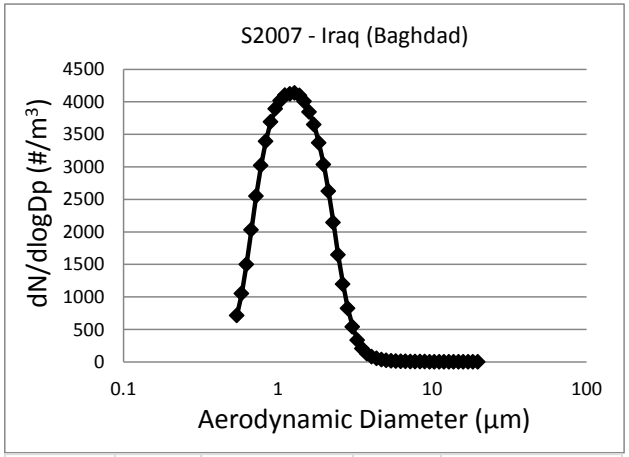






SSA (405nm) = 0.935 SSA (532nm) = 0.982 SSA (781nm) = 0.996

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



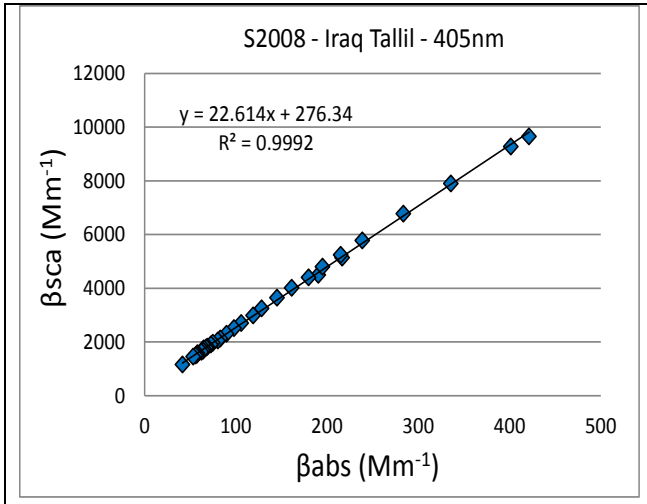
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.262	1.394	1.273	1.288	1.523

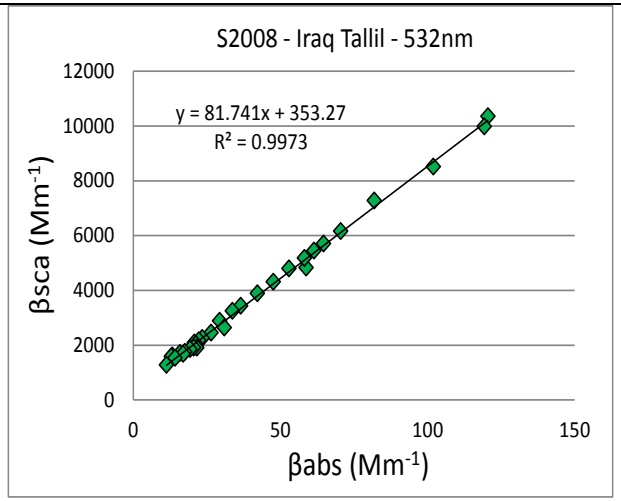
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	10310	9330	3030	3030
$PM_{2.5}/PM_{10}$	0.29	0.29	0.32	0.32
Average	0.31			

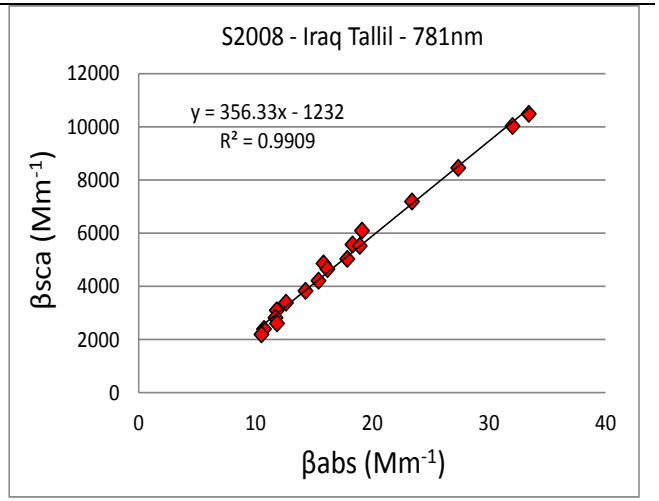
Betagauge			
	PM2.5		PM10
Mass (µg/m³)	183.5		647.3
$PM_{2.5}/PM_{10}$	0.28		

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2008, Iraq (Tallil, Camp Adder)

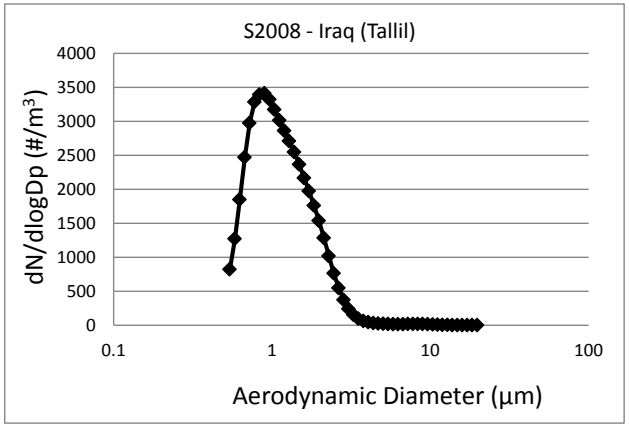






SSA (405nm) = 0.958 SSA (532nm) = 0.988 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



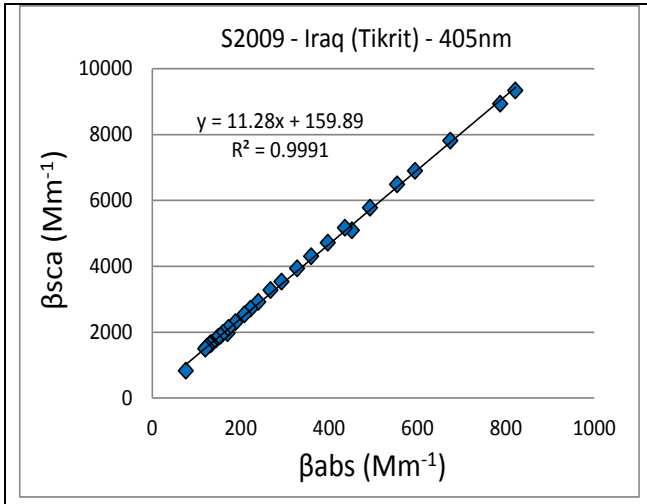
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.066	1.230	1.118	0.889	1.519

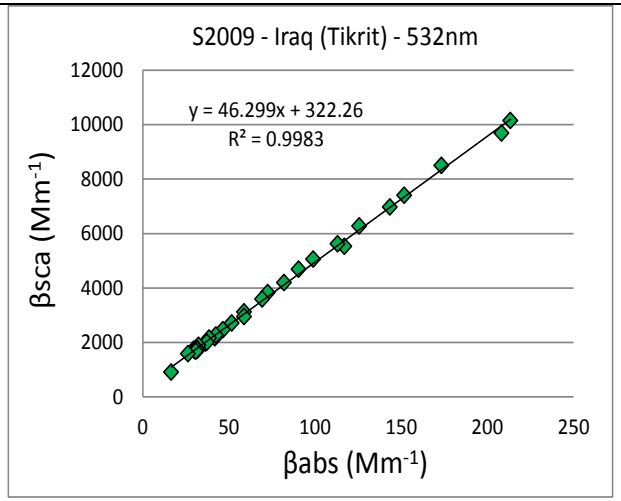
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	5290	4650	1170	1150
$PM_{2.5}/PM_{10}$	0.22	0.22	0.25	0.25
Average	0.23			

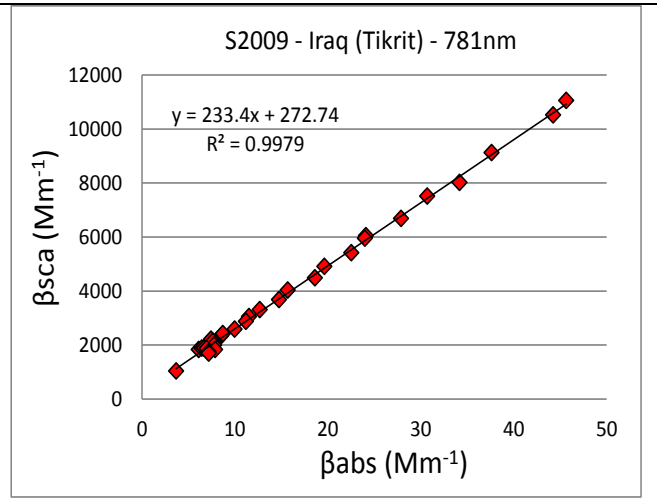
Betagauge			
	PM2.5		PM10
Mass (µg/m³)	383.6		2152.1
$PM_{2.5}/PM_{10}$	0.18		

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2009, Iraq (Tikrit, Speicher)

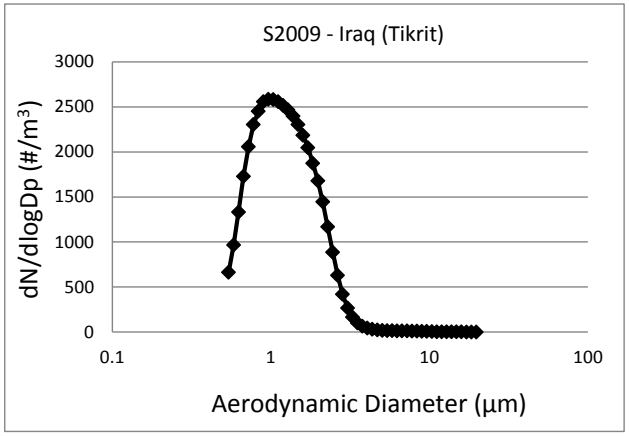






SSA (405nm) = 0.919 SSA (532nm) = 0.979 SSA (781nm) = 0.996

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



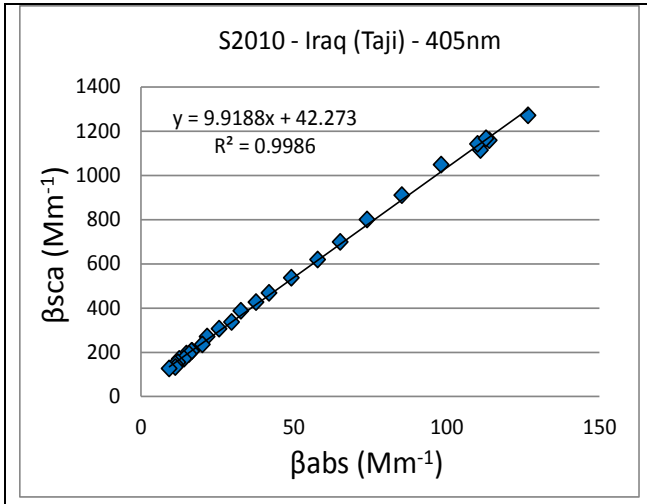
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.168	1.313	1.195	1.007	1.530

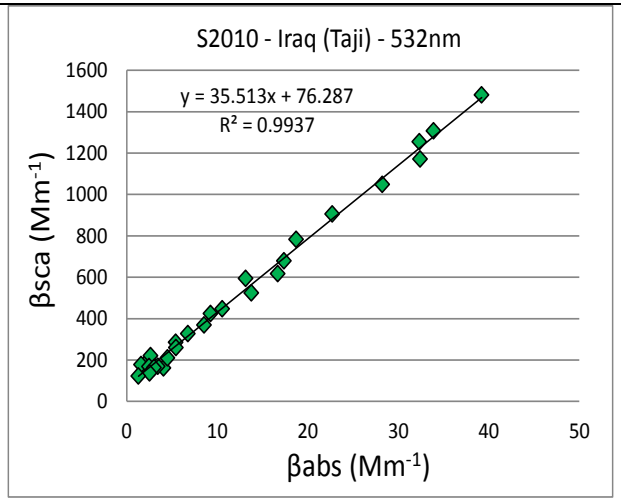
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	9190	8200	2170	2140
$PM_{2.5}/PM_{10}$	0.24	0.23	0.26	0.26
Average	0.25			

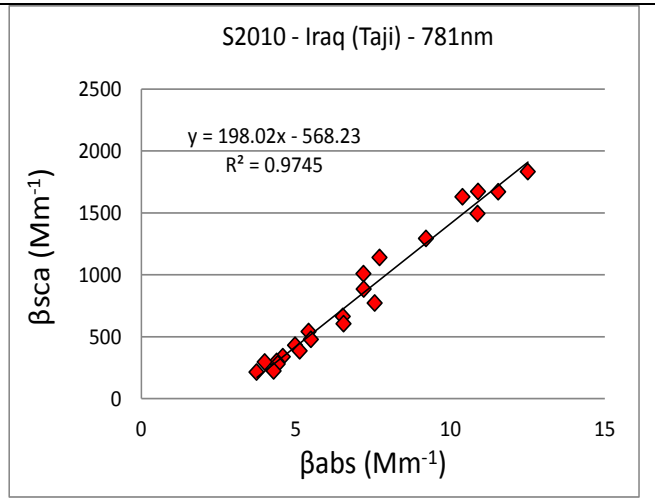
Betagauge			
	PM2.5		PM10
Mass (µg/m³)	174.9		771.2
$PM_{2.5}/PM_{10}$	0.23		

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2010, Iraq (Taji)

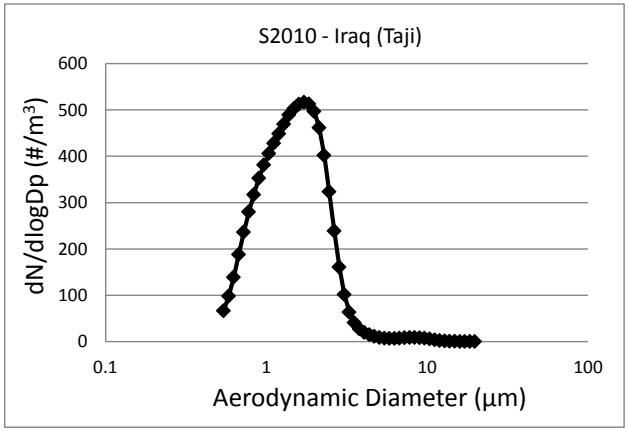






SSA (405nm) = 0.908 SSA (532nm) = 0.973 SSA (781nm) = 0.995

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



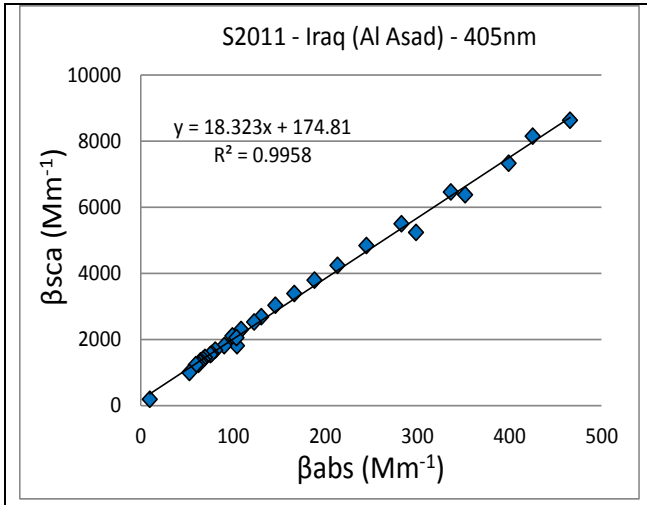
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.437	1.568	1.415	1.665	1.557

Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	4520	4010	580	550
$PM_{2.5}/PM_{10}$	0.13	0.12	0.14	0.14
Average	0.13			

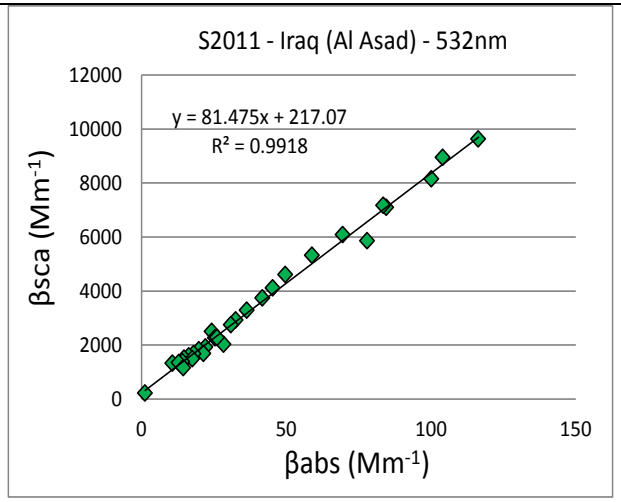
Betagauge			
	PM2.5		PM10
Mass (µg/m³)	811.1		6116.4
$PM_{2.5}/PM_{10}$	0.13		

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

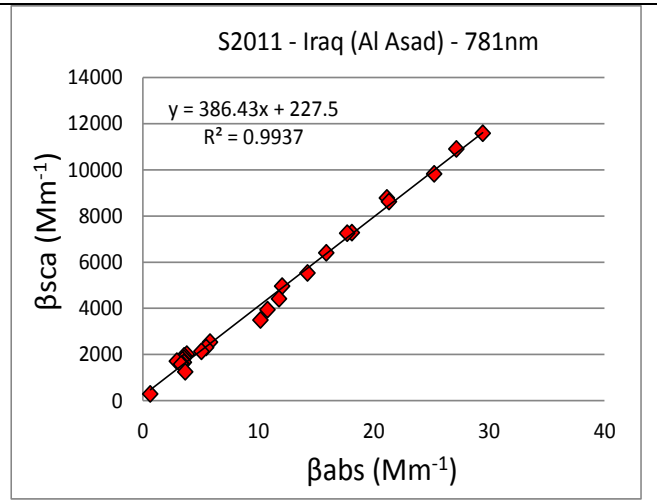
Sample S2011, Iraq (Al Asad)



SSA (405nm) = 0.948

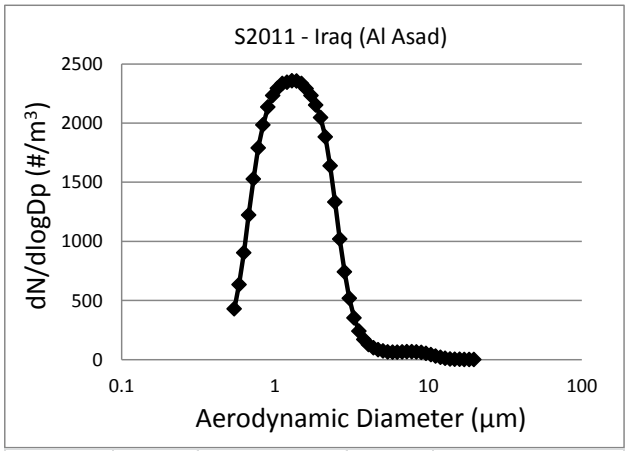


SSA (532nm) = 0.988



SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.

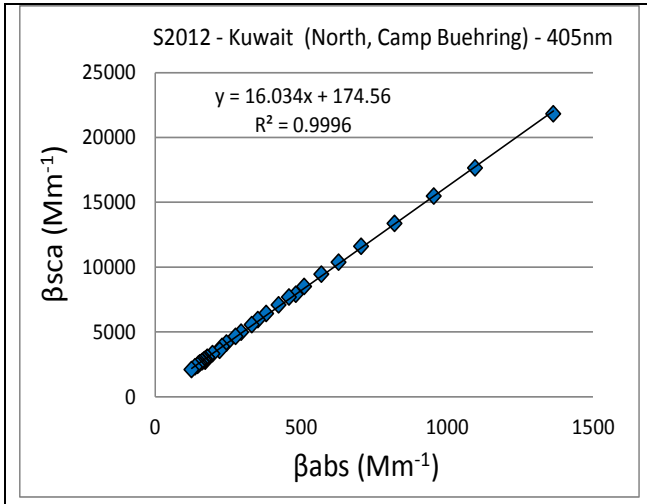


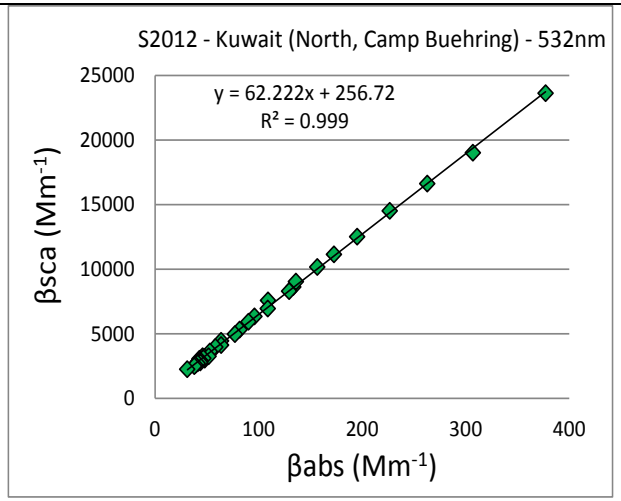
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.326	1.534	1.351	1.303	1.607

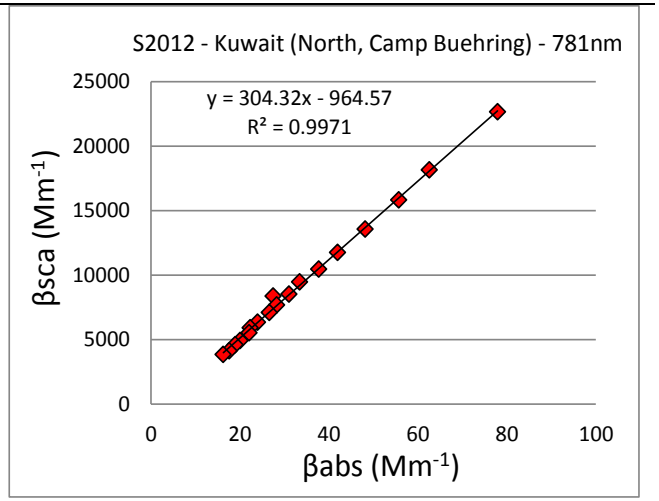
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	14190	12610	1750	1750
$PM_{2.5}/PM_{10}$	0.12	0.12	0.14	0.14
Average	0.13			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	439.1		3639.8	
$PM_{2.5}/PM_{10}$	0.12			

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2012, Kuwait, (North, Camp Buehring)

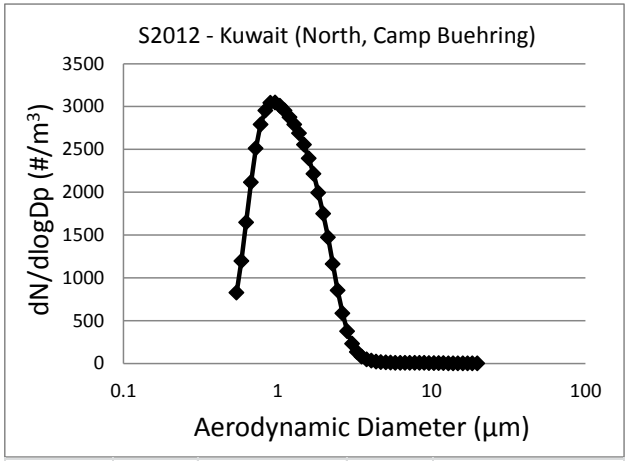






SSA (405nm) = 0.941 SSA (532nm) = 0.984 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



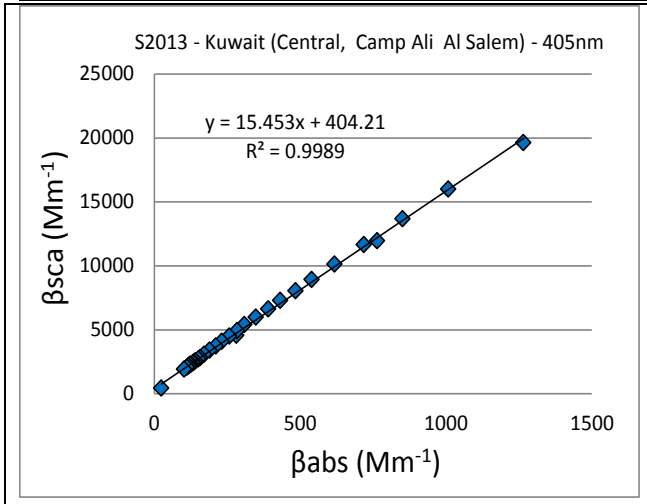
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.121	1.258	1.151	0.936	1.510

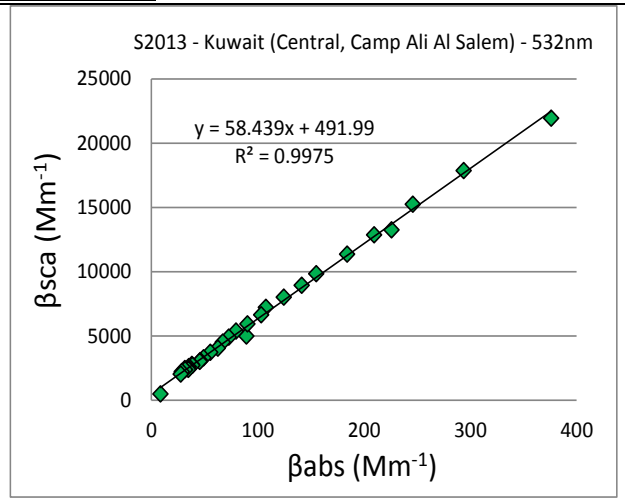
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	7690	7190	2150	2160
$PM_{2.5}/PM_{10}$	0.28	0.28	0.30	0.30
Average	0.29			

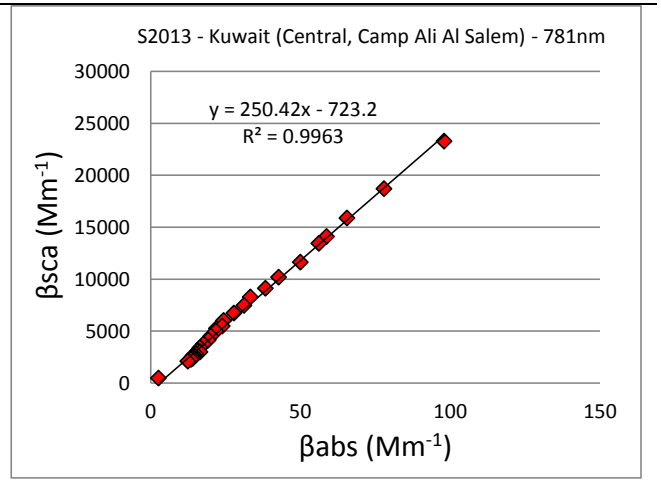
Betagauge			
	PM2.5		PM10
Mass (µg/m³)	369.9		1070.2
$PM_{2.5}/PM_{10}$	0.35		

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2013, Kuwait, (Central, Camp Ali Al Salem)

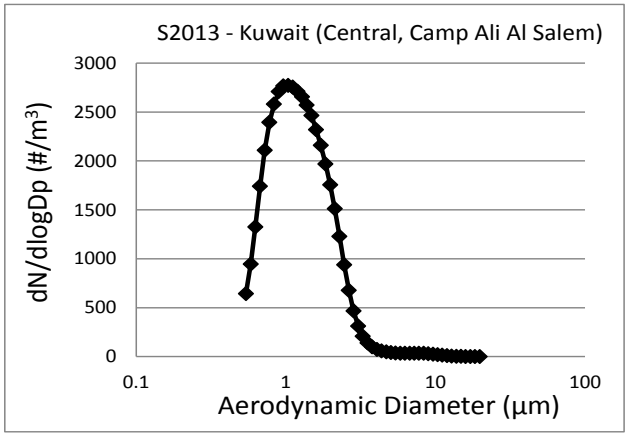






SSA (405nm) = 0.939 SSA (532nm) = 0.983 SSA (781nm) = 0.996

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.

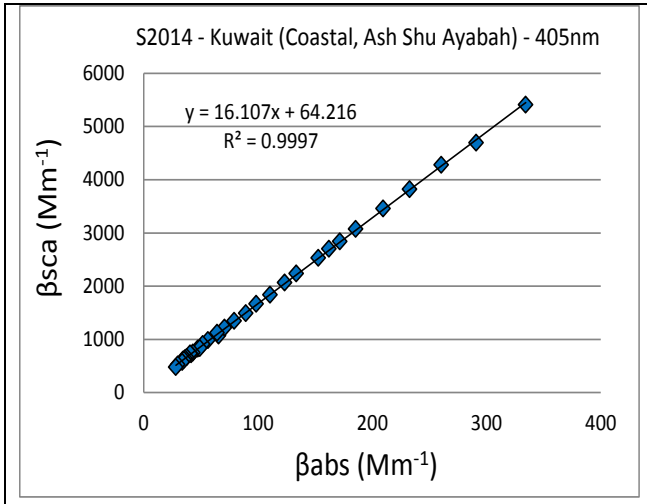


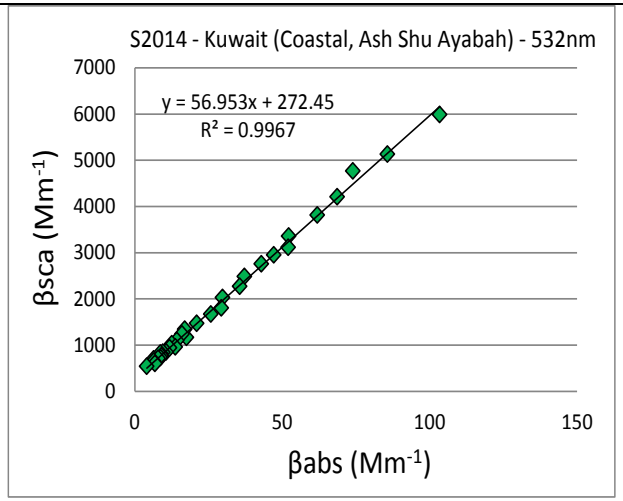
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.171	1.336	1.204	1.009	1.544

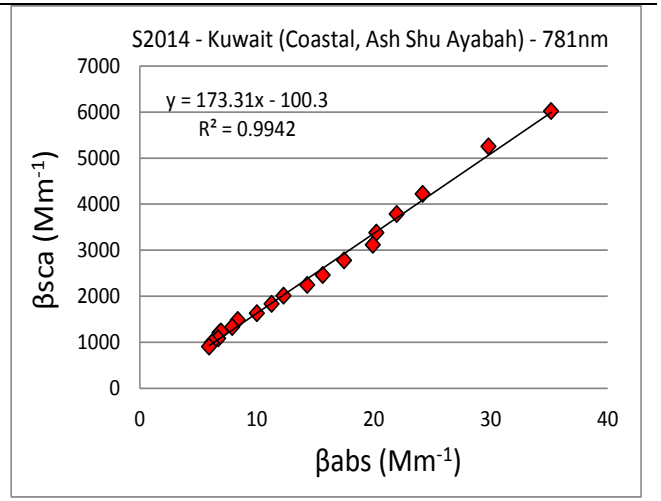
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	13090	11930	2030	2070
$PM_{2.5}/PM_{10}$	0.16	0.16	0.17	0.17
Average	0.16			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	282.4		877.9	
$PM_{2.5}/PM_{10}$	0.32			

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2014, Kuwait, (Coastal, Ash Shu Ayabah)

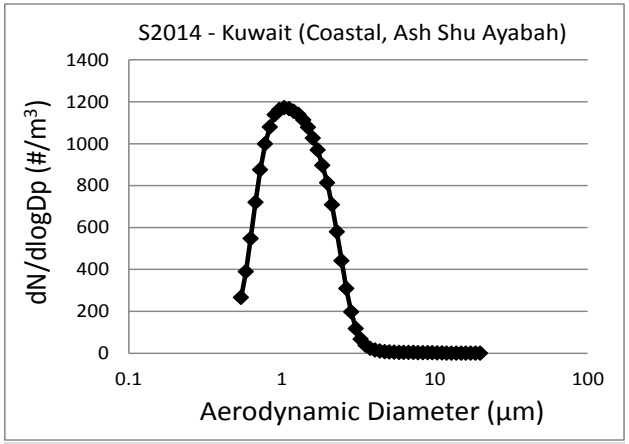






SSA (405nm) = 0.942 SSA (532nm) = 0.983 SSA (781nm) = 0.994

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.

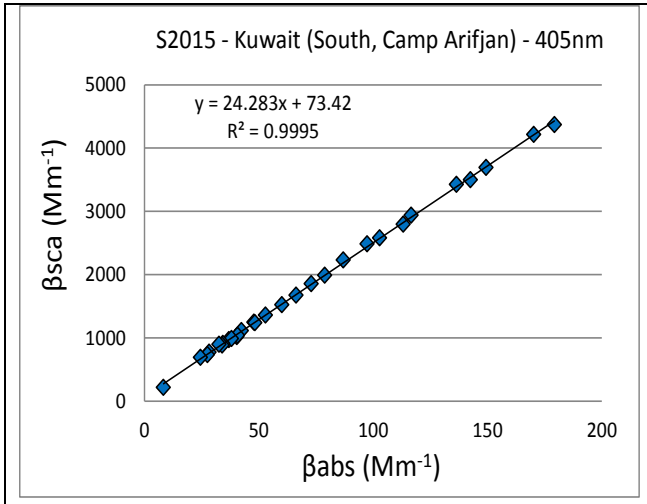


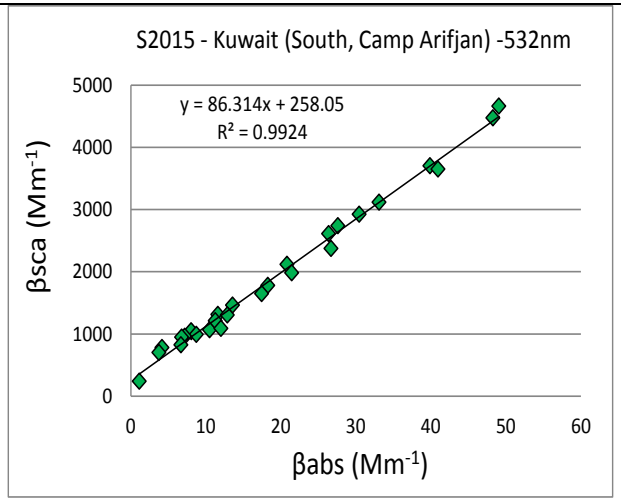
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.188	1.324	1.209	1.037	1.522

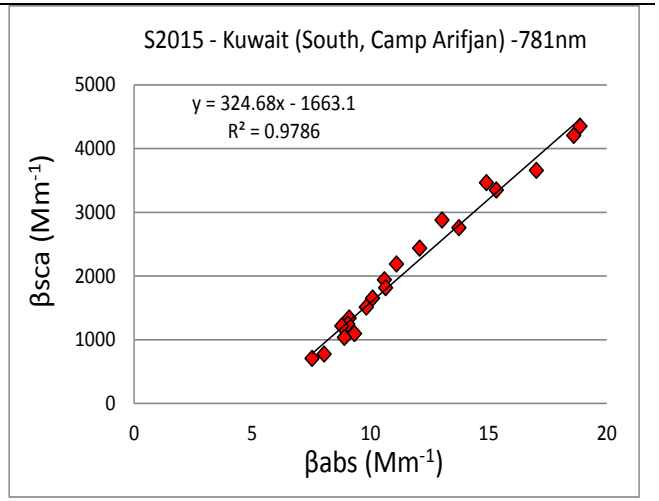
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	5850	5440	1100	1130
$PM_{2.5}/PM_{10}$	0.19	0.19	0.20	0.21
Average	0.20			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	651.5		2909.1	
$PM_{2.5}/PM_{10}$	0.22			

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2015, Kuwait, (South, Camp Arifjan)

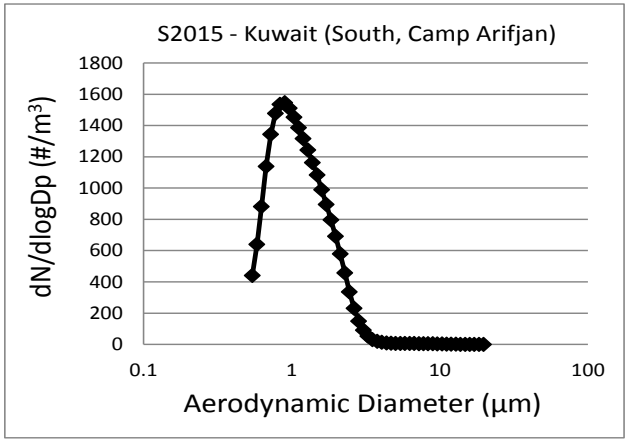






SSA (405nm) = 0.960 SSA (532nm) = 0.989 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



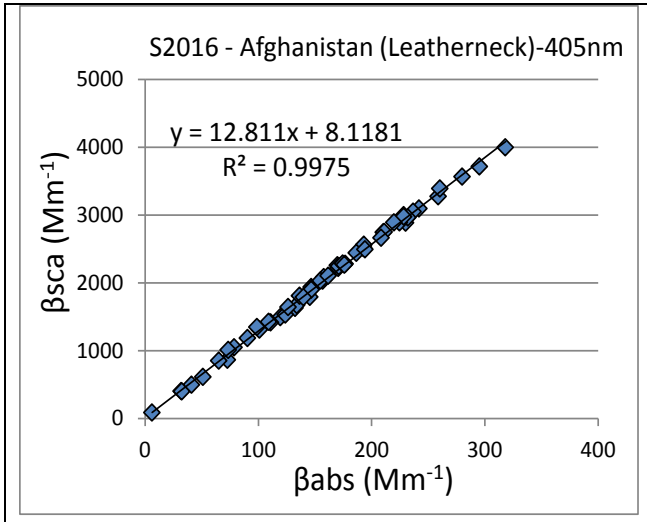
Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.062	1.212	1.108	0.886	1.509

Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	5560	5040	880	850
$PM_{2.5}/PM_{10}$	0.16	0.15	0.17	0.17
Average	0.16			

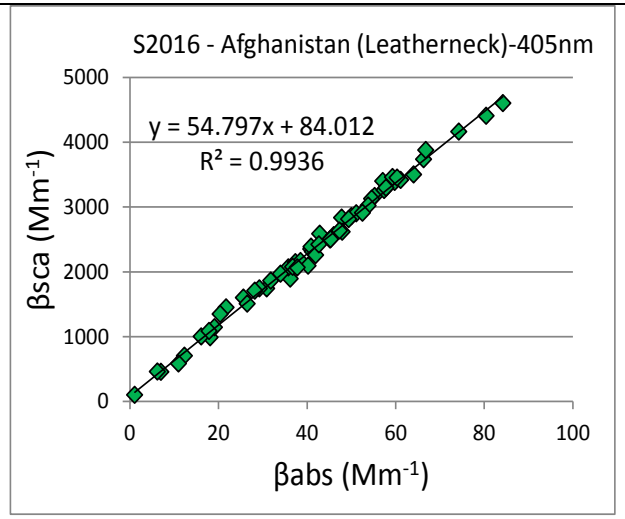
Betagauge			
	PM2.5		PM10
Mass (µg/m³)	1417.3		6737.4
$PM_{2.5}/PM_{10}$	0.21		

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

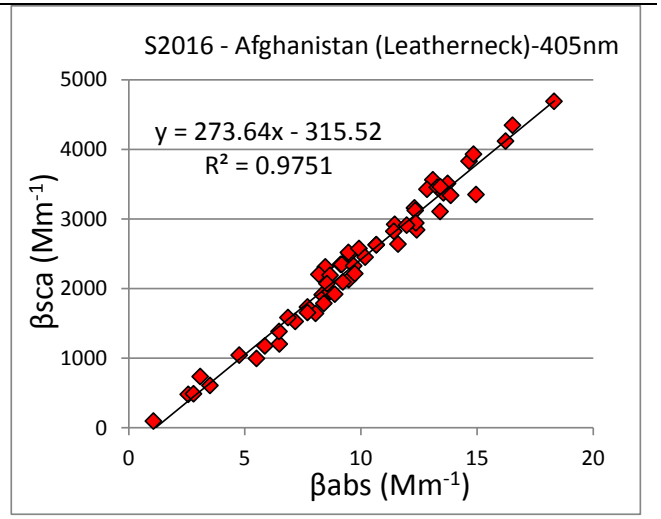
Sample S2016, Afghanistan (Camp Leatherneck, Helmand Province)



SSA (405nm) = 0.928

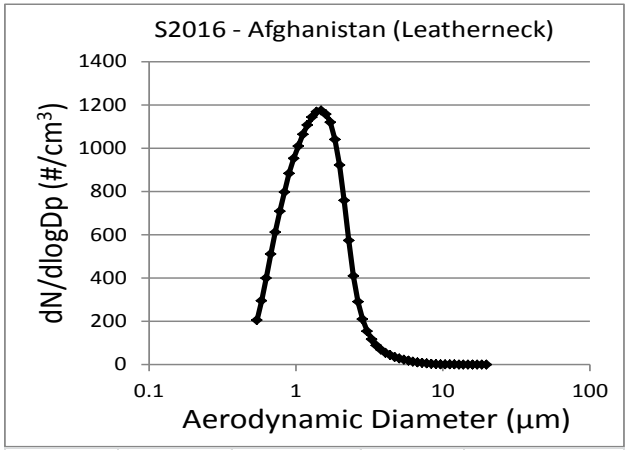


SSA (532nm) = 0.982



SSA (781nm) = 0.996

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.335	1.473	1.332	1.478	1.551

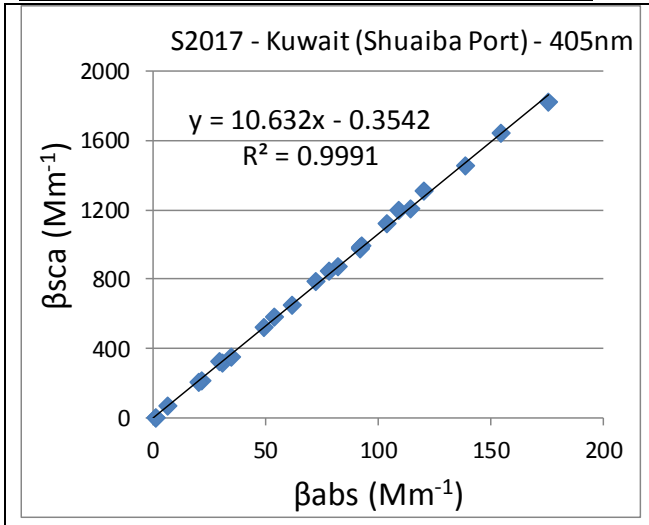
	Teflon Filters			
	PM2.5	PM2.5	PM10	PM10
Mass (µg)	1510	1390	5170	5790
$PM_{2.5}/PM_{10}$	0.29	0.26	0.26	0.24
Average	0.26			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	1481		5762	
$PM_{2.5}/PM_{10}$	0.26			

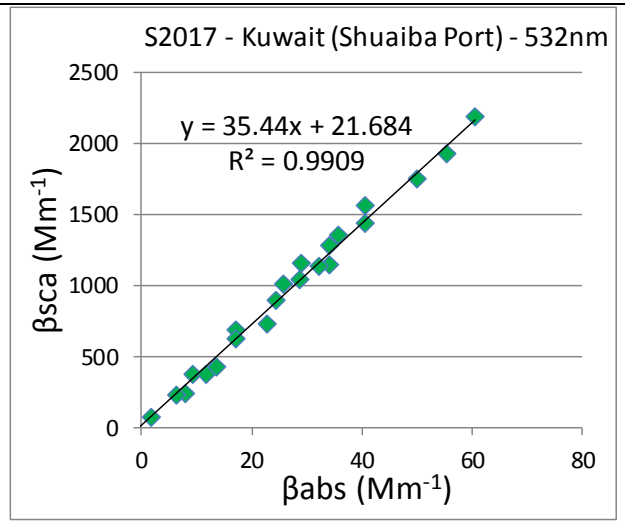
SEM Measured Aspect Ratio

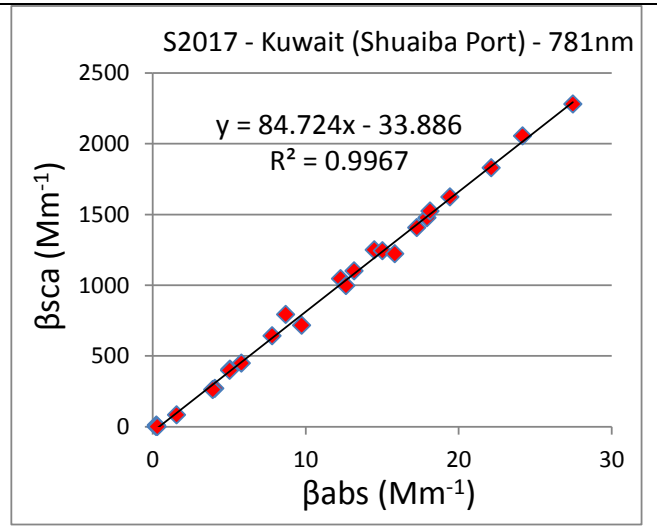
Sample #	Number of Particles	Min	Max	Geom Mean
S2016	1338	1.000	10.346	1.482

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S2017, Kuwait (Shuaiba Port)

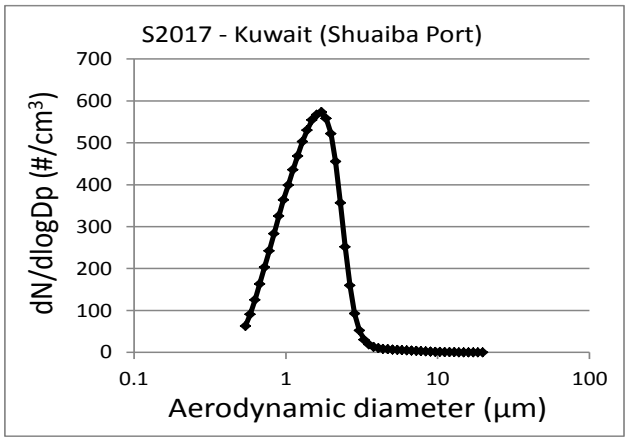






SSA (405nm) = 0.914 SSA (532nm) = 0.973 SSA (781nm) = 0.988

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.468	1.540	1.420	1.736	1.498

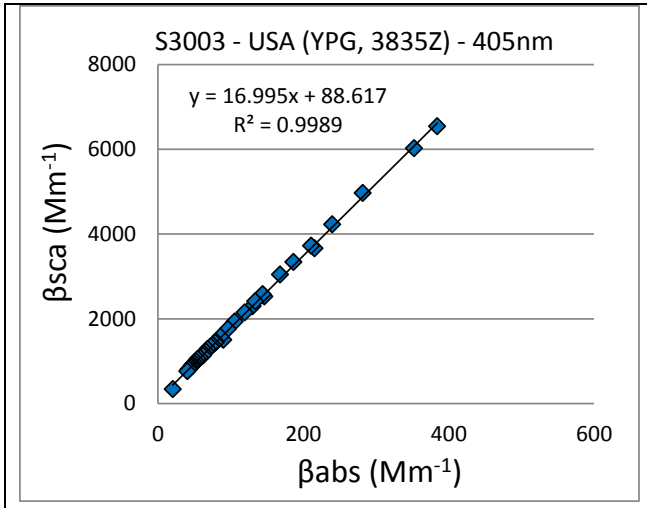
	Teflon Filters			
	PM2.5	PM2.5	PM10	PM10
Mass (µg)	1510	1390	5170	5790
$PM_{2.5}/PM_{10}$	0.29	0.26	0.26	0.24
Average	0.26			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	1481		5762	
$PM_{2.5}/PM_{10}$	0.26			

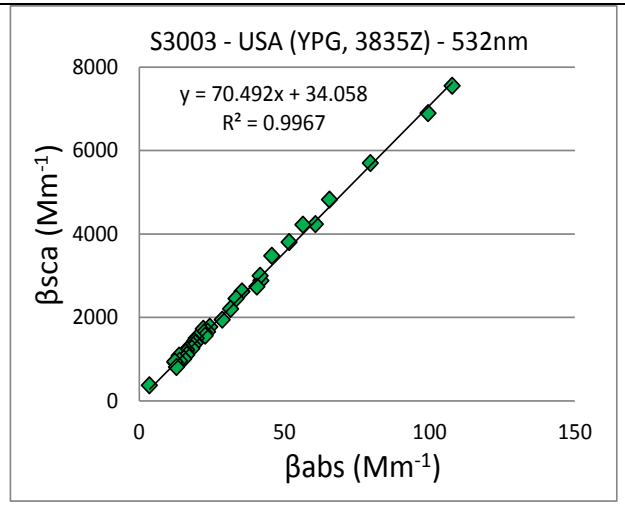
SEM Measured Aspect Ratio

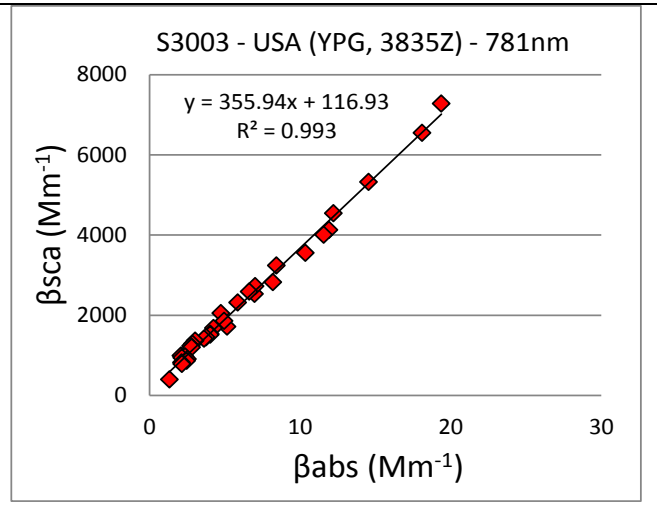
Sample #	Number of Particles	Min	Max	Geom Mean
S2017	2345	1.000	5.934	1.434

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S3003, USA (Yuma Proving Grounds, Area 3835Z)

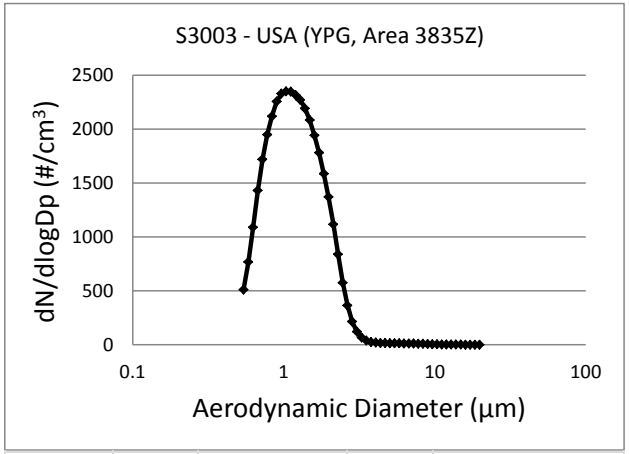






SSA (405nm) = 0.944 SSA (532nm) = 0.986 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.157	1.278	1.175	1.065	1.494

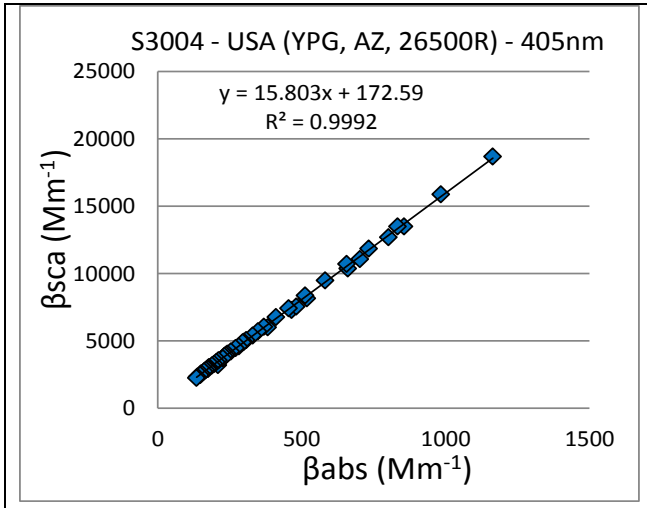
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	6620	5110	1080	1050
$PM_{2.5}/PM_{10}$	0.16	0.21	0.16	0.21
Average	0.18			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m³)	618.4		3299.5	
$PM_{2.5}/PM_{10}$	0.19			

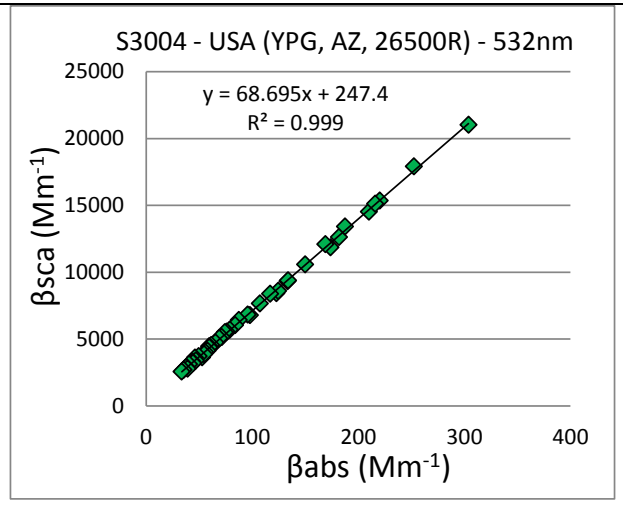
SEM Measured Aspect Ratio

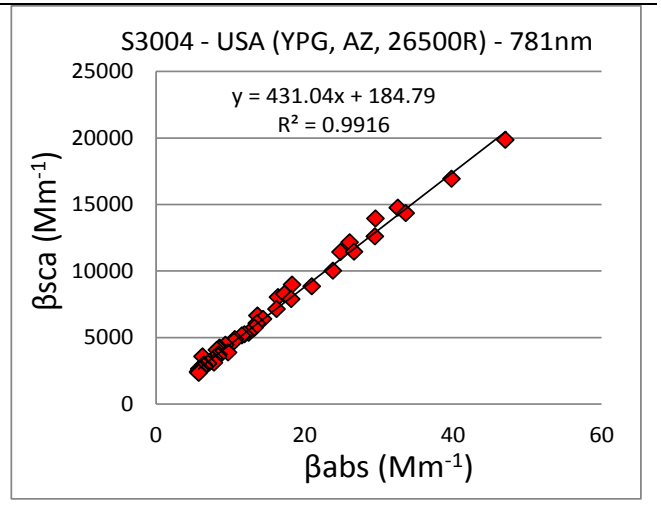
Sample #	Number of Particles	Min	Max	Geom Mean
S3003	1428	1.003	3.576	1.455

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S3004, USA (Yuma Proving Ground, Arizona, Area 26500R)

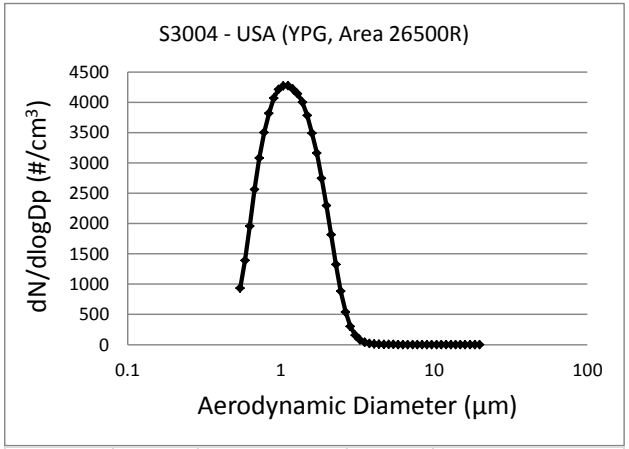






SSA (405nm) = 0.940 SSA (532nm) = 0.986 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.144	1.248	1.157	1.071	1.473

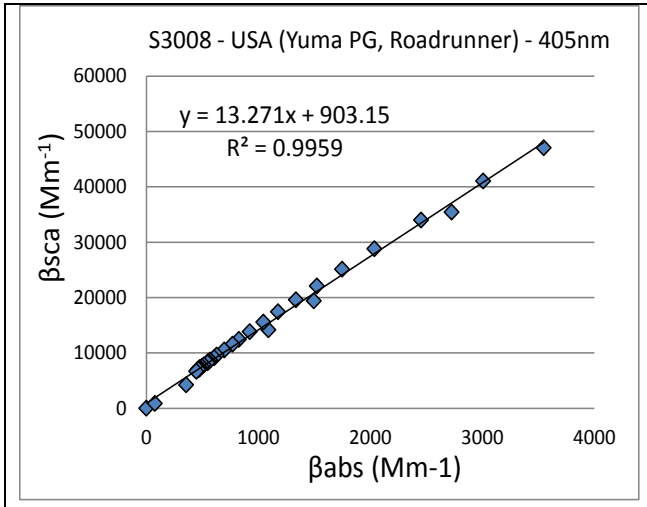
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	7390	6490	2870	2760
$PM_{2.5}/PM_{10}$	0.39	0.44	0.37	0.43
Average	0.41			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	408.8		921.6	
$PM_{2.5}/PM_{10}$	0.44			

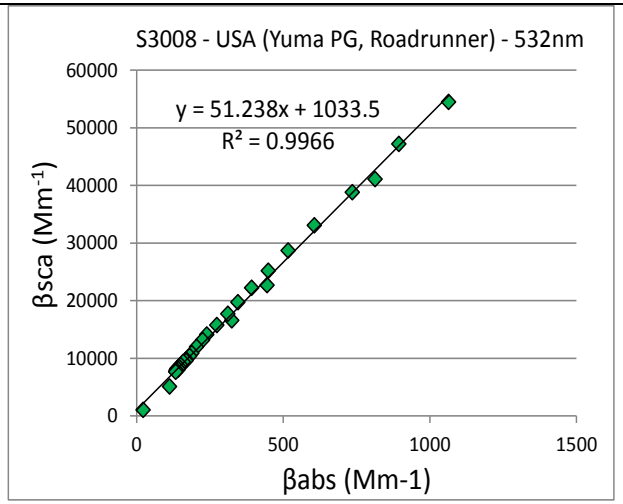
SEM Measured Aspect Ratio

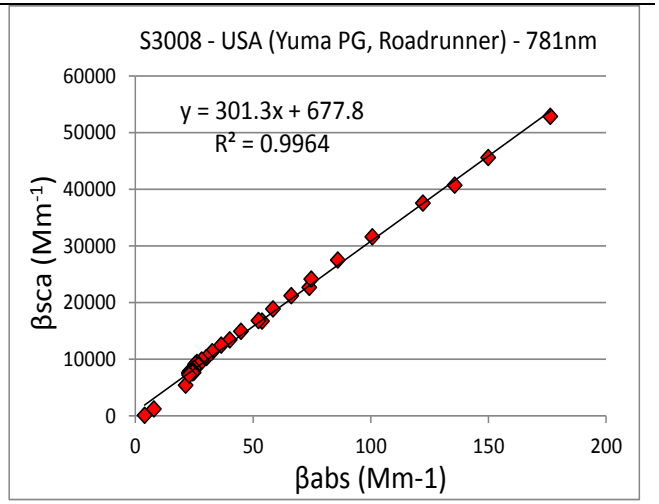
Sample #	Number of Particles	Min	Max	Geom Mean
S3004	1393	1.000	3.479	1.469

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S3008, USA (Yuma Proving Ground, Roadrunner Site)

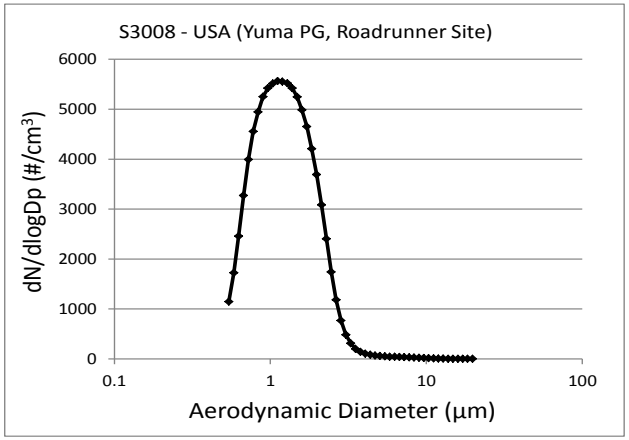






SSA (405nm) = 0.930 SSA (532nm) = 0.981 SSA (781nm) = 0.997

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.201	1.336	1.218	1.156	1.518

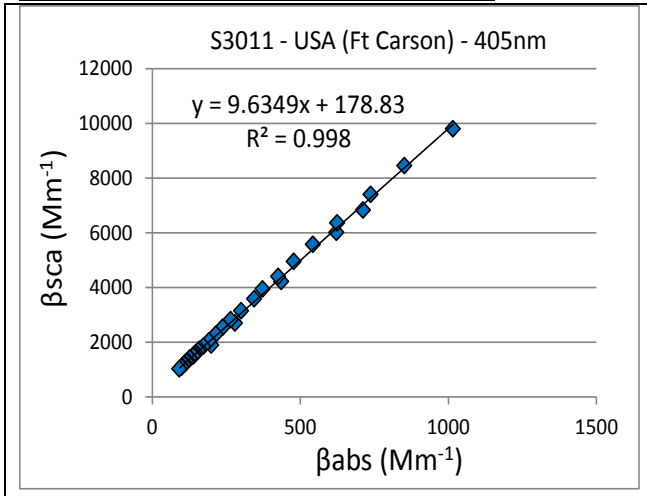
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	24800	22330	5230	5190
PM2.5/PM10	0.21	0.21	0.23	0.23
Average	0.22			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m3)	298.2		1024	
PM2.5/PM10	0.29			

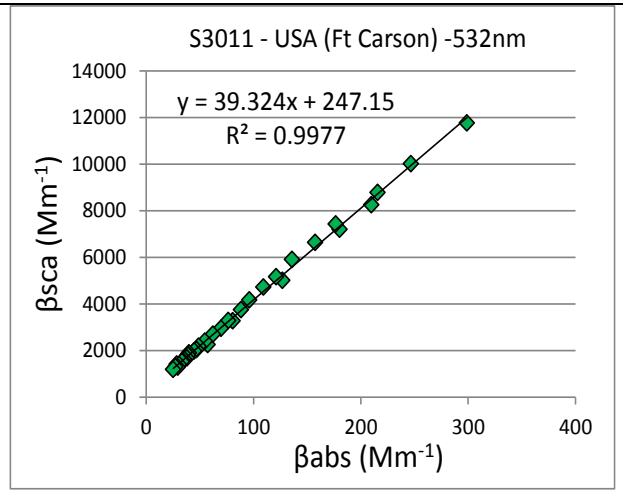
SEM Measured Aspect Ratio

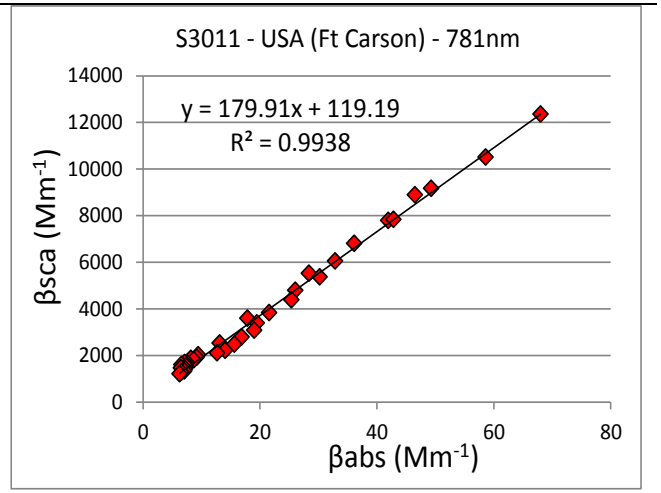
Sample #	Number of Particles	Min	Max	Geom Mean
S3008	1418	1.000	6.300	1.499

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S3011, USA (Ft Carson)

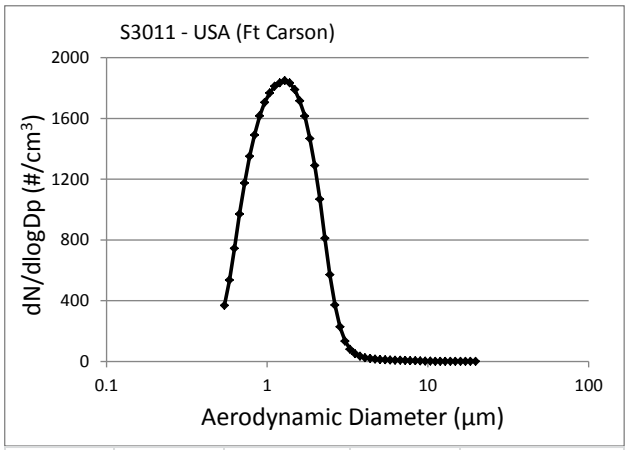






SSA (405nm) = 0.906 SSA (532nm) = 0.975 SSA (781nm) = 0.994

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.230	1.341	1.232	1.282	1.501

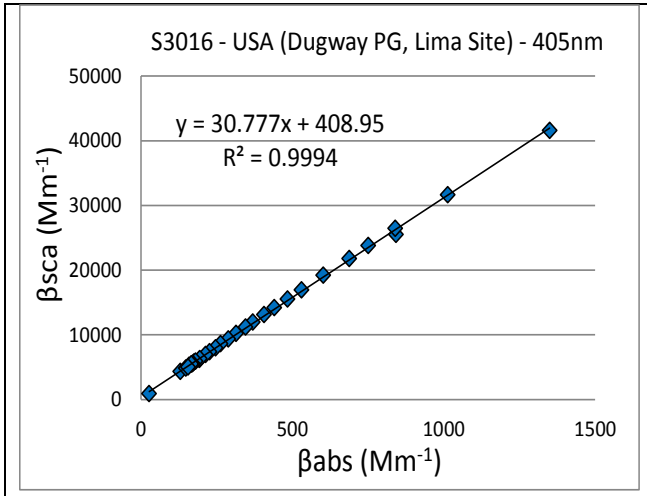
	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	8460	7570	1920	1900
$PM_{2.5}/PM_{10}$	0.23	0.25	0.22	0.25
Average	0.24			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m^3)	378.6		1316.8	
$PM_{2.5}/PM_{10}$	0.29			

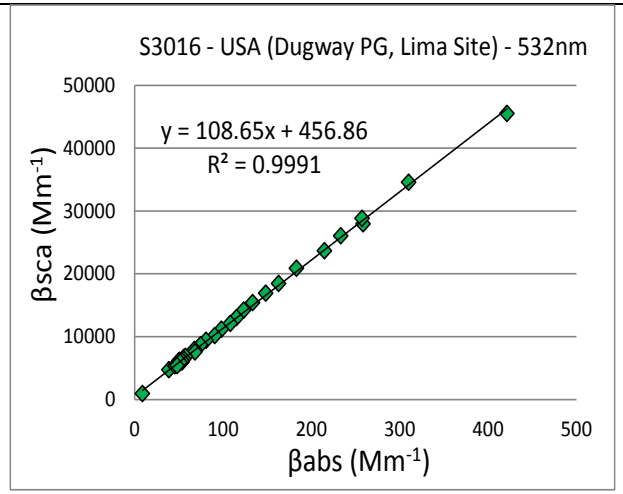
SEM Measured Aspect Ratio

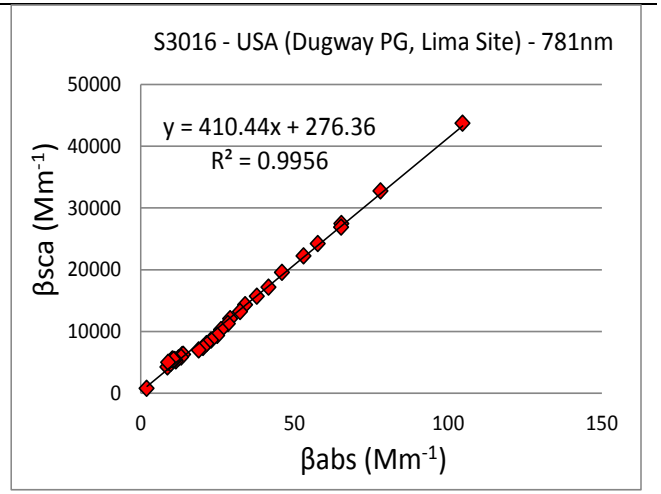
Sample #	Number of Particles	Min	Max	Geom Mean
S3011	1405	1.000	6.573	1.456

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S3016, USA (Dugway PG, Lima Site)

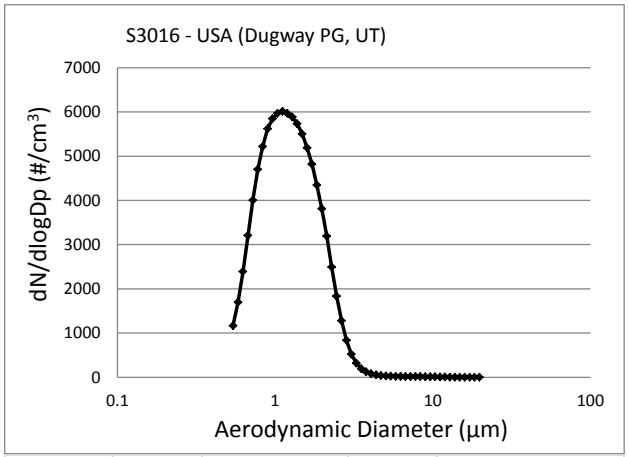






SSA (405nm) = 0.969 SSA (532nm) = 0.991 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.196	1.326	1.214	1.116	1.507

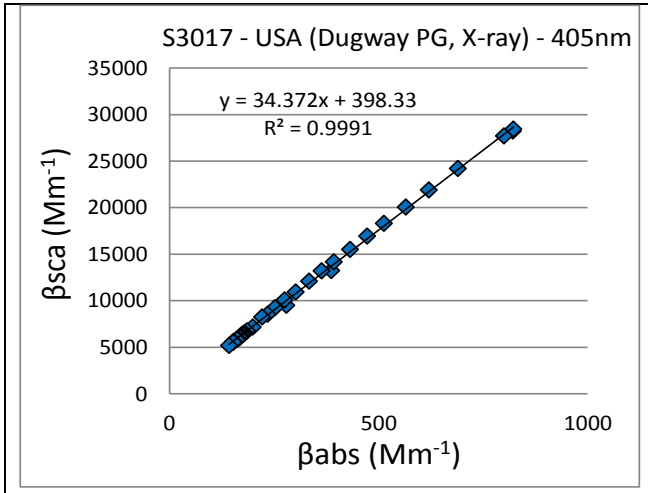
Teflon Filters				
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	14660	13780	4800	4830
$PM_{2.5}/PM_{10}$	0.33	0.33	0.35	0.35
Average	0.34			
Betagauge				
	PM2.5		PM10	
Mass (µg/m³)	282		955.6	
$PM_{2.5}/PM_{10}$	0.30			

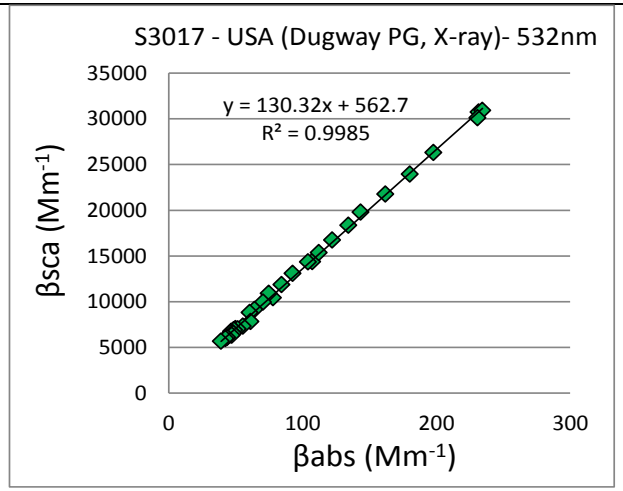
SEM Measured Aspect Ratio

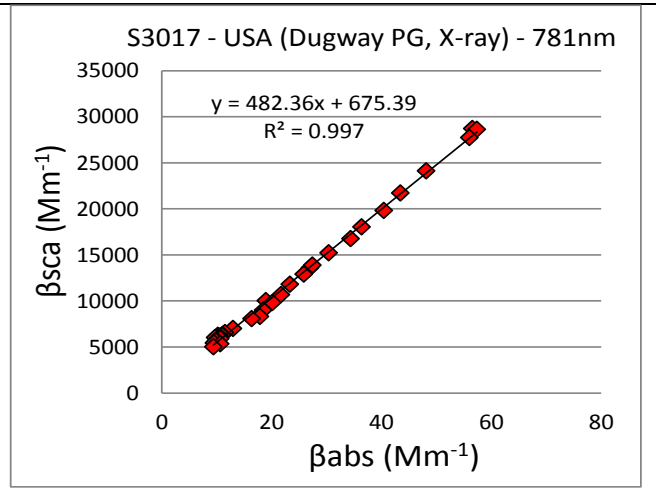
Sample #	Number of Particles	Min	Max	Geom Mean
S3016	1361	1.000	5.121	1.546

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Sample S3017, USA (Dugway PG, UT, X-ray site)

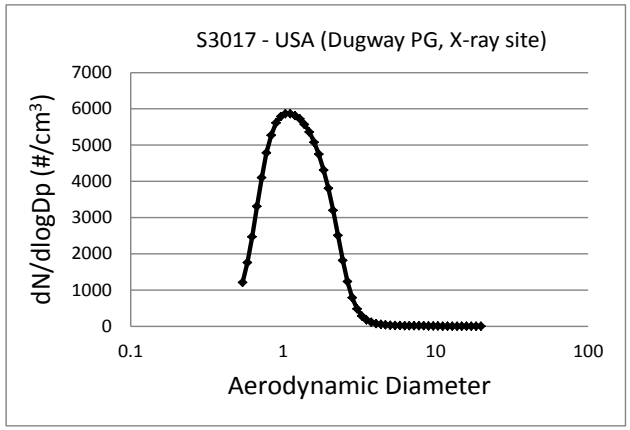






SSA (405nm) = 0.972 SSA (532nm) = 0.992 SSA (781nm) = 0.998

Optical scattering, absorption and single scattering albedos (SSA) at three wavelengths, where SSA = 1/(1 + 1/m) and m is the slope of the above plots.



Median (µm)	Mean (µm)	Geo. Mean (µm)	Mode (µm)	Geo. Std. Dev. (µm)
1.188	1.318	1.207	1.083	1.507

	Teflon Filters			
	PM10	PM10	PM2.5	PM2.5
Mass (µg)	18600	17000	5780	6020
$PM_{2.5}/PM_{10}$	0.31	0.32	0.34	0.35
Average	0.33			
	Betagauge			
	PM2.5		PM10	
Mass (µg/m^3)	172.8		530.5	
$PM_{2.5}/PM_{10}$	0.33			

SEM Measured Aspect Ratio

Sample #	Number of Particles	Min	Max	Geom Mean
S3017	1324	1.000	5.115	1.536

Particle size distribution for $PM_{2.5}$, as well as Teflon filter and betagauge mass measurements, together with $PM_{2.5}/PM_{10}$ ratios.

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1000						S1005						S1006						S1007					
Locality	Unknown						Spain, Lanzarote, La Mala, Sample 1						Spain, Lanzarote, La Mala, Sample 2						Spain, Lanzarote, Mirador del Rio					
Particle Size	PM_{10}			$PM_{2.5}$			PM_{10}			$PM_{2.5}$			PM_{10}			$PM_{2.5}$			PM_{10}			$PM_{2.5}$		
	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc
	%		%	%		%	%		%	%		%	%		%	%		%	%		%	%		%
Majors																								
Si	0.247	±	0.014	0.193	±	0.013	4.896	±	0.026	6.960	±	0.058	2.586	±	0.013	4.213	±	0.021	5.877	±	0.018	7.366	±	0.036
Ti	0.000	±	0.008	0.000	±	0.008	0.127	±	0.005	0.152	±	0.012	0.094	±	0.002	0.123	±	0.004	0.405	±	0.004	0.420	±	0.008
Al	0.323	±	0.028	0.275	±	0.025	1.621	±	0.031	2.584	±	0.080	0.995	±	0.018	1.692	±	0.028	1.802	±	0.019	2.363	±	0.043
Fe	60.662	±	0.103	56.729	±	0.095	1.606	±	0.006	2.109	±	0.014	1.061	±	0.003	1.574	±	0.006	3.010	±	0.006	3.196	±	0.011
Mg	0.000	±	0.012	0.000	±	0.012	0.758	±	0.010	1.496	±	0.029	0.777	±	0.004	1.517	±	0.010	1.521	±	0.007	3.078	±	0.018
Ca	0.090	±	0.005	0.036	±	0.005	14.291	±	0.027	18.754	±	0.045	19.751	±	0.035	24.908	±	0.045	11.153	±	0.020	15.825	±	0.031
K	0.007	±	0.007	0.016	±	0.007	0.730	±	0.006	0.916	±	0.017	0.330	±	0.004	0.497	±	0.005	0.954	±	0.004	1.056	±	0.008
Traces																								
As	0.00356	±	0.00162	0.00578	±	0.00250	0.01150	±	0.00096	0.03117	±	0.00376	0.00412	±	0.00026	0.00816	±	0.00072	0.00479	±	0.00031	0.01025	±	0.00128
Be	0.00001	±	0.00041	0.00002	±	0.00040	0.00007	±	0.00024	0.00017	±	0.00094	0.00004	±	0.00007	0.00007	±	0.00018	0.00010	±	0.00008	0.00010	±	0.00032
Cd	0.00000	±	0.00041	0.00000	±	0.00040	0.00001	±	0.00024	0.00001	±	0.00094	0.00001	±	0.00007	0.00002	±	0.00018	0.00003	±	0.00008	0.00002	±	0.00032
Cr	0.06455	±	0.00081	0.07790	±	0.00080	0.01954	±	0.00048	0.04135	±	0.00188	0.00592	±	0.00013	0.01205	±	0.00036	0.00965	±	0.00015	0.01653	±	0.00064
Hg	0.00032	±	0.00081	0.00016	±	0.00080	0.00000	±	0.00048	0.00043	±	0.00188	0.00001	±	0.00013	-0.00006	±	0.00036	0.00005	±	0.00015	0.00015	±	0.00064
Mn	0.01323	±	0.00162	0.01460	±	0.00161	0.03250	±	0.00096	0.03346	±	0.00376	0.01656	±	0.00026	0.02132	±	0.00072	0.02358	±	0.00031	0.02480	±	0.00128
Ni	0.00324	±	0.00162	0.00283	±	0.00161	0.00497	±	0.00096	0.00617	±	0.00376	0.00382	±	0.00026	0.00520	±	0.00072	0.00629	±	0.00031	0.00667	±	0.00128
Pb	0.00102	±	0.00041	0.00106	±	0.00040	0.00054	±	0.00024	0.00087	±	0.00094	0.00027	±	0.00007	0.00046	±	0.00018	0.00069	±	0.00008	0.00063	±	0.00032
Sb	0.00043	±	0.00041	0.00053	±	0.00040	0.00012	±	0.00024	0.00066	±	0.00094	0.00006	±	0.00007	0.00020	±	0.00018	0.00010	±	0.00008	0.00013	±	0.00032
Sr	0.00061	±	0.00041	0.00170	±	0.00040	0.08601	±	0.00034	0.07686	±	0.00094	0.11158	±	0.00025	0.11456	±	0.00018	0.04566	±	0.00008	0.05347	±	0.00036
V	0.00460	±	0.00041	0.00391	±	0.00040	0.00297	±	0.00024	0.00347	±	0.00094	0.00206	±	0.00007	0.00263	±	0.00018	0.00849	±	0.00008	0.00812	±	0.00032
Zn	0.03208	±	0.00162	0.02968	±	0.00161	0.00667	±	0.00096	0.02293	±	0.00376	0.00303	±	0.00026	0.00512	±	0.00072	0.00759	±	0.00031	0.01742	±	0.00128
Ions																								
CL^-	0.129	±	0.009	0.208	±	0.013	0.245	±	0.014	0.676	±	0.042	0.075	±	0.004	0.208	±	0.012	0.513	±	0.026	0.709	±	0.038
NO_3^-	0.158	±	0.017	0.107	±	0.016	0.083	±	0.009	0.384	±	0.050	0.018	±	0.002	0.076	±	0.008	0.040	±	0.004	0.286	±	0.022
PO_4^{3-}	0.000	±	0.012	0.000	±	0.013	0.113	±	0.012	0.300	±	0.053	0.036	±	0.004	0.105	±	0.011	0.096	±	0.008	0.204	±	0.020
SO_4^{2-}	0.289	±	0.025	0.277	±	0.025	0.237	±	0.017	0.558	±	0.060	0.064	±	0.005	0.212	±	0.015	0.453	±	0.025	0.507	±	0.034
NH_4^+	0.049	±	0.004	0.071	±	0.005	0.022	±	0.002	0.071	±	0.009	0.011	±	0.001	0.022	±	0.002	0.012	±	0.001	0.043	±	0.004
Ca^{2+}	0.107	±	0.147	0.136	±	0.160	19.443	±	0.359	27.136	±	0.471	9.542	±	0.025	22.647	±	0.448	9.938	±	0.037	14.927	±	0.448
K^+	0.026	±	0.147	0.006	±	0.160	0.208	±	0.076	0.403	±	0.471	0.084	±	0.025	0.165	±	0.071	0.241	±	0.037	0.361	±	0.126
Mg^{2+}	0.021	±	0.147	0.025	±	0.160	0.986	±	0.076	1.558	±	0.471	0.605	±	0.025	1.265	±	0.071	1.454	±	0.037	2.828	±	0.126
Na^+	0.046	±	0.147	0.044	±	0.160	0.144	±	0.076	0.259	±	0.471	0.090	±	0.025	0.175	±	0.071	0.546	±	0.037	0.589	±	0.126

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1008				S1009				S1010				S1011			
Locallity	Spain, Lanzarote, Vega de Femes				Mali, above Bamako				Mali, Bamako				Mali, West Bomako			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	15.546 ±	0.035	17.999 ±	0.052	8.952 ±	0.028	10.586 ±	0.030	10.173 ±	0.037	11.378 ±	0.047	9.202 ±	0.026	11.180 ±	0.040
Ti	1.028 ±	0.006	1.044 ±	0.010	0.422 ±	0.006	0.446 ±	0.006	0.512 ±	0.008	0.524 ±	0.011	0.543 ±	0.006	0.525 ±	0.009
Al	5.569 ±	0.027	6.887 ±	0.050	7.968 ±	0.038	9.321 ±	0.039	7.042 ±	0.046	8.467 ±	0.062	7.970 ±	0.034	9.947 ±	0.055
Fe	6.715 ±	0.012	6.911 ±	0.016	16.176 ±	0.028	13.965 ±	0.024	12.819 ±	0.025	12.659 ±	0.027	18.061 ±	0.030	18.256 ±	0.033
Mg	0.064 ±	0.007	0.202 ±	0.013	0.000 ±	0.007	0.000 ±	0.007	0.000 ±	0.010	0.000 ±	0.015	0.000 ±	0.006	0.000 ±	0.012
Ca	1.552 ±	0.004	1.598 ±	0.006	0.710 ±	0.003	0.582 ±	0.003	0.472 ±	0.003	0.473 ±	0.005	0.299 ±	0.002	0.357 ±	0.003
K	2.718 ±	0.006	2.985 ±	0.010	0.253 ±	0.002	0.291 ±	0.002	0.502 ±	0.004	0.533 ±	0.006	0.291 ±	0.002	0.310 ±	0.004
Traces																
As	0.00046 ±	0.00032	0.00076 ±	0.00093	0.00554 ±	0.00056	0.00008 ±	0.00047	0.01018 ±	0.00094	0.00015 ±	0.00146	0.00023 ±	0.00043	0.00043 ±	0.00097
Be	0.00016 ±	0.00008	0.00017 ±	0.00023	0.00004 ±	0.00014	0.00005 ±	0.00012	0.00006 ±	0.00023	0.00010 ±	0.00036	0.00004 ±	0.00011	0.00003 ±	0.00024
Cd	0.00005 ±	0.00008	0.00006 ±	0.00023	0.00003 ±	0.00014	0.00003 ±	0.00012	0.00047 ±	0.00023	0.00001 ±	0.00036	0.00001 ±	0.00011	0.00001 ±	0.00024
Cr	0.01254 ±	0.00016	0.02618 ±	0.00046	0.08206 ±	0.00052	0.14291 ±	0.00095	0.08367 ±	0.00047	0.16385 ±	0.00146	0.05855 ±	0.00036	0.07403 ±	0.00049
Hg	0.00006 ±	0.00016	0.00015 ±	0.00046	0.00000 ±	0.00028	0.00002 ±	0.00024	0.00000 ±	0.00047	-0.00002 ±	0.00073	0.00007 ±	0.00021	0.00012 ±	0.00049
Mn	0.06110 ±	0.00040	0.07915 ±	0.00093	0.03303 ±	0.00056	0.04020 ±	0.00047	0.04337 ±	0.00094	0.05586 ±	0.00146	0.03399 ±	0.00043	0.03559 ±	0.00103
Ni	0.00823 ±	0.00032	0.01039 ±	0.00093	0.00294 ±	0.00056	0.00995 ±	0.00047	0.00618 ±	0.00094	0.01281 ±	0.00146	0.00280 ±	0.00043	0.00343 ±	0.00097
Pb	0.00109 ±	0.00008	0.00126 ±	0.00023	0.00956 ±	0.00014	0.00970 ±	0.00012	0.00208 ±	0.00023	0.00280 ±	0.00036	0.00154 ±	0.00011	0.00154 ±	0.00024
Sb	0.00003 ±	0.00008	0.00006 ±	0.00023	0.00011 ±	0.00014	0.00011 ±	0.00012	0.00012 ±	0.00023	0.00014 ±	0.00036	0.00003 ±	0.00011	0.00005 ±	0.00024
Sr	0.00654 ±	0.00008	0.00761 ±	0.00023	0.00198 ±	0.00014	0.00265 ±	0.00012	0.00192 ±	0.00023	0.00400 ±	0.00036	0.00213 ±	0.00011	0.00292 ±	0.00024
V	0.00735 ±	0.00008	0.00772 ±	0.00023	0.00716 ±	0.00014	0.00711 ±	0.00012	0.00757 ±	0.00023	0.00829 ±	0.00036	0.00690 ±	0.00011	0.00623 ±	0.00024
Zn	0.01082 ±	0.00032	0.01279 ±	0.00093	0.04341 ±	0.00056	0.04385 ±	0.00047	0.01079 ±	0.00094	0.02891 ±	0.00146	0.00511 ±	0.00043	0.00703 ±	0.00097
Ions																
CL^-	0.318 ±	0.017	0.836 ±	0.044	0.144 ±	0.008	0.108 ±	0.006	0.625 ±	0.033	0.135 ±	0.010	0.129 ±	0.007	0.240 ±	0.014
NO_3^-	0.037 ±	0.005	0.087 ±	0.012	0.106 ±	0.010	0.045 ±	0.006	0.105 ±	0.012	0.142 ±	0.018	0.051 ±	0.006	0.074 ±	0.012
PO_4^{3-}	0.047 ±	0.006	0.082 ±	0.014	0.000 ±	0.005	0.000 ±	0.004	0.054 ±	0.012	0.069 ±	0.017	0.108 ±	0.010	0.184 ±	0.020
SO_4^{2-}	0.062 ±	0.006	0.107 ±	0.014	0.071 ±	0.008	0.084 ±	0.008	0.155 ±	0.015	0.161 ±	0.019	0.100 ±	0.009	0.152 ±	0.016
NH_4^+	0.055 ±	0.003	0.246 ±	0.014	0.051 ±	0.003	0.082 ±	0.005	0.235 ±	0.013	0.102 ±	0.007	0.078 ±	0.005	0.098 ±	0.006
Ca^{2+}	1.278 ±	0.046	1.519 ±	0.122	0.581 ±	0.066	0.576 ±	0.051	0.440 ±	0.111	0.640 ±	0.164	0.317 ±	0.054	0.476 ±	0.129
K^+	0.186 ±	0.046	0.310 ±	0.122	0.096 ±	0.066	0.059 ±	0.051	0.100 ±	0.111	0.148 ±	0.164	0.057 ±	0.054	0.074 ±	0.129
Mg^{2+}	0.223 ±	0.046	0.339 ±	0.122	0.082 ±	0.066	0.077 ±	0.051	0.097 ±	0.111	0.121 ±	0.164	0.066 ±	0.054	0.092 ±	0.129
Na^+	0.143 ±	0.046	0.236 ±	0.122	0.036 ±	0.066	0.007 ±	0.051	0.057 ±	0.111	0.025 ±	0.164	0.026 ±	0.054	0.078 ±	0.129

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1013				S1014				S1016				S1017			
Locallity	Cape Verde, Sala Is, Punta Fiure, Site A				China, Karamay 1				China, Karamay 2				China, Xinjiang Sample 1			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	7.231 ±	0.023	9.615 ±	0.035	14.634 ±	0.034	16.333 ±	0.052	15.556 ±	0.044	16.157 ±	0.069	13.026 ±	0.035	16.335 ±	0.045
Ti	0.282 ±	0.003	0.300 ±	0.005	0.343 ±	0.004	0.360 ±	0.007	0.346 ±	0.006	0.344 ±	0.011	0.214 ±	0.004	0.227 ±	0.005
Al	2.777 ±	0.025	3.865 ±	0.036	5.033 ±	0.027	6.042 ±	0.050	5.052 ±	0.038	5.609 ±	0.072	2.748 ±	0.029	3.469 ±	0.036
Fe	3.020 ±	0.006	3.414 ±	0.009	4.510 ±	0.009	4.845 ±	0.013	4.045 ±	0.010	4.042 ±	0.015	3.185 ±	0.008	3.753 ±	0.010
Mg	0.515 ±	0.006	1.033 ±	0.012	0.399 ±	0.008	0.709 ±	0.015	0.390 ±	0.011	0.663 ±	0.023	1.826 ±	0.011	2.648 ±	0.015
Ca	12.816 ±	0.023	13.455 ±	0.025	4.114 ±	0.009	3.822 ±	0.011	2.332 ±	0.007	2.269 ±	0.011	4.979 ±	0.011	2.763 ±	0.008
K	1.214 ±	0.005	1.474 ±	0.006	2.349 ±	0.006	2.594 ±	0.010	2.078 ±	0.007	2.081 ±	0.012	2.522 ±	0.007	2.996 ±	0.009
Traces																
As	0.00057 ±	0.00016	0.00088 ±	0.00066	0.00156 ±	0.00034	0.00219 ±	0.00108	0.00104 ±	0.00070	0.00117 ±	0.00223	0.01098 ±	0.00054	0.00448 ±	0.00072
Be	0.00009 ±	0.00004	0.00011 ±	0.00017	0.00016 ±	0.00008	0.00015 ±	0.00027	0.00015 ±	0.00018	0.00018 ±	0.00056	0.00011 ±	0.00014	0.00015 ±	0.00018
Cd	0.00034 ±	0.00004	0.00033 ±	0.00017	0.00002 ±	0.00008	0.00002 ±	0.00027	0.00001 ±	0.00018	0.00002 ±	0.00056	0.00002 ±	0.00014	0.00002 ±	0.00018
Cr	0.00562 ±	0.00008	0.01673 ±	0.00033	0.01463 ±	0.00017	0.04051 ±	0.00054	0.02869 ±	0.00035	0.08331 ±	0.00111	0.01418 ±	0.00027	0.02674 ±	0.00036
Hg	0.00003 ±	0.00008	0.00009 ±	0.00033	0.00005 ±	0.00017	0.00030 ±	0.00054	0.00042 ±	0.00035	0.00101 ±	0.00111	0.00000 ±	0.00027	0.00114 ±	0.00036
Mn	0.05099 ±	0.00023	0.06702 ±	0.00066	0.06808 ±	0.00054	0.08508 ±	0.00108	0.06785 ±	0.00070	0.08602 ±	0.00223	0.06873 ±	0.00054	0.06937 ±	0.00072
Ni	0.00379 ±	0.00016	0.00500 ±	0.00066	0.00332 ±	0.00034	0.00455 ±	0.00108	0.00275 ±	0.00070	0.00351 ±	0.00223	0.00215 ±	0.00054	0.00237 ±	0.00072
Pb	0.00173 ±	0.00004	0.00194 ±	0.00017	0.00206 ±	0.00008	0.00846 ±	0.00027	0.00230 ±	0.00018	0.00208 ±	0.00056	0.00105 ±	0.00014	0.00137 ±	0.00018
Sb	0.00002 ±	0.00004	0.00004 ±	0.00017	0.00013 ±	0.00008	0.00037 ±	0.00027	0.00018 ±	0.00018	0.00033 ±	0.00056	0.00059 ±	0.00014	0.00063 ±	0.00018
Sr	0.13159 ±	0.00057	0.14898 ±	0.00053	0.01515 ±	0.00008	0.01854 ±	0.00027	0.01321 ±	0.00018	0.01689 ±	0.00056	0.05076 ±	0.00017	0.02792 ±	0.00018
V	0.00354 ±	0.00004	0.00349 ±	0.00017	0.00532 ±	0.00008	0.00744 ±	0.00027	0.00466 ±	0.00023	0.00462 ±	0.00056	0.00685 ±	0.00014	0.00603 ±	0.00018
Zn	0.02238 ±	0.00016	0.02870 ±	0.00066	0.00940 ±	0.00034	0.01630 ±	0.00108	0.01041 ±	0.00070	0.01756 ±	0.00223	0.00953 ±	0.00054	0.01065 ±	0.00072
Ions																
CL^-	1.190 ±	0.060	1.477 ±	0.075	0.200 ±	0.011	0.297 ±	0.017	0.507 ±	0.027	0.600 ±	0.034	0.518 ±	0.027	0.520 ±	0.027
NO_3^-	0.022 ±	0.002	0.071 ±	0.009	0.030 ±	0.004	0.061 ±	0.010	0.106 ±	0.010	0.199 ±	0.025	0.081 ±	0.008	0.132 ±	0.011
PO_4^{3-}	1.671 ±	0.085	6.252 ±	0.320	0.000 ±	0.003	0.088 ±	0.013	0.075 ±	0.009	0.000 ±	0.019	0.039 ±	0.007	0.000 ±	0.006
SO_4^{2-}	1.115 ±	0.057	1.780 ±	0.095	0.164 ±	0.011	0.282 ±	0.021	0.141 ±	0.012	0.188 ±	0.025	0.551 ±	0.032	0.802 ±	0.045
NH_4^+	0.031 ±	0.002	0.051 ±	0.004	0.019 ±	0.001	0.037 ±	0.003	0.036 ±	0.003	0.085 ±	0.007	0.000 ±	0.001	0.012 ±	0.001
Ca^{2+}	2.042 ±	0.084	6.792 ±	0.222	3.888 ±	0.036	3.928 ±	0.107	2.227 ±	0.071	2.338 ±	0.232	3.463 ±	0.065	2.333 ±	0.102
K^+	0.228 ±	0.020	0.381 ±	0.088	0.098 ±	0.036	0.223 ±	0.107	0.145 ±	0.071	0.220 ±	0.232	0.791 ±	0.062	1.279 ±	0.069
Mg^{2+}	0.543 ±	0.020	0.991 ±	0.088	0.157 ±	0.036	0.281 ±	0.107	0.295 ±	0.071	0.377 ±	0.232	0.325 ±	0.062	0.340 ±	0.069
Na^+	0.931 ±	0.020	1.331 ±	0.088	0.259 ±	0.036	0.399 ±	0.107	0.367 ±	0.071	0.364 ±	0.232	1.979 ±	0.062	2.360 ±	0.069

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1018				S1019				S1022				S1023			
Locallity	China, Xinjiang Sample 2				USA, Owens Lake CA				Namibia, Etosha, Fischer Pan				Namibia, Etosha, Stinkwater			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	16.707 ±	0.042	18.592 ±	0.054	13.032 ±	0.030	17.571 ±	0.050	10.809 ±	0.027	14.302 ±	0.040	1.728 ±	0.010	2.833 ±	0.026
Ti	0.378 ±	0.005	0.373 ±	0.007	0.262 ±	0.003	0.246 ±	0.006	0.046 ±	0.002	0.051 ±	0.003	0.020 ±	0.001	0.017 ±	0.004
Al	4.912 ±	0.034	5.607 ±	0.048	2.637 ±	0.022	3.452 ±	0.042	0.202 ±	0.018	0.177 ±	0.028	0.342 ±	0.012	0.650 ±	0.034
Fe	3.970 ±	0.009	3.997 ±	0.011	3.517 ±	0.007	3.968 ±	0.011	0.551 ±	0.002	0.669 ±	0.003	0.187 ±	0.001	0.265 ±	0.003
Mg	0.066 ±	0.010	0.184 ±	0.014	1.639 ±	0.008	3.421 ±	0.018	5.745 ±	0.014	8.673 ±	0.022	0.789 ±	0.006	1.227 ±	0.018
Ca	0.519 ±	0.003	0.416 ±	0.004	6.580 ±	0.012	3.225 ±	0.009	6.142 ±	0.012	5.487 ±	0.012	2.569 ±	0.005	2.225 ±	0.009
K	2.379 ±	0.007	2.525 ±	0.009	2.762 ±	0.007	3.336 ±	0.010	0.501 ±	0.003	0.546 ±	0.004	0.492 ±	0.002	0.639 ±	0.006
Traces																
As	0.00811 ±	0.00057	0.00171 ±	0.00101	0.00447 ±	0.00021	0.00629 ±	0.00089	0.00519 ±	0.00042	0.00735 ±	0.00069	0.00303 ±	0.00032	0.01247 ±	0.00143
Be	0.00013 ±	0.00014	0.00018 ±	0.00025	0.00009 ±	0.00005	0.00013 ±	0.00022	0.00003 ±	0.00009	0.00004 ±	0.00017	0.00001 ±	0.00008	0.00001 ±	0.00036
Cd	0.00000 ±	0.00014	0.00000 ±	0.00025	0.00003 ±	0.00005	0.00002 ±	0.00022	0.00001 ±	0.00009	0.00001 ±	0.00017	0.00000 ±	0.00008	-0.00001 ±	0.00036
Cr	0.01524 ±	0.00029	0.03785 ±	0.00050	0.00706 ±	0.00011	0.02327 ±	0.00045	0.00719 ±	0.00018	0.00992 ±	0.00035	0.00519 ±	0.00016	0.02691 ±	0.00071
Hg	0.00000 ±	0.00029	0.00006 ±	0.00050	0.00007 ±	0.00011	0.00019 ±	0.00045	0.00000 ±	0.00018	-0.00002 ±	0.00035	0.00006 ±	0.00016	-0.00001 ±	0.00071
Mn	0.03405 ±	0.00057	0.03913 ±	0.00101	0.05881 ±	0.00040	0.07501 ±	0.00089	0.01189 ±	0.00036	0.01384 ±	0.00069	0.00515 ±	0.00032	0.00643 ±	0.00143
Ni	0.00282 ±	0.00057	0.00248 ±	0.00101	0.00163 ±	0.00021	0.00236 ±	0.00089	0.00103 ±	0.00036	0.00134 ±	0.00069	0.00071 ±	0.00032	0.00128 ±	0.00143
Pb	0.00260 ±	0.00014	0.00306 ±	0.00025	0.00112 ±	0.00005	0.00131 ±	0.00022	0.00082 ±	0.00009	0.00082 ±	0.00017	0.00040 ±	0.00008	0.00042 ±	0.00036
Sb	0.00021 ±	0.00014	0.00026 ±	0.00025	0.00051 ±	0.00005	0.00069 ±	0.00022	0.00014 ±	0.00009	0.00010 ±	0.00017	0.00004 ±	0.00008	0.00021 ±	0.00036
Sr	0.01578 ±	0.00014	0.02115 ±	0.00025	0.05371 ±	0.00010	0.03071 ±	0.00095	0.15095 ±	0.00061	0.13643 ±	0.00030	0.14974 ±	0.00082	0.09670 ±	0.00036
V	0.00402 ±	0.00014	0.00357 ±	0.00036	0.00654 ±	0.00006	0.00771 ±	0.00022	0.00737 ±	0.00009	0.00820 ±	0.00017	0.00237 ±	0.00008	0.00259 ±	0.00036
Zn	0.01055 ±	0.00057	0.01088 ±	0.00101	0.00664 ±	0.00021	0.01812 ±	0.00089	0.01076 ±	0.00036	0.01155 ±	0.00069	0.00254 ±	0.00032	0.00545 ±	0.00143
Ions																
CL^-	1.067 ±	0.054	0.349 ±	0.019	0.732 ±	0.037	1.496 ±	0.077	2.842 ±	0.143	1.718 ±	0.087	2.398 ±	0.123	1.486 ±	0.077
NO_3^-	0.585 ±	0.033	0.941 ±	0.053	0.082 ±	0.006	0.132 ±	0.013	0.043 ±	0.004	0.061 ±	0.007	0.541 ±	0.038	0.452 ±	0.031
PO_4^{3-}	0.098 ±	0.010	0.000 ±	0.008	0.038 ±	0.004	0.121 ±	0.014	0.015 ±	0.003	0.023 ±	0.006	0.000 ±	0.013	0.000 ±	0.011
SO_4^{2-}	1.124 ±	0.060	1.264 ±	0.070	0.698 ±	0.037	0.840 ±	0.049	1.500 ±	0.077	1.242 ±	0.066	47.268 ±	2.375	37.445 ±	1.882
NH_4^+	0.318 ±	0.017	0.068 ±	0.005	0.004 ±	0.001	0.020 ±	0.002	0.006 ±	0.001	0.015 ±	0.002	0.000 ±	0.002	0.000 ±	0.002
Ca^{2+}	0.252 ±	0.063	0.343 ±	0.095	5.114 ±	0.197	2.806 ±	0.253	6.356 ±	0.057	5.367 ±	0.066	4.482 ±	0.163	2.444 ±	0.136
K^+	0.190 ±	0.063	0.175 ±	0.095	0.908 ±	0.027	1.321 ±	0.100	0.121 ±	0.031	0.150 ±	0.065	0.289 ±	0.163	0.226 ±	0.136
Mg^{2+}	0.269 ±	0.063	0.336 ±	0.095	0.133 ±	0.027	0.539 ±	0.100	2.203 ±	0.031	3.396 ±	0.065	2.040 ±	0.163	1.260 ±	0.136
Na^+	0.903 ±	0.063	1.205 ±	0.095	2.544 ±	0.028	2.683 ±	0.100	3.263 ±	0.031	2.383 ±	0.081	28.576 ±	0.934	22.155 ±	1.063

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1024				S1025				S1027				S1033			
Locallity	Namibia, Etosha, Lookout				Morocco, Lake Iriki				Spain, Gran Canaria, Galdar				Fuerteventura, Pozo Negro, Sample 1			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	3.098 ±	0.012	4.638 ±	0.030	14.172 ±	0.033	15.156 ±	0.049	18.159 ±	0.045	17.560 ±	0.050	11.491 ±	0.028	13.885 ±	0.050
Ti	0.027 ±	0.001	0.028 ±	0.004	0.459 ±	0.005	0.412 ±	0.008	0.936 ±	0.008	0.823 ±	0.009	0.471 ±	0.004	0.451 ±	0.009
Al	0.531 ±	0.013	0.730 ±	0.036	6.141 ±	0.029	7.228 ±	0.054	5.969 ±	0.038	6.250 ±	0.047	4.442 ±	0.024	5.992 ±	0.053
Fe	0.443 ±	0.002	0.589 ±	0.005	4.928 ±	0.010	4.860 ±	0.013	5.299 ±	0.011	4.856 ±	0.012	4.331 ±	0.008	4.464 ±	0.013
Mg	1.296 ±	0.007	2.375 ±	0.019	0.457 ±	0.008	0.739 ±	0.016	0.262 ±	0.009	0.380 ±	0.013	0.823 ±	0.007	1.482 ±	0.017
Ca	4.860 ±	0.009	3.189 ±	0.010	4.772 ±	0.010	3.057 ±	0.009	0.645 ±	0.003	0.595 ±	0.004	3.088 ±	0.007	3.258 ±	0.010
K	0.472 ±	0.002	0.493 ±	0.006	2.664 ±	0.007	2.671 ±	0.010	2.531 ±	0.007	2.374 ±	0.008	2.051 ±	0.005	2.322 ±	0.010
Traces																
As	0.00031 ±	0.00023	0.00075 ±	0.00133	0.00119 ±	0.00034	0.00123 ±	0.00106	0.00528 ±	0.00058	0.00016 ±	0.00089	0.00031 ±	0.00031	0.00022 ±	0.00122
Be	0.00002 ±	0.00006	0.00004 ±	0.00033	0.00015 ±	0.00009	0.00021 ±	0.00027	0.00026 ±	0.00014	0.00033 ±	0.00022	0.00015 ±	0.00008	0.00020 ±	0.00030
Cd	0.00002 ±	0.00006	0.00001 ±	0.00033	0.00002 ±	0.00009	0.00002 ±	0.00027	0.00002 ±	0.00014	0.00002 ±	0.00022	0.00009 ±	0.00008	0.00011 ±	0.00030
Cr	0.00605 ±	0.00011	0.01141 ±	0.00066	0.01600 ±	0.00017	0.02863 ±	0.00053	0.01385 ±	0.00029	0.03831 ±	0.00044	0.01496 ±	0.00016	0.05442 ±	0.00061
Hg	0.00003 ±	0.00011	0.00020 ±	0.00066	0.00007 ±	0.00017	0.00006 ±	0.00053	0.00012 ±	0.00029	0.00010 ±	0.00044	0.00010 ±	0.00016	0.00006 ±	0.00061
Mn	0.00611 ±	0.00023	0.00725 ±	0.00133	0.06818 ±	0.00034	0.08851 ±	0.00106	0.21091 ±	0.00058	0.18788 ±	0.00089	0.07137 ±	0.00031	0.10775 ±	0.00122
Ni	0.00043 ±	0.00023	0.00071 ±	0.00133	0.00300 ±	0.00034	0.00397 ±	0.00106	0.00593 ±	0.00058	0.00639 ±	0.00089	0.00422 ±	0.00031	0.00606 ±	0.00122
Pb	0.00038 ±	0.00006	0.00048 ±	0.00033	0.00217 ±	0.00009	0.00301 ±	0.00027	0.00156 ±	0.00014	0.00186 ±	0.00022	0.00119 ±	0.00008	0.00157 ±	0.00030
Sb	0.00002 ±	0.00006	0.00004 ±	0.00033	0.00009 ±	0.00009	0.00015 ±	0.00027	0.00011 ±	0.00014	0.00015 ±	0.00022	0.00005 ±	0.00008	0.00013 ±	0.00030
Sr	0.09180 ±	0.00069	0.06735 ±	0.00045	0.01137 ±	0.00018	0.01373 ±	0.00027	0.00412 ±	0.00014	0.00649 ±	0.00022	0.01102 ±	0.00008	0.01457 ±	0.00030
V	0.00133 ±	0.00006	0.00148 ±	0.00033	0.00507 ±	0.00009	0.00772 ±	0.00039	0.00550 ±	0.00014	0.00482 ±	0.00022	0.00344 ±	0.00008	0.00353 ±	0.00030
Zn	0.00211 ±	0.00023	0.00573 ±	0.00133	0.00811 ±	0.00034	0.12645 ±	0.00106	0.00579 ±	0.00058	0.01161 ±	0.00089	0.00834 ±	0.00031	0.02622 ±	0.00122
Ions																
CL^-	1.667 ±	0.084	1.604 ±	0.083	0.253 ±	0.013	0.326 ±	0.018	0.110 ±	0.007	0.088 ±	0.006	0.079 ±	0.005	0.120 ±	0.009
NO_3^-	0.071 ±	0.006	0.212 ±	0.021	0.028 ±	0.004	0.065 ±	0.010	0.126 ±	0.010	0.074 ±	0.010	0.039 ±	0.004	0.075 ±	0.014
PO_4^{3-}	0.022 ±	0.004	0.085 ±	0.017	0.145 ±	0.010	0.104 ±	0.014	0.000 ±	0.005	0.044 ±	0.011	0.147 ±	0.010	0.581 ±	0.041
SO_4^{2-}	37.047 ±	1.855	41.492 ±	2.085	0.141 ±	0.010	0.000 ±	0.008	0.089 ±	0.009	0.179 ±	0.016	0.073 ±	0.006	0.201 ±	0.020
NH_4^+	0.004 ±	0.001	0.028 ±	0.003	0.029 ±	0.002	0.052 ±	0.004	0.101 ±	0.006	0.143 ±	0.008	0.021 ±	0.001	0.047 ±	0.004
Ca^{2+}	5.208 ±	0.191	4.239 ±	0.212	5.234 ±	0.078	3.070 ±	0.111	0.381 ±	0.061	0.426 ±	0.104	2.725 ±	0.151	3.706 ±	0.242
K^+	0.126 ±	0.035	0.155 ±	0.157	0.252 ±	0.038	0.316 ±	0.111	0.371 ±	0.061	0.296 ±	0.104	0.275 ±	0.035	0.400 ±	0.151
Mg^{2+}	2.058 ±	0.070	2.184 ±	0.157	0.626 ±	0.038	0.477 ±	0.111	0.318 ±	0.061	0.300 ±	0.104	0.339 ±	0.035	0.720 ±	0.151
Na^+	18.809 ±	0.051	21.085 ±	0.256	0.248 ±	0.038	0.296 ±	0.111	0.080 ±	0.061	0.112 ±	0.104	0.127 ±	0.035	0.118 ±	0.151

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1034				S1035				S1038				S1039			
Locallity	Fuerteventura, Pozo Negro, Sample 2				Spain, Fuerteventura, La Ampuyenta				Botswana, Makgadikgadi, Mopipi				Botswana, Makgadikgadi, Rakops			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	13.208 ± 0.032		15.467 ± 0.058		11.033 ± 0.028		16.653 ± 0.057		11.739 ± 0.027		17.066 ± 0.038		8.251 ± 0.021		11.805 ± 0.031	
Ti	0.704 ± 0.006		0.668 ± 0.011		0.396 ± 0.004		0.519 ± 0.010		0.119 ± 0.002		0.133 ± 0.003		0.036 ± 0.002		0.043 ± 0.003	
Al	5.257 ± 0.027		6.820 ± 0.064		4.619 ± 0.026		7.327 ± 0.061		1.511 ± 0.015		2.373 ± 0.022		0.677 ± 0.017		0.881 ± 0.022	
Fe	5.327 ± 0.010		5.466 ± 0.016		3.870 ± 0.008		5.032 ± 0.014		1.988 ± 0.004		2.291 ± 0.005		0.991 ± 0.003		1.192 ± 0.004	
Mg	0.320 ± 0.007		0.641 ± 0.019		0.000 ± 0.007		0.071 ± 0.017		0.552 ± 0.004		1.252 ± 0.008		1.787 ± 0.005		3.383 ± 0.011	
Ca	1.277 ± 0.004		1.183 ± 0.007		1.711 ± 0.004		2.134 ± 0.009		8.062 ± 0.014		7.081 ± 0.013		13.299 ± 0.023		12.500 ± 0.023	
K	2.094 ± 0.006		2.302 ± 0.010		1.988 ± 0.005		2.686 ± 0.011		1.449 ± 0.004		1.810 ± 0.005		0.715 ± 0.004		0.909 ± 0.004	
Traces																
As	0.00041 ± 0.00036		0.00019 ± 0.00157		0.00454 ± 0.00042		0.01316 ± 0.00140		0.00014 ± 0.00009		0.00028 ± 0.00034		0.00125 ± 0.00014		0.00369 ± 0.00045	
Be	0.00017 ± 0.00009		0.00021 ± 0.00039		0.00020 ± 0.00009		0.00024 ± 0.00035		0.00007 ± 0.00002		0.00008 ± 0.00008		0.00006 ± 0.00003		0.00007 ± 0.00011	
Cd	0.00008 ± 0.00009		0.00009 ± 0.00039		0.00002 ± 0.00009		0.00001 ± 0.00035		0.00001 ± 0.00002		0.00001 ± 0.00008		0.00000 ± 0.00003		0.00000 ± 0.00011	
Cr	0.01781 ± 0.00018		0.05959 ± 0.00079		0.02490 ± 0.00022		0.03586 ± 0.00070		0.00406 ± 0.00005		0.00998 ± 0.00017		0.00292 ± 0.00007		0.00618 ± 0.00022	
Hg	0.00032 ± 0.00018		0.00029 ± 0.00079		0.00000 ± 0.00019		0.00011 ± 0.00070		0.00002 ± 0.00005		0.00006 ± 0.00017		0.00005 ± 0.00007		0.00004 ± 0.00022	
Mn	0.07208 ± 0.00042		0.09868 ± 0.00157		0.06527 ± 0.00038		0.06874 ± 0.00140		0.02774 ± 0.00009		0.03917 ± 0.00045		0.03738 ± 0.00014		0.04182 ± 0.00045	
Ni	0.00482 ± 0.00036		0.00607 ± 0.00157		0.01128 ± 0.00038		0.01271 ± 0.00140		0.00122 ± 0.00009		0.00176 ± 0.00034		0.00097 ± 0.00014		0.00124 ± 0.00045	
Pb	0.00156 ± 0.00009		0.00183 ± 0.00039		0.00117 ± 0.00009		0.00128 ± 0.00035		0.00085 ± 0.00002		0.00094 ± 0.00008		0.00031 ± 0.00003		0.00034 ± 0.00011	
Sb	0.00010 ± 0.00009		0.00015 ± 0.00039		0.00013 ± 0.00009		0.00149 ± 0.00035		0.00001 ± 0.00002		0.00002 ± 0.00008		0.00004 ± 0.00003		0.00005 ± 0.00011	
Sr	0.00823 ± 0.00009		0.00936 ± 0.00039		0.00751 ± 0.00009		0.00831 ± 0.00035		0.03843 ± 0.00009		0.03614 ± 0.00014		0.13219 ± 0.00013		0.12057 ± 0.00052	
V	0.00576 ± 0.00011		0.00419 ± 0.00039		0.00751 ± 0.00009		0.00759 ± 0.00035		0.00456 ± 0.00002		0.00498 ± 0.00008		0.00137 ± 0.00003		0.00151 ± 0.00011	
Zn	0.00971 ± 0.00036		0.01891 ± 0.00157		0.00521 ± 0.00038		0.00957 ± 0.00140		0.00225 ± 0.00009		0.00403 ± 0.00034		0.00189 ± 0.00014		0.00413 ± 0.00045	
Ions																
CL^-	0.051 ± 0.003		0.141 ± 0.011		0.158 ± 0.009		0.401 ± 0.023		0.076 ± 0.004		0.467 ± 0.024		0.201 ± 0.010		0.455 ± 0.024	
NO_3^-	0.022 ± 0.004		0.080 ± 0.017		0.049 ± 0.005		0.199 ± 0.019		0.026 ± 0.002		0.057 ± 0.006		0.069 ± 0.004		0.128 ± 0.009	
PO_4^{3-}	0.159 ± 0.011		0.441 ± 0.039		0.019 ± 0.004		0.057 ± 0.015		0.029 ± 0.003		0.068 ± 0.007		0.020 ± 0.002		0.044 ± 0.006	
SO_4^{2-}	0.035 ± 0.005		0.112 ± 0.020		0.194 ± 0.012		0.353 ± 0.028		0.320 ± 0.017		0.517 ± 0.029		0.186 ± 0.010		0.320 ± 0.019	
NH_4^+	0.042 ± 0.003		0.125 ± 0.009		0.048 ± 0.003		0.151 ± 0.009		0.017 ± 0.001		0.071 ± 0.004		0.000 ± 0.000		0.000 ± 0.001	
Ca^{2+}	0.893 ± 0.041		1.243 ± 0.207		1.590 ± 0.040		2.033 ± 0.146		4.633 ± 0.146		11.040 ± 0.264		3.836 ± 0.107		10.786 ± 0.156	
K^+	0.147 ± 0.041		0.261 ± 0.207		0.384 ± 0.040		0.672 ± 0.146		0.315 ± 0.015		0.458 ± 0.046		0.179 ± 0.016		0.315 ± 0.046	
Mg^{2+}	0.191 ± 0.041		0.387 ± 0.207		0.257 ± 0.040		0.415 ± 0.146		0.175 ± 0.015		0.267 ± 0.046		0.109 ± 0.016		0.436 ± 0.046	
Na^+	0.048 ± 0.041		0.000 ± 0.207		0.219 ± 0.040		0.385 ± 0.146		0.189 ± 0.015		0.346 ± 0.046		1.118 ± 0.030		1.563 ± 0.046	

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1040				S1041				S1042				S1045			
Locality	Botswana, Nxai Pan, Baines Baobabs				Botswana, Nxai Pan				Chile, Atacama, Rock Garden				USA, Black Rock playa, NV			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	7.831 ± 0.018		12.789 ± 0.037		14.400 ± 0.043		18.741 ± 0.052		14.858 ± 0.037		16.578 ± 0.044		14.110 ± 0.033		16.332 ± 0.042	
Ti	0.081 ± 0.001		0.093 ± 0.003		0.059 ± 0.004		0.051 ± 0.004		0.271 ± 0.004		0.265 ± 0.005		0.255 ± 0.003		0.259 ± 0.005	
Al	0.773 ± 0.010		1.533 ± 0.028		0.205 ± 0.030		0.346 ± 0.034		5.275 ± 0.031		6.513 ± 0.041		3.991 ± 0.024		4.664 ± 0.035	
Fe	0.774 ± 0.002		0.908 ± 0.004		0.694 ± 0.004		0.799 ± 0.004		3.826 ± 0.008		4.291 ± 0.010		3.654 ± 0.008		3.820 ± 0.010	
Mg	0.704 ± 0.005		1.627 ± 0.012		5.621 ± 0.018		7.894 ± 0.023		0.562 ± 0.009		0.989 ± 0.013		0.439 ± 0.008		0.684 ± 0.011	
Ca	1.417 ± 0.003		1.220 ± 0.005		2.076 ± 0.007		2.748 ± 0.008		3.745 ± 0.008		3.120 ± 0.008		3.652 ± 0.008		3.600 ± 0.009	
K	2.119 ± 0.005		3.250 ± 0.009		0.730 ± 0.005		1.007 ± 0.006		1.912 ± 0.006		2.193 ± 0.007		2.175 ± 0.006		2.350 ± 0.007	
Traces																
As	0.00016 ± 0.00015		0.00031 ± 0.00068		0.00252 ± 0.00134		0.00754 ± 0.00090		0.00448 ± 0.00044		0.00494 ± 0.00064		0.00641 ± 0.00033		0.00951 ± 0.00061	
Be	0.00002 ± 0.00004		0.00003 ± 0.00017		0.00002 ± 0.00023		0.00003 ± 0.00022		0.00013 ± 0.00011		0.00016 ± 0.00016		0.00015 ± 0.00008		0.00017 ± 0.00015	
Cd	0.00000 ± 0.00004		0.00001 ± 0.00017		-0.00001 ± 0.00023		0.00001 ± 0.00022		0.00011 ± 0.00011		0.00013 ± 0.00016		0.00008 ± 0.00008		0.00007 ± 0.00015	
Cr	0.00445 ± 0.00008		0.01652 ± 0.00034		0.02997 ± 0.00046		0.01437 ± 0.00045		0.01058 ± 0.00022		0.01441 ± 0.00032		0.01365 ± 0.00017		0.01543 ± 0.00031	
Hg	0.00006 ± 0.00008		0.00009 ± 0.00034		0.00007 ± 0.00046		0.00001 ± 0.00045		0.00005 ± 0.00022		0.00006 ± 0.00032		0.00012 ± 0.00017		0.00006 ± 0.00031	
Mn	0.01858 ± 0.00020		0.02408 ± 0.00068		0.03065 ± 0.00093		0.04137 ± 0.00090		0.05553 ± 0.00044		0.06383 ± 0.00064		0.05551 ± 0.00033		0.05987 ± 0.00061	
Ni	0.00063 ± 0.00015		0.00103 ± 0.00068		0.00134 ± 0.00093		0.00201 ± 0.00090		0.00238 ± 0.00044		0.00281 ± 0.00064		0.00610 ± 0.00033		0.00468 ± 0.00061	
Pb	0.00025 ± 0.00004		0.00036 ± 0.00017		0.00032 ± 0.00023		0.00042 ± 0.00022		0.00387 ± 0.00011		0.00429 ± 0.00016		0.00131 ± 0.00008		0.00230 ± 0.00015	
Sb	0.00001 ± 0.00004		0.00002 ± 0.00017		0.00001 ± 0.00023		0.00009 ± 0.00022		0.00035 ± 0.00011		0.00041 ± 0.00016		0.00032 ± 0.00008		0.00036 ± 0.00015	
Sr	0.01876 ± 0.00024		0.01248 ± 0.00017		0.02548 ± 0.00023		0.02612 ± 0.00022		0.02845 ± 0.00064		0.02560 ± 0.00080		0.02525 ± 0.00008		0.02592 ± 0.00015	
V	0.00162 ± 0.00004		0.00188 ± 0.00017		0.00266 ± 0.00023		0.00315 ± 0.00022		0.00630 ± 0.00011		0.00727 ± 0.00016		0.00578 ± 0.00008		0.00624 ± 0.00015	
Zn	0.00169 ± 0.00015		0.00618 ± 0.00068		0.00219 ± 0.00093		0.00991 ± 0.00090		0.01286 ± 0.00044		0.01734 ± 0.00064		0.01013 ± 0.00033		0.01164 ± 0.00061	
Ions																
CL^-	2.434 ± 0.122		1.714 ± 0.087		0.065 ± 0.005		0.180 ± 0.011		0.136 ± 0.007		0.392 ± 0.021		0.887 ± 0.045		0.608 ± 0.031	
NO_3^-	0.112 ± 0.007		0.182 ± 0.014		0.034 ± 0.007		0.083 ± 0.010		0.081 ± 0.006		0.112 ± 0.010		0.068 ± 0.006		0.074 ± 0.008	
PO_4^{3-}	0.000 ± 0.002		0.000 ± 0.006		0.000 ± 0.007		0.000 ± 0.008		0.121 ± 0.008		0.185 ± 0.015		0.046 ± 0.005		0.078 ± 0.009	
SO_4^{2-}	1.344 ± 0.069		1.479 ± 0.079		0.039 ± 0.008		0.390 ± 0.026		7.380 ± 0.371		6.212 ± 0.315		0.772 ± 0.041		0.560 ± 0.032	
NH_4^+	0.002 ± 0.000		0.017 ± 0.002		0.028 ± 0.002		0.030 ± 0.003		0.086 ± 0.005		0.220 ± 0.012		0.005 ± 0.001		0.000 ± 0.001	
Ca^{2+}	1.150 ± 0.059		1.064 ± 0.075		2.151 ± 0.217		2.849 ± 0.096		3.427 ± 0.059		3.010 ± 0.072		2.981 ± 0.062		3.173 ± 0.059	
K^+	0.713 ± 0.021		0.776 ± 0.075		0.055 ± 0.082		0.143 ± 0.096		0.136 ± 0.028		0.189 ± 0.069		0.334 ± 0.032		0.483 ± 0.059	
Mg^{2+}	0.971 ± 0.021		1.098 ± 0.075		0.796 ± 0.082		1.230 ± 0.096		0.092 ± 0.028		0.139 ± 0.069		0.221 ± 0.032		0.362 ± 0.059	
Na^+	13.685 ± 0.023		12.389 ± 0.075		0.026 ± 0.082		0.308 ± 0.096		0.101 ± 0.028		0.140 ± 0.069		1.976 ± 0.043		2.043 ± 0.059	

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1049				S1050				S1051				S1052			
Locality	Chad, Bodélé Depression, Sample 44				Chad, Bodélé Depression, Sample 44B				Chad, Bodélé Depression, Sample 44C				USA, Reno NV, Peavine Mtn, white clay			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	7.854 ± 0.019		16.631 ± 0.047		12.059 ± 0.029		17.026 ± 0.046		26.503 ± 0.064		26.206 ± 0.089		23.743 ± 0.063		25.194 ± 0.068	
Ti	0.101 ± 0.002		0.181 ± 0.005		0.133 ± 0.002		0.152 ± 0.004		0.361 ± 0.006		0.323 ± 0.010		0.173 ± 0.005		0.176 ± 0.006	
Al	1.729 ± 0.014		3.547 ± 0.037		2.118 ± 0.020		2.995 ± 0.033		5.070 ± 0.042		5.300 ± 0.073		3.309 ± 0.040		3.857 ± 0.046	
Fe	1.065 ± 0.003		1.863 ± 0.006		1.504 ± 0.003		1.779 ± 0.006		2.853 ± 0.008		2.715 ± 0.012		1.650 ± 0.007		1.752 ± 0.007	
Mg	0.046 ± 0.003		0.007 ± 0.010		0.085 ± 0.004		0.029 ± 0.009		0.000 ± 0.011		0.000 ± 0.020		0.000 ± 0.011		0.000 ± 0.013	
Ca	7.986 ± 0.014		9.077 ± 0.018		12.575 ± 0.022		9.307 ± 0.018		0.176 ± 0.003		0.135 ± 0.007		0.442 ± 0.003		0.413 ± 0.004	
K	0.181 ± 0.002		0.318 ± 0.004		0.236 ± 0.002		0.267 ± 0.004		0.576 ± 0.004		0.499 ± 0.010		0.426 ± 0.004		0.381 ± 0.005	
Traces																
As	0.00358 ± 0.00023		0.00871 ± 0.00079		0.00232 ± 0.00022		0.00683 ± 0.00071		0.00000 ± 0.00084		0.00000 ± 0.00225		0.01085 ± 0.00101		0.00021 ± 0.00115	
Be	0.00009 ± 0.00006		0.00013 ± 0.00020		0.00006 ± 0.00005		0.00009 ± 0.00018		0.00014 ± 0.00021		0.00011 ± 0.00056		0.00006 ± 0.00025		0.00006 ± 0.00029	
Cd	0.00001 ± 0.00006		0.00001 ± 0.00020		0.00000 ± 0.00005		0.00000 ± 0.00018		0.00000 ± 0.00021		0.00001 ± 0.00056		0.00000 ± 0.00025		0.00000 ± 0.00029	
Cr	0.00609 ± 0.00012		0.01218 ± 0.00040		0.00360 ± 0.00011		0.00959 ± 0.00035		0.01140 ± 0.00042		0.05111 ± 0.00113		0.02238 ± 0.00051		0.04159 ± 0.00058	
Hg	0.00000 ± 0.00012		0.00000 ± 0.00040		0.00000 ± 0.00011		0.00000 ± 0.00035		0.00009 ± 0.00042		0.00017 ± 0.00113		0.00000 ± 0.00051		0.00045 ± 0.00058	
Mn	0.02698 ± 0.00023		0.02524 ± 0.00079		0.02259 ± 0.00022		0.03057 ± 0.00071		0.03802 ± 0.00084		0.03785 ± 0.00225		0.00618 ± 0.00101		0.00531 ± 0.00115	
Ni	0.00112 ± 0.00023		0.00131 ± 0.00079		0.00086 ± 0.00022		0.00125 ± 0.00071		0.00140 ± 0.00084		0.00143 ± 0.00225		0.00170 ± 0.00101		0.00139 ± 0.00115	
Pb	0.00049 ± 0.00006		0.00088 ± 0.00020		0.00033 ± 0.00005		0.00061 ± 0.00018		0.00056 ± 0.00021		0.00065 ± 0.00056		0.00069 ± 0.00025		0.00081 ± 0.00029	
Sb	0.00008 ± 0.00006		0.00009 ± 0.00020		0.00006 ± 0.00005		0.00007 ± 0.00018		0.00002 ± 0.00021		-0.00002 ± 0.00056		0.00013 ± 0.00025		0.00016 ± 0.00029	
Sr	0.04243 ± 0.00011		0.03150 ± 0.00020		0.03469 ± 0.00006		0.03346 ± 0.00018		0.00199 ± 0.00021		0.00167 ± 0.00056		0.00417 ± 0.00025		0.00697 ± 0.00029	
V	0.00186 ± 0.00006		0.00216 ± 0.00020		0.00132 ± 0.00005		0.00199 ± 0.00018		0.00303 ± 0.00021		0.00289 ± 0.00056		0.00283 ± 0.00025		0.00432 ± 0.00037	
Zn	0.00261 ± 0.00023		0.01036 ± 0.00079		0.00185 ± 0.00022		0.00357 ± 0.00071		0.00325 ± 0.00084		0.00631 ± 0.00225		0.01014 ± 0.00101		0.01461 ± 0.00115	
Ions																
CL^-	0.042 ± 0.003		0.249 ± 0.014		0.092 ± 0.005		0.104 ± 0.006		0.179 ± 0.011		0.274 ± 0.017		0.689 ± 0.037		0.143 ± 0.010	
NO_3^-	0.249 ± 0.014		0.353 ± 0.023		1.107 ± 0.057		1.289 ± 0.069		0.490 ± 0.031		0.654 ± 0.046		0.096 ± 0.013		0.130 ± 0.018	
PO_4^{3-}	0.015 ± 0.003		0.000 ± 0.006		0.020 ± 0.003		0.000 ± 0.006		0.000 ± 0.008		0.119 ± 0.022		0.101 ± 0.015		0.087 ± 0.018	
SO_4^{2-}	0.096 ± 0.006		0.131 ± 0.012		0.059 ± 0.005		0.073 ± 0.009		0.130 ± 0.013		0.186 ± 0.023		0.185 ± 0.018		0.184 ± 0.021	
NH_4^+	0.030 ± 0.002		0.114 ± 0.007		0.039 ± 0.002		0.046 ± 0.003		0.151 ± 0.009		0.183 ± 0.012		0.183 ± 0.011		0.180 ± 0.011	
Ca^{2+}	8.095 ± 0.092		9.644 ± 0.141		8.352 ± 0.115		9.041 ± 0.072		0.100 ± 0.095		0.149 ± 0.200		4.229 ± 0.121		0.283 ± 0.172	
K^+	0.020 ± 0.025		0.068 ± 0.081		0.023 ± 0.025		0.051 ± 0.072		0.106 ± 0.095		0.024 ± 0.200		0.389 ± 0.121		0.047 ± 0.172	
Mg^{2+}	0.397 ± 0.024		0.475 ± 0.081		0.417 ± 0.025		0.451 ± 0.072		0.076 ± 0.095		0.085 ± 0.200		0.600 ± 0.121		0.101 ± 0.172	
Na^+	0.090 ± 0.024		0.190 ± 0.081		0.156 ± 0.025		0.208 ± 0.072		0.330 ± 0.095		0.268 ± 0.200		0.247 ± 0.121		0.096 ± 0.172	

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1053						S1055						S1056						S1057					
Locality	USA, Reno NV, Peavine Mtn, yellow soil						China, Lanzhou, Jiuzhoutai Mtn, loess						Australia, Lake Eyre, Cooper Creek						Australia, Lake Eyre, Warburton River					
Particle Size	PM_{10}			$PM_{2.5}$			PM_{10}			$PM_{2.5}$			PM_{10}			$PM_{2.5}$			PM_{10}			$PM_{2.5}$		
	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc
	%		%				%		%				%		%				%		%			
Majors																								
Si	11.531	±	0.032	16.871	±	0.073	12.330	±	0.029	13.611	±	0.042	13.164	±	0.028	16.591	±	0.045	15.925	±	0.043	18.895	±	0.062
Ti	0.401	±	0.005	0.414	±	0.012	0.335	±	0.003	0.305	±	0.006	0.368	±	0.003	0.355	±	0.006	0.477	±	0.006	0.484	±	0.009
Al	4.602	±	0.029	7.167	±	0.079	4.237	±	0.024	5.642	±	0.043	5.182	±	0.023	6.723	±	0.042	6.753	±	0.039	8.058	±	0.064
Fe	4.522	±	0.010	6.080	±	0.020	4.172	±	0.008	4.149	±	0.011	4.680	±	0.009	4.728	±	0.011	5.102	±	0.012	5.436	±	0.015
Mg	0.000	±	0.007	0.000	±	0.022	0.449	±	0.006	0.958	±	0.013	0.007	±	0.006	0.123	±	0.012	0.000	±	0.010	0.000	±	0.018
Ca	0.279	±	0.002	0.339	±	0.007	7.793	±	0.014	8.392	±	0.017	3.879	±	0.007	3.459	±	0.008	0.712	±	0.003	0.675	±	0.005
K	0.704	±	0.003	0.831	±	0.011	2.168	±	0.006	2.357	±	0.008	1.419	±	0.004	1.582	±	0.006	1.231	±	0.005	1.311	±	0.007
Traces																								
As	0.00088	±	0.00053	0.02618	±	0.00245	0.00152	±	0.00019	0.00224	±	0.00080	0.00115	±	0.00020	0.00143	±	0.00068	0.00081	±	0.00063	0.00110	±	0.00142
Be	0.00005	±	0.00013	0.00005	±	0.00061	0.00011	±	0.00005	0.00015	±	0.00020	0.00010	±	0.00005	0.00009	±	0.00017	0.00012	±	0.00016	0.00010	±	0.00035
Cd	0.00003	±	0.00013	0.00002	±	0.00061	0.00003	±	0.00005	0.00003	±	0.00020	0.00001	±	0.00005	0.00002	±	0.00017	0.00001	±	0.00016	0.00002	±	0.00035
Cr	0.02202	±	0.00027	0.04981	±	0.00122	0.00628	±	0.00009	0.02031	±	0.00048	0.01057	±	0.00010	0.01469	±	0.00034	0.02271	±	0.00032	0.03445	±	0.00071
Hg	0.00004	±	0.00027	0.00147	±	0.00122	0.00003	±	0.00009	0.00010	±	0.00040	0.00004	±	0.00010	0.00008	±	0.00034	0.00008	±	0.00031	0.00018	±	0.00071
Mn	0.03013	±	0.00151	0.03215	±	0.00245	0.06171	±	0.00019	0.07614	±	0.00080	0.04074	±	0.00020	0.04243	±	0.00068	0.07703	±	0.00063	0.06893	±	0.00142
Ni	0.00155	±	0.00053	0.00253	±	0.00245	0.00315	±	0.00019	0.00424	±	0.00080	0.00390	±	0.00020	0.00456	±	0.00068	0.00495	±	0.00063	0.00464	±	0.00142
Pb	0.00184	±	0.00013	0.00157	±	0.00061	0.00208	±	0.00005	0.00261	±	0.00020	0.00101	±	0.00005	0.00114	±	0.00017	0.00095	±	0.00016	0.00102	±	0.00035
Sb	0.00017	±	0.00013	0.00025	±	0.00061	0.00010	±	0.00005	0.00014	±	0.00020	0.00003	±	0.00005	0.00005	±	0.00017	0.00003	±	0.00016	0.00006	±	0.00035
Sr	0.00801	±	0.00013	0.00324	±	0.00061	0.03266	±	0.00012	0.04704	±	0.00099	0.04890	±	0.00024	0.04883	±	0.00243	0.01269	±	0.00016	0.01233	±	0.00057
V	0.00684	±	0.00020	0.00804	±	0.00061	0.00409	±	0.00005	0.00460	±	0.00020	0.00882	±	0.00005	0.00822	±	0.00017	0.00873	±	0.00016	0.00861	±	0.00035
Zn	0.01077	±	0.00053	0.01434	±	0.00245	0.00671	±	0.00019	0.01201	±	0.00080	0.00529	±	0.00020	0.00847	±	0.00068	0.01070	±	0.00063	0.01341	±	0.00142
Ions																								
CL^-	0.068	±	0.004	0.421	±	0.026	0.401	±	0.021	1.084	±	0.056	0.439	±	0.022	0.776	±	0.040	0.629	±	0.032	0.797	±	0.042
NO_3^-	0.040	±	0.006	0.470	±	0.040	0.036	±	0.004	0.146	±	0.014	0.031	±	0.003	0.082	±	0.009	0.059	±	0.006	0.083	±	0.013
PO_4^{3-}	0.000	±	0.005	0.000	±	0.020	0.035	±	0.004	0.167	±	0.017	0.110	±	0.007	0.159	±	0.014	0.087	±	0.009	0.109	±	0.017
SO_4^{2-}	0.053	±	0.006	0.102	±	0.022	0.691	±	0.036	0.784	±	0.047	0.989	±	0.051	1.326	±	0.071	0.331	±	0.020	0.415	±	0.030
NH_4^+	0.131	±	0.007	0.355	±	0.021	0.027	±	0.002	0.097	±	0.006	0.025	±	0.002	0.083	±	0.005	0.094	±	0.005	0.201	±	0.012
Ca^{2+}	0.086	±	0.056	0.445	±	0.250	7.658	±	0.434	12.605	±	0.868	3.407	±	0.211	3.366	±	0.073	0.446	±	0.055	0.471	±	0.138
K^+	0.049	±	0.056	0.149	±	0.250	0.129	±	0.027	0.238	±	0.110	0.237	±	0.023	0.312	±	0.073	0.229	±	0.055	0.221	±	0.138
Mg^{2+}	0.063	±	0.056	0.186	±	0.250	0.474	±	0.027	1.147	±	0.110	0.401	±	0.023	0.541	±	0.073	0.268	±	0.055	0.250	±	0.138
Na^+	0.010	±	0.056	0.056	±	0.250	0.257	±	0.027	0.479	±	0.110	0.904	±	0.023	1.093	±	0.073	0.562	±	0.055	0.599	±	0.138

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1058				S1060				S1062				S1064			
Locallity	Australia, Lake Frome				Serbia, Batajnica, Danube R, loess				Serbia, Kostolac, Lignite pit, loess				Serbia, Stari Slankamen, loess			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	8.109 ± 0.027		16.095 ± 0.085		14.169 ± 0.031		16.949 ± 0.050		14.047 ± 0.032		17.341 ± 0.052		14.189 ± 0.034		14.699 ± 0.051	
Ti	0.217 ± 0.004		0.377 ± 0.015		0.495 ± 0.004		0.422 ± 0.007		0.450 ± 0.004		0.454 ± 0.008		0.398 ± 0.004		0.329 ± 0.008	
Al	2.850 ± 0.027		5.740 ± 0.095		6.053 ± 0.024		7.761 ± 0.050		5.861 ± 0.027		7.732 ± 0.054		6.042 ± 0.030		6.404 ± 0.056	
Fe	2.591 ± 0.007		4.701 ± 0.021		6.628 ± 0.011		6.741 ± 0.015		5.665 ± 0.010		6.488 ± 0.016		5.697 ± 0.011		5.323 ± 0.014	
Mg	0.760 ± 0.010		2.136 ± 0.036		0.026 ± 0.006		0.159 ± 0.014		0.302 ± 0.007		0.538 ± 0.016		0.208 ± 0.007		0.359 ± 0.016	
Ca	0.549 ± 0.003		0.907 ± 0.011		0.737 ± 0.002		0.775 ± 0.004		1.411 ± 0.004		1.394 ± 0.006		3.794 ± 0.008		4.940 ± 0.013	
K	1.077 ± 0.005		1.887 ± 0.016		2.237 ± 0.005		2.234 ± 0.008		2.176 ± 0.005		2.419 ± 0.009		2.139 ± 0.006		1.939 ± 0.009	
Traces																
As	0.01044 ± 0.00061		0.00170 ± 0.00354		0.00150 ± 0.00018		0.00234 ± 0.00089		0.00161 ± 0.00032		0.00213 ± 0.00100		0.00166 ± 0.00038		0.00223 ± 0.00124	
Be	0.00011 ± 0.00015		0.00008 ± 0.00088		0.00016 ± 0.00005		0.00018 ± 0.00022		0.00016 ± 0.00008		0.00017 ± 0.00025		0.00013 ± 0.00009		0.00016 ± 0.00031	
Cd	0.00006 ± 0.00015		0.00002 ± 0.00088		0.00003 ± 0.00005		0.00004 ± 0.00022		0.00002 ± 0.00008		0.00004 ± 0.00025		0.00003 ± 0.00009		0.00003 ± 0.00031	
Cr	0.01924 ± 0.00031		0.08515 ± 0.00177		0.00849 ± 0.00009		0.02801 ± 0.00044		0.01169 ± 0.00016		0.02451 ± 0.00050		0.01147 ± 0.00019		0.02906 ± 0.00062	
Hg	0.00006 ± 0.00031		0.00038 ± 0.00177		0.00005 ± 0.00009		0.00012 ± 0.00044		0.00004 ± 0.00016		0.00011 ± 0.00050		0.00005 ± 0.00019		0.00012 ± 0.00062	
Mn	0.06269 ± 0.00061		0.13220 ± 0.00354		0.11513 ± 0.00056		0.15961 ± 0.00102		0.07738 ± 0.00032		0.09150 ± 0.00100		0.08833 ± 0.00038		0.09929 ± 0.00215	
Ni	0.00236 ± 0.00061		0.01094 ± 0.00354		0.00594 ± 0.00018		0.00778 ± 0.00089		0.00647 ± 0.00032		0.00759 ± 0.00100		0.00594 ± 0.00038		0.00663 ± 0.00124	
Pb	0.00247 ± 0.00015		0.00181 ± 0.00088		0.00275 ± 0.00005		0.00330 ± 0.00022		0.00250 ± 0.00008		0.00288 ± 0.00025		0.00226 ± 0.00009		0.00258 ± 0.00031	
Sb	0.00028 ± 0.00015		0.00028 ± 0.00088		0.00009 ± 0.00005		0.00013 ± 0.00022		0.00009 ± 0.00008		0.00012 ± 0.00025		0.00009 ± 0.00009		0.00012 ± 0.00031	
Sr	0.09034 ± 0.00018		0.01071 ± 0.00088		0.00399 ± 0.00005		0.00594 ± 0.00024		0.00409 ± 0.00008		0.00533 ± 0.00025		0.00508 ± 0.00009		0.00780 ± 0.00031	
V	0.00266 ± 0.00015		0.00554 ± 0.00088		0.00651 ± 0.00005		0.00731 ± 0.00022		0.00621 ± 0.00008		0.00652 ± 0.00025		0.00579 ± 0.00009		0.00588 ± 0.00031	
Zn	0.00982 ± 0.00061		0.01962 ± 0.00354		0.00908 ± 0.00018		0.01428 ± 0.00089		0.01068 ± 0.00032		0.01724 ± 0.00100		0.00918 ± 0.00038		0.01454 ± 0.00124	
Ions																
CL^-	2.626 ± 0.132		4.136 ± 0.216		0.187 ± 0.010		0.616 ± 0.033		0.037 ± 0.002		0.785 ± 0.043		0.503 ± 0.026		0.577 ± 0.032	
NO_3^-	0.034 ± 0.005		0.445 ± 0.054		0.113 ± 0.007		0.228 ± 0.020		0.017 ± 0.003		0.114 ± 0.017		0.048 ± 0.005		0.097 ± 0.015	
PO_4^{3-}	0.050 ± 0.007		0.000 ± 0.040		0.035 ± 0.004		0.100 ± 0.015		0.024 ± 0.004		0.000 ± 0.015		0.039 ± 0.005		0.071 ± 0.017	
SO_4^{2-}	0.644 ± 0.036		1.251 ± 0.096		0.126 ± 0.008		0.225 ± 0.020		0.033 ± 0.004		0.112 ± 0.018		0.187 ± 0.012		0.242 ± 0.023	
NH_4^+	0.017 ± 0.002		0.340 ± 0.023		0.064 ± 0.004		0.266 ± 0.015		0.053 ± 0.003		0.342 ± 0.019		0.178 ± 0.009		0.231 ± 0.014	
Ca^{2+}	0.716 ± 0.056		1.440 ± 0.493		0.283 ± 0.027		0.564 ± 0.127		1.380 ± 0.120		1.933 ± 0.182		4.174 ± 0.044		7.074 ± 0.676	
K^+	0.079 ± 0.056		0.170 ± 0.493		0.076 ± 0.027		0.075 ± 0.127		0.072 ± 0.030		0.213 ± 0.182		0.088 ± 0.044		0.134 ± 0.162	
Mg^{2+}	0.598 ± 0.056		2.407 ± 0.493		0.171 ± 0.027		0.229 ± 0.127		0.573 ± 0.030		0.867 ± 0.182		0.535 ± 0.044		0.582 ± 0.162	
Na^+	2.308 ± 0.056		2.764 ± 0.493		0.091 ± 0.027		0.231 ± 0.127		0.033 ± 0.030		0.100 ± 0.182		0.121 ± 0.044		0.285 ± 0.162	

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S1065						S1066						S2001						S2002					
Locality	USA, Carbondale, California, red clay						USA, Arizona Road Dust						Djibouti, Camp Lemonnier						Afghanistan, Bagram					
Particle Size	PM_{10}			$PM_{2.5}$			PM_{10}			$PM_{2.5}$			PM_{10}			$PM_{2.5}$			PM_{10}			$PM_{2.5}$		
	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc	Conc		Unc
	%		%	%		%	%		%	%		%	%		%	%		%	%		%	%		%
Majors																								
Si	13.119	±	0.043	12.499	±	0.046	24.352	±	0.056	24.424	±	0.049	8.701	±	0.061	10.775	±	0.083	8.409	±	0.059	10.034	±	0.079
Ti	0.572	±	0.009	0.532	±	0.010	0.183	±	0.004	0.223	±	0.003	0.466	±	0.002	0.461	±	0.003	0.320	±	0.001	0.351	±	0.003
Al	10.803	±	0.056	11.267	±	0.064	2.975	±	0.031	4.022	±	0.026	3.590	±	0.027	4.754	±	0.043	4.016	±	0.030	5.381	±	0.048
Fe	9.912	±	0.021	10.051	±	0.021	1.384	±	0.005	2.198	±	0.005	4.969	±	0.012	5.248	±	0.016	4.183	±	0.011	4.645	±	0.015
Mg	0.000	±	0.011	0.000	±	0.013	0.000	±	0.008	0.000	±	0.007	1.677	±	0.037	2.534	±	0.105	1.385	±	0.036	1.889	±	0.103
Ca	0.180	±	0.003	0.164	±	0.003	1.309	±	0.005	1.511	±	0.004	12.530	±	0.027	10.640	±	0.025	15.144	±	0.033	15.571	±	0.035
K	0.358	±	0.004	0.364	±	0.005	1.753	±	0.006	2.209	±	0.006	1.371	±	0.004	1.531	±	0.006	2.007	±	0.006	2.274	±	0.008
Traces																								
As	0.01175	±	0.00093	0.00152	±	0.00116	0.00000	±	0.00064	0.00068	±	0.00035	0.00034	±	0.00008	0.00058	±	0.00000	0.00132	±	0.00006	0.00227	±	0.00007
Be	0.00010	±	0.00023	0.00011	±	0.00029	0.00006	±	0.00016	0.00007	±	0.00009	0.00010	±	0.00002	0.00029	±	0.00002	0.00009	±	0.00002	0.00030	±	0.00001
Cd	0.00000	±	0.00023	0.00001	±	0.00029	0.00001	±	0.00016	0.00002	±	0.00009	0.00003	±	0.00000	0.00012	±	0.00001	0.00005	±	0.00000	0.00544	±	0.00009
Cr	0.03260	±	0.00046	0.05279	±	0.00058	0.02284	±	0.00032	0.00963	±	0.00017	0.00000	±	0.00006	0.00002	±	0.00032	0.00001	±	0.00009	0.00002	±	0.00036
Hg	0.00000	±	0.00046	0.00003	±	0.00058	0.00006	±	0.00032	0.00006	±	0.00017	0.00003	±	0.00000	0.00012	±	0.00001	0.00003	±	0.00000	0.00012	±	0.00001
Mn	0.01252	±	0.00093	0.01324	±	0.00116	0.02540	±	0.00064	0.03986	±	0.00035	0.06199	±	0.00007	0.14153	±	0.00102	0.05296	±	0.00017	0.08065	±	0.00043
Ni	0.00178	±	0.00093	0.00112	±	0.00116	0.00182	±	0.00064	0.00154	±	0.00035	0.00311	±	0.00004	0.00642	±	0.00015	0.00427	±	0.00005	0.03606	±	0.00005
Pb	0.00144	±	0.00023	0.00155	±	0.00029	0.00095	±	0.00016	0.00146	±	0.00009	0.00076	±	0.00000	0.00230	±	0.00001	0.00413	±	0.00003	0.00639	±	0.00004
Sb	0.00021	±	0.00023	0.00018	±	0.00029	0.00006	±	0.00016	0.00009	±	0.00009	0.00008	±	0.00000	0.00029	±	0.00000	0.00012	±	0.00000	0.00030	±	0.00001
Sr	0.00899	±	0.00023	0.00931	±	0.00029	0.01017	±	0.00016	0.01070	±	0.00040	0.03524	±	0.00026	0.06787	±	0.00053	0.02374	±	0.00032	0.03077	±	0.00020
V	0.03201	±	0.00023	0.02395	±	0.00029	0.00223	±	0.00016	0.00261	±	0.00009	0.00396	±	0.00003	0.00813	±	0.00010	0.00495	±	0.00015	0.00695	±	0.00013
Zn	0.01576	±	0.00093	0.01518	±	0.00116	0.00449	±	0.00064	0.00587	±	0.00035	0.01252	±	0.00031	0.04571	±	0.00025	0.01568	±	0.00008	0.04651	±	0.00037
Ions																								
CL^-	0.617	±	0.033	0.081	±	0.006	0.053	±	0.004	0.271	±	0.014	0.084	±	0.018	0.115	±	0.052	0.023	±	0.018	0.040	±	0.053
NO_3^-	0.092	±	0.011	0.061	±	0.011	0.041	±	0.006	0.035	±	0.004	0.071	±	0.019	0.070	±	0.052	0.011	±	0.018	0.010	±	0.053
PO_4^{3-}	0.000	±	0.008	0.000	±	0.010	0.030	±	0.006	0.052	±	0.006	0.000	±	0.000	0.000	±	0.000	0.000	±	0.000	0.000	±	0.000
SO_4^{2-}	0.289	±	0.021	0.239	±	0.020	0.159	±	0.012	0.082	±	0.007	2.740	±	0.195	1.778	±	0.136	0.342	±	0.030	0.278	±	0.057
NH_4^+	0.278	±	0.015	0.129	±	0.008	0.021	±	0.002	0.061	±	0.004	0.053	±	0.019	0.084	±	0.053	0.043	±	0.020	0.071	±	0.055
Ca^{2+}	0.270	±	0.099	0.156	±	0.124	0.857	±	0.184	0.910	±	0.039	15.331	±	1.096	11.727	±	0.843	15.605	±	1.118	13.807	±	0.996
K^+	0.023	±	0.099	0.038	±	0.124	0.467	±	0.059	0.146	±	0.039	0.271	±	0.019	0.391	±	0.028	0.268	±	0.019	0.387	±	0.028
Mg^{2+}	0.058	±	0.099	0.053	±	0.124	0.179	±	0.059	0.115	±	0.039	0.268	±	0.019	0.451	±	0.032	0.285	±	0.020	0.399	±	0.029
Na^+	0.066	±	0.099	0.025	±	0.124	0.427	±	0.059	0.138	±	0.039	0.070	±	0.005	0.083	±	0.007	0.027	±	0.002	0.037	±	0.004

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S2003				S2004				S2005				S2006			
Locality	Afghanistan, Khowst				Qatar, Al Udeid				UAE, Al Dhafra				Iraq, Balad			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	14.263 ±	0.098	17.287 ±	0.133	10.831 ±	0.076	13.351 ±	0.103	3.470 ±	0.030	5.239 ±	0.058	9.393 ±	0.066	10.878 ±	0.098
Ti	0.529 ±	0.002	0.690 ±	0.005	0.381 ±	0.002	0.438 ±	0.003	0.090 ±	0.001	0.135 ±	0.004	0.329 ±	0.001	0.336 ±	0.005
Al	5.254 ±	0.038	7.989 ±	0.071	4.375 ±	0.034	5.641 ±	0.052	1.380 ±	0.016	2.117 ±	0.036	3.451 ±	0.026	4.348 ±	0.054
Fe	6.357 ±	0.015	7.184 ±	0.023	4.446 ±	0.012	4.976 ±	0.017	1.233 ±	0.005	1.706 ±	0.012	3.656 ±	0.009	3.644 ±	0.018
Mg	2.083 ±	0.041	3.291 ±	0.156	2.668 ±	0.055	3.487 ±	0.131	3.374 ±	0.074	3.823 ±	0.177	1.674 ±	0.039	2.323 ±	0.193
Ca	4.328 ±	0.010	3.713 ±	0.012	11.592 ±	0.025	7.026 ±	0.018	21.264 ±	0.046	23.176 ±	0.053	9.733 ±	0.021	8.564 ±	0.024
K	1.603 ±	0.005	2.257 ±	0.009	1.391 ±	0.004	1.486 ±	0.007	0.679 ±	0.003	0.867 ±	0.007	1.366 ±	0.004	1.448 ±	0.009
Traces																
As	0.00073 ±	0.00003	0.00089 ±	0.00042	0.00078 ±	0.00007	0.00091 ±	0.00009	0.00064 ±	0.00006	0.00120 ±	0.00003	0.00039 ±	0.00005	0.00148 ±	0.00025
Be	0.00008 ±	0.00001	0.00044 ±	0.00005	0.00011 ±	0.00000	0.00035 ±	0.00002	0.00016 ±	0.00001	0.00050 ±	0.00005	0.00009 ±	0.00001	0.00059 ±	0.00007
Cd	0.00003 ±	0.00000	0.00018 ±	0.00001	0.00005 ±	0.00000	0.00014 ±	0.00002	0.00006 ±	0.00000	0.00020 ±	0.00001	0.00003 ±	0.00000	0.00024 ±	0.00001
Cr	0.00001 ±	0.00013	0.00004 ±	0.00022	0.00002 ±	0.00022	0.00003 ±	0.00026	0.00001 ±	0.00024	0.00004 ±	0.00046	0.00001 ±	0.00008	0.00004 ±	0.00009
Hg	0.00003 ±	0.00000	0.00018 ±	0.00002	0.00005 ±	0.00001	0.00014 ±	0.00002	0.00006 ±	0.00000	0.00020 ±	0.00001	0.00003 ±	0.00000	0.00024 ±	0.00002
Mn	0.08249 ±	0.00054	0.14103 ±	0.00073	0.06167 ±	0.00026	0.08286 ±	0.00041	0.02683 ±	0.00012	0.03527 ±	0.00027	0.03396 ±	0.00022	0.04964 ±	0.00016
Ni	0.02201 ±	0.00024	0.03481 ±	0.00035	0.01101 ±	0.00013	0.01416 ±	0.00005	0.00701 ±	0.00018	0.00988 ±	0.00024	0.00676 ±	0.00004	0.01074 ±	0.00008
Pb	0.00146 ±	0.00001	0.00291 ±	0.00002	0.00182 ±	0.00002	0.00234 ±	0.00001	0.00060 ±	0.00000	0.00080 ±	0.00000	0.00057 ±	0.00000	0.00122 ±	0.00001
Sb	0.00059 ±	0.00000	0.00090 ±	0.00000	0.00011 ±	0.00000	0.00035 ±	0.00001	0.00016 ±	0.00000	0.00050 ±	0.00001	0.00009 ±	0.00000	0.00059 ±	0.00001
Sr	0.01073 ±	0.00005	0.01476 ±	0.00027	0.03577 ±	0.00007	0.02960 ±	0.00031	0.12683 ±	0.00098	0.14810 ±	0.00149	0.03075 ±	0.00012	0.04727 ±	0.00026
V	0.00443 ±	0.00002	0.00895 ±	0.00026	0.00704 ±	0.00007	0.00943 ±	0.00014	0.00279 ±	0.00004	0.00407 ±	0.00008	0.00372 ±	0.00008	0.00705 ±	0.00019
Zn	0.01294 ±	0.00013	0.04139 ±	0.00030	0.01603 ±	0.00023	0.03159 ±	0.00043	0.01721 ±	0.00028	0.04168 ±	0.00072	0.01000 ±	0.00005	0.05178 ±	0.00046
Ions																
CL^-	0.029 ±	0.017	0.072 ±	0.079	0.021 ±	0.024	0.038 ±	0.063	0.243 ±	0.038	0.357 ±	0.092	2.145 ±	0.156	1.784 ±	0.169
NO_3^-	0.014 ±	0.017	0.031 ±	0.078	0.011 ±	0.024	0.090 ±	0.063	0.026 ±	0.034	0.000 ±	0.088	0.161 ±	0.026	0.138 ±	0.106
PO_4^{3-}	0.000 ±	0.000	0.000 ±	0.000	0.000 ±	0.000	0.000 ±	0.000	0.000 ±	0.000	0.000 ±	0.000	0.000 ±	0.000	0.000 ±	0.000
SO_4^{2-}	0.239 ±	0.024	0.342 ±	0.082	0.226 ±	0.029	0.173 ±	0.064	1.584 ±	0.118	1.490 ±	0.139	1.119 ±	0.082	1.783 ±	0.167
NH_4^+	0.030 ±	0.018	0.084 ±	0.080	0.044 ±	0.026	0.093 ±	0.065	0.040 ±	0.035	0.071 ±	0.089	0.037 ±	0.019	0.139 ±	0.108
Ca^{2+}	5.192 ±	0.372	3.316 ±	0.244	12.403 ±	0.898	6.979 ±	0.510	13.203 ±	0.953	20.539 ±	1.498	13.934 ±	1.000	10.719 ±	0.789
K^+	0.124 ±	0.009	0.229 ±	0.018	0.142 ±	0.011	0.260 ±	0.020	0.070 ±	0.006	0.119 ±	0.012	0.202 ±	0.015	0.282 ±	0.023
Mg^{2+}	0.256 ±	0.018	0.248 ±	0.018	0.491 ±	0.035	0.931 ±	0.067	1.942 ±	0.139	3.369 ±	0.243	0.611 ±	0.043	0.945 ±	0.069
Na^+	0.035 ±	0.003	0.047 ±	0.006	0.021 ±	0.002	0.052 ±	0.006	0.145 ±	0.011	0.205 ±	0.017	0.223 ±	0.017	0.168 ±	0.014

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S2007				S2008				S2009				S2010			
Locallity	Iraq, Baghdad, Camp Victory				Iraq, Tallil, Camp Adder				Iraq, Tikrit, Speicher				Iraq, Taji			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	10.093 ± 0.071		12.120 ± 0.092		7.208 ± 0.056		10.135 ± 0.095		10.050 ± 0.072		12.654 ± 0.101		7.185 ± 0.052		6.528 ± 0.135	
Ti	0.366 ± 0.001		0.384 ± 0.003		0.257 ± 0.002		0.364 ± 0.005		0.354 ± 0.002		0.405 ± 0.004		0.268 ± 0.001		0.225 ± 0.014	
Al	4.044 ± 0.031		5.119 ± 0.045		2.569 ± 0.025		3.818 ± 0.052		4.152 ± 0.033		5.311 ± 0.051		2.557 ± 0.021		2.712 ± 0.102	
Fe	4.936 ± 0.013		5.342 ± 0.016		2.236 ± 0.008		3.125 ± 0.017		4.217 ± 0.011		4.769 ± 0.017		3.071 ± 0.008		2.088 ± 0.037	
Mg	2.227 ± 0.048		2.913 ± 0.105		1.489 ± 0.069		2.373 ± 0.205		1.775 ± 0.051		2.555 ± 0.136		1.464 ± 0.044		1.338 ± 0.544	
Ca	11.567 ± 0.025		9.329 ± 0.022		17.632 ± 0.039		16.919 ± 0.041		12.418 ± 0.027		10.171 ± 0.025		14.796 ± 0.032		15.677 ± 0.051	
K	1.147 ± 0.004		1.183 ± 0.005		0.932 ± 0.004		1.180 ± 0.009		1.362 ± 0.004		1.512 ± 0.007		1.032 ± 0.004		0.768 ± 0.019	
Traces																
As	0.00115 ± 0.00007		0.00140 ± 0.00010		0.00120 ± 0.00003		0.00174 ± 0.00019		0.00097 ± 0.00007		0.00152 ± 0.00012		0.00073 ± 0.00008		0.00360 ± 0.00112	
Be	0.00010 ± 0.00003		0.00028 ± 0.00002		0.00020 ± 0.00004		0.00063 ± 0.00002		0.00013 ± 0.00002		0.00039 ± 0.00004		0.00011 ± 0.00003		0.00180 ± 0.00015	
Cd	0.00004 ± 0.00001		0.00011 ± 0.00001		0.00008 ± 0.00000		0.00025 ± 0.00001		0.00006 ± 0.00000		0.00016 ± 0.00001		0.00006 ± 0.00000		0.00072 ± 0.00003	
Cr	0.00002 ± 0.00006		0.00002 ± 0.00002		0.00002 ± 0.00012		0.00004 ± 0.00026		0.00001 ± 0.00012		0.00003 ± 0.00020		0.00001 ± 0.00006		0.00008 ± 0.00036	
Hg	0.00004 ± 0.00001		0.00011 ± 0.00002		0.00008 ± 0.00001		0.00025 ± 0.00002		0.00005 ± 0.00000		0.00016 ± 0.00001		0.00004 ± 0.00000		0.00072 ± 0.00008	
Mn	0.07003 ± 0.00038		0.08213 ± 0.00113		0.05141 ± 0.00059		0.05392 ± 0.00078		0.04960 ± 0.00039		0.06667 ± 0.00037		0.04770 ± 0.00043		0.05086 ± 0.00026	
Ni	0.01801 ± 0.00013		0.02146 ± 0.00017		0.00665 ± 0.00012		0.00914 ± 0.00023		0.01112 ± 0.00006		0.01503 ± 0.00013		0.01038 ± 0.00013		0.01007 ± 0.00030	
Pb	0.00122 ± 0.00000		0.00144 ± 0.00002		0.00132 ± 0.00001		0.00175 ± 0.00003		0.00161 ± 0.00000		0.00233 ± 0.00004		0.00208 ± 0.00001		0.00314 ± 0.00003	
Sb	0.00010 ± 0.00000		0.00028 ± 0.00001		0.00020 ± 0.00000		0.00063 ± 0.00001		0.00014 ± 0.00000		0.00039 ± 0.00000		0.00011 ± 0.00000		0.00180 ± 0.00003	
Sr	0.04202 ± 0.00087		0.04146 ± 0.00025		0.12618 ± 0.00055		0.09418 ± 0.00028		0.02068 ± 0.00014		0.02201 ± 0.00011		0.05433 ± 0.00017		0.07410 ± 0.00009	
V	0.00780 ± 0.00002		0.01001 ± 0.00011		0.00713 ± 0.00007		0.01038 ± 0.00018		0.00637 ± 0.00006		0.00936 ± 0.00024		0.00459 ± 0.00005		0.00542 ± 0.00020	
Zn	0.01285 ± 0.00006		0.02090 ± 0.00027		0.02633 ± 0.00033		0.04456 ± 0.00107		0.01481 ± 0.00025		0.03066 ± 0.00023		0.01577 ± 0.00015		0.09281 ± 0.00195	
Ions																
CL^-	1.292 ± 0.096		1.150 ± 0.097		0.117 ± 0.043		0.111 ± 0.112		0.104 ± 0.028		0.107 ± 0.070		3.260 ± 0.239		2.237 ± 0.373	
NO_3^-	0.055 ± 0.022		0.054 ± 0.050		0.012 ± 0.042		0.000 ± 0.112		0.089 ± 0.029		0.106 ± 0.070		0.155 ± 0.030		0.141 ± 0.318	
PO_4^{3-}	0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000	
SO_4^{2-}	0.841 ± 0.064		0.696 ± 0.070		4.133 ± 0.297		1.561 ± 0.159		2.350 ± 0.168		2.603 ± 0.199		7.898 ± 0.567		10.249 ± 0.945	
NH_4^+	0.050 ± 0.023		0.091 ± 0.052		0.060 ± 0.043		0.138 ± 0.114		0.047 ± 0.028		0.115 ± 0.072		0.039 ± 0.025		0.451 ± 0.328	
Ca^{2+}	14.865 ± 1.071		9.874 ± 0.711		24.524 ± 1.760		7.304 ± 0.540		14.071 ± 1.004		9.810 ± 0.712		16.362 ± 1.185		14.656 ± 1.291	
K^+	0.160 ± 0.012		0.213 ± 0.016		0.127 ± 0.010		0.088 ± 0.013		0.127 ± 0.009		0.218 ± 0.017		0.090 ± 0.007		0.152 ± 0.034	
Mg^{2+}	0.639 ± 0.046		1.121 ± 0.080		0.482 ± 0.034		0.332 ± 0.025		0.132 ± 0.009		0.253 ± 0.018		0.524 ± 0.038		0.654 ± 0.058	
Na^+	0.534 ± 0.040		0.457 ± 0.035		0.103 ± 0.008		0.067 ± 0.008		0.062 ± 0.005		0.084 ± 0.008		0.222 ± 0.017		0.169 ± 0.024	

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S2011				S2012				S2013				S2014			
Locallity	Iraq, Al Asad				Kuwait, North, Camp Buehring				Kuwait, Central, Camp Ali Al Salem				Kuwait, Coastal, Ash Shu Ayabah			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	2.323 ± 0.020		3.918 ± 0.074		11.066 ± 0.077		13.782 ± 0.100		10.352 ± 0.072		12.695 ± 0.097		9.465 ± 0.066		11.832 ± 0.090	
Ti	0.092 ± 0.001		0.168 ± 0.007		0.368 ± 0.001		0.428 ± 0.003		0.287 ± 0.001		0.319 ± 0.003		0.305 ± 0.001		0.352 ± 0.003	
Al	1.095 ± 0.012		2.036 ± 0.057		4.252 ± 0.032		5.638 ± 0.046		4.222 ± 0.031		5.319 ± 0.047		3.474 ± 0.026		4.674 ± 0.042	
Fe	1.007 ± 0.004		1.543 ± 0.020		4.462 ± 0.011		5.023 ± 0.015		3.655 ± 0.009		3.930 ± 0.013		3.619 ± 0.009		3.954 ± 0.013	
Mg	3.393 ± 0.061		4.765 ± 0.317		2.282 ± 0.043		3.021 ± 0.090		1.665 ± 0.037		2.338 ± 0.107		2.168 ± 0.041		2.965 ± 0.105	
Ca	16.963 ± 0.037		17.258 ± 0.045		11.079 ± 0.024		8.371 ± 0.020		13.265 ± 0.029		10.044 ± 0.024		13.581 ± 0.029		12.950 ± 0.030	
K	0.692 ± 0.003		0.964 ± 0.012		1.401 ± 0.004		1.547 ± 0.006		1.262 ± 0.004		1.321 ± 0.006		1.265 ± 0.004		1.354 ± 0.006	
Traces																
As	0.00022 ± 0.00001		0.00190 ± 0.00012		0.00117 ± 0.00003		0.00137 ± 0.00011		0.00073 ± 0.00001		0.00063 ± 0.00004		0.00086 ± 0.00003		0.00099 ± 0.00011	
Be	0.00011 ± 0.00001		0.00095 ± 0.00007		0.00008 ± 0.00002		0.00023 ± 0.00002		0.00009 ± 0.00000		0.00030 ± 0.00006		0.00008 ± 0.00001		0.00028 ± 0.00001	
Cd	0.00004 ± 0.00001		0.00038 ± 0.00004		0.00003 ± 0.00000		0.00009 ± 0.00001		0.00009 ± 0.00001		0.00013 ± 0.00003		0.00005 ± 0.00000		0.00011 ± 0.00002	
Cr	0.00001 ± 0.00004		0.00006 ± 0.00603		0.00002 ± 0.00009		0.00003 ± 0.00018		0.00001 ± 0.00007		0.00002 ± 0.00015		0.00001 ± 0.00005		0.00002 ± 0.00007	
Hg	0.00004 ± 0.00001		0.00038 ± 0.00003		0.00003 ± 0.00000		0.00009 ± 0.00001		0.00003 ± 0.00000		0.00012 ± 0.00000		0.00003 ± 0.00000		0.00011 ± 0.00001	
Mn	0.01883 ± 0.00006		0.02449 ± 0.00012		0.06290 ± 0.00062		0.08315 ± 0.00060		0.05207 ± 0.00023		0.06058 ± 0.00004		0.04699 ± 0.00089		0.05458 ± 0.00038	
Ni	0.00268 ± 0.00002		0.00540 ± 0.00008		0.01372 ± 0.00005		0.01721 ± 0.00018		0.00720 ± 0.00002		0.00938 ± 0.00006		0.01216 ± 0.00001		0.01451 ± 0.00009	
Pb	0.00054 ± 0.00001		0.00126 ± 0.00002		0.00125 ± 0.00001		0.00157 ± 0.00001		0.00149 ± 0.00001		0.00184 ± 0.00001		0.00177 ± 0.00001		0.00227 ± 0.00001	
Sb	0.00011 ± 0.00003		0.00095 ± 0.00000		0.00008 ± 0.00000		0.00028 ± 0.00001		0.00469 ± 0.00002		0.00474 ± 0.00003		0.00024 ± 0.00000		0.00029 ± 0.00000	
Sr	0.03528 ± 0.00018		0.04905 ± 0.00002		0.05353 ± 0.00031		0.04393 ± 0.00013		0.02591 ± 0.00009		0.02837 ± 0.00012		0.03289 ± 0.00010		0.03795 ± 0.00030	
V	0.00324 ± 0.00005		0.00498 ± 0.00027		0.00746 ± 0.00003		0.00960 ± 0.00003		0.00781 ± 0.00010		0.00887 ± 0.00014		0.00714 ± 0.00003		0.00884 ± 0.00014	
Zn	0.00733 ± 0.00017		0.21103 ± 0.00254		0.00923 ± 0.00013		0.01848 ± 0.00027		0.02311 ± 0.00025		0.03930 ± 0.00018		0.01635 ± 0.00003		0.03337 ± 0.00031	
Ions																
CL^-	0.688 ± 0.056		1.073 ± 0.187		0.064 ± 0.018		0.067 ± 0.040		0.110 ± 0.019		0.099 ± 0.053		0.031 ± 0.017		0.037 ± 0.049	
NO_3^-	0.042 ± 0.024		0.084 ± 0.168		0.018 ± 0.018		0.014 ± 0.040		0.080 ± 0.020		0.060 ± 0.053		0.014 ± 0.017		0.013 ± 0.049	
PO_4^{3-}	0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000		0.000 ± 0.000	
SO_4^{2-}	1.470 ± 0.109		2.057 ± 0.229		1.528 ± 0.109		0.595 ± 0.058		0.466 ± 0.037		0.567 ± 0.067		0.799 ± 0.060		0.769 ± 0.074	
NH_4^+	0.042 ± 0.025		0.226 ± 0.172		0.033 ± 0.019		0.068 ± 0.042		0.081 ± 0.022		0.111 ± 0.057		0.040 ± 0.018		0.078 ± 0.051	
Ca^{2+}	11.161 ± 0.817		31.589 ± 2.409		13.298 ± 0.948		7.545 ± 0.543		14.778 ± 1.054		7.640 ± 0.552		11.464 ± 0.830		12.236 ± 0.891	
K^+	0.086 ± 0.007		0.222 ± 0.024		0.202 ± 0.014		0.264 ± 0.019		0.116 ± 0.008		0.133 ± 0.011		0.105 ± 0.008		0.128 ± 0.010	
Mg^{2+}	3.348 ± 0.242		13.953 ± 1.052		0.339 ± 0.024		0.433 ± 0.031		0.189 ± 0.013		0.284 ± 0.020		0.223 ± 0.016		0.784 ± 0.056	
Na^+	0.144 ± 0.011		0.202 ± 0.019		0.043 ± 0.003		0.042 ± 0.004		0.066 ± 0.005		0.057 ± 0.005		0.016 ± 0.002		0.021 ± 0.003	

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S2015				S2016				S2017				S3003			
Locallity	Kuwait, South, Camp Arifjan				Afghanistan, Camp Leatherneck				Kuwait, Ash Shu Ayabah				USA, YPG, Yuma AZ, Area 3835Z			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	10.174 ±	0.071	12.260 ±	0.092	11.556 ±	0.027	14.603 ±	0.042	9.281 ±	0.027	12.744 ±	0.059	12.736 ±	0.035	16.144 ±	0.054
Ti	0.295 ±	0.001	0.332 ±	0.003	0.254 ±	0.003	0.307 ±	0.006	0.207 ±	0.004	0.240 ±	0.009	0.224 ±	0.004	0.247 ±	0.007
Al	3.561 ±	0.027	4.709 ±	0.042	3.884 ±	0.022	5.338 ±	0.041	2.725 ±	0.025	3.903 ±	0.062	4.048 ±	0.031	5.315 ±	0.054
Fe	3.190 ±	0.008	3.631 ±	0.012	3.710 ±	0.007	4.311 ±	0.011	3.051 ±	0.007	3.736 ±	0.014	2.707 ±	0.007	3.143 ±	0.010
Mg	2.159 ±	0.045	2.941 ±	0.103	0.968 ±	0.007	1.562 ±	0.014	1.124 ±	0.008	1.961 ±	0.023	0.530 ±	0.009	0.941 ±	0.017
Ca	12.613 ±	0.027	12.814 ±	0.029	6.162 ±	0.012	4.132 ±	0.010	5.756 ±	0.012	5.311 ±	0.016	7.687 ±	0.015	4.080 ±	0.012
K	1.309 ±	0.004	1.419 ±	0.006	1.566 ±	0.004	1.958 ±	0.007	0.942 ±	0.004	1.177 ±	0.009	1.843 ±	0.006	2.189 ±	0.010
Traces																
As	0.00058 ±	0.00006	0.00054 ±	0.00011	0.00124 ±	0.00024	0.00181 ±	0.00075	0.00087 ±	0.00046	0.00051 ±	0.00210	0.00791 ±	0.00052	0.00161 ±	0.00127
Be	0.00009 ±	0.00001	0.00027 ±	0.00002	0.00011 ±	0.00006	0.00016 ±	0.00019	0.00011 ±	0.00011	0.00015 ±	0.00052	0.00012 ±	0.00013	0.00016 ±	0.00032
Cd	0.00004 ±	0.00000	0.00011 ±	0.00000	0.00001 ±	0.00006	0.00001 ±	0.00019	0.00005 ±	0.00011	0.00006 ±	0.00052	0.00007 ±	0.00013	0.00006 ±	0.00032
Cr	0.00001 ±	0.00001	0.00002 ±	0.00016	0.01455 ±	0.00014	0.02473 ±	0.00037	0.02657 ±	0.00023	0.08785 ±	0.00105	0.01386 ±	0.00026	0.04553 ±	0.00064
Hg	0.00004 ±	0.00000	0.00011 ±	0.00001	0.00002 ±	0.00012	0.00010 ±	0.00037	0.00015 ±	0.00023	0.00044 ±	0.00105	-0.00014 ±	0.00026	0.00000 ±	0.00064
Mn	0.03936 ±	0.00006	0.04425 ±	0.00028	0.05816 ±	0.00024	0.08144 ±	0.00075	0.04822 ±	0.00046	0.06155 ±	0.00210	0.03995 ±	0.00052	0.05476 ±	0.00127
Ni	0.01255 ±	0.00005	0.01443 ±	0.00025	0.00534 ±	0.00024	0.00772 ±	0.00075	0.01189 ±	0.00046	0.01525 ±	0.00210	0.00263 ±	0.00052	0.00314 ±	0.00127
Pb	0.00182 ±	0.00001	0.00139 ±	0.00001	0.00177 ±	0.00006	0.00228 ±	0.00019	0.00373 ±	0.00011	0.00435 ±	0.00052	0.00173 ±	0.00013	0.00400 ±	0.00032
Sb	0.00017 ±	0.00000	0.00027 ±	0.00000	0.00008 ±	0.00006	0.00013 ±	0.00019	0.00024 ±	0.00011	0.00375 ±	0.00052	0.00017 ±	0.00013	0.00021 ±	0.00032
Sr	0.05793 ±	0.00007	0.07256 ±	0.00062	0.04076 ±	0.00020	0.03861 ±	0.00021	0.02441 ±	0.00013	0.02787 ±	0.00052	0.02627 ±	0.00015	0.02188 ±	0.00032
V	0.00613 ±	0.00007	0.00743 ±	0.00015	0.00549 ±	0.00007	0.00821 ±	0.00019	0.00770 ±	0.00011	0.00946 ±	0.00052	0.00554 ±	0.00013	0.00511 ±	0.00032
Zn	0.01051 ±	0.00005	0.01822 ±	0.00007	0.00730 ±	0.00024	0.01022 ±	0.00075	0.02809 ±	0.00046	0.04336 ±	0.00210	0.00799 ±	0.00052	0.01450 ±	0.00127
Ions																
CL^-	0.070 ±	0.020	0.081 ±	0.048	0.126 ±	0.007	0.183 ±	0.011	0.106 ±	0.006	0.198 ±	0.013	0.729 ±	0.038	1.398 ±	0.074
NO_3^-	0.042 ±	0.020	0.044 ±	0.048	0.024 ±	0.003	0.054 ±	0.008	0.050 ±	0.005	0.126 ±	0.018	0.116 ±	0.010	0.273 ±	0.030
PO_4^{3-}	0.000 ±	0.000	0.000 ±	0.000	0.024 ±	0.004	0.057 ±	0.010	0.035 ±	0.005	0.000 ±	0.015	0.045 ±	0.007	0.103 ±	0.025
SO_4^{2-}	1.461 ±	0.105	1.756 ±	0.134	0.298 ±	0.017	0.398 ±	0.026	0.204 ±	0.013	0.413 ±	0.033	1.443 ±	0.076	2.128 ±	0.123
NH_4^+	0.043 ±	0.021	0.066 ±	0.049	0.021 ±	0.001	0.045 ±	0.003	0.074 ±	0.004	0.157 ±	0.010	0.076 ±	0.005	0.147 ±	0.010
Ca^{2+}	12.623 ±	0.904	12.088 ±	0.873	6.613 ±	0.327	5.023 ±	0.340	6.757 ±	0.045	6.384 ±	0.183	7.012 ±	0.191	7.888 ±	0.246
K^+	0.109 ±	0.008	0.125 ±	0.010	0.148 ±	0.029	0.342 ±	0.090	0.098 ±	0.040	0.154 ±	0.183	0.234 ±	0.063	0.318 ±	0.246
Mg^{2+}	0.254 ±	0.018	0.877 ±	0.063	0.282 ±	0.029	0.734 ±	0.090	0.383 ±	0.040	0.726 ±	0.183	0.561 ±	0.063	1.119 ±	0.246
Na^+	0.056 ±	0.004	0.053 ±	0.005	0.139 ±	0.029	0.184 ±	0.090	0.018 ±	0.040	0.022 ±	0.183	0.124 ±	0.063	0.236 ±	0.246

Supplement S4.1 - Chemical Concentrations (mass %) of Grab Soil Samples Re-suspended onto Filters, for PM_{10} and $PM_{2.5}$ Fractions

Sample #	S3004				S3008				S3011				S3016			
Locality	USA, YPG, Yuma, AZ, Area 26500R				USA, YPG, Yuma AZ, Roadrunner Site				USA, Ft Carson CO				USA, Dugway PG, Utah, Lima Site			
Particle Size	PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc	Conc	Unc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Majors																
Si	14.229 ± 0.032		17.224 ± 0.047		13.278 ± 0.028		18.331 ± 0.043		18.052 ± 0.043		18.959 ± 0.066		8.267 ± 0.024		9.329 ± 0.035	
Ti	0.255 ± 0.003		0.299 ± 0.006		0.365 ± 0.003		0.375 ± 0.005		0.399 ± 0.005		0.351 ± 0.009		0.140 ± 0.003		0.130 ± 0.005	
Al	4.975 ± 0.024		6.195 ± 0.043		4.365 ± 0.019		6.381 ± 0.035		6.250 ± 0.035		6.727 ± 0.064		1.882 ± 0.022		2.508 ± 0.036	
Fe	3.647 ± 0.007		3.897 ± 0.010		4.009 ± 0.007		4.458 ± 0.009		4.306 ± 0.009		3.954 ± 0.013		1.427 ± 0.004		1.659 ± 0.006	
Mg	0.420 ± 0.007		0.658 ± 0.013		0.241 ± 0.005		0.566 ± 0.010		0.224 ± 0.009		0.378 ± 0.019		1.187 ± 0.007		1.852 ± 0.014	
Ca	4.196 ± 0.008		1.967 ± 0.006		3.075 ± 0.006		2.239 ± 0.006		1.855 ± 0.005		1.594 ± 0.008		15.593 ± 0.028		17.691 ± 0.032	
K	2.077 ± 0.005		2.353 ± 0.008		2.007 ± 0.005		2.350 ± 0.007		2.505 ± 0.007		2.277 ± 0.011		1.164 ± 0.005		1.297 ± 0.007	
Traces																
As	0.00067 ± 0.00028		0.00053 ± 0.00075		0.00053 ± 0.00013		0.00088 ± 0.00047		0.00094 ± 0.00050		0.00150 ± 0.00162		0.00450 ± 0.00031		0.00937 ± 0.00088	
Be	0.00017 ± 0.00007		0.00020 ± 0.00019		0.00013 ± 0.00003		0.00018 ± 0.00012		0.00016 ± 0.00012		0.00017 ± 0.00040		0.00006 ± 0.00008		0.00018 ± 0.00022	
Cd	0.00003 ± 0.00007		0.00003 ± 0.00019		0.00004 ± 0.00003		0.00004 ± 0.00012		0.00003 ± 0.00012		0.00003 ± 0.00040		0.00004 ± 0.00008		0.00000 ± 0.00022	
Cr	0.01166 ± 0.00014		0.02794 ± 0.00038		0.00386 ± 0.00006		0.01188 ± 0.00024		0.01368 ± 0.00025		0.03786 ± 0.00081		0.00682 ± 0.00015		0.03178 ± 0.00044	
Hg	0.00000 ± 0.00014		0.00000 ± 0.00038		0.00003 ± 0.00006		0.00008 ± 0.00024		0.00009 ± 0.00025		0.00032 ± 0.00081		0.00005 ± 0.00015		0.00003 ± 0.00044	
Mn	0.05215 ± 0.00028		0.06545 ± 0.00075		0.03939 ± 0.00013		0.05436 ± 0.00047		0.03786 ± 0.00050		0.03965 ± 0.00162		0.04938 ± 0.00031		0.11912 ± 0.00088	
Ni	0.00236 ± 0.00028		0.00292 ± 0.00075		0.00181 ± 0.00013		0.00260 ± 0.00047		0.00223 ± 0.00050		0.00252 ± 0.00162		0.00161 ± 0.00031		0.00846 ± 0.00088	
Pb	0.00214 ± 0.00007		0.00269 ± 0.00019		0.00230 ± 0.00003		0.00247 ± 0.00012		0.00259 ± 0.00012		0.00279 ± 0.00040		0.00181 ± 0.00008		0.00157 ± 0.00022	
Sb	0.00007 ± 0.00007		0.00016 ± 0.00019		0.00004 ± 0.00003		0.00007 ± 0.00012		0.00009 ± 0.00012		0.00027 ± 0.00040		0.00020 ± 0.00008		0.00011 ± 0.00022	
Sr	0.01143 ± 0.00007		0.01155 ± 0.00019		0.00421 ± 0.00006		0.00596 ± 0.00012		0.00637 ± 0.00012		0.00771 ± 0.00040		0.06904 ± 0.00028		0.00738 ± 0.00022	
V	0.00403 ± 0.00008		0.00465 ± 0.00019		0.00395 ± 0.00003		0.00422 ± 0.00012		0.00579 ± 0.00012		0.00604 ± 0.00040		0.00197 ± 0.00008		0.00664 ± 0.00022	
Zn	0.00821 ± 0.00028		0.01892 ± 0.00075		0.00613 ± 0.00013		0.00965 ± 0.00047		0.01124 ± 0.00050		0.01571 ± 0.00162		0.00528 ± 0.00031		0.01868 ± 0.00088	
Ions																
CL^-	0.078 ± 0.005		0.149 ± 0.009		0.078 ± 0.004		0.428 ± 0.022		1.538 ± 0.078		2.523 ± 0.131		0.364 ± 0.019		0.493 ± 0.026	
NO_3^-	0.038 ± 0.004		0.073 ± 0.010		0.015 ± 0.002		0.060 ± 0.006		0.145 ± 0.013		0.340 ± 0.035		0.023 ± 0.003		0.045 ± 0.008	
PO_4^{3-}	0.033 ± 0.004		0.132 ± 0.014		0.034 ± 0.003		0.123 ± 0.010		0.070 ± 0.010		0.197 ± 0.032		0.049 ± 0.005		0.104 ± 0.013	
SO_4^{2-}	0.087 ± 0.007		0.179 ± 0.015		0.020 ± 0.002		0.036 ± 0.005		0.172 ± 0.014		0.357 ± 0.037		0.149 ± 0.010		0.294 ± 0.021	
NH_4^+	0.043 ± 0.003		0.085 ± 0.005		0.052 ± 0.003		0.191 ± 0.010		0.179 ± 0.010		0.365 ± 0.022		0.010 ± 0.001		0.020 ± 0.002	
Ca^{2+}	3.653 ± 0.085		1.794 ± 0.092		2.592 ± 0.097		1.801 ± 0.051		1.831 ± 0.082		2.608 ± 0.280		10.967 ± 0.154		16.028 ± 0.226	
K^+	0.205 ± 0.035		0.268 ± 0.092		0.111 ± 0.015		0.154 ± 0.051		0.191 ± 0.082		0.380 ± 0.280		0.200 ± 0.033		0.324 ± 0.093	
Mg^{2+}	0.090 ± 0.035		0.131 ± 0.092		0.085 ± 0.015		0.131 ± 0.051		0.915 ± 0.082		1.310 ± 0.280		0.418 ± 0.033		0.698 ± 0.093	
Na^+	0.184 ± 0.035		0.246 ± 0.092		0.135 ± 0.015		0.169 ± 0.051		0.053 ± 0.082		0.147 ± 0.280		0.312 ± 0.033		0.435 ± 0.093	

Sample #	S3017					
Locallity	USA, Dugway PG, Utah, X-ray Site					
Particle Size	PM_{10}			$PM_{2.5}$		
	Conc		Unc	Conc		Unc
	%		%	%		%
Majors						
Si	8.134	±	0.022	9.952	±	0.030
Ti	0.141	±	0.002	0.157	±	0.004
Al	1.982	±	0.020	2.547	±	0.029
Fe	1.631	±	0.004	1.837	±	0.006
Mg	0.978	±	0.005	1.652	±	0.010
Ca	13.354	±	0.024	14.881	±	0.027
K	1.221	±	0.005	1.378	±	0.006
Traces						
As	0.00241	±	0.00018	0.00617	±	0.00056
Be	0.00009	±	0.00005	0.00009	±	0.00014
Cd	0.00006	±	0.00005	0.00006	±	0.00014
Cr	0.00479	±	0.00009	0.00987	±	0.00028
Hg	0.00001	±	0.00009	0.00023	±	0.00028
Mn	0.04834	±	0.00021	0.05520	±	0.00056
Ni	0.00194	±	0.00018	0.00221	±	0.00056
Pb	0.00142	±	0.00005	0.00161	±	0.00014
Sb	0.00013	±	0.00005	0.00013	±	0.00014
Sr	0.07118	±	0.00019	0.08853	±	0.00063
V	0.00337	±	0.00005	0.00290	±	0.00014
Zn	0.00552	±	0.00018	0.00799	±	0.00056
Ions						
CL^-	0.122	±	0.007	0.241	±	0.013
NO_3^-	0.015	±	0.002	0.053	±	0.006
PO_4^{3-}	0.050	±	0.005	0.078	±	0.008
SO_4^{2-}	0.069	±	0.005	0.117	±	0.009
NH_4^+	0.019	±	0.001	0.041	±	0.003
Ca^{2+}	7.367	±	0.067	11.221	±	0.115
K^+	0.186	±	0.027	0.337	±	0.046
Mg^{2+}	0.338	±	0.027	0.650	±	0.046
Na^+	0.114	±	0.027	0.155	±	0.046

Supplement S4.2 – Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry

Sample #	S1000		S1005		S1006		S1007		S1008		S1009	
Locallity	Hematite		Spain, Lanzarote, La Mala, Sample 1		Spain, Lanzarote, La Mala, Sample 2		Spain, Lanzarote, Mirador del Rio		Spain, Lanzarote, Vega de Femes		Mali, above Bamako	
Particle Size	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	0.349	0.260	9.571	13.452	4.979	8.070	11.570	14.442	30.158	34.671	14.715	17.458
Kaolinite, $Al_2Si_2O_5(OH)_4$	0.360	0.306	1.805	2.877	1.108	1.884	2.007	2.631	6.201	7.669	8.871	10.379
Carbonates												
Calcite, $CaCO_3$	0.000	0.000	31.262	39.764	46.537	56.526	21.299	27.071	2.873	2.452	1.439	1.134
Dolomite, $CaMg(CO_3)_2$	0.000	0.000	7.480	11.818	4.589	9.596	11.035	21.453	1.696	2.570	0.615	0.587
Magnesite, $MgCO_3$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Soda Ash, Na_2CO_3	0.000	0.000	0.000	0.000	0.095	0.092	0.492	0.298	0.000	0.000	0.000	0.000
Potash, K_2CO_3	0.000	0.000	0.323	0.175	0.148	0.291	0.426	0.638	0.198	0.338	0.000	0.095
Sulfate & Phosphate												
$CaSO_4.2H_2O$	0.385	0.002	0.289	0.221	0.399	0.484	0.679	0.769	0.000	0.000	0.000	0.000
Apatite, $Ca_5(PO_4)_3(F)$	0.000	0.000	0.201	0.531	0.063	0.186	0.170	0.360	0.083	0.146	0.000	0.000
Evaporites												
Halite, NaCL	0.116	0.111	0.367	0.659	0.123	0.343	0.845	1.169	0.364	0.600	0.090	0.017
Sylvite, KCl	0.050	0.012	0.047	0.580	0.000	0.000	0.000	0.000	0.141	0.226	0.182	0.009
$CaCl_2$	0.000	0.097	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bischofite, $MgCl_2.6H_2O$	0.099	0.207	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$MgSO_4$	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	0.181	0.260	0.082	0.261	0.041	0.081	0.044	0.156	0.108	0.128	0.116	0.078
Amm Nitr, NH_4NO_3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.067	0.824	0.000	0.211
Oxides												
Hematite, Fe_2O_3	86.731	81.107	2.296	3.015	1.516	2.250	4.304	4.570	9.601	9.881	23.127	19.966
Rutile, TiO_2	0.000	0.000	0.211	0.253	0.156	0.205	0.676	0.700	1.716	1.741	0.703	0.744
Pyrolusite, MnO_2	0.021	0.023	0.051	0.053	0.026	0.034	0.037	0.039	0.097	0.125	0.052	0.064
Total	88.337	82.386	53.985	73.659	59.781	80.044	53.586	74.296	53.302	61.370	49.919	50.741

Supplement S4.2 – Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry

Sample #	**S1010**		**S1011**		**S1013**		**S1014**		**S1016**		**S1017**	
Locallity	**Mali, Bamako**		**Mali, West Bamako**		**Cape Verde, Sala Is, Punta Fiure, Site A**		**China (far northwest), Karamay, Sample 1**		**China (far northwest), Karamay, Sample 2**		**China (far northwest), Xinjiang (Daemon City), Sample 1**	
Particle Size	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	17.842	19.628	15.250	18.380	13.923	18.417	28.504	31.578	30.466	31.442	26.336	33.014
Kaolinite, $Al_2Si_2O_5(OH)_4$	7.841	9.427	8.874	11.075	3.092	4.303	5.604	6.728	5.625	6.245	3.060	3.863
Carbonates												
Calcite, $CaCO_3$	0.868	0.558	0.283	0.188	25.133	16.612	9.572	8.176	4.474	4.114	10.404	4.942
Dolomite, $CaMg(CO_3)_2$	0.395	0.921	0.504	0.700	4.121	7.516	1.190	2.131	2.241	2.859	2.465	2.578
Magnesite, $MgCO_3$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Soda Ash, Na_2CO_3	0.000	0.000	0.006	0.017	0.368	0.861	0.298	0.475	0.088	0.000	3.787	4.662
Potash, K_2CO_3	0.000	0.146	0.101	0.130	0.403	0.674	0.173	0.394	0.257	0.311	1.399	2.260
Sulfate & Phosphate												
$CaSO_4.2H_2O$	0.000	0.000	0.000	0.000	2.922	3.317	0.097	0.100	0.000	0.000	1.071	0.963
Apatite, $Ca_5(PO_4)_3(F)$	0.096	0.123	0.191	0.325	2.958	11.066	0.000	0.156	0.133	0.000	0.069	0.000
Evaporites												
Halite, NaCL	0.144	0.064	0.060	0.180	1.962	2.434	0.331	0.490	0.836	0.924	0.854	0.857
Sylvite, KCl	0.190	0.125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084	0.000	0.000
$CaCl_2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bischofite, $MgCl_2.6H_2O$	0.374	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$MgSO_4$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	0.158	0.155	0.059	0.036	0.112	0.188	0.071	0.136	0.086	0.115	0.000	0.043
Amm Nitr, NH_4NO_3	0.715	0.083	0.209	0.297	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oxides												
Hematite, Fe_2O_3	18.328	18.099	25.823	26.101	4.318	4.880	6.448	6.927	5.783	5.778	4.553	5.366
Rutile, TiO_2	0.855	0.873	0.906	0.875	0.470	0.501	0.572	0.601	0.577	0.574	0.356	0.378
Pyrolusite, MnO_2	0.069	0.088	0.054	0.056	0.081	0.106	0.108	0.135	0.107	0.136	0.109	0.110
Total	47.875	50.291	52.319	58.362	59.862	70.878	52.968	58.026	50.674	52.583	54.462	59.035

Sample #	S1018		S1019		S1022		S1023		S1024		S1025	
Locallity	China (far northwest), Xinjiang (Daemon City), Sample 2		USA, Owens Lake CA		Namibia, Etosha, Fischer Pan		Namibia, Etosha, Stinkwater		Namibia, Etosha, Lookout		Morocco, Lake Iriki	
Particle Size	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	33.006	36.653	26.412	35.668	23.012	30.497	7.637	5.699	6.331	9.516	25.796	28.400
Kaolinite, $Al_2Si_2O_5(OH)_4$	5.469	6.243	2.936	3.843	0.225	0.197	0.747	0.723	0.591	0.813	6.715	8.048
Carbonates												
Calcite, $CaCO_3$	0.000	0.000	15.163	4.992	6.242	0.000	2.297	0.367	3.623	0.000	10.378	5.438
Dolomite, $CaMg(CO_3)_2$	1.140	0.121	1.006	4.090	16.712	25.169	13.122	9.561	15.614	14.396	0.000	3.616
Magnesite, $MgCO_3$	0.413	1.112	0.000	0.000	0.000	0.272	0.000	0.000	0.000	0.994	0.000	0.000
Soda Ash, Na_2CO_3	0.486	2.257	4.770	3.949	1.940	1.743	5.320	11.889	8.607	11.864	0.000	0.194
Potash, K_2CO_3	0.335	0.310	1.605	2.335	0.215	0.265	0.273	0.399	0.222	0.274	0.000	0.559
Sulfate & Phosphate												
$CaSO_4.2H_2O$	0.868	1.676	1.128	1.083	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.089
Apatite, $Ca_5(PO_4)_3(F)$	0.173	0.000	0.068	0.214	0.026	0.041	0.000	0.000	0.040	0.151	0.000	0.184
Evaporites												
Halite, NaCL	1.760	0.575	1.206	2.466	4.685	2.832	3.811	2.449	2.748	2.644	0.056	0.538
Sylvite, KCl	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.065	0.000
$CaCl_2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037	0.000
Bischofite, $MgCl_2.6H_2O$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.159	0.000
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	1.787	1.585	37.165	49.536	43.233	46.027	0.000	0.000
$MgSO_4$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	1.163	0.249	0.014	0.073	0.021	0.055	0.082	0.000	0.015	0.104	0.242	0.190
Amm Nitr, NH_4NO_3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oxides												
Hematite, Fe_2O_3	5.676	5.714	5.028	5.673	0.787	0.957	0.601	0.379	0.633	0.842	6.382	6.949
Rutile, TiO_2	0.630	0.622	0.438	0.410	0.077	0.085	0.089	0.028	0.045	0.047	0.666	0.687
Pyrolusite, MnO_2	0.054	0.062	0.093	0.119	0.019	0.022	0.012	0.010	0.010	0.011	0.137	0.140
Total	51.173	55.594	59.867	64.916	55.747	63.720	71.157	81.040	81.712	87.684	50.642	55.032

Supplement S4.2 – Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry

Sample #	**S1027**		**S1033**		**S1034**		**S1035**		**S1038**		**S1039**	
Locallity	**Spain, Gran Canaria, Galdar**		**Spain, Fuerteventura, Pozo Negro, Sample 1**		**Spain, Fuerteventura, Pozo Negro, Sample 2**		**Spain, Fuerteventura, La Ampuyenta**		**Botswana, Makgadikgadi, Mopipi**		**Botswana, Makgadikgadi, Rakops**	
Particle Size	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	35.524	34.086	22.109	26.368	25.329	29.292	21.033	31.546	24.272	35.188	17.275	24.764
Kaolinite, $Al_2Si_2O_5(OH)_4$	6.647	6.959	4.946	6.671	5.854	7.594	5.143	8.158	1.683	2.642	0.753	0.981
Carbonates												
Calcite, $CaCO_3$	0.301	0.176	5.956	4.079	2.095	0.588	3.159	3.521	19.097	16.229	32.456	29.043
Dolomite, $CaMg(CO_3)_2$	2.412	2.273	2.576	5.463	1.453	2.933	1.952	3.147	1.330	2.025	0.830	3.309
Magnesite, $MgCO_3$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Soda Ash, Na_2CO_3	0.185	0.258	0.175	0.094	0.035	0.000	0.269	0.288	0.322	0.101	2.277	2.925
Potash, K_2CO_3	0.655	0.524	0.486	0.707	0.259	0.349	0.680	1.188	0.557	0.810	0.317	0.557
Sulfate & Phosphate												
$CaSO_4.2H_2O$	0.000	0.000	0.172	0.124	0.042	0.000	0.035	0.000	0.453	0.404	0.464	0.517
Apatite, $Ca_5(PO_4)_3(F)$	0.000	0.077	0.260	1.028	0.282	0.780	0.033	0.101	0.051	0.120	0.035	0.078
Evaporites												
Halite, NaCL	0.000	0.000	0.130	0.197	0.084	0.000	0.260	0.661	0.125	0.769	0.331	0.749
Sylvite, KCl	0.000	0.000	0.000	0.000	0.000	0.121	0.000	0.000	0.000	0.000	0.000	0.000
$CaCl_2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bischofite, $MgCl_2.6H_2O$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$MgSO_4$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	0.015	0.058	0.077	0.174	0.155	0.219	0.177	0.354	0.062	0.261	0.000	0.000
Amm Nitr, NH_4NO_3	0.248	0.198	0.000	0.000	0.000	0.189	0.000	0.000	0.000	0.000	0.000	0.000
Oxides												
Hematite, Fe_2O_3	7.576	6.942	6.192	6.382	7.617	7.815	5.533	7.195	2.843	3.275	1.417	1.704
Rutile, TiO_2	1.561	1.373	0.786	0.753	1.174	1.114	0.660	0.866	0.198	0.221	0.060	0.072
Pyrolusite, MnO_2	0.334	0.297	0.113	0.171	0.114	0.156	0.103	0.109	0.044	0.062	0.059	0.066
Total	55.458	53.223	43.976	52.211	44.491	51.149	39.036	57.133	51.036	62.109	56.274	64.765

Sample #	S1040		S1041		S1042		S1045		S1049		S1050	
Locallity	Botswana, Nxai Pan, Baines Baobabs		Botswana, Nxai Pan		Chile, Atacama, Rock Garden		USA, Black Rock playa, NV		Chad, Bodélé Depression, Sample 44		Chad, Bodélé Depression, Sample 44B	
Particle Size	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	16.324	26.506	30.691	39.900	28.850	31.841	27.964	32.343	15.839	33.604	24.619	34.756
Kaolinite, $Al_2Si_2O_5(OH)_4$	0.860	1.707	0.229	0.386	5.873	7.252	4.444	5.194	1.925	3.949	2.358	3.335
Carbonates												
Calcite, $CaCO_3$	0.000	0.000	1.908	1.552	2.768	2.272	7.536	6.923	18.282	20.713	29.650	21.385
Dolomite, $CaMg(CO_3)_2$	4.659	3.475	6.036	9.332	0.694	1.038	1.679	2.750	3.014	3.601	3.165	3.422
Magnesite, $MgCO_3$	1.238	2.222	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Soda Ash, Na_2CO_3	27.909	25.997	0.000	0.442	0.029	0.000	3.229	3.801	0.145	0.066	0.223	0.324
Potash, K_2CO_3	1.261	1.372	0.048	0.253	0.240	0.000	0.591	0.854	0.036	0.120	0.040	0.091
Sulfate & Phosphate												
$CaSO_4.2H_2O$	1.735	1.997	0.000	0.422	10.311	7.966	1.015	0.752	0.000	0.000	0.000	0.000
Apatite, $Ca_5(PO_4)_3(F)$	0.000	0.000	0.000	0.000	0.214	0.328	0.082	0.138	0.026	0.000	0.035	0.000
Evaporites												
Halite, NaCL	4.012	2.826	0.065	0.296	0.225	0.355	1.463	1.003	0.068	0.411	0.151	0.171
Sylvite, KCl	0.000	0.000	0.053	0.000	0.000	0.361	0.000	0.000	0.000	0.000	0.000	0.000
$CaCl_2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bischofite, $MgCl_2.6H_2O$	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.000	0.000	0.000	0.000	0.000
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$MgSO_4$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	0.008	0.063	0.079	0.111	0.314	0.805	0.019	0.000	0.110	0.127	0.078	0.062
Amm Nitr, NH_4NO_3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oxides												
Hematite, Fe_2O_3	1.107	1.298	0.992	1.143	5.471	6.136	5.224	5.462	1.522	2.664	2.150	2.544
Rutile, TiO_2	0.135	0.154	0.098	0.085	0.452	0.442	0.425	0.433	0.169	0.302	0.221	0.253
Pyrolusite, MnO_2	0.029	0.038	0.049	0.065	0.088	0.101	0.088	0.095	0.043	0.040	0.036	0.048
Total	59.277	67.655	40.246	53.988	55.529	58.911	53.760	59.747	41.180	65.597	62.727	66.392

Supplement S4.2 – Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry

Sample #	S1051		S1052		S1053		S1055		S1056		S1057	
Locallity	Chad, Bodélé Depression, Sample 44C		USA, Reno NV, Peavine Mtn, white clay		USA, Reno NV, Peavine Mtn, yellow soil		China, Lanzhou, Jiuzhoutai Mtn, loess		Australia, Lake Eyre, Cooper Creek		Australia, Lake Eyre, Warburton River	
Particle Size	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	53.876	53.113	48.951	51.750	22.106	31.437	24.019	25.976	25.278	31.750	30.309	35.937
Kaolinite, $Al_2Si_2O_5(OH)_4$	5.645	5.901	3.684	4.295	5.124	7.781	4.718	6.282	5.770	7.486	7.519	8.972
Carbonates												
Calcite, $CaCO_3$	0.127	0.000	0.000	0.465	0.437	0.196	16.888	15.869	6.881	5.086	0.434	0.465
Dolomite, $CaMg(CO_3)_2$	0.574	0.234	1.707	0.763	0.479	1.084	3.598	8.366	3.045	4.105	2.032	1.895
Magnesite, $MgCO_3$	0.000	0.188	1.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Soda Ash, Na_2CO_3	0.494	0.208	0.000	0.220	0.022	0.199	0.000	0.000	1.427	1.359	0.355	0.323
Potash, K_2CO_3	0.187	0.042	0.681	0.082	0.086	0.177	0.221	0.000	0.420	0.552	0.404	0.391
Sulfate & Phosphate												
$CaSO_4.2H_2O$	0.000	0.000	0.000	0.000	0.000	0.000	0.960	0.436	1.651	1.798	0.154	0.000
Apatite, $Ca_5(PO_4)_3(F)$	0.000	0.211	0.179	0.154	0.000	0.000	0.062	0.295	0.194	0.281	0.155	0.193
Evaporites												
Halite, NaCL	0.295	0.451	0.627	0.000	0.000	0.000	0.654	1.219	0.724	1.280	1.038	1.166
Sylvite, KCl	0.000	0.000	0.007	0.000	0.000	0.000	0.008	0.454	0.000	0.000	0.000	0.000
$CaCl_2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bischofite, $MgCl_2.6H_2O$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.368	0.000	0.000	0.000	0.000
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$MgSO_4$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	0.033	0.047	0.000	0.007	0.108	0.142	0.099	0.357	0.093	0.305	0.343	0.482
Amm Nitr, NH_4NO_3	0.000	0.000	0.690	0.324	0.153	0.479	0.000	0.000	0.000	0.000	0.000	0.202
Oxides												
Hematite, Fe_2O_3	4.079	3.882	2.359	2.504	6.466	8.123	5.965	5.931	6.691	6.759	7.295	7.771
Rutile, TiO_2	0.602	0.538	0.289	0.294	0.670	0.667	0.558	0.509	0.614	0.593	0.795	0.808
Pyrolusite, MnO_2	0.060	0.060	0.010	0.008	0.048	0.053	0.098	0.121	0.064	0.067	0.122	0.109
Total	65.974	64.876	60.484	60.867	35.699	50.338	57.847	66.183	52.851	61.420	50.954	58.715

Sample #	S1058		S1060		S1062		S1064		S1065		S1066	
Locallity	Australia, Lake Frome		Serbia, Batajnica, Danube R, loess		Serbia, Kostolac, Lignite pit, loess		Serbia, Stari Slankamen, loess		USA, Carbondale, California, red clay		USA, Arizona Road Dust	
Particle Size	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	15.761	31.237	26.942	31.938	26.788	32.794	26.990	27.880	22.052	20.466	50.441	50.012
Kaolinite, $Al_2Si_2O_5(OH)_4$	3.173	6.391	6.740	8.641	6.526	8.609	6.727	7.130	12.029	12.545	3.313	4.478
Carbonates												
Calcite, $CaCO_3$	0.000	0.000	1.077	0.818	1.124	0.000	7.202	9.816	0.366	0.191	2.478	3.207
Dolomite, $CaMg(CO_3)_2$	1.721	4.173	1.295	1.735	4.344	6.413	4.062	4.415	0.153	0.402	1.360	0.874
Magnesite, $MgCO_3$	1.287	6.442	0.000	0.000	0.000	0.074	0.000	0.000	0.000	0.000	0.000	0.000
Soda Ash, Na_2CO_3	1.396	0.188	0.000	0.134	0.076	0.000	0.000	0.293	0.000	0.057	0.909	0.064
Potash, K_2CO_3	0.140	0.301	0.044	0.133	0.126	0.329	0.069	0.237	0.000	0.067	0.826	0.259
Sulfate & Phosphate												
$CaSO_4.2H_2O$	0.602	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apatite, $Ca_5(PO_4)_3(F)$	0.088	0.000	0.061	0.177	0.043	0.000	0.069	0.125	0.000	0.000	0.053	0.091
Evaporites												
Halite, NaCL	4.328	6.819	0.232	0.441	0.000	0.253	0.307	0.401	0.167	0.000	0.082	0.281
Sylvite, KCl	0.000	0.000	0.097	0.000	0.000	0.051	0.093	0.000	0.044	0.000	0.000	0.000
$CaCl_2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bischofite, $MgCl_2.6H_2O$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.318	0.000	0.000	0.000
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$MgSO_4$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	0.063	1.127	0.076	0.080	0.000	0.000	0.093	0.122	0.204	0.198	0.026	0.000
Amm Nitr, NH_4NO_3	0.000	0.000	0.000	0.787	0.083	1.371	0.615	0.753	0.868	0.183	0.007	0.226
Oxides												
Hematite, Fe_2O_3	3.705	6.720	9.476	9.638	8.099	9.276	8.145	7.610	14.172	14.370	1.979	3.142
Rutile, TiO_2	0.362	0.629	0.825	0.703	0.750	0.757	0.663	0.549	0.955	0.888	0.304	0.372
Pyrolusite, MnO_2	0.099	0.209	0.182	0.253	0.122	0.145	0.140	0.157	0.020	0.021	0.040	0.063
Total	32.725	64.237	47.048	55.477	48.082	60.071	55.176	59.488	51.347	49.388	61.819	63.069

Supplement S4.2 – Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry

Sample #	S2001		S2001		S2002		S2003		S2004		S2005	
Locallity	Djibouti, Camp Lemonnier		Djibouti, Camp Lemonnier		Afghanistan, Bagram		Afghanistan, Khowst		Qatar, Al Udeid		United Arab Emirates, Al Dhafra	
Particle Size	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	18.059	23.390	16.616	20.404	15.753	18.471	27.587	32.534	20.735	25.423	6.655	10.029
Kaolinite, $Al_2Si_2O_5(OH)_4$	3.394	4.513	3.998	5.293	4.471	5.992	5.851	8.895	4.871	6.281	1.537	2.357
Carbonates												
Calcite, $CaCO_3$	22.138	18.815	28.636	23.866	36.627	37.243	9.677	8.211	26.927	13.713	43.806	42.944
Dolomite, $CaMg(CO_3)_2$	2.628	4.889	2.033	3.424	2.163	3.026	1.943	1.882	3.724	7.060	14.736	25.559
Magnesite, $MgCO_3$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Soda Ash, Na_2CO_3	-0.432	-0.542	0.034	0.020	0.028	0.085	0.038	0.001	0.048	0.064	0.000	0.000
Potash, K_2CO_3	0.000	0.000	0.479	0.691	0.474	0.685	0.220	0.404	0.252	0.460	0.086	0.128
Sulfate & Phosphate												
$CaSO_4.2H_2O$	-0.179	-0.484	2.667	1.454	0.030	0.000	0.132	0.068	0.000	0.000	2.231	1.822
Apatite, $Ca_5(PO_4)_3(F)$			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Evaporites												
Halite, NaCL	0.637	0.850	0.139	0.190	0.038	0.000	0.047	0.119	0.000	0.063	0.368	0.520
Sylvite, KCl	0.449	0.568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.088
$CaCl_2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bischofite, $MgCl_2.6H_2O$	-0.613	-0.775	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$MgSO_4$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	0.362	0.622	0.195	0.308	0.156	0.115	0.108	0.306	0.073	0.271	0.145	0.260
Amm Nitr, NH_4NO_3	0.000	0.000	0.000	0.000	0.000	0.090	0.000	0.000	0.047	0.000	0.000	0.000
Oxides												
Hematite, Fe_2O_3	6.384	6.734	7.104	7.503	5.980	6.641	9.089	10.271	6.357	7.114	1.763	2.439
Rutile, TiO_2	0.639	0.591	0.777	0.769	0.533	0.586	0.883	1.151	0.636	0.731	0.150	0.225
Pyrolusite, MnO_2	0.126	0.191	0.098	0.224	0.084	0.128	0.131	0.223	0.098	0.131	0.042	0.056
Total	53.592	59.362	62.777	64.145	66.338	73.060	55.705	64.066	63.768	61.309	71.560	86.427

Supplement S4.2 – Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry

Sample #	**S2006**		**S2007**		**S2008**		**S2009**		**S2010**		**S2011**	
Locallity	**Iraq, Balad**		**Iraq, Baghdad, Camp Victory**		**Iraq, Tallil, Camp Adder**		**Iraq, Tikrit, Speicher**		**Iraq, Taji**		**Iraq, Al Asad**	
Particle Size	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	18.174	20.850	19.342	23.079	13.990	19.558	19.188	24.115	13.947	12.456	4.359	7.249
Kaolinite, $Al_2Si_2O_5(OH)_4$	3.842	4.841	4.502	5.700	2.860	4.251	4.623	5.913	2.847	3.020	1.220	2.267
Carbonates												
Calcite, $CaCO_3$	23.291	17.986	26.278	18.898	38.880	38.813	28.148	21.861	27.139	28.301	27.833	23.893
Dolomite, $CaMg(CO_3)_2$	0.429	3.873	4.003	7.846	3.655	2.519	0.999	1.920	0.000	0.184	24.393	34.692
Magnesite, $MgCO_3$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Soda Ash, Na_2CO_3	0.000	0.000	0.000	0.000	0.063	0.000	0.000	0.035	0.000	0.000	0.000	0.000
Potash, K_2CO_3	0.000	0.000	0.000	0.000	0.225	0.140	0.209	0.385	0.000	0.000	0.000	0.000
Sulfate & Phosphate												
$CaSO_4.2H_2O$	1.347	2.231	0.746	0.241	5.451	3.562	3.993	4.291	13.701	18.490	2.215	0.646
Apatite, $Ca_5(PO_4)_3(F)$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Evaporites												
Halite, NaCL	0.568	0.428	1.357	1.160	0.193	0.170	0.158	0.176	0.565	0.430	0.366	0.514
Sylvite, KCl	0.385	0.538	0.305	0.406	0.000	0.017	0.017	0.000	0.171	0.290	0.165	0.423
$CaCl_2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.045	0.000	0.000	0.000
Bischofite, $MgCl_2.6H_2O$	4.637	3.638	0.929	0.725	0.000	0.000	0.000	0.000	4.385	5.269	1.112	1.605
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$MgSO_4$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	0.135	0.509	0.183	0.334	0.219	0.505	0.174	0.420	0.144	1.651	0.152	0.829
Amm Nitr, NH_4NO_3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oxides												
Hematite, Fe_2O_3	5.227	5.209	7.057	7.637	3.197	4.468	6.029	6.818	4.391	2.986	1.440	2.206
Rutile, TiO_2	0.549	0.560	0.611	0.640	0.428	0.607	0.591	0.675	0.447	0.375	0.153	0.280
Pyrolusite, MnO_2	0.054	0.079	0.111	0.130	0.081	0.085	0.078	0.106	0.075	0.080	0.030	0.039
Total	58.637	60.741	65.426	66.797	69.241	74.695	64.207	66.716	69.857	73.533	63.438	74.643

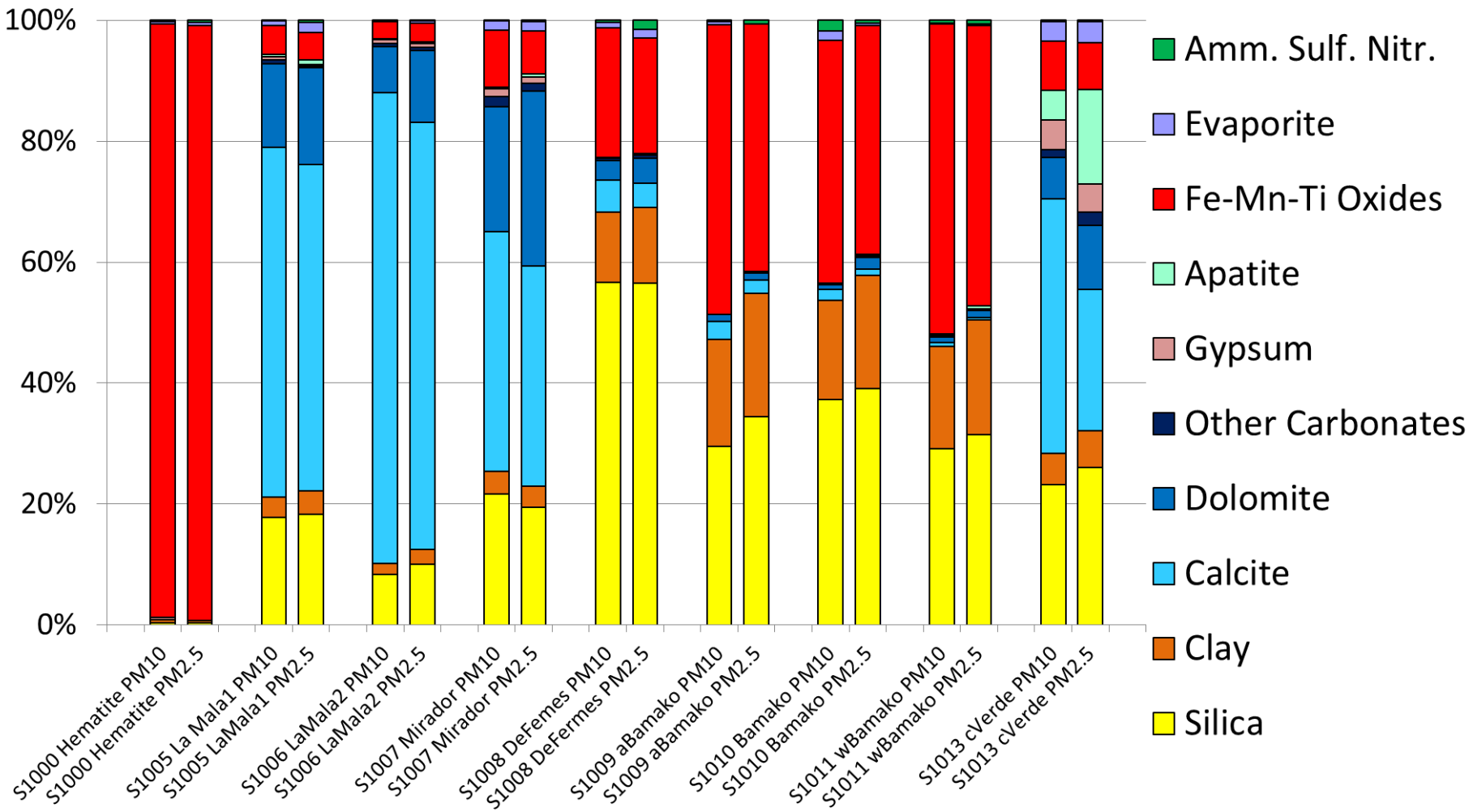
Supplement S4.2 – Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry

Sample #	S2012		S2013		S2014		S2015		S2016		S2017	
Locallity	Kuwait North, Camp Buehring		Kuwait Central, Camp Ali Al Salem		Kuwait Coastal, Ash Shu Ayabah		Kuwait South, Camp Arifjan		Afghanistan, Helmand Province, Camp Leatherneck		Kuwait, Ash Shu Ayabah	
Particle Size	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	21.306	26.346	19.795	24.199	18.314	22.710	19.783	23.606	22.560	28.268	18.338	25.091
Kaolinite, $Al_2Si_2O_5(OH)_4$	4.734	6.277	4.701	5.922	3.868	5.204	3.964	5.244	4.325	5.944	3.034	4.346
Carbonates												
Calcite, $CaCO_3$	25.223	18.686	32.247	23.556	32.584	28.472	29.514	26.747	14.009	7.119	12.639	10.307
Dolomite, $CaMg(CO_3)_2$	2.572	3.288	1.435	2.152	1.690	5.945	1.929	6.655	2.136	5.570	2.905	5.447
Magnesite, $MgCO_3$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Soda Ash, Na_2CO_3	0.004	0.000	0.000	0.000	0.000	0.000	0.024	0.001	0.130	0.152	0.000	0.000
Potash, K_2CO_3	0.357	0.462	0.188	0.213	0.174	0.216	0.193	0.221	0.262	0.604	0.020	0.000
Sulfate & Phosphate												
$CaSO_4.2H_2O$	1.803	0.745	0.174	0.615	0.710	1.100	1.613	2.821	0.303	0.131	0.166	0.000
Apatite, $Ca_5(PO_4)_3(F)$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.043	0.101	0.062	0.000
Evaporites												
Halite, NaCL	0.106	0.106	0.167	0.144	0.041	0.053	0.116	0.134	0.208	0.301	0.045	0.055
Sylvite, KCl	0.000	0.005	0.018	0.024	0.013	0.010	0.000	0.000	0.000	0.000	0.166	0.294
$CaCl_2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bischofite, $MgCl_2.6H_2O$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.070
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$MgSO_4$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	0.122	0.249	0.295	0.405	0.146	0.285	0.156	0.241	0.078	0.166	0.273	0.521
Amm Nitr, NH_4NO_3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oxides												
Hematite, Fe_2O_3	6.380	7.182	5.226	5.619	5.174	5.654	4.561	5.191	5.305	6.164	4.362	5.341
Rutile, TiO_2	0.614	0.713	0.478	0.533	0.508	0.586	0.492	0.554	0.424	0.511	0.345	0.400
Pyrolusite, MnO_2	0.100	0.132	0.082	0.096	0.074	0.086	0.062	0.070	0.092	0.129	0.076	0.097
Total	63.318	64.192	64.805	63.477	63.297	70.323	62.408	71.484	49.877	55.159	42.430	51.969

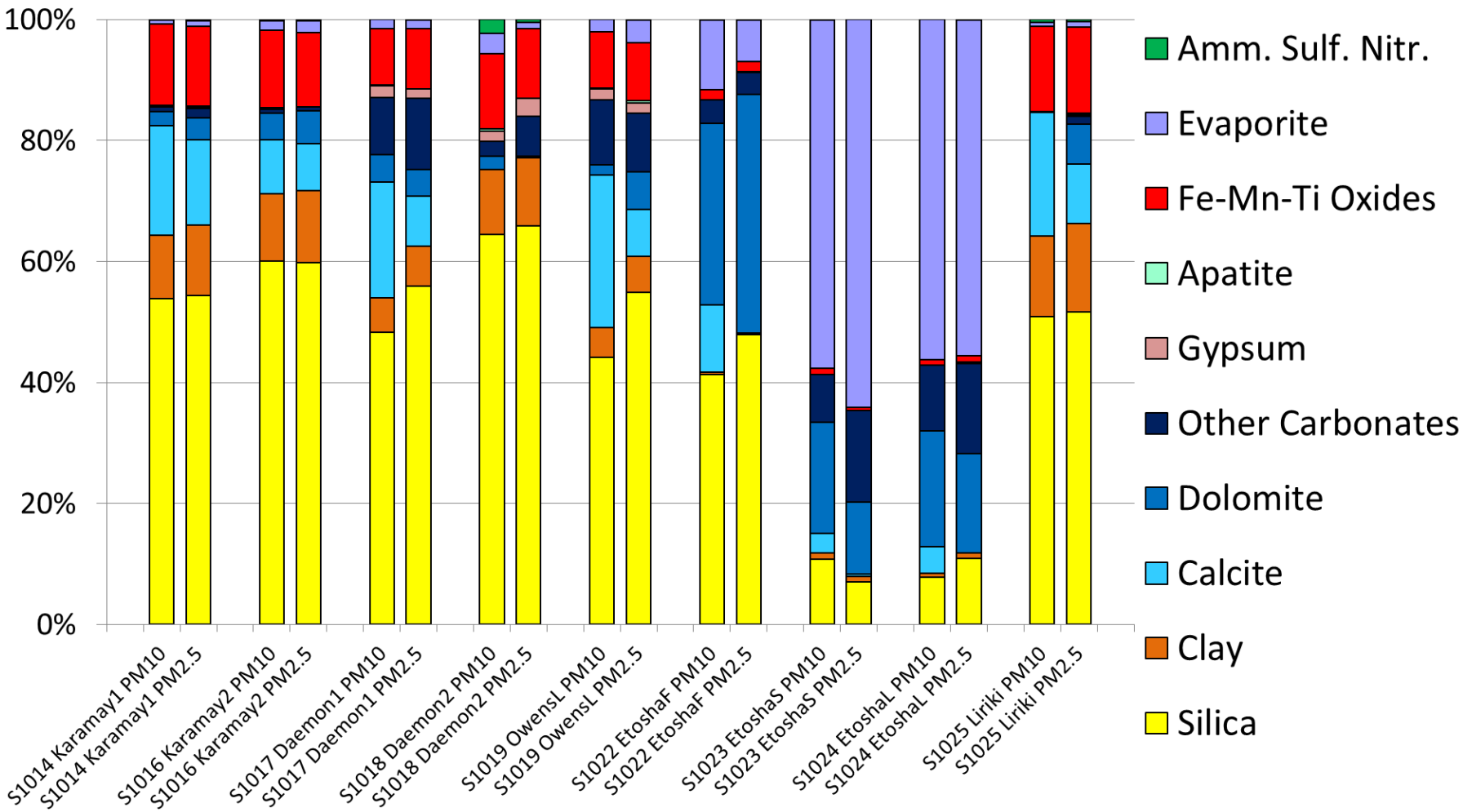
Supplement S4.2 – Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry

Sample #	S3003		S3004		S3008		S3011		S3016		S3017	
Locallity	USA, YPG, Yuma AZ, Area 3835Z		USA, YPG, Yuma, AZ, Area 26500R		USA, YPG, Yuma AZ, Roadrunner Site		USA, Ft Carson CO		USA, Dugway PG, Utah, Lima Site		USA, Dugway PG, Utah, X-ray Site	
Particle Size	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
Silicates												
Quartz, SiO_2	24.989	31.578	27.670	33.399	25.975	35.664	35.139	36.814	16.637	18.562	16.298	19.873
Kaolinite, $Al_2Si_2O_5(OH)_4$	4.537	5.918	5.540	6.897	4.860	7.105	6.959	7.491	2.096	2.793	2.207	2.836
Carbonates												
Calcite, $CaCO_3$	16.366	5.943	10.049	4.141	7.270	4.836	2.289	0.373	36.928	40.851	31.781	34.252
Dolomite, $CaMg(CO_3)_2$	2.955	6.553	0.685	0.992	0.641	0.994	4.091	6.006	3.169	5.294	2.563	4.933
Magnesite, $MgCO_3$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Soda Ash, Na_2CO_3	0.000	0.000	0.359	0.512	0.310	0.259	0.000	0.000	0.175	0.267	0.081	0.000
Potash, K_2CO_3	0.000	0.000	0.362	0.474	0.195	0.272	0.000	0.000	0.354	0.573	0.329	0.593
Sulfate & Phosphate												
$CaSO_4.2H_2O$	1.850	0.874	0.000	0.000	0.000	0.000	0.000	0.000	0.352	0.466	0.153	0.162
Apatite, $Ca_5(PO_4)_3(F)$	0.065	0.182	0.058	0.234	0.060	0.217	0.123	0.349	0.087	0.184	0.088	0.139
Evaporites												
Halite, NaCL	0.326	0.601	0.073	0.061	0.000	0.143	0.135	0.374	0.600	0.812	0.201	0.395
Sylvite, KCl	0.318	0.606	0.000	0.000	0.000	0.000	0.364	0.724	0.000	0.000	0.000	0.003
$CaCl_2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bischofite, $MgCl_2.6H_2O$	0.960	2.139	0.000	0.000	0.000	0.000	3.143	4.335	0.000	0.000	0.000	0.000
Thenardite, Na_2SO_4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$MgSO_4$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ammonium Salts												
Amm Sulf, $(NH_4)_2SO_4$	0.159	0.538	0.053	0.028	0.000	0.000	0.154	0.153	0.037	0.074	0.069	0.150
Amm Nitr, NH_4NO_3	0.000	0.000	0.075	0.251	0.175	0.771	0.421	0.994	0.000	0.000	0.000	0.000
Oxides												
Hematite, Fe_2O_3	4.150	4.493	5.215	5.572	5.732	6.374	6.157	5.653	2.040	2.372	2.331	2.627
Rutile, TiO_2	0.412	0.412	0.425	0.498	0.610	0.626	0.665	0.585	0.233	0.216	0.235	0.262
Pyrolusite, MnO_2	0.060	0.087	0.083	0.104	0.062	0.086	0.060	0.063	0.078	0.189	0.077	0.087
Total	57.148	59.924	50.646	53.163	45.892	57.347	59.700	63.913	62.785	72.653	56.413	66.313

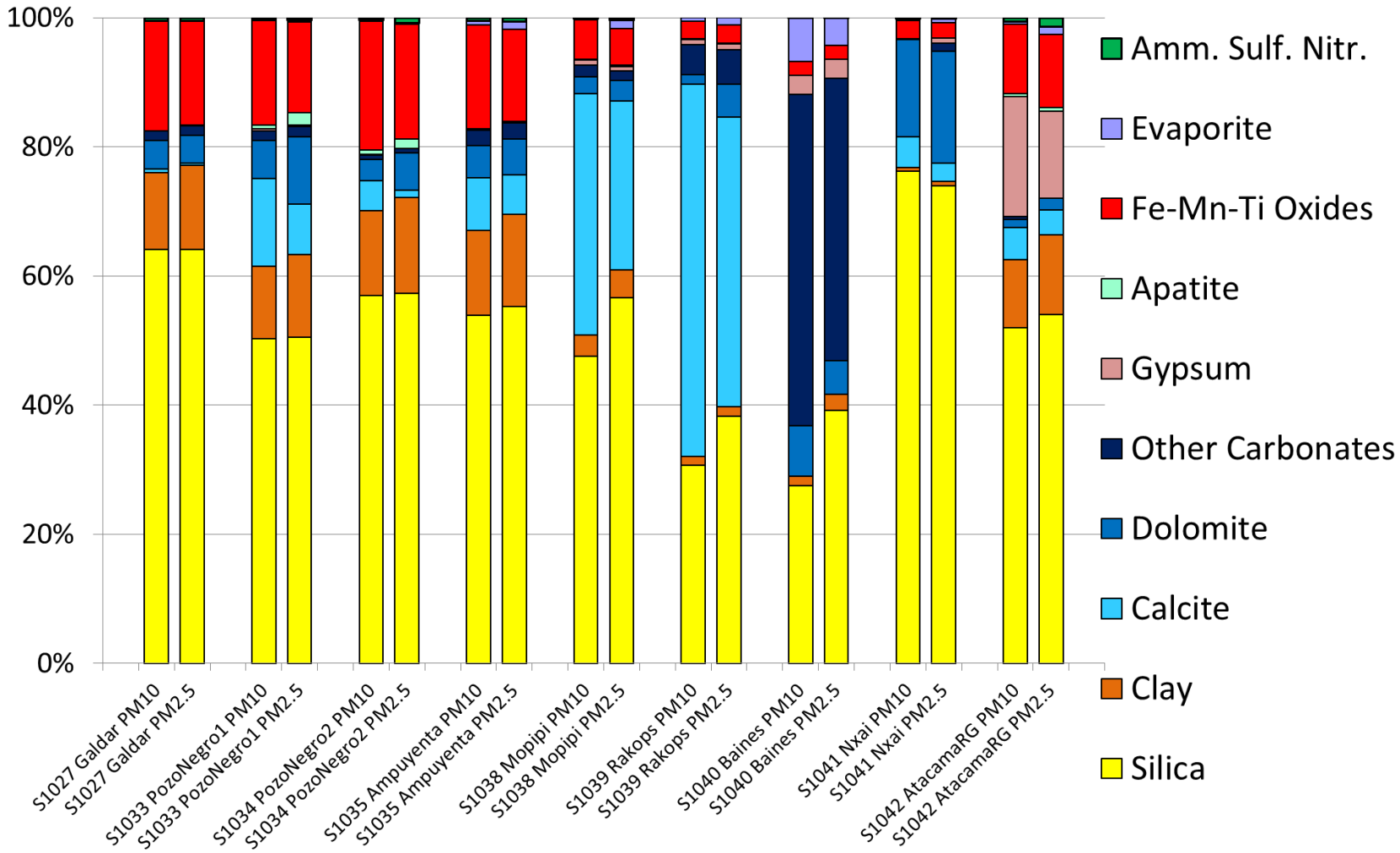
Supplement S4.3 – Plots of Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry, Normalized to 100%

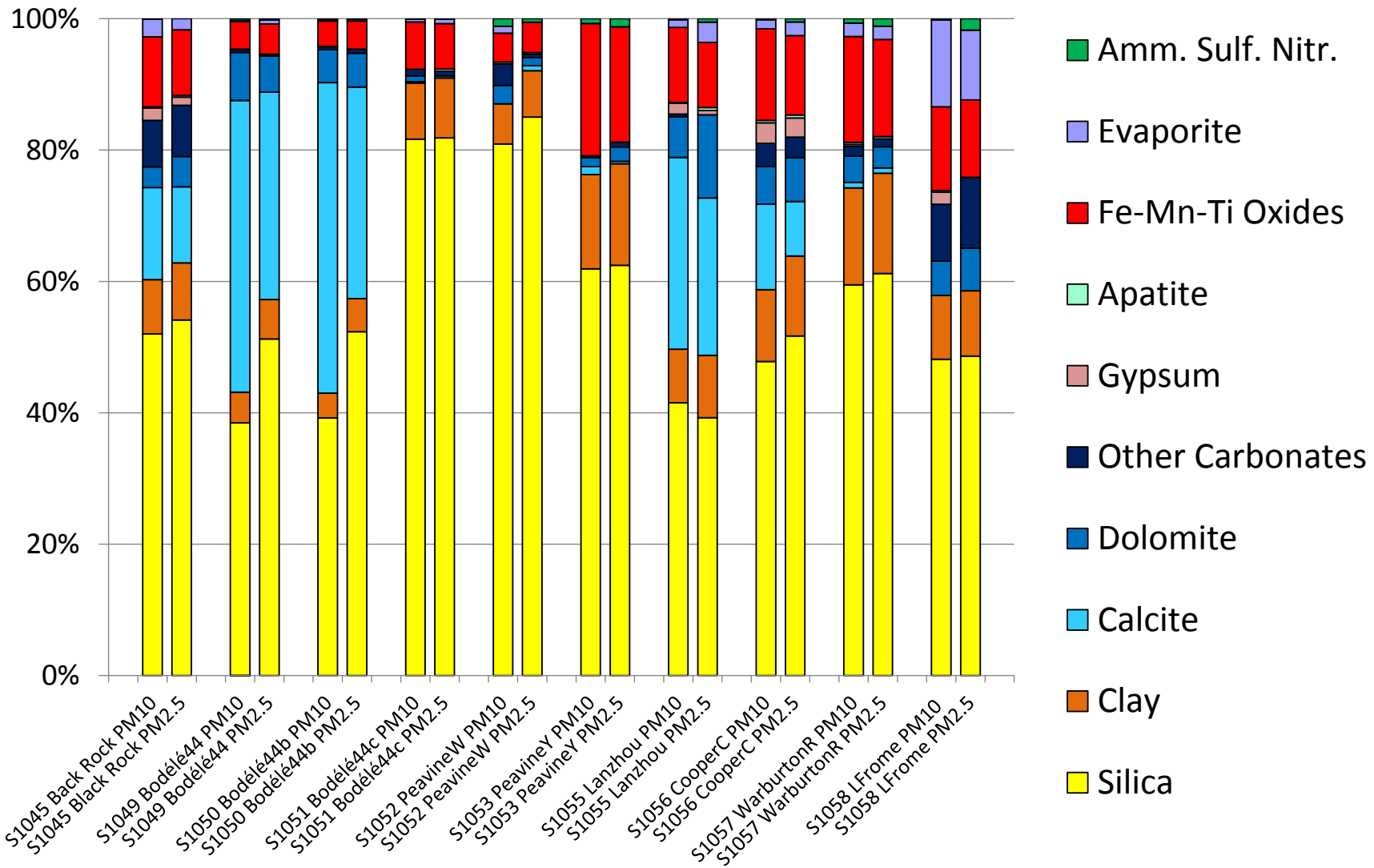


Supplement S4.3 – Plots of Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry, Normalized to 100%

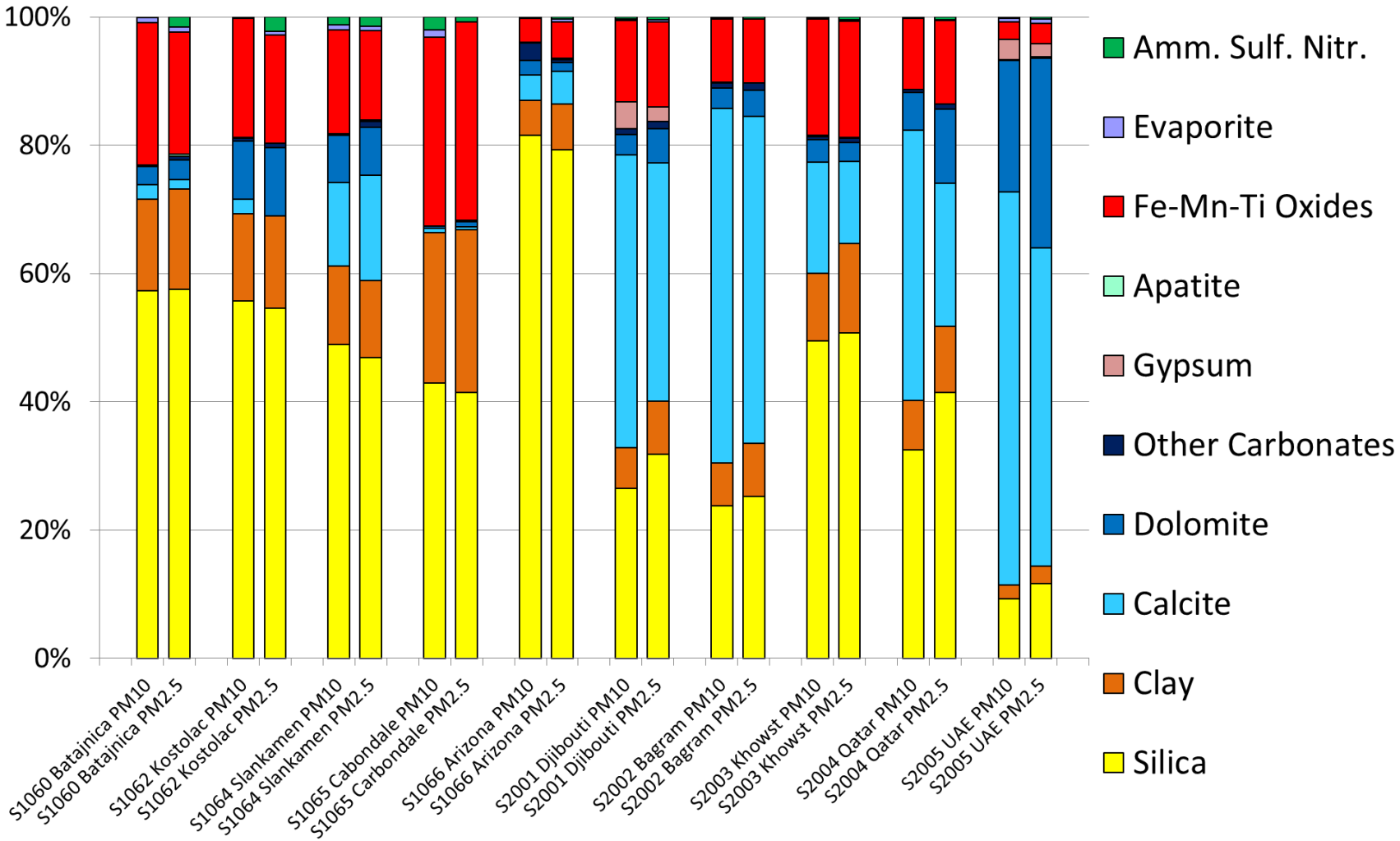


Supplement S4.3 – Plots of Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry, Normalized to 100%

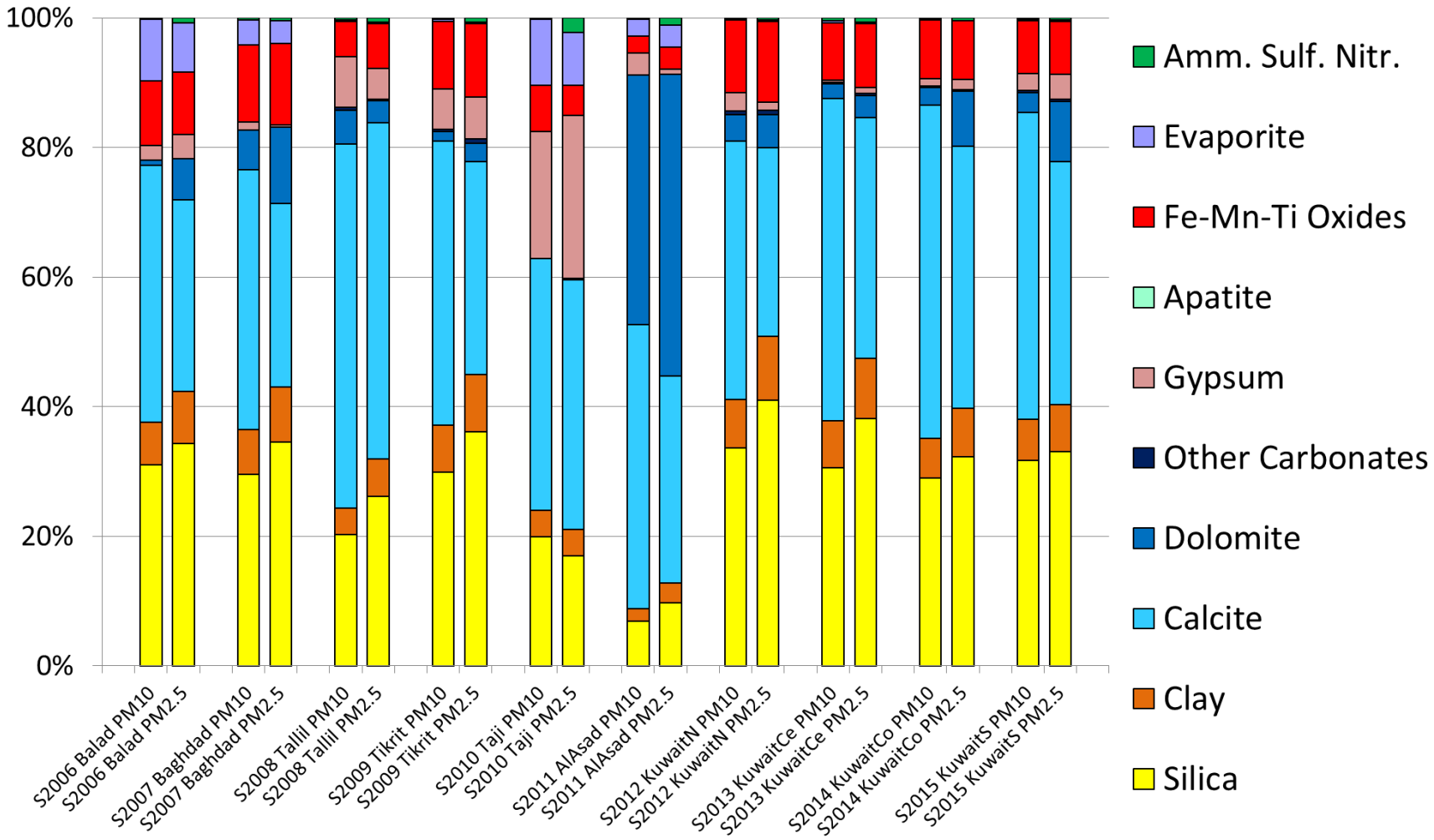



100%
80%
60%
40%
20%
0%
S1045 Back Rock PM10
S1045 Black Rock PM2.5
S1049 Bodélé44 PM10
S1049 Bodélé44 PM2.5
S1050 Bodélé44b PM10
S1050 Bodélé44b PM2.5
S1051 Bodélé44c PM10
S1051 Bodélé44c PM2.5
S1052 PeavineW PM10
S1052 PeavineW PM2.5
S1053 PeavineY PM10
S1053 PeavineY PM2.5
S1055 Lanzhou PM10
S1055 Lanzhou PM2.5
S1056 CooperC PM10
S1056 CooperC PM2.5
S1057 WarburtonR PM10
S1057 WarburtonR PM2.5
S1058 LFrome PM10
S1058 LFrome PM2.5
Amm. Sulf. Nitr.
Evaporite
Fe-Mn-Ti Oxides
Apatite
Gypsum
Other Carbonates
Dolomite
Calcite
Clay
Silica

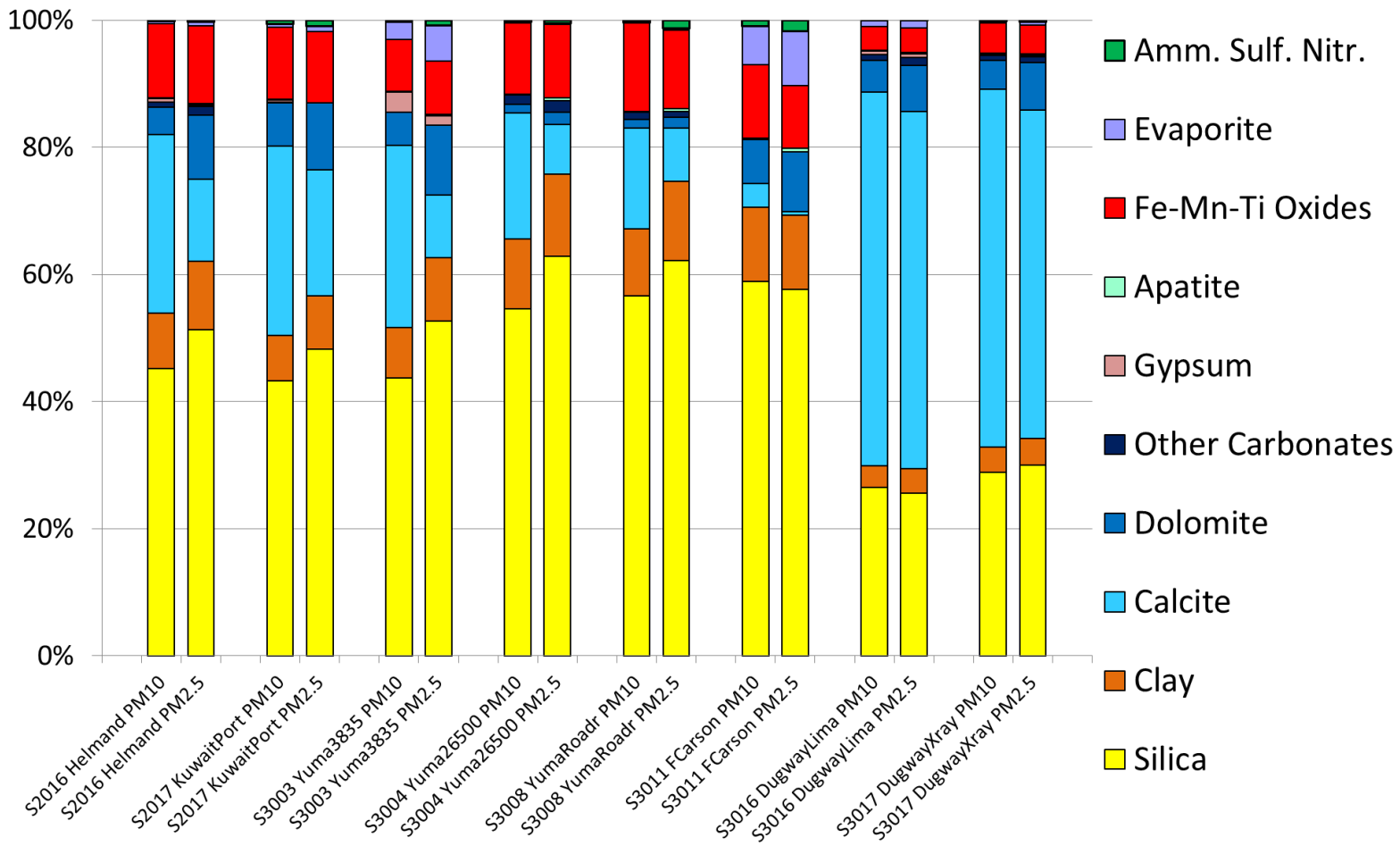
Supplement S4.3 – Plots of Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry, Normalized to 100%

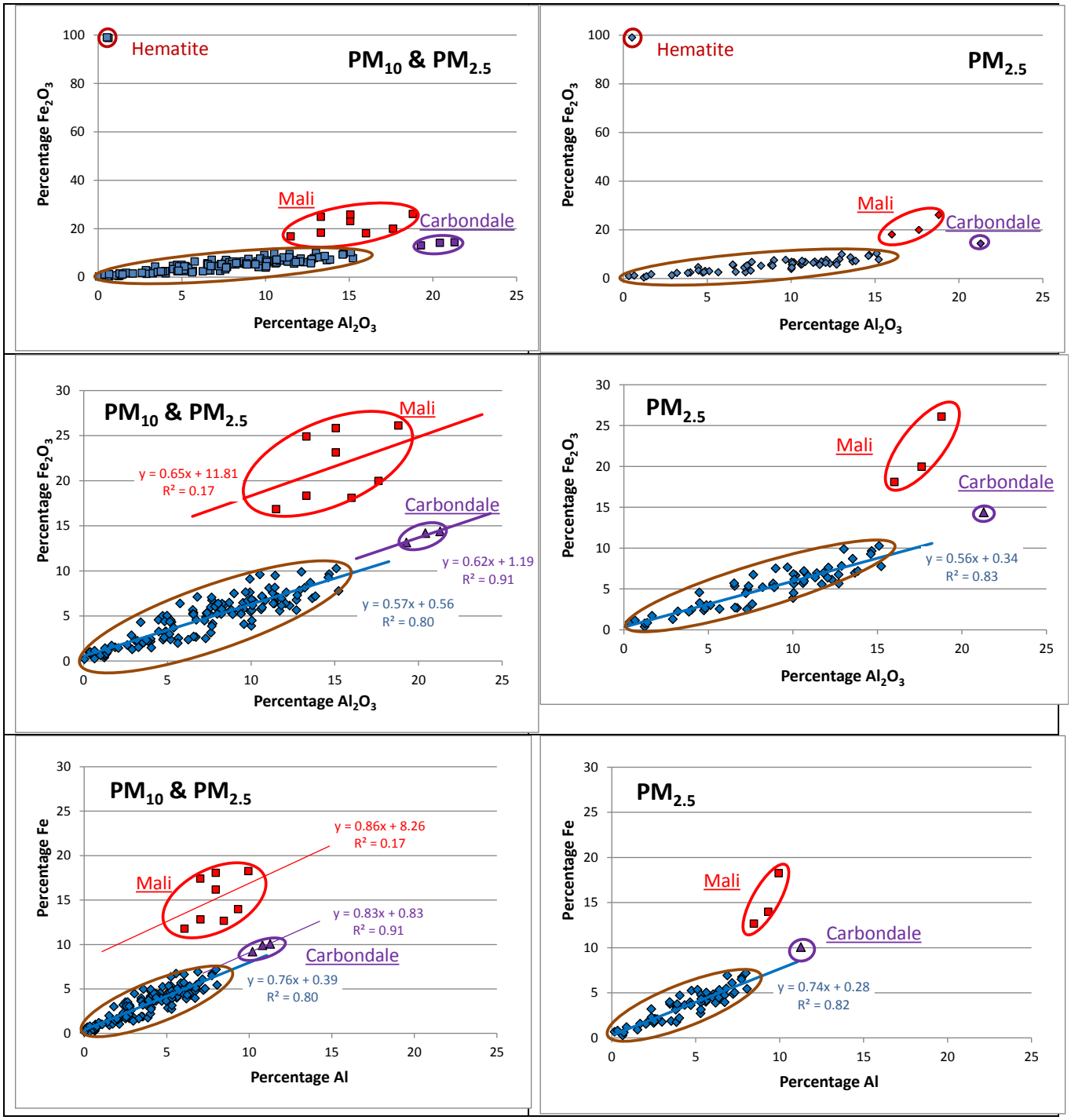


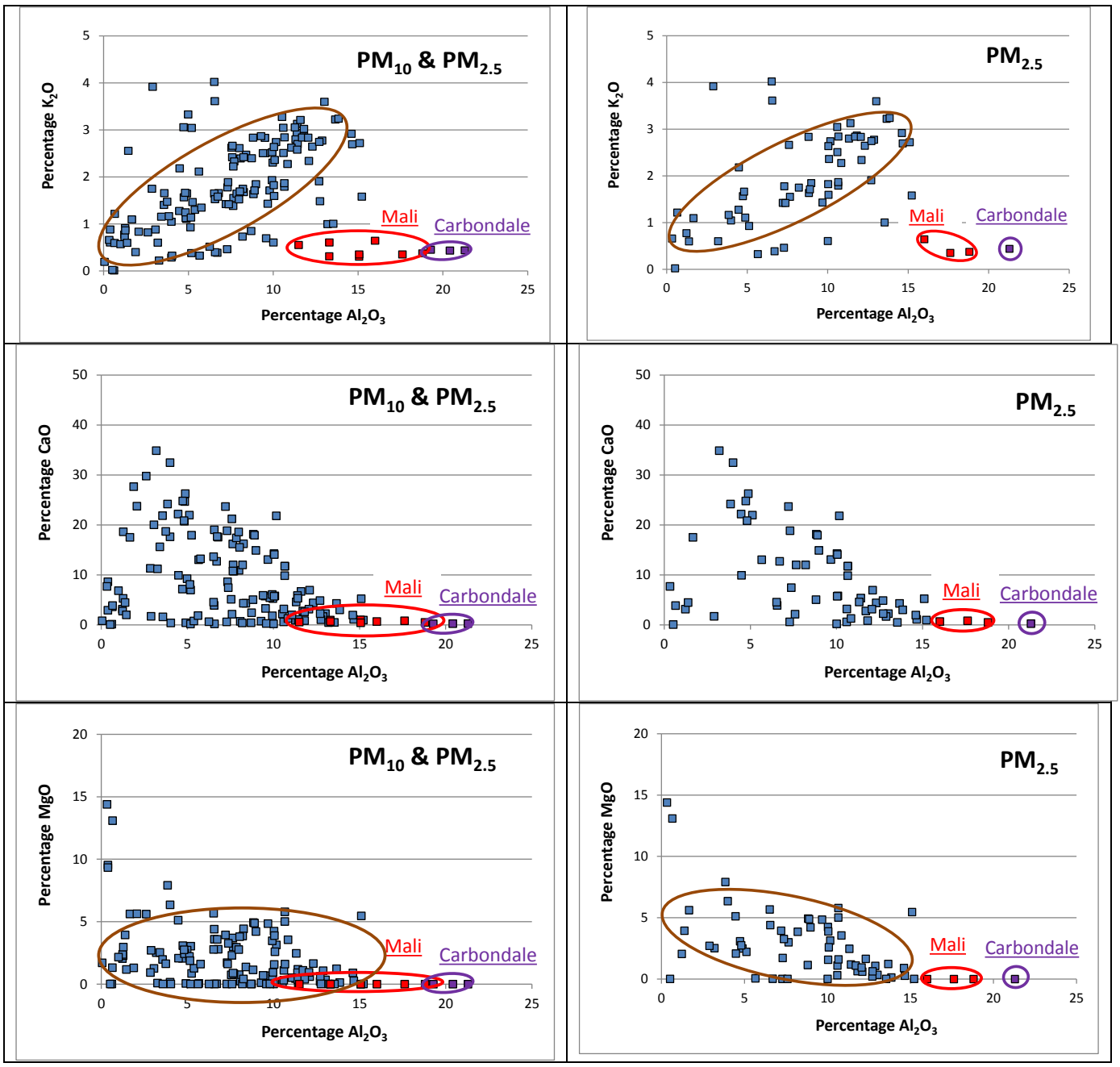
Supplement S4.3 – Plots of Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry, Normalized to 100%

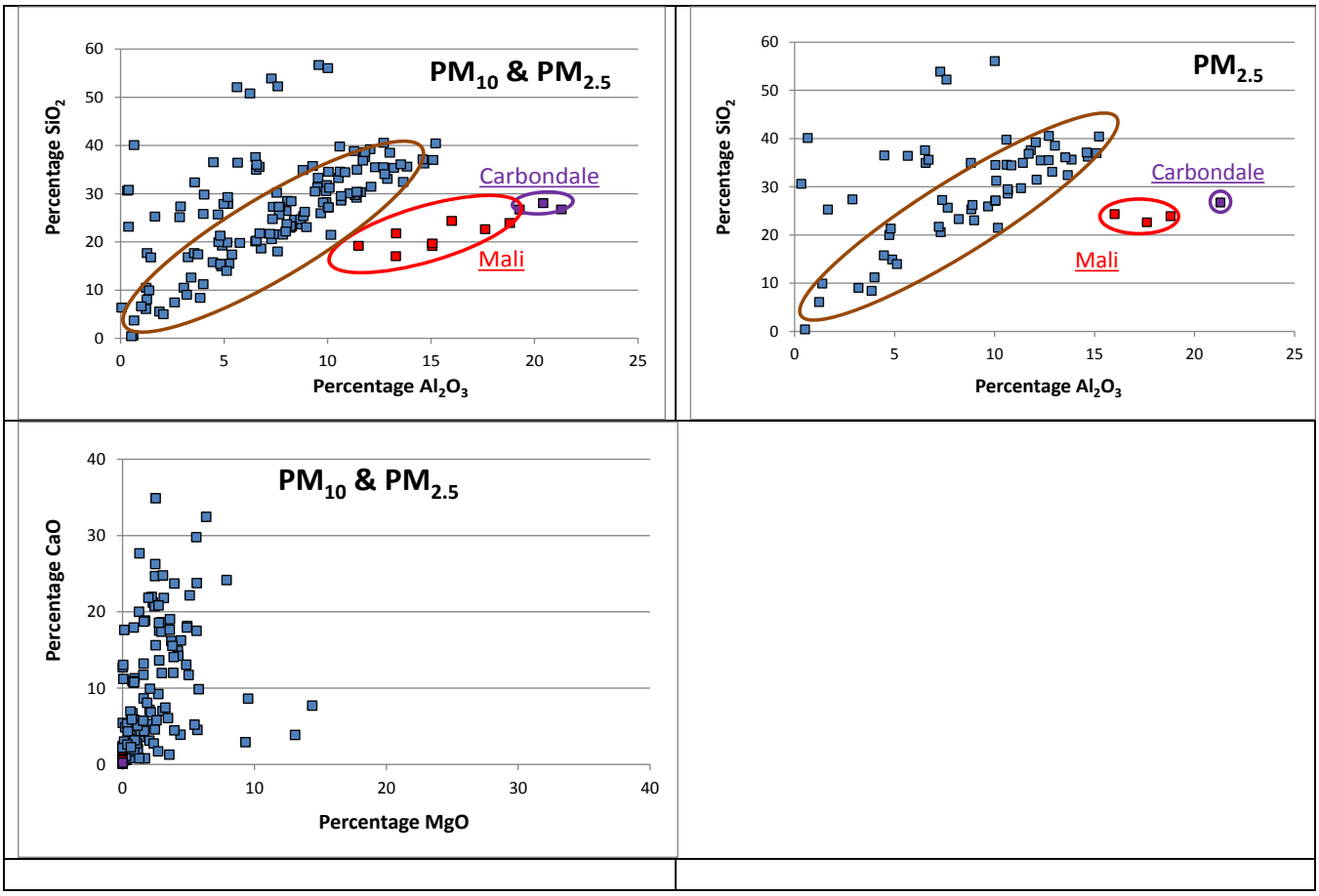


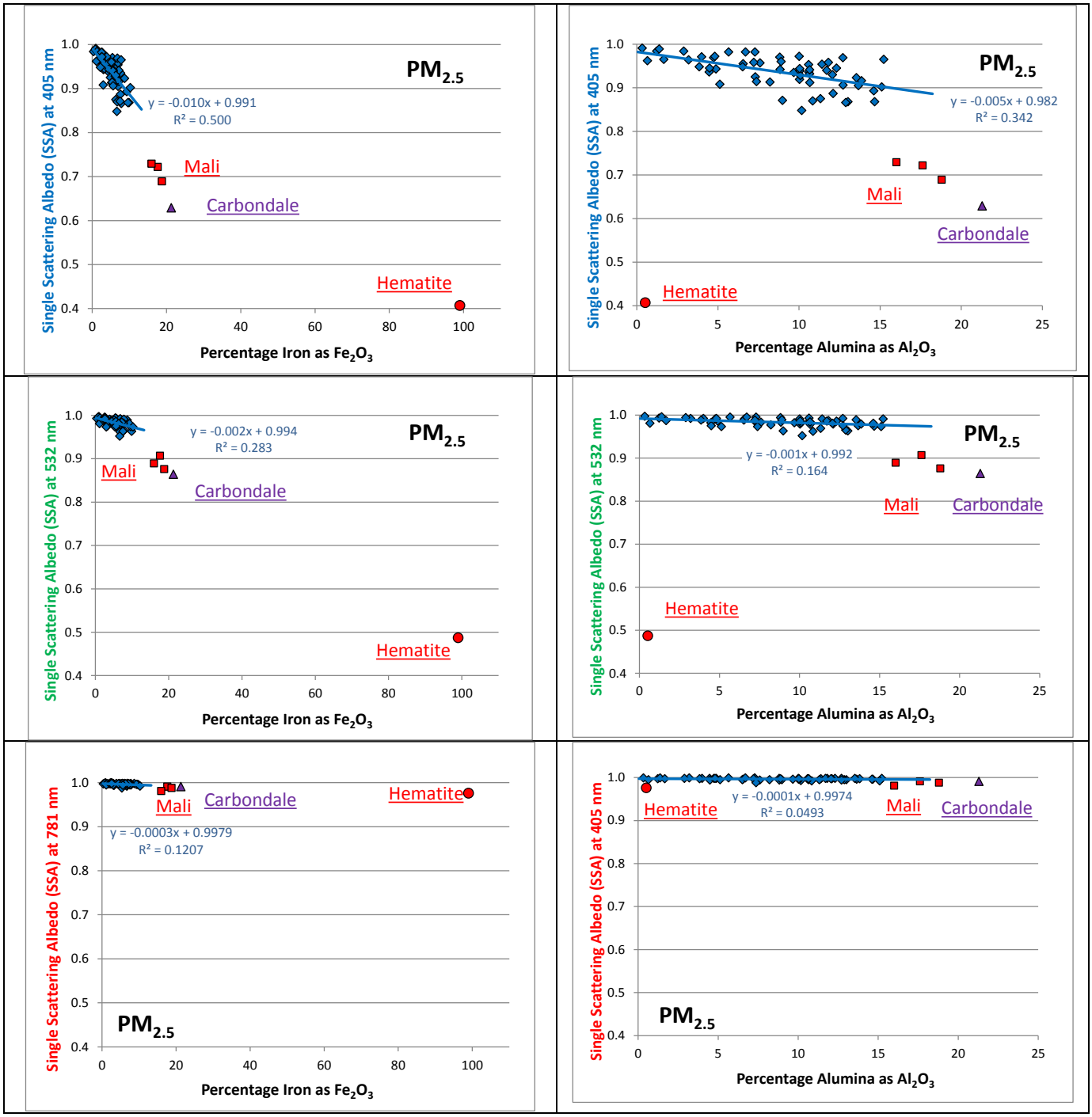
Supplement S4.3 – Plots of Normative Mineral Concentrations (mass %) Calculated from Filter Chemistry, Normalized to 100%




Hematite
PM10 & PM2.5
Percentage Fe2O3
Percentage Al2O3
Mali
Carbondale
PM2.5
y = 0.65x + 11.81
R² = 0.17
y = 0.62x + 1.19
R² = 0.91
y = 0.57x + 0.56
R² = 0.80
y = 0.56x + 0.34
R² = 0.83
y = 0.86x + 8.26
R² = 0.17
y = 0.83x + 0.83
R² = 0.91
y = 0.76x + 0.39
R² = 0.80
y = 0.74x + 0.28
R² = 0.82
Percentage Fe
Percentage Al


PM10 & PM2.5
PM2.5
Percentage K2O
Percentage CaO
Percentage MgO
Percentage Al2O3
Mali
Carbondale


PM10 & PM2.5
Percentage SiO2
Percentage Al2O3
Carbondale
Mali
PM2.5
Percentage SiO2
Percentage Al2O3
Carbondale
Mali
PM10 & PM2.5
Percentage CaO
Percentage MgO


Single Scattering Albedo (SSA) at 405 nm
PM2.5
y = -0.010x + 0.991
R² = 0.500
Mali
Carbondale
Hematite
Percentage Iron as Fe2O3
Single Scattering Albedo (SSA) at 405 nm
PM2.5
y = -0.005x + 0.982
R² = 0.342
Mali
Carbondale
Hematite
Percentage Alumina as Al2O3
Single Scattering Albedo (SSA) at 532 nm
PM2.5
y = -0.002x + 0.994
R² = 0.283
Mali
Carbondale
Hematite
Percentage Iron as Fe2O3
Single Scattering Albedo (SSA) at 532 nm
PM2.5
y = -0.001x + 0.992
R² = 0.164
Mali
Carbondale
Hematite
Percentage Alumina as Al2O3
Single Scattering Albedo (SSA) at 781 nm
Mali
Carbondale
Hematite
y = -0.0003x + 0.9979
R² = 0.1207
PM2.5
Percentage Iron as Fe2O3
Single Scattering Albedo (SSA) at 405 nm
Hematite
y = -0.0001x + 0.9974
R² = 0.0493
Mali
Carbondale
PM2.5
Percentage Alumina as Al2O3

Supplement S4.6 – Elemental Mass Ratios for PM10 & PM2.5

Sample	Locallity	Si/Al		Ti/Al		Fe/Al		Mg/Al		Ca/Al		K/Al	
		PM10	PM2.5	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
S1000	Unspecified	0.76	0.70	0.00	0.00	213.62	252.15	0.00	0.00	0.28	0.13	0.02	0.06
S1005	Spain, Lanzarote, La Mala, Sample 1	3.02	2.69	0.08	0.06	0.99	0.82	0.61	0.32	8.82	7.26	0.45	0.35
S1006	Spain, Lanzarote, La Mala, Sample 2	2.60	2.49	0.09	0.07	1.07	0.93	1.07	0.55	19.85	14.72	0.33	0.29
S1007	Spain, Lanzarote, Mirador del Rio	3.26	3.12	0.22	0.18	1.67	1.35	0.93	0.57	6.19	6.70	0.53	0.45
S1008	Spain, Lanzarote, Vega de Femes	2.79	2.61	0.18	0.15	1.21	1.00	0.22	0.15	0.28	0.23	0.49	0.43
S1009	Mali, above Bamako	1.12	1.14	0.05	0.05	2.03	1.50	0.25	0.16	0.09	0.06	0.03	0.03
S1010	Mali, Bamako	1.44	1.34	0.07	0.06	1.82	1.50	0.26	0.18	0.07	0.06	0.07	0.06
S1011	Mali, West Bomako	1.15	1.12	0.07	0.05	2.27	1.84	0.28	0.18	0.04	0.04	0.04	0.03
S1013	Cape Verde, Sala Is, Punta Fiure, Site A	2.60	2.49	0.10	0.08	1.09	0.88	0.39	0.23	4.62	3.48	0.44	0.38
S1014	China, Karamay 1	2.91	2.70	0.07	0.06	0.90	0.80	0.18	0.13	0.82	0.63	0.47	0.43
S1016	China, Karamay 2	3.08	2.88	0.07	0.06	0.80	0.72	0.16	0.13	0.46	0.40	0.41	0.37
S1017	China, Xinjiang Sample 1	4.74	4.71	0.08	0.07	1.16	1.08	0.42	0.31	1.81	0.80	0.92	0.86
S1018	China, Xinjiang Sample 2	3.40	3.32	0.08	0.07	0.81	0.71	0.16	0.13	0.11	0.07	0.48	0.45
S1019	USA, Owens Lake CA	4.94	5.09	0.10	0.07	1.33	1.15	0.51	0.33	2.50	0.93	1.05	0.97
S1022	Namibia, Etosha, Fischer Pan	53.39	80.76	0.23	0.29	2.72	3.78	13.43	21.35	30.34	30.98	2.48	3.08
S1023	Namibia, Etosha, Stinkwater	5.05	4.36	0.06	0.03	0.55	0.41	1.59	0.63	7.50	3.42	1.44	0.98
S1024	Namibia, Etosha, Lookout	5.83	6.35	0.05	0.04	0.83	0.81	1.57	1.11	9.15	4.37	0.89	0.68
S1025	Morocco, Lake Iriki	2.26	2.10	0.07	0.06	0.74	0.67	0.12	0.09	0.69	0.42	0.40	0.37
S1027	Spain, Gran Canaria, Galdar	3.04	2.81	0.16	0.13	0.89	0.78	0.15	0.12	0.11	0.10	0.42	0.38
S1033	Fuerteventura, Pozo Negro, Sample 1	2.59	2.32	0.11	0.08	0.98	0.74	0.22	0.12	0.70	0.54	0.46	0.39
S1034	Fuerteventura, Pozo Negro, Sample 2	2.51	2.27	0.13	0.10	1.01	0.80	0.19	0.12	0.24	0.17	0.40	0.34
S1035	Spain, Fuerteventura, La Ampuyenta	2.39	2.27	0.09	0.07	0.84	0.69	0.18	0.09	0.37	0.29	0.43	0.37
S1038	Botswana, Makgadikgadi, Mopipi	7.77	7.19	0.08	0.06	1.32	0.97	0.87	0.41	5.33	2.98	0.96	0.76
S1039	Botswana, Makgadikgadi, Rakops	12.20	13.40	0.05	0.05	1.47	1.35	2.17	1.54	19.66	14.19	1.06	1.03
S1040	Botswana, Nxai Pan, Baines Baobabs	10.14	8.34	0.10	0.06	1.00	0.59	1.30	0.39	1.83	0.80	2.74	2.12
S1041	Botswana, Nxai Pan	70.13	54.13	0.29	0.15	3.38	2.31	16.45	6.67	10.11	7.94	3.56	2.91
S1042	Chile, Atacama, Rock Garden	2.82	2.55	0.05	0.04	0.73	0.66	0.14	0.10	0.71	0.48	0.36	0.34
S1045	USA, Black Rock playa, NV	3.54	3.50	0.06	0.06	0.92	0.82	0.23	0.18	0.91	0.77	0.54	0.50
S1049	Chad, Bodélé Depression, Sample 44	4.54	4.69	0.06	0.05	0.62	0.53	0.36	0.15	4.62	2.56	0.10	0.09
S1050	Chad, Bodélé Depression, Sample 44B	5.69	5.68	0.06	0.05	0.71	0.59	0.34	0.20	5.94	3.11	0.11	0.09
S1051	Chad, Bodélé Depression, Sample 44C	5.23	4.94	0.07	0.06	0.56	0.51	0.11	0.10	0.03	0.03	0.11	0.09
S1052	USA, Reno NV, Peavine Mtn, white clay	7.18	6.53	0.05	0.05	0.50	0.45	0.15	0.12	0.13	0.11	0.13	0.10
S1053	USA, Reno NV, Peavine Mtn, yellow soil	2.47	2.35	0.08	0.06	0.94	0.85	0.22	0.12	0.06	0.05	0.14	0.12
S1055	China, Lanzhou, Jiuzhoutai Mtn, loess	2.91	2.41	0.08	0.05	0.98	0.74	0.23	0.13	1.84	1.49	0.51	0.42
S1056	Australia, Lake Eyre, Cooper Creek	2.54	2.47	0.07	0.05	0.90	0.70	0.17	0.10	0.75	0.51	0.27	0.24
S1057	Australia, Lake Eyre, Warburton River	2.36	2.34	0.07	0.06	0.76	0.67	0.11	0.08	0.11	0.08	0.18	0.16
S1058	Australia, Lake Frome	2.85	2.80	0.08	0.07	0.91	0.82	0.32	0.14	0.19	0.16	0.38	0.33
S1060	Serbia, Batajnica, Danube R, loess	2.34	2.18	0.08	0.05	1.09	0.87	0.18	0.11	0.12	0.10	0.37	0.29
S1062	Serbia, Kostolac, Lignite pit, loess	2.40	2.24	0.08	0.06	0.97	0.84	0.16	0.11	0.24	0.18	0.37	0.31
S1064	Serbia, Stari Slankamen, loess	2.35	2.30	0.07	0.05	0.94	0.83	0.16	0.13	0.63	0.77	0.35	0.30
S1065	USA, Carbondale, California, red clay	1.21	1.11	0.05	0.05	0.92	0.89	0.08	0.08	0.02	0.01	0.03	0.03
S1066	USA, Arizona Road Dust	8.19	6.07	0.06	0.06	0.47	0.55	0.16	0.14	0.44	0.38	0.59	0.55
S2001	Djibouti, Camp Lemonnier	2.42	2.27	0.13	0.10	1.38	1.10	0.39	0.23	3.49	2.24	0.38	0.32
S2002	Afghanistan, Bagram	2.09	1.86	0.08	0.07	1.04	0.86	0.26	0.16	3.77	2.89	0.50	0.42
S2003	Afghanistan, Khowst	2.71	2.16	0.10	0.09	1.21	0.90	0.23	0.11	0.82	0.46	0.31	0.28
S2004	Qatar, Al Udeid	2.48	2.37	0.09	0.08	1.02	0.88	0.23	0.16	2.65	1.25	0.32	0.26
S2005	UAE, Al Dhafra	2.51	2.47	0.07	0.06	0.89	0.81	0.65	0.38	15.41	10.95	0.49	0.41
S2006	Iraq, Balad	2.72	2.50	0.10	0.08	1.06	0.84	0.31	0.19	2.82	1.97	0.40	0.33
S2007	Iraq, Baghdad, Camp Victory	2.50	2.37	0.09	0.07	1.22	1.04	0.30	0.20	2.86	1.82	0.28	0.23
S2008	Iraq, Tallil, Camp Adder	2.81	2.65	0.10	0.10	0.87	0.82	0.34	0.21	6.86	4.43	0.36	0.31
S2009	Iraq, Tikrit, Speicher	2.42	2.38	0.09	0.08	1.02	0.90	0.24	0.17	2.99	1.92	0.33	0.28
S2010	Iraq, Taji	2.81	2.41	0.10	0.08	1.20	0.77	0.47	0.28	5.79	5.78	0.40	0.28
S2011	Iraq, Al Asad	2.12	1.92	0.08	0.08	0.92	0.76	0.84	0.37	15.48	8.48	0.63	0.47
S2012	Kuwait, North, Camp Buehring	2.60	2.44	0.09	0.08	1.05	0.89	0.25	0.16	2.61	1.48	0.33	0.27
S2013	Kuwait, Central, Camp Ali Al Salem	2.45	2.39	0.07	0.06	0.87	0.74	0.21	0.14	3.14	1.89	0.30	0.25
S2014	Kuwait, Coastal, Ash Shu Ayabah	2.72	2.53	0.09	0.08	1.04	0.85	0.30	0.18	3.91	2.77	0.36	0.29
S2015	Kuwait, South, Camp Arifjan	2.86	2.60	0.08	0.07	0.90	0.77	0.25	0.16	3.54	2.72	0.37	0.30
S2016	Afghanistan, Camp Leatherneck	2.98	2.74	0.07	0.06	0.96	0.81	0.25	0.15	1.59	0.77	0.40	0.37
S2017	Kuwait, Shuaiba Port	3.41	3.27	0.08	0.06	1.12	0.96	0.41	0.25	2.11	1.36	0.35	0.30
S3003	USA, YPG, Yuma AZ, Area 3835Z	3.15	3.04	0.06	0.05	0.67	0.59	0.17	0.11	1.90	0.77	0.46	0.41
S3004	USA, YPG, Yuma, AZ, Area 26500R	2.86	2.78	0.05	0.05	0.73	0.63	0.15	0.10	0.84	0.32	0.42	0.38
S3008	USA, YPG, Yuma AZ, Roadrunner Site	3.04	2.87	0.08	0.06	0.92	0.70	0.21	0.11	0.70	0.35	0.46	0.37
S3011	USA, Ft Carson CO	2.89	2.82	0.06	0.05	0.69	0.59	0.11	0.09	0.30	0.24	0.40	0.34
S3016	USA, Dugway PG, Utah, Lima Site	4.39	3.72	0.07	0.05	0.76	0.66	0.40	0.26	8.28	7.05	0.62	0.52
S3017	USA, Dugway PG, Utah, X-ray Site	4.10	3.91	0.07	0.06	0.82	0.72	0.41	0.28	6.74	5.84	0.62	0.54
	Minimum	0.76	0.70	0.00	0.00	0.47	0.41	0.00	0.00	0.02	0.01	0.02	0.03
	Maximum	70.13	80.76	0.29	0.29	213.62	252.15	16.45	21.35	30.34	30.98	3.56	3.08
	Geometric Mean	3.31	3.11	0.07	0.06	1.08	0.92	0.28	0.18	1.21	0.83	0.37	0.32
	Arithmetic Mean	5.21	5.19	0.09	0.07	4.33	4.77	0.83	0.65	3.80	2.77	0.54	0.47
	Relative differences in PM10 vs PM2.5		6		19		15		36		31		13

29 Chemical categories																				
Average weight percentage of approximately 1,000 individual particles per sample																				
	S1005	S1006	S1007	S1008	S1009	S1010	S1011	S1013	S1014	S1016	S1017	S1018	S1019	S1022	S1023	S1024	S1025	S1027	S1033	S1034
Si-rich	0.8	1.2	1.1	2.4	1.9	1.8	0.0	1.6	2.9	2.8	1.2	4.2	1.5	0.0	0.0		4.0	1.2	1.0	1.9
Si/Al(Ca,Mg)	1.3	3.9	2.5	0.0		0.0	0.0	7.1	0.4	0.2	0.2	0.0	0.3	0.4	2.0	1.5	0.1		4.1	0.1
Si/Al(Ca,Mg,Fe)	0.3	1.5	1.2	0.2	0.2	0.0		6.3	0.8	1.0	0.3	0.6	1.1	2.6		0.1	0.0	0.2	0.9	1.9
Si/Al(Ca,Mg,K,Fe)	8.8	1.9	17.1	3.2				8.2	6.2	1.8	1.4	0.0	0.4			0.0	4.5	1.6	7.6	1.6
Si/Al(K,Fe)				10.3	2.2	0.1	2.4	0.2	1.7	1.0	0.3	1.5	0.0				2.1	2.6	0.3	2.6
Si/Al(Mg,Fe)	0.4	0.6	0.9	0.8	0.6	1.3	0.2	1.3	8.2	6.8	5.6	10.6	0.4	0.0	0.1	0.0	2.2	5.6	2.0	4.6
Si/Al(Mg,K)	0.3	0.3	2.3	0.3	0.0	0.0	0.1	1.4	4.7	7.2	6.0	4.1	5.9	2.6	0.6	0.3	8.3	1.3	8.4	6.0
Si/Al(Mg,K,Fe)	2.1	0.8	9.3	44.7	0.2	1.1	0.1	3.7	28.6	32.7	24.7	27.6	23.1	0.0		0.1	28.1	70.9	26.3	29.1
Si/Al/Ca	8.3	0.7	5.0	1.6	0.1	1.6	0.0	7.5	1.1	1.6	1.1	0.2	0.5	0.0	0.0	0.0	1.8	0.0	4.3	1.7
Si/Al/Fe	2.1	0.3	0.7	3.9	49.2	45.5	50.5	0.2	0.6	0.9	0.5	0.5	0.1			0.2	2.6	0.9	0.7	7.6
Si/Al/K	4.8	0.0	1.1	11.0	0.4	0.3	1.0	2.3	13.0	10.9	5.6	16.2	5.1	0.9	0.7	0.5	13.8	3.5	4.2	6.5
Si/Al/Mg	5.6	4.2	3.7	1.1	0.5	0.5	0.1	2.4	6.2	5.6	22.9	5.1	32.1	0.6	7.9	6.0	5.8	2.2	22.2	9.0
Si/Al/Na	0.6	0.2	0.1	1.2	0.0	0.0	0.0	2.5	7.3	5.7	3.5	12.5	3.8	0.1	1.3	1.2	0.7	0.5	1.5	3.6
Si/Al	0.8	0.0	0.4	6.1	6.6	10.2	11.7	0.6	3.0	4.7	1.2	3.8	0.2		0.0	0.0	4.3	1.9	1.3	5.4
Mixed Clays	0.4	0.4	1.4	4.7	2.4	4.3	2.3	1.1	7.5	8.4	8.0	10.6	3.1	0.0	1.0	1.5	5.0	6.9	3.4	5.3
Si/Mg						0.0	0.0		0.0	0.0	11.6	0.0	10.8	54.8	1.7	3.7	0.0		0.0	0.4
Si/Mg/Ca		0.0	0.3			0.0		0.0	0.0	0.0	0.5	0.0	0.1	14.3	0.0	2.9			0.2	0.0
Ca/Mg/Si	2.8	3.9	20.6				0.0	0.2	0.0	0.2	0.2		1.0	8.4	3.1	9.9	2.8		0.6	0.1
Ca-rich	15.7	49.5	4.3	0.4	0.7	0.0			2.0	0.4	2.4	0.1	2.9	2.6	0.6	4.6	2.3		1.5	0.2
Ca/Mg	2.0	5.1	14.0			0.0		0.0	0.0	0.0		0.4		0.5	6.0	7.5	0.0		0.0	0.0
Ca/Si/Al	17.6	8.2	2.4	0.1	0.1	0.8	0.1	5.1	1.5	3.2	0.0	0.1	0.0	0.0	0.0	0.0	5.6		3.6	0.3
Ca/Si	23.8	13.4	4.4	0.6	0.0	0.0	0.1	6.4	2.9	3.0	1.7	0.0	3.8	5.9	0.4	1.9	1.8	0.1	3.5	0.1
Ca/P	0.0	1.5	0.0	0.0			0.0	39.9	0.1	0.2	0.5	0.1			0.0	0.0	0.0		0.0	0.1
Fe/Si	0.4	2.1	3.5	5.9	33.3	30.4	27.1	0.5	1.1	1.4	0.0	0.3	1.8	0.0		0.1	1.2	0.5	1.8	3.3
Fe-rich	0.6	0.3	1.8	0.4	0.5	1.3	3.2	0.0	0.0	0.0		0.1	0.0	0.0	0.0		0.0	0.0	0.0	7.9
Na/S										0.0	0.3	0.4	1.5	2.7	69.8	54.4				
Na-rich						0.0							0.3	1.0	3.2	1.9			0.0	0.0
C-rich	0.0	0.0	0.0						0.1	0.0	0.1	0.0			0.1	0.0	0.0		0.0	0.0
Misc.	0.3	0.3	2.0	1.1	1.1	0.5	1.1	1.5	0.1	0.4	0.5	1.0	0.0	2.6	1.5	1.6	2.7	0.2	0.4	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Country\Region	Spain\Lanzarote	Spain\Lanzarote	Spain\Lanzarote	Spain\Lanzarote	Mali\Bamako	Mali\Bamako	Mali\Bamako	Cape Verde\Sal	China\Karamay	China\Karamay	China\Xinjiang	China\Xinjiang	USA\California	Namibia\Etosha	Namibia\Etosha	Namibia\Etosha	Morocco\Iriki	Spain\Gran Canaria	Spain\Fuerteventura	Spain\Fuerteventura

29 Chemical categories																							
Average weight percentage of approximately 1,000 individual particles per sample																							
	S1035	**S1038**	**S1039**	**S1040**	**S1041**	**S1042**	**S1045**	**S1049**	**S1050**	**S1051**	**S1052**	**S1053**	**S1055**	**S1056**	**S1057**	**S1058**	**S1060**	**S1062**	**S1064**	**S1065**	**S1066**	**S2001**
Si-rich	1.0	2.7	4.0	2.1	0.8	0.3	1.7	16.8	4.9	17.0	25.6	1.7	4.5	1.9	1.5	4.1	1.3	4.2	2.2	0.1	36.9	0.5
Si/Al(Ca,Mg)	0.3	9.2	7.8		0.4	8.4	0.4	0.4	0.0	0.0		0.0	0.4	0.3	0.1	0.0	0.0	0.0	0.0		0.1	0.8
Si/Al(Ca,Mg,Fe)	0.0	2.1			0.0	4.1	0.5	0.6	6.9			0.3	1.5	0.2	0.1	0.1	0.1	1.4	6.4		0.3	7.3
Si/Al(Ca,Mg,K,Fe)	2.2	3.4	0.1	0.0		9.6	6.0	1.1					4.9	2.2		1.3	0.0	3.2	9.0		1.8	7.9
Si/Al(K,Fe)	5.0					1.8	0.4	0.2	1.8	0.2		5.8	0.1	6.6	9.1	0.3	13.6	3.1	6.1	2.0	0.2	0.4
Si/Al(Mg,Fe)	1.9	0.2	0.1	0.0	0.0	1.5	3.2	0.7	0.3	0.7	0.2	2.7	1.6	7.2	4.5	7.8	13.2	9.9	10.0	0.4	1.5	10.6
Si/Al(Mg,K)	1.2	7.5	0.4	10.4	1.7	5.1	3.9	0.5	0.0	0.0	0.0	0.6	7.2	0.3	0.0	5.1	4.5	1.7	0.9	0.0	0.2	1.7
Si/Al(Mg,K,Fe)	53.4	4.3	0.1	3.1		16.8	44.8	0.6		4.9		4.2	13.8	29.2	21.2	24.9	33.7	42.6	24.7	0.0	2.5	14.0
Si/Al/Ca	5.3	8.5	0.3	0.2	0.4	4.9	3.7	14.2	15.6	0.1	0.0	0.0	7.8	7.3	0.2	0.1	0.3	0.4	4.5		3.8	3.0
Si/Al/Fe	4.0	0.0	0.0			0.6	0.7	5.8	6.4	29.0	1.1	34.0	3.8	7.2	33.4	0.4	7.2	6.9	3.2	65.5	0.3	2.8
Si/Al/K	6.1	1.3	0.1	15.1	5.9	3.6	4.7	1.1	2.7	2.2	2.3	6.7	12.6	2.6	2.8	4.8	16.2	10.3	4.8	0.3	15.6	0.7
Si/Al/Mg	2.0	27.3	27.9	6.3	5.4	22.0	6.7	2.7	1.8	1.1	1.2	1.3	4.7	2.4	1.9	38.8	1.7	1.2	3.1	0.2	0.6	18.6
Si/Al/Na	2.8	0.3	0.0	4.0		3.3	1.8	0.5	1.8	1.0	2.9	6.0	5.9	0.3	1.3	1.8	0.7	2.4	0.5	0.1	13.9	0.2
Si/Al	4.8	3.4	0.1	0.3	0.0	2.7	3.4	15.4	21.9	38.8	64.5	18.9	0.7	7.4	6.5	1.3	2.9	4.3	4.7	20.8	2.6	0.7
Mixed Clays	3.2	9.7	0.7	2.6	0.1	4.1	8.6	12.2	4.8	3.2	1.8	11.5	5.1	12.7	15.4	2.9	3.5	1.7	6.1	2.9	15.0	8.7
Si/Mg	0.1	0.2	12.7	19.6	67.8		0.1	0.0	0.3	0.0			0.0			0.1	0.0	0.0		0.0	0.1	0.7
Si/Mg/Ca			8.9	0.0	10.3	0.0	0.1		0.0								0.0		1.1		0.3	0.0
Ca/Mg/Si	0.0	0.0	4.2	0.0	2.2		1.6	0.1	0.0	0.0		0.0	0.7	0.3		0.3	0.0		0.0		0.0	0.1
Ca-rich	0.2	3.5	14.1	7.3	1.9	2.5	0.4	11.9	8.5			0.0	5.3	2.0	0.0	0.1	0.0	1.3	3.3		0.4	7.0
Ca/Mg		0.0	1.7	0.0	0.0			0.1	0.0				1.1	0.1	0.0	0.3		0.1	0.2		0.0	0.3
Ca/Si/Al	3.5	1.9	0.0	0.0	0.0	5.3	2.2	6.6	5.1	1.0		0.1	3.9	5.1	0.1	0.4	0.0	2.3	2.1		0.0	1.7
Ca/Si	1.4	14.4	16.5	5.3	2.9	0.0	4.6	8.4	16.3	0.0		0.0	10.6	4.6	0.0	1.1	0.1	0.4	2.9	0.0	1.2	10.4
Ca/P						0.0	0.0	0.1	0.0				0.2			0.1		0.1	0.1		0.0	0.1
Fe/Si	1.0	0.1	0.0	0.0	0.0	1.4	0.0		0.0	0.5		2.8	2.3	0.0	1.2	1.9	0.6	2.1	2.8	7.1	0.6	1.5
Fe-rich	0.0		0.0			0.0		0.0	0.0			0.0	1.1		0.0	0.8	0.0	0.1	0.1	0.4	0.9	0.1
Na/S	0.2	0.0	0.4	3.1	0.4		0.2					0.0				0.0		0.0				
Na-rich				19.0												0.0						
C-rich			0.0					0.0	0.0	0.0	0.0	3.0				0.0		0.0	0.6	0.0		0.0
Misc.	0.2	0.0	0.1	1.5	0.0	1.9	0.3	0.1	0.8	0.3	0.2	0.4	0.3	0.1	0.5	1.1	0.3	0.3	0.4	0.2	0.9	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Country\Region	**Spain\Fuerteventura**	**Botswana\Makgadikgadi**	**Botswana\Makgadikgadi**	**Botswana\Baines**	**Botswana\Nxai**	**Chile\Atacama**	**USA\Nevada**	**Chad\Bodélé**	**Chad\Bodélé**	**Chad\Bodélé**	**USA\Nevada**	**USA\Nevada**	**China\Lanzhou**	**Australia\Eyre**	**Australia\Eyre**	**Australia\Frome**	**Serbia\Batajnica**	**Serbia\Kostolac**	**Serbia\Stari Slankamen**	**USA\California**	**USA\Arizona**	**Djibouti\Lemonnier**

29 Chemical categories

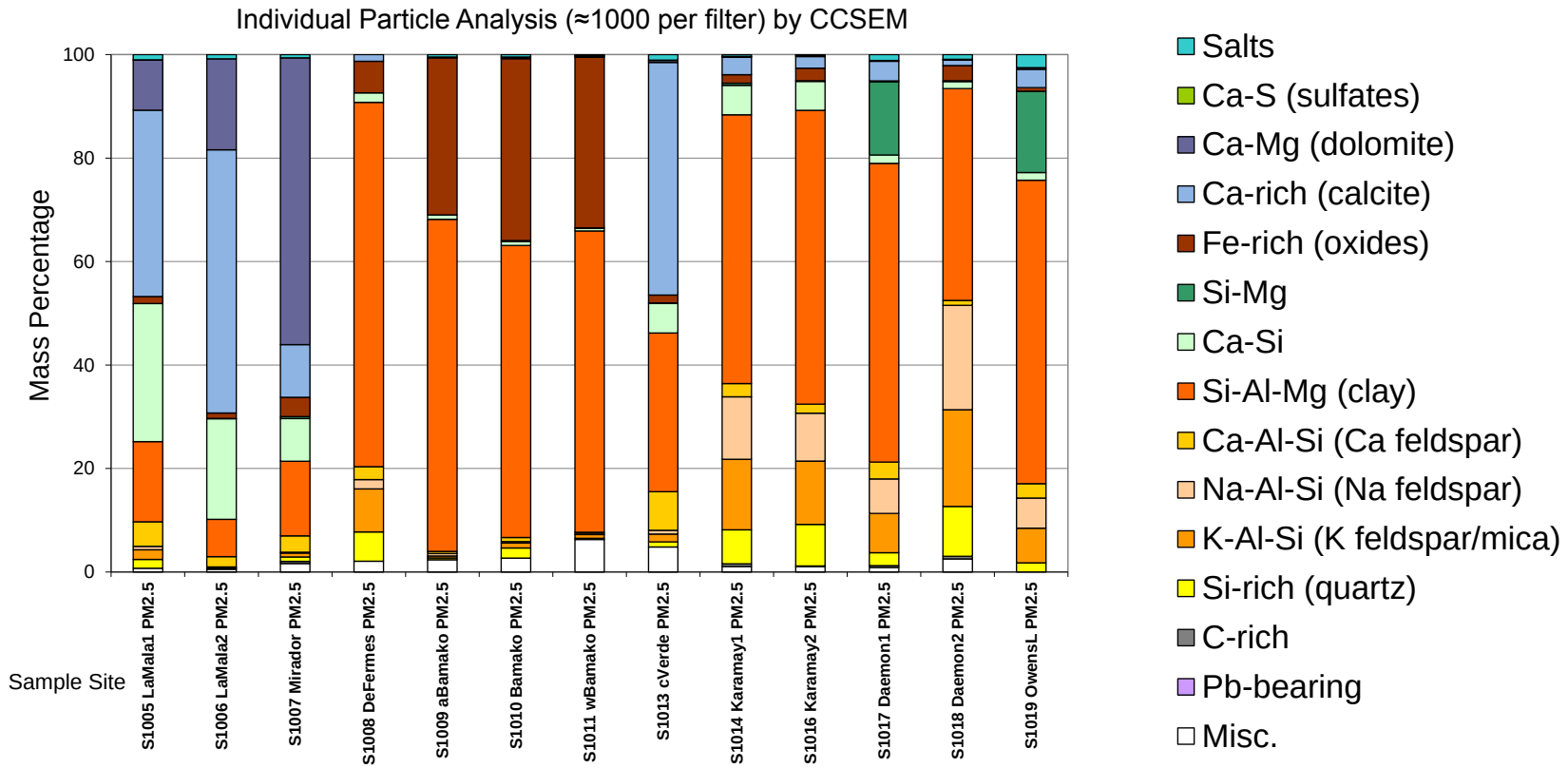
Average weight percentage of approximately 1,000 individual particles per sample

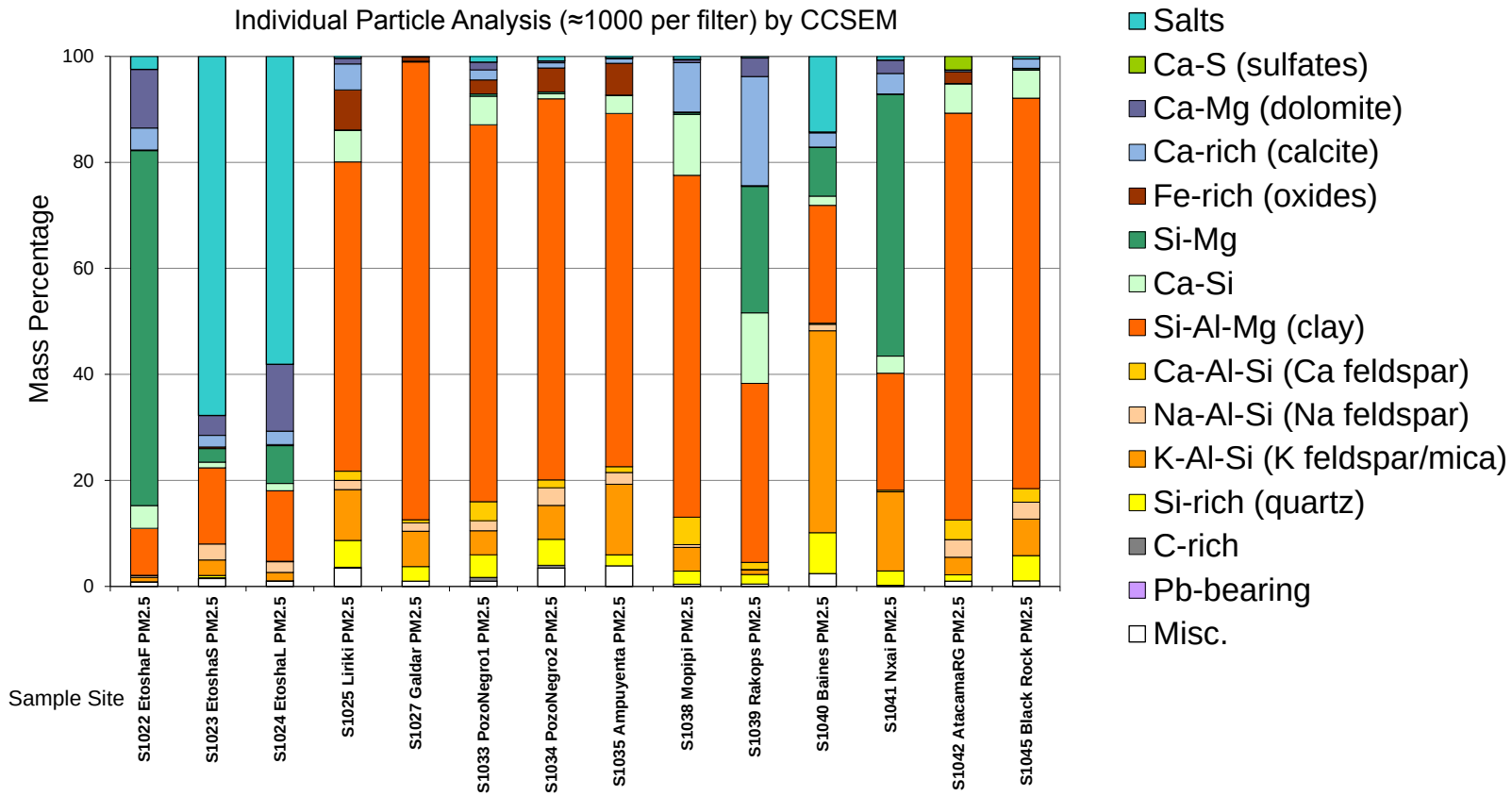
	S2001	S2002	S2003	S2004	S2005	S2006	S2007	S2008	S2009	S2010	S2011	S2012	S2013	S2014	S2015	S2016	S2017	S3003	S3004	S3008	S3011	S3016	S3017
Si-rich	1.3	4.0	12.0	1.2	0.5	3.5	1.2	2.5	4.8	5.2	1.2	1.3	1.5	2.2	5.5	2.2	1.7	3.2	1.0	3.6	4.2	1.3	4.1
Si/Al(Ca,Mg)	0.6	0.8	0.1	1.4	1.1	1.4	1.2	0.8		0.3	2.1	2.1	1.8	2.2	4.2	0.4	0.9	0.8	0.0	0.4	0.9	3.0	2.3
Si/Al(Ca,Mg,Fe)	2.7	3.4	0.4	3.6	2.9	3.2	12.2	1.5	2.0	7.7	1.0	2.7	15.1	9.2	11.7	1.6	4.1	0.3	1.1	1.2	0.6	1.2	1.1
Si/Al(Ca,Mg,K,Fe)	5.4	14.3	0.5	7.3	0.2	11.9	11.4	3.8	1.3	5.9	1.5	5.1	6.7	9.9	11.5	5.0	1.4	4.5	1.7	3.3	5.0	2.2	5.8
Si/Al(K,Fe)	0.1	3.3	1.6	0.1		0.0		0.0	0.3			0.7	0.1	0.0			1.2	0.3	2.1	0.5	5.5	0.0	0.0
Si/Al(Mg,Fe)	5.6	3.3	14.3	1.9	0.3	1.9	5.5	1.9	9.3	2.3	0.0	4.7	3.3	2.1	0.4	18.1	12.5	3.4	2.6	4.7	6.1	0.9	0.3
Si/Al(Mg,K)	0.8	1.3	0.6	2.8	0.6	3.9	0.2	1.9	2.5	0.8	1.9	3.4	1.1	0.7	1.1	10.5	2.4	14.9	8.5	5.6	1.5	2.6	2.8
Si/Al(Mg,K,Fe)	14.0	6.7	23.5	9.8	0.9	13.3	6.7	2.1	13.8	4.0	1.1	6.1	9.9	5.2	1.6	17.2	12.9	16.4	40.6	29.8	27.9	1.6	1.0
Si/Al/Ca	9.7	7.5	0.8	1.7	0.3	4.9	5.5	3.7	1.4	2.6	1.3	5.1	6.0	6.4	8.0	1.0	3.2	1.3	2.4	1.1	1.2	14.9	6.3
Si/Al/Fe	1.4	1.0	1.6	0.7		0.4	0.2	0.2	1.9	0.1		0.5	1.2	0.7	0.1	1.7	1.6	0.8	0.5	0.8	3.4	0.0	0.0
Si/Al/K	3.9	12.9	18.3	3.6	3.3	5.3	3.1	8.1	5.5	3.9	1.7	2.3	4.6	2.3	5.2	2.9	3.8	7.6	4.9	9.0	18.7	2.9	3.5
Si/Al/Mg	15.5	3.8	7.8	35.2	5.8	18.0	15.0	17.3	36.5	11.1	4.2	37.4	19.6	14.9	9.2	22.3	24.3	19.8	13.6	18.5	3.3	5.0	11.5
Si/Al/Na	1.2	1.1	3.5	1.0	0.1	1.1	0.2	1.4	0.8	2.2	0.5	2.6	1.2	1.4	2.4	1.9	1.4	3.9	1.7	0.8	2.6	0.3	0.5
Si/Al	0.2	4.8	4.7	1.1	0.0	2.0	0.6	0.6	2.7	1.4		0.3	0.8	0.7	0.8	1.2	1.6	2.8	5.7	6.5	7.3	0.4	0.5
Mixed Clays	8.8		2.9	2.7	2.1	0.2	4.0	2.6	1.6	3.2	1.6	0.1	2.7	4.0	3.0	2.8	12.0	7.1	10.8	7.7	6.6	1.5	5.2
Si/Mg	0.6	0.0	3.2	3.1	3.8	0.1	1.3	0.3	0.8	1.8	0.0	0.9	0.5	2.6	3.9	0.2	1.9	0.0				0.0	0.1
Si/Mg/Ca	0.1	0.3	0.0	0.3	1.3	0.1	0.5	0.4	0.1	0.3	1.8	0.4	0.4	2.1	1.4	0.0	0.2		0.0			0.0	0.0
Ca/Mg/Si	0.9	0.2	0.3	5.1	11.8	2.5	2.6	1.5	0.0	1.5	15.4	0.2	0.5	5.0	3.5	0.0	1.7	0.0			0.4	11.5	6.6
Ca-rich	7.8	2.9	0.6	1.4	23.0	3.7	3.3	27.7	4.1	26.2	8.3	2.7	5.8	7.0	5.6	3.2	3.0	5.8	0.2	0.4	0.8	17.7	15.9
Ca/Mg	0.2	0.0	0.0	0.4	32.9	0.4	0.4	0.1	0.4	1.4	54.1			2.4	1.2	0.0	1.6				1.8	6.0	0.5
Ca/Si/Al	3.4	9.4	0.7	1.4		1.4	6.3	2.4	0.9	1.7	0.1	1.7	2.6	1.1	1.8	1.4	0.8	3.0	0.9	2.7	0.6	4.6	2.1
Ca/Si	13.8	14.4	0.4	14.5	8.8	15.2	19.7	18.2	7.2	14.1	2.6	14.2	12.3	17.8	17.7	5.0	3.7	2.9	1.1	2.3	0.1	21.3	29.2
Ca/P	0.3		0.0	0.1	0.0	0.1	0.0	0.4	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.2	0.8	0.1
Fe/Si	0.9	1.0	1.7	0.2	0.8	0.8	0.1	0.1	0.3	0.6	0.6	0.4	0.4	0.1	0.3	1.1	0.5	0.8	0.3	0.3	0.8	0.1	0.1
Fe-rich	0.4		0.0	0.1				0.1	0.0	0.1	0.0			0.5		0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Na/S	0.0															0.0	0.0						
Na-rich																							
C-rich	0.0	0.0	0.5		0.1	0.0		0.0	0.1	0.1	0.0	0.2		0.0		0.0	0.0				0.0	0.0	
Misc.	0.2	0.5	0.4	0.1	1.0	0.8	0.1	1.5	0.1	3.1	0.4	2.2	0.4	0.4	0.6	0.4	1.7	0.3	0.0	0.8	0.6	0.0	0.3
Total	100.0	97.1	100.2	100.6	101.8	96.2	101.4	101.0	98.4	101.6	101.5	97.4	98.7	101.0	100.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Country\Region	**Djibouti\Lemonnier**	**Afghanistan\Bagram**	**Afghanistan\Khowst**	**Qatar\Doha**	**UAE\Al Udeid**	**Iraq\Balad**	**Iraq\Baghdad**	**Iraq\Tallil**	**Iraq\Tikrit**	**Iraq\Taji**	**Iraq\Al Asad**	**Kuwait\Buehring**	**Kuwait\Ali Al Salem**	**Kuwait\Shu Ayabah**	**Kuwait\Arifjan**	**Afghanistan\Leatherneck**	**Kuwait\Shu Ayabah**	**USA\Arizona**	**USA\Arizona**	**USA\Arizona**	**USA\Colorado**	**USA\Utah**	**USA\Utah**

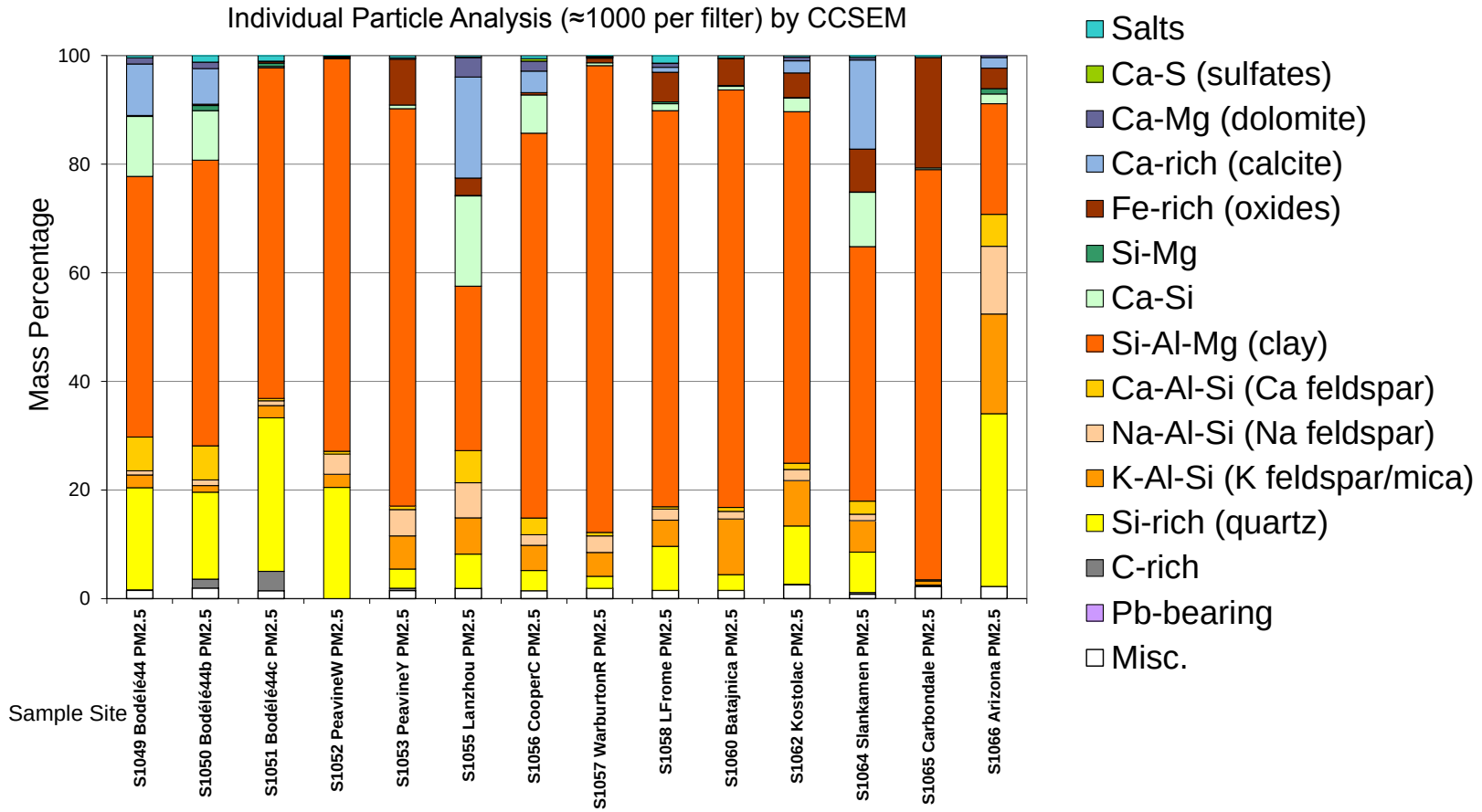
15 Chemical categories																							
Average weight percentage of approximately 1,000 individual particles per sample																							
	S1005	S1006	S1007	S1008	S1009	S1010	S1011	S1013	S1014	S1016	S1017	S1018	S1019	S1022	S1023	S1024	S1025	S1027	S1033	S1034	S1035	S1038
Si-rich (quartz)	2	0	1	6	0	2	0	1	7	8	3	10	2	0	0		5	3	4	5	2	2
K-Al-Si (K feldspar/mica)	2	0	1	8	0	1	1	2	14	12	8	19	7	1	3	2	10	7	5	6	13	4
Na-Al-Si (Na feldspar)	1	0	0	2	0	0	0	1	12	9	7	20	6	0	3	2	2	2	2	3	2	1
Ca-Al-Si (Ca feldspar)	5	2	3	3	0	1	0	7	3	2	3	1	3	0		0	2	1	4	1	1	5
Si-Al-Mg (clay)	15	7	14	70	64	56	58	31	52	57	58	41	59	9	14	13	58	86	71	72	67	64
Ca-Si	27	19	8	2	1	1	1	6	6	6	2	1	1	4	1	1	6	0	5	1	3	11
Si-Mg		0	0			0	0	0	0	0	14	0	16	67	3	7	0		0	0	0	0
Ca-rich (calcite)	36	51	10	1	0	0	0	45	3	2	4	1	4	4	2	3	5		2	1	1	9
Ca-Mg (dolomite)	10	18	55			0	0	0	0	0	0	0	0	11	4	13	1		1	0	0	1
Ca-S (sulfates)	0						0	0	0	0		0										0
Fe-rich (oxides)	1	1	4	6	30	35	33	2	2	2	0	3	1	0	0	0	8	1	3	4	6	0
Salts	1	1	1		0	0	0	1	0	0	1	1	3	2	68	58	0	0	1	1	0	1
Pb-bearing																						
C-rich			0						1	0	0	0			0	0	0		1	0		
Misc.	1	1	2	2	2	3	6	5	1	1	1	3		1	2	1	3	1	1	3	4	0
Totals	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Site PM	S1005 LaMala1 PM2.5	S1006 LaMala2 PM2.5	S1007 Mirador PM2.5	S1008 DeFemes PM2.5	S1009 aBamako PM2.5	S1010 Bamako PM2.5	S1011 wBamako PM2.5	S1013 cVerde PM2.5	S1014 Karamay1 PM2.5	S1016 Karamay2 PM2.5	S1017 Daemon1 PM2.5	S1018 Daemon2 PM2.5	S1019 OwensL PM2.5	S1022 EtoshaF PM2.5	S1023 EtoshaS PM2.5	S1024 EtoshaL PM2.5	S1025 Liriki PM2.5	S1027 Galdar PM2.5	S1033 PozoNegro1 PM2.5	S1034 PozoNegro2 PM2.5	S1035 Ampuyenta PM2.5	S1038 Mopipi PM2.5
Country\Region	Spain\Lanzarote	Spain\Lanzarote	Spain\Lanzarote	Spain\Lanzarote	Mali\Bamako	Mali\Bamako	Mali\Bamako	Cape Verde\Sal	China\Karamay	China\Karamay	China\Xinjiang	China\Xinjiang	USA\California	Namibia\Etosha	Namibia\Etosha	Namibia\Etosha	Morocco\Iriki	Spain\Gran Canaria	Spain\Fuerteventura	Spain\Fuerteventura	Spain\Fuerteventura	Botswana\Makgadikgadi

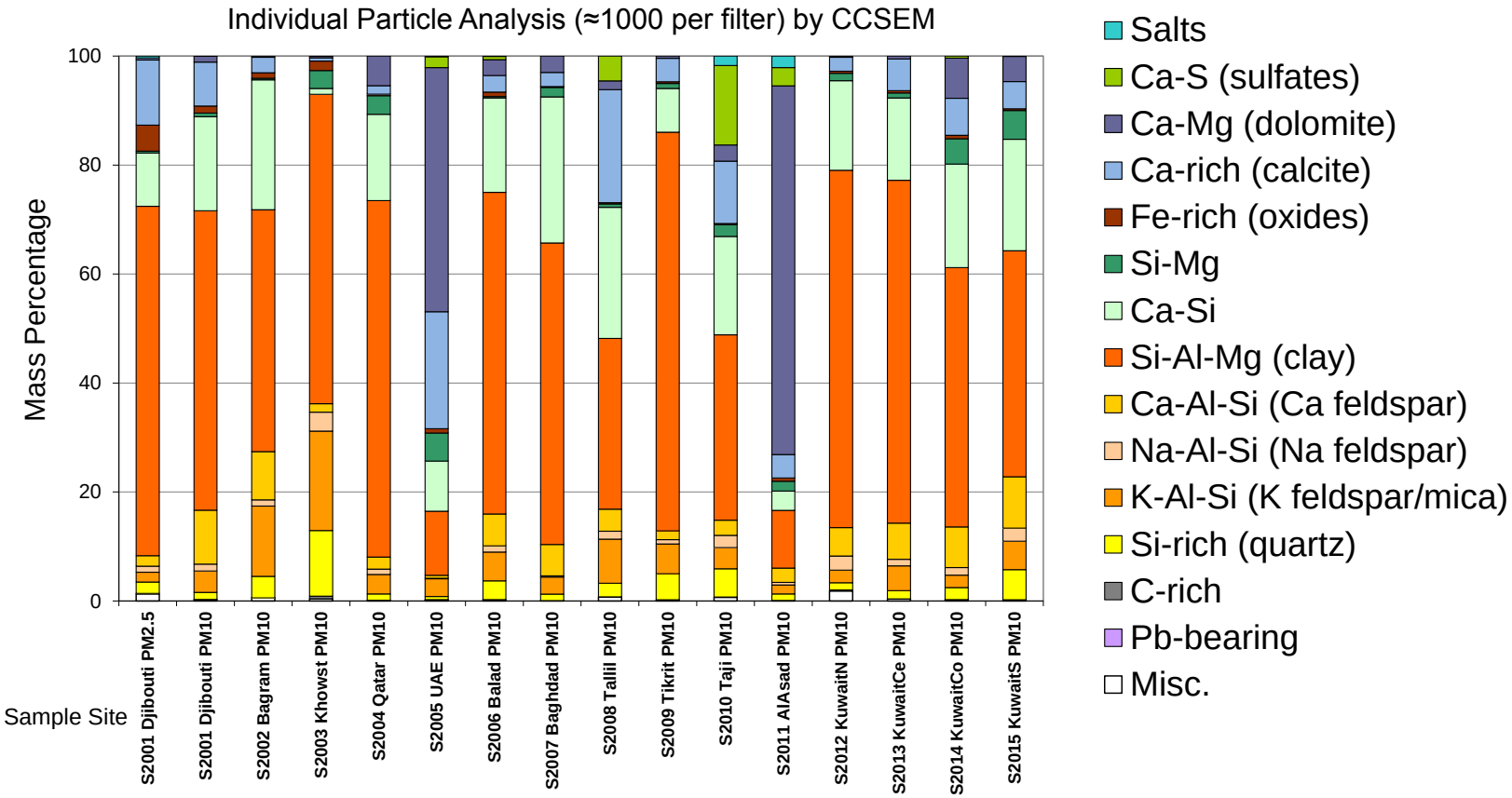
15 Chemical categories																							
Average weight percentage of approximately 1,000 individual particles per sample																							
	S1039	**S1040**	**S1041**	**S1042**	**S1045**	**S1049**	**S1050**	**S1051**	**S1052**	**S1053**	**S1055**	**S1056**	**S1057**	**S1058**	**S1060**	**S1062**	**S1064**	**S1065**	**S1066**	**S2001**	**S2001**	**S2002**
Si-rich (quartz)	2	8	3	1	5	19	16	28	21	4	6	4	2	8	3	11	7	0	32	2	1.3	4.0
K-Al-Si (K feldspar/mica)	1	38	15	3	7	2	1	2	2	6	7	5	4	5	10	8	6	1	18	2	3.9	12.9
Na-Al-Si (Na feldspar)	0	1		3	3	1	1	1	4	5	6	2	3	2	1	2	1	0	12	1	1.2	1.1
Ca-Al-Si (Ca feldspar)	1	0	0	4	3	6	6	0	1	1	6	3	1	0	1	1	2		6	2	9.9	8.9
Si-Al-Mg (clay)	34	22	22	77	74	48	53	61	72	73	30	71	86	73	77	65	47	75	20	64	54.9	44.4
Ca-Si	13	2	3	6	5	11	9	0	0	1	17	7	0	1	1	3	10	0	2	10	17.3	23.8
Si-Mg	24	9	49	0	0	0	1	1	0		0			0	0	0	0		1	0	0.7	0.3
Ca-rich (calcite)	21	3	4	0	2	9	7			0	19	4	0	1	0	2	16		2	12	8.1	2.9
Ca-Mg (dolomite)	4	0	2			1	1	0		0	4	2	0	1	0	1	0		0	0	1.1	0.2
Ca-S (sulfates)				3							0	0	0	0							0.0	0.0
Fe-rich (oxides)	0	0	0	2	0	0	0	0	0	8	3	0	1	5	5	5	8	20	4	5	1.3	1.0
Salts	0	14	1		0	0	1	1	0	0	0	1	0	1	0	0	0	0		0	0.0	0.0
Pb-bearing																					0.0	0.0
C-rich						0	2	4		0						0	0	0		0	0.0	0.0
Misc.	0	2	0	1	1	2	2	1		2	2	1	2	2	2	3	1	2	2	1	0.2	0.5
Totals	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Site PM	**S1039 Rakops PM2.5**	**S1040 Baines PM2.5**	**S1041 Nxai PM2.5**	**S1042 AtacamaRG PM2.5**	**S1045 Black Rock PM2.5**	**S1049 Bodélé44 PM2.5**	**S1050 Bodélé44b PM2.5**	**S1051 Bodélé44c PM2.5**	**S1052 PeavineW PM2.5**	**S1053 PeavineY PM2.5**	**S1055 Lanzhou PM2.5**	**S1056 CooperC PM2.5**	**S1057 WarburtonR PM2.5**	**S1058 LFrome PM2.5**	**S1060 Batajnica PM2.5**	**S1062 Kostolac PM2.5**	**S1064 Slankamen PM2.5**	**S1065 Carbondale PM2.5**	**S1066 Arizona PM2.5**	**S2001 Djibouti PM2.5**	**S2001 Djibouti PM10**	**S2002 Bagram PM10**
Country\Region	**Botswana\Makgadikgadi**	**Botswana\Baines**	**Botswana\Nxai**	**Chile\Atacama**	**USA\Nevada**	**Chad\Bodélé**	**Chad\Bodélé**	**Chad\Bodélé**	**USA\Nevada**	**USA\Nevada**	**China\Lanzhou**	**Australia\Eyre**	**Australia\Eyre**	**Australia\Frome**	**Serbia\Batajnica**	**Serbia\Kostolac**	**Serbia\Stari Slankamen**	**USA\California**	**USA\Arizona**	**Djibouti\Lemonnier**	**Djibouti\Lemonnier**	**Afghanistan\Bagram**

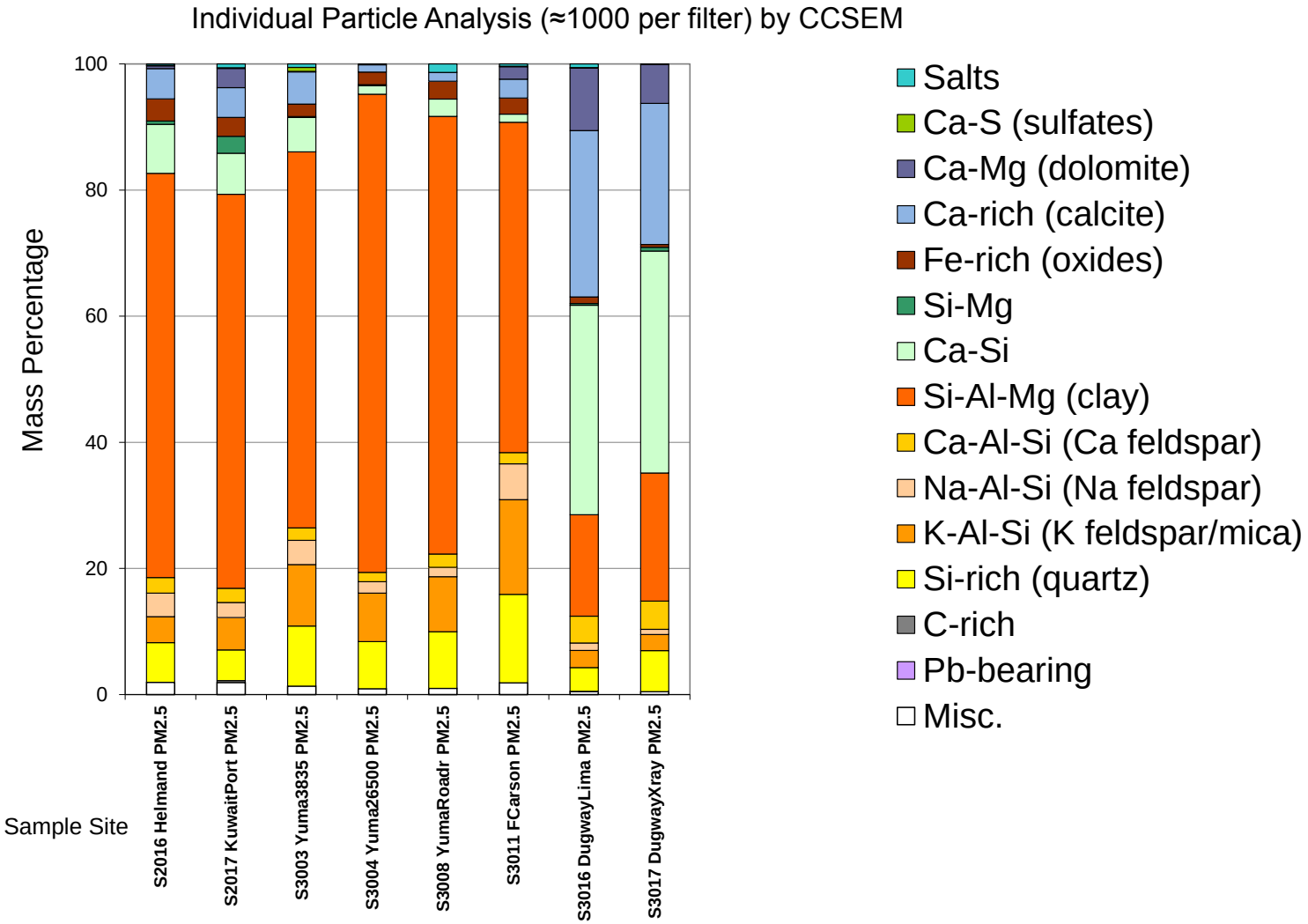
15 Chemical categories																					
Average weight percentage of approximately 1,000 individual particles per sample																					
	S2003	S2004	S2005	S2006	S2007	S2008	S2009	S2010	S2011	S2012	S2013	S2014	S2015	S2016	S2017	S3003	S3004	S3008	S3011	S3016	S3017
Si-rich (quartz)	12.0	1.2	0.5	3.5	1.2	2.5	4.8	5.2	1.2	1.3	1.5	2.2	5.5	6	5	10	7	9	14	4	6
K-Al-Si (K feldspar/mica)	18.3	3.6	3.3	5.3	3.1	8.1	5.5	3.9	1.7	2.3	4.6	2.3	5.2	4	5	10	8	9	15	3	3
Na-Al-Si (Na feldspar)	3.5	1.0	0.1	1.1	0.2	1.4	0.8	2.2	0.5	2.6	1.2	1.4	2.4	4	2	4	2	1	6	1	1
Ca-Al-Si (Ca feldspar)	1.5	2.2	0.6	5.9	5.8	4.1	1.6	2.8	2.6	5.2	6.6	7.5	9.4	2	2	2	2	2	2	4	4
Si-Al-Mg (clay)	56.8	65.4	11.8	59.0	55.3	31.3	73.2	34.0	10.6	65.6	62.9	47.6	41.5	64	62	60	76	69	52	16	20
Ca-Si	1.1	15.9	9.2	17.3	26.8	24.1	8.0	18.0	3.6	16.4	15.1	19.0	20.4	8	7	5	1	3	1	33	35
Si-Mg	3.3	3.4	5.2	0.2	1.8	0.6	0.9	2.2	1.8	1.3	0.9	4.7	5.3	1	3	0	0			0	1
Ca-rich (calcite)	0.6	1.6	21.5	3.0	2.6	20.7	4.3	11.4	4.3	2.5	5.8	6.8	5.0	5	5	5	1	1	3	26	22
Ca-Mg (dolomite)	0.3	5.4	44.8	2.9	3.0	1.6	0.4	3.0	67.7	0.2	0.5	7.4	4.6	0	3	0			2	10	6
Ca-S (sulfates)	0.0	0.0	2.0	0.6	0.0	4.5	0.0	14.6	3.4	0.0	0.0	0.4	0.0	0	0	1			0	0	
Fe-rich (oxides)	1.7	0.3	0.8	0.8	0.1	0.2	0.3	0.2	0.6	0.4	0.4	0.6	0.3	4	3	2	2	3	3	1	0
Salts	0.0	0.0	0.1	0.1	0.0	0.0	0.0	1.7	2.1	0.0	0.0	0.0	0.0	0	1	1	0	1	0	1	0
Pb-bearing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
C-rich	0.5	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0		0					0	
Misc.	0.4	0.1	0.2	0.2	0.1	0.7	0.1	0.7	0.1	1.8	0.4	0.2	0.2	2	2	1	1	1	2	0	0
Totals	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Site PM	S2003 Khowst PM10	S2004 Qatar PM10	S2005 UAE PM10	S2006 Balad PM10	S2007 Baghdad PM10	S2008 Tallil PM10	S2009 Tikrit PM10	S2010 Taji PM10	S2011 AlAsad PM10	S2012 KuwaitN PM10	S2013 KuwaitCe PM10	S2014 KuwaitCo PM10	S2015 KuwaitS PM10	S2016 Helmand PM2.5	S2017 KuwaitPort PM2.5	S3003 Yuma3835 PM2.5	S3004 Yuma26500 PM2.5	S3008 YumaRoadr PM2.5	S3011 FCarson PM2.5	S3016 DugwayLima PM2.5	S3017 DugwayXray PM2.5
Country\Region	Afghanistan\Khowst	Qatar\Doha	UAE\Al Udeid	Iraq\Balad	Iraq\Baghdad	Iraq\Tallil	Iraq\Tikrit	Iraq\Taji	Iraq\Al Asad	Kuwait\Buehring	Kuwait\Ali Al Salem	Kuwait\Shu Ayabah	Kuwait\Arifjan	Afghanistan\Leatherneck	Kuwait\Shu Ayabah	USA\Arizona	USA\Arizona	USA\Arizona	USA\Colorado	USA\Utah	USA\Utah


Individual Particle Analysis (≈1000 per filter) by CCSEM
Mass Percentage
100
80
60
40
20
0
Sample Site
S1005 LaMala1 PM2.5
S1006 LaMala2 PM2.5
S1007 Mirador PM2.5
S1008 DeFermes PM2.5
S1009 aBamako PM2.5
S1010 Bamako PM2.5
S1011 wBamako PM2.5
S1013 cVerde PM2.5
S1014 Karamay1 PM2.5
S1016 Karamay2 PM2.5
S1017 Daemon1 PM2.5
S1018 Daemon2 PM2.5
S1019 OwensL PM2.5
Salts
Ca-S (sulfates)
Ca-Mg (dolomite)
Ca-rich (calcite)
Fe-rich (oxides)
Si-Mg
Ca-Si
Si-Al-Mg (clay)
Ca-Al-Si (Ca feldspar)
Na-Al-Si (Na feldspar)
K-Al-Si (K feldspar/mica)
Si-rich (quartz)
C-rich
Pb-bearing
Misc.


Individual Particle Analysis (≈1000 per filter) by CCSEM
Mass Percentage
100
80
60
40
20
0
Sample Site
S1022 EtoshaF PM2.5
S1023 EtoshaS PM2.5
S1024 EtoshaL PM2.5
S1025 Liriki PM2.5
S1027 Galdar PM2.5
S1033 PozoNegro1 PM2.5
S1034 PozoNegro2 PM2.5
S1035 Ampuyenta PM2.5
S1038 Mopipi PM2.5
S1039 Rakops PM2.5
S1040 Baines PM2.5
S1041 Nxai PM2.5
S1042 AtacamaRG PM2.5
S1045 Black Rock PM2.5
Salts
Ca-S (sulfates)
Ca-Mg (dolomite)
Ca-rich (calcite)
Fe-rich (oxides)
Si-Mg
Ca-Si
Si-Al-Mg (clay)
Ca-Al-Si (Ca feldspar)
Na-Al-Si (Na feldspar)
K-Al-Si (K feldspar/mica)
Si-rich (quartz)
C-rich
Pb-bearing
Misc.

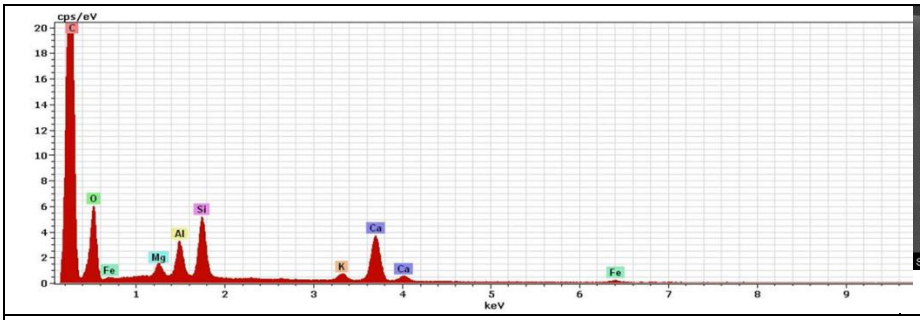

Individual Particle Analysis (≈1000 per filter) by CCSEM
Mass Percentage
100
80
60
40
20
0
Sample Site
S1049 Bodélé44 PM2.5
S1050 Bodélé44b PM2.5
S1051 Bodélé44c PM2.5
S1052 PeavineW PM2.5
S1053 PeavineY PM2.5
S1055 Lanzhou PM2.5
S1056 CooperC PM2.5
S1057 WarburtonR PM2.5
S1058 LFrome PM2.5
S1060 Batajnica PM2.5
S1062 Kostolac PM2.5
S1064 Slankamen PM2.5
S1065 Carbondale PM2.5
S1066 Arizona PM2.5
Salts
Ca-S (sulfates)
Ca-Mg (dolomite)
Ca-rich (calcite)
Fe-rich (oxides)
Si-Mg
Ca-Si
Si-Al-Mg (clay)
Ca-Al-Si (Ca feldspar)
Na-Al-Si (Na feldspar)
K-Al-Si (K feldspar/mica)
Si-rich (quartz)
C-rich
Pb-bearing
Misc.

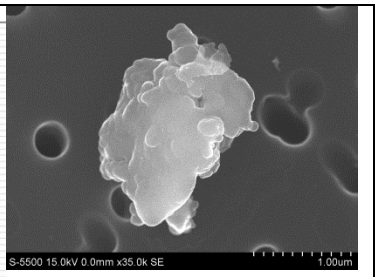

Individual Particle Analysis (≈1000 per filter) by CCSEM
Mass Percentage
100
80
60
40
20
0
Sample Site
S2001 Djibouti PM2.5
S2001 Djibouti PM10
S2002 Bagram PM10
S2003 Khowst PM10
S2004 Qatar PM10
S2005 UAE PM10
S2006 Balad PM10
S2007 Baghdad PM10
S2008 Tallil PM10
S2009 Tikrit PM10
S2010 Taji PM10
S2011 AlAsad PM10
S2012 KuwaitN PM10
S2013 KuwaitCe PM10
S2014 KuwaitCo PM10
S2015 KuwaitS PM10
Salts
Ca-S (sulfates)
Ca-Mg (dolomite)
Ca-rich (calcite)
Fe-rich (oxides)
Si-Mg
Ca-Si
Si-Al-Mg (clay)
Ca-Al-Si (Ca feldspar)
Na-Al-Si (Na feldspar)
K-Al-Si (K feldspar/mica)
Si-rich (quartz)
C-rich
Pb-bearing
Misc.


Individual Particle Analysis (≈1000 per filter) by CCSEM
Mass Percentage
100
80
60
40
20
0
S2016 Helmand PM2.5
S2017 KuwaitPort PM2.5
S3003 Yuma3835 PM2.5
S3004 Yuma26500 PM2.5
S3008 YumaRoadr PM2.5
S3011 FCarson PM2.5
S3016 DugwayLima PM2.5
S3017 DugwayXray PM2.5
Sample Site
Salts
Ca-S (sulfates)
Ca-Mg (dolomite)
Ca-rich (calcite)
Fe-rich (oxides)
Si-Mg
Ca-Si
Si-Al-Mg (clay)
Ca-Al-Si (Ca feldspar)
Na-Al-Si (Na feldspar)
K-Al-Si (K feldspar/mica)
Si-rich (quartz)
C-rich
Pb-bearing
Misc.

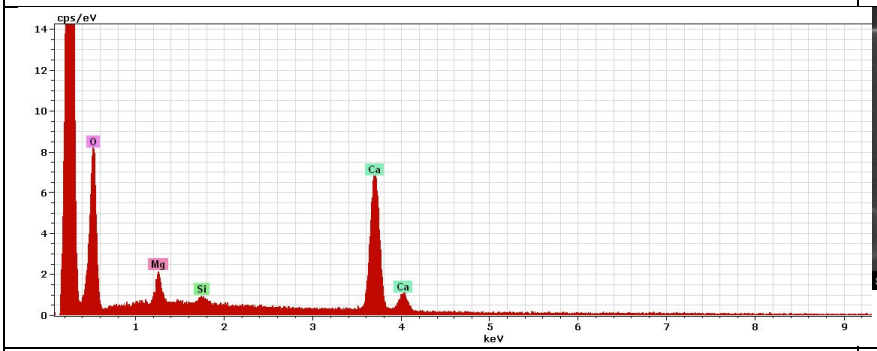
Scanning Electron Microscopically (SEM) measured Aspect Ratios on $PM_{2.5}$ samples

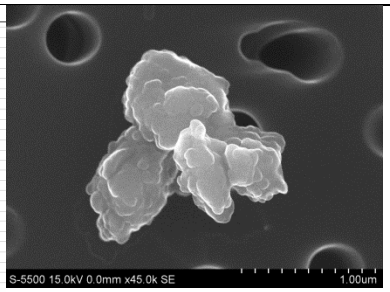
Sample #	Country	Number of Particles	Min	Max	Ave	Median	Mode	Geom Mean	Std Dev
S1005	Spain - Las Canarias - Lanzarote	1395	1.000	3.754	1.496	1.402	1.333	1.456	0.381
S1006	Spain - Las Canarias - Lanzarote	1349	1.000	3.875	1.492	1.408	1.500	1.457	0.350
S1007	Spain - Las Canarias - Lanzarote	1417	1.000	4.142	1.538	1.428	1.333	1.489	0.427
S1008	Spain - Las Canarias - Lanzarote	1396	1.000	5.286	1.505	1.399	1.167	1.460	0.420
S1009	Mali	1263	1.000	5.300	1.555	1.459	1.333	1.507	0.426
S1010	Mali	1275	1.004	3.922	1.510	1.426	1.500	1.469	0.383
S1011	Mali	1353	1.000	5.014	1.501	1.408	1.250	1.460	0.380
S1013	Cape Verde	1392	1.008	4.160	1.448	1.366	1.500	1.415	0.336
S1014	China	2336	1.000	4.570	1.499	1.419	1.500	1.446	0.364
S1016	China	2405	1.000	4.035	1.458	1.372	1.125	1.405	0.352
S1017	China	1318	1.000	4.525	1.518	1.425	2.000	1.473	0.411
S1018	China	2418	1.000	6.711	1.460	1.366	1.333	1.407	0.394
S1019	USA	1302	1.005	5.285	1.547	1.431	1.172	1.494	0.462
S1022	Namibia	1331	1.000	3.833	1.561	1.449	1.333	1.510	0.434
S1023	Namibia	1400	1.000	3.922	1.498	1.398	1.500	1.457	0.384
S1024	Namibia	1389	1.000	4.024	1.562	1.465	1.156	1.514	0.427
S1025	Morocco	1328	1.008	5.461	1.542	1.441	1.500	1.493	0.445
S1027	Spain - Las Canarias - Gran Canaria	1383	1.000	3.691	1.552	1.454	1.500	1.506	0.411
S1033	Spain - Las Canarias - Fuerteventura	1186	1.000	5.232	1.569	1.411	1.500	1.497	0.571
S1034	Spain - Las Canarias - Fuerteventura	1826	1.006	8.500	1.699	1.458	2.000	1.586	0.771
S1035	Spain - Las Canarias - Fuerteventura	1355	1.000	6.771	1.513	1.404	1.200	1.464	0.460
S1038	Botswana	1340	1.000	3.815	1.521	1.432	1.333	1.478	0.400
S1039	Botswana	1279	1.000	5.333	1.574	1.476	1.333	1.522	0.453
S1040	Botswana	1392	1.000	4.227	1.491	1.379	1.500	1.447	0.402
S1041	Botswana	1324	1.002	4.848	1.479	1.365	1.167	1.436	0.400
S1042	Chile	1267	1.000	4.687	1.604	1.473	1.333	1.544	0.482
S1045	USA	1408	1.000	3.713	1.481	1.395	1.500	1.443	0.362
S1049	Chad	1162	1.000	5.213	1.692	1.571	2.000	1.622	0.536
S1050	Chad	1164	1.002	10.200	1.791	1.580	2.000	1.685	0.753
S1051	Chad	1157	1.000	7.859	1.826	1.580	2.000	1.698	0.833
S1052	USA	1132	1.000	7.222	1.726	1.550	1.333	1.630	0.688
S1053	USA	2394	1.000	4.467	1.464	1.375	1.250	1.411	0.358
S1055	China	1316	1.000	6.889	1.548	1.441	2.000	1.495	0.477
S1056	Australia	1365	1.000	5.133	1.525	1.406	1.286	1.476	0.433
S1057	Australia	1408	1.005	3.562	1.473	1.405	1.500	1.440	0.332
S1058	Australia	1431	1.000	4.671	1.478	1.377	1.333	1.439	0.376
S1060	Serbia	1357	1.000	3.414	1.508	1.413	1.333	1.466	0.385
S1062	Serbia	1315	1.000	9.629	1.568	1.442	1.333	1.505	0.542
S1064	Serbia	1330	1.010	4.125	1.489	1.387	1.250	1.446	0.396
S1065	USA	1318	1.000	4.200	1.523	1.429	1.667	1.478	0.416
S1066	USA	1331	1.000	4.807	1.679	1.569	2.000	1.616	0.502
S2001	Djibouti	1382	1.000	4.208	1.484	1.374	1.500	1.442	0.392
S2016	Afghanistan	1338	1.000	10.346	1.539	1.415	1.500	1.482	0.522
S2017	Kuwait	2345	1.000	5.934	1.476	1.384	1.500	1.434	0.406
S3003	USA	1428	1.003	3.576	1.496	1.394	1.500	1.455	0.386
S3004	USA	1393	1.000	3.479	1.510	1.420	2.000	1.469	0.383
S3008	USA	1418	1.000	6.300	1.554	1.440	1.250	1.499	0.477
S3011	USA	1405	1.000	6.573	1.501	1.394	1.250	1.456	0.424
S3016	USA	1361	1.000	5.121	1.601	1.483	1.333	1.546	0.462
S3017	USA	1324	1.000	5.115	1.593	1.479	1.250	1.536	0.474
Average		1448	1.001	5.214	1.544	1.432	1.465	1.491	0.449
Min		1132	1	3.414	1.4483	1.365	1.125	1.41	0.332
Max		2418	1.01	10.346	1.82608	1.58	2	1.70	0.833



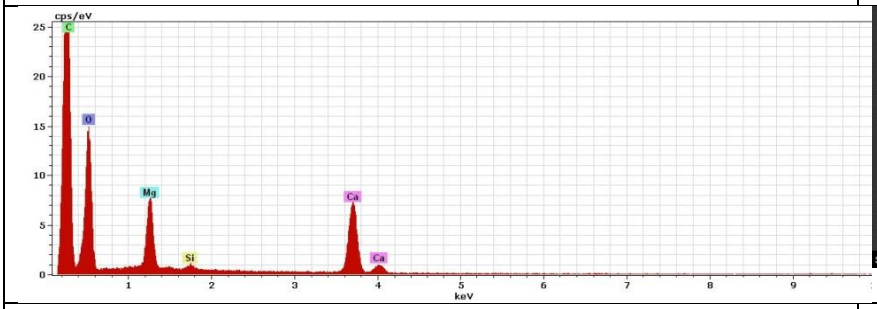


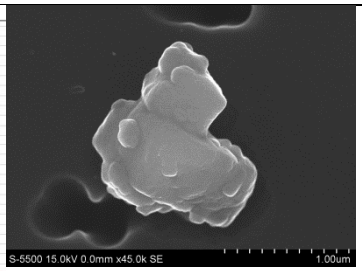
Sample S1005: Las Canarias, Lanzarote Island. Composite particle of clay (illite) (Mg, Al, Si, K, Fe) on calcite (Ca)



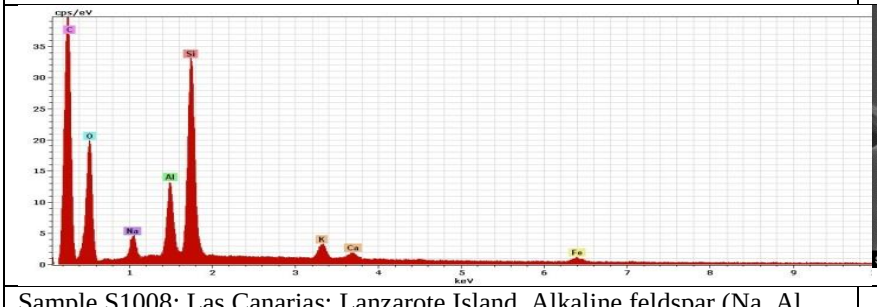


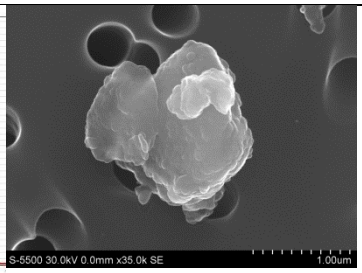
Sample S1006: Las Canarias: Lanzarote Island. Calcite (Ca) particle with some dolomite (Ca, Mg) and trace of a silicate (Si) mineral



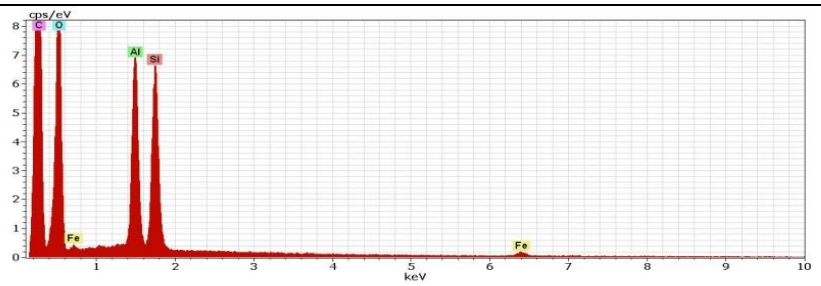


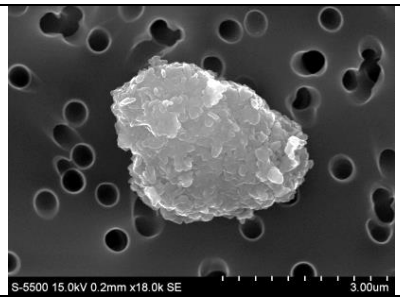
Sample S1007: Las Canarias: Lanzarote Island. Dolomite (Mg, Ca) particle with traces of silicate mineral (Si)



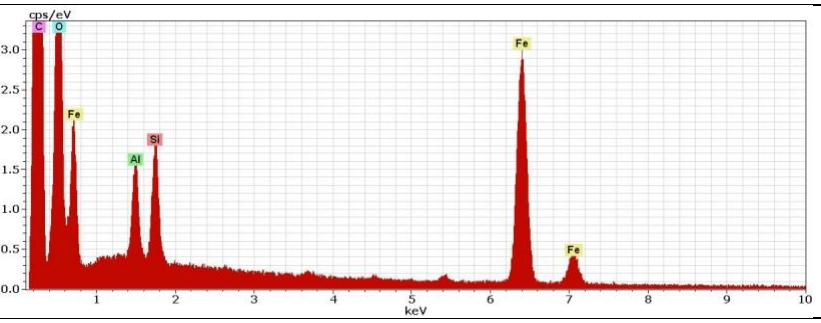


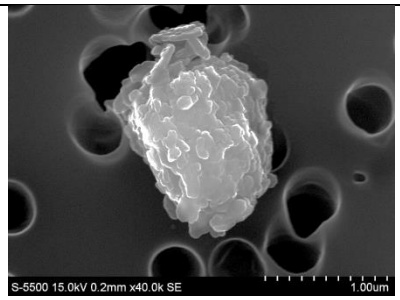
Sample S1008: Las Canarias: Lanzarote Island. Alkaline feldspar (Na, Al, Si, K, Ca, Fe), (albite plagioclase) particle



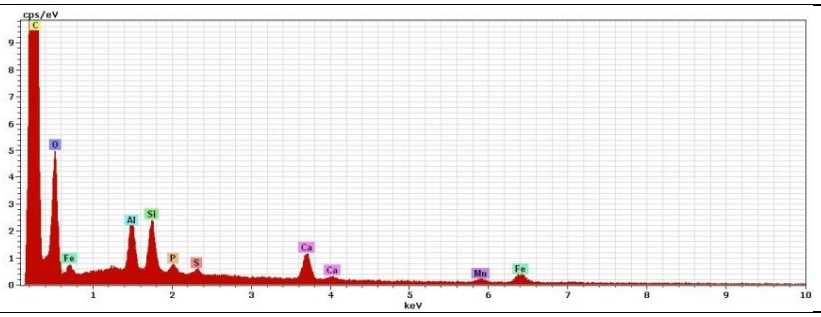


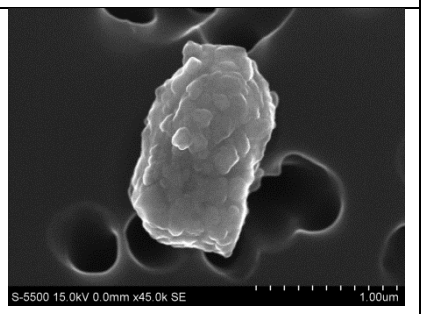
Sample S1009: Mali, Bamako. Particle of polycrystalline kaolinite (Al, Si) with trace of iron (Fe), possible goethite or hematite



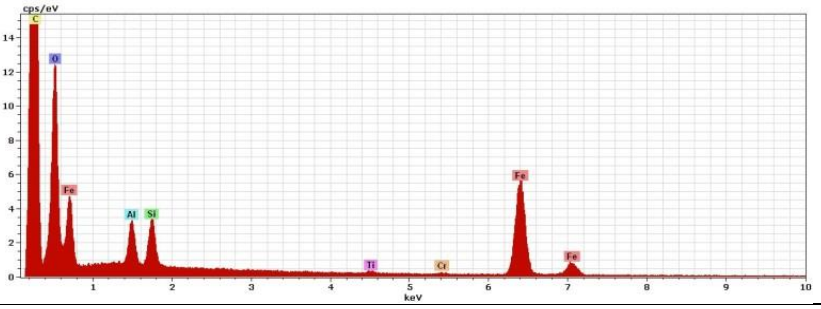


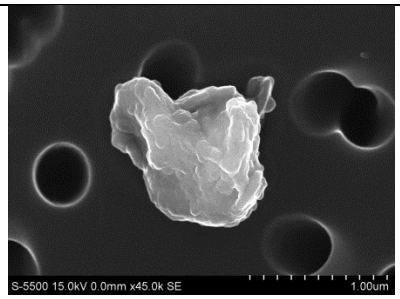
Sample S1009: Mali, Bamako. Composite particle of kaolinite (Al, Si) and iron oxide (Fe), possibly goethite or hematite



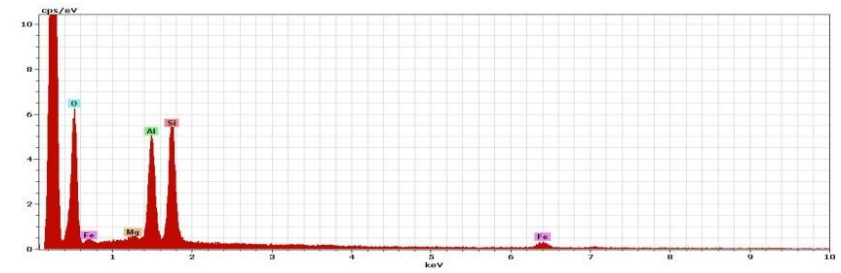


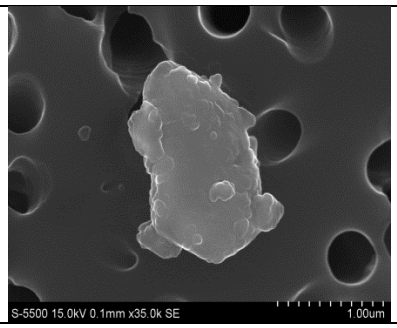
Sample S1010: Mali, Bamako. Composite particle of several possible minerals, including kaolinite (Al, Si), calcite (Ca), apatite (Ca, P), gypsum (Ca, S), iron oxide (Fe), possibly goethite or hematite, and manganese oxides (Mn)



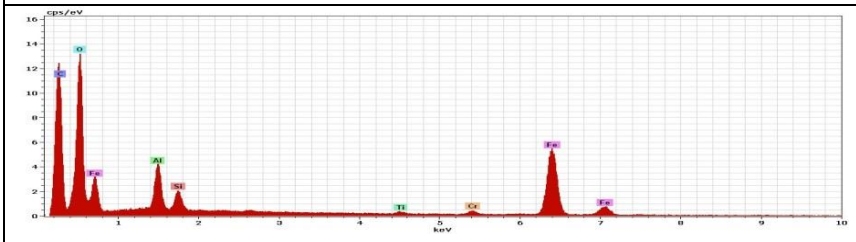


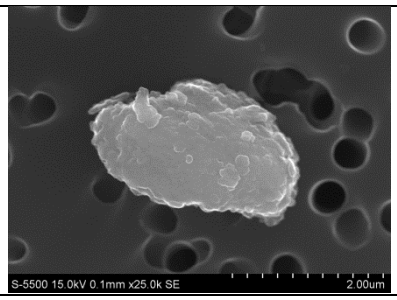
Sample S1010: Mali, Bamako. Composite particle of kaolinite (Al, Si) and iron oxide (Fe), possibly goethite or hematite, with traces of titanium (Ti) and chromium (Cr)



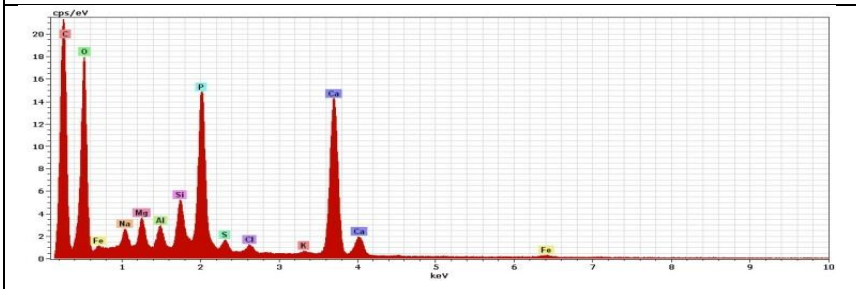


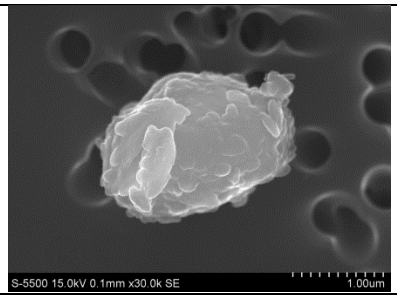
Sample S1011: Mali, West Bamako. Particle of kaolinite (Al, Si) with minor amounts of iron oxide (Fe), possibly goethite or hematite and montmorillonite (Mg, Al, Si)



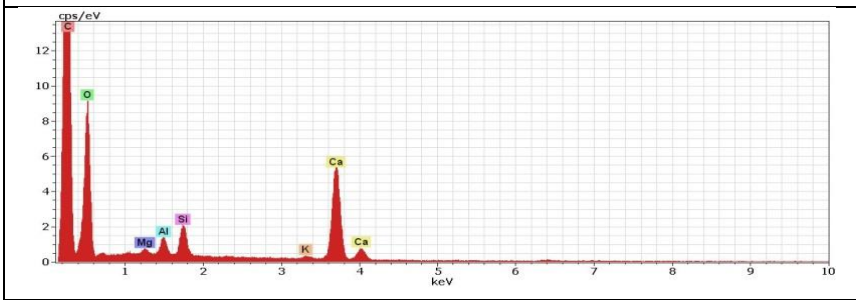


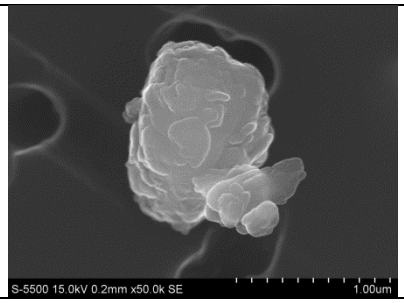
Sample S1011: Mali, West Bamako. Composite particle of kaolinite (Al, Si), possibly a bauxite mineral gibbsite (Al), and iron oxide (Fe), goethite or hematite, with traces of titanium (Ti) and chromium (Cr)



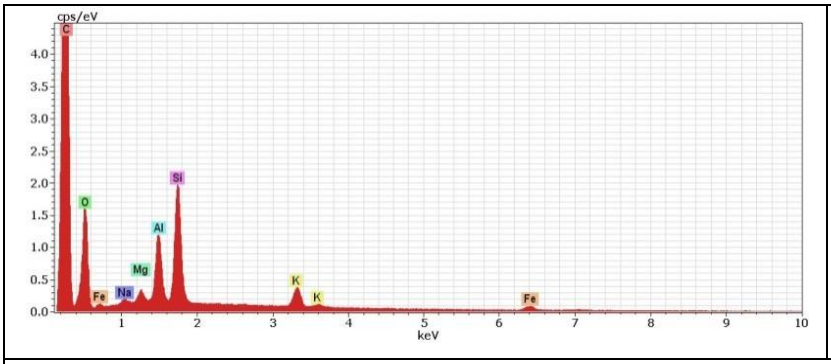


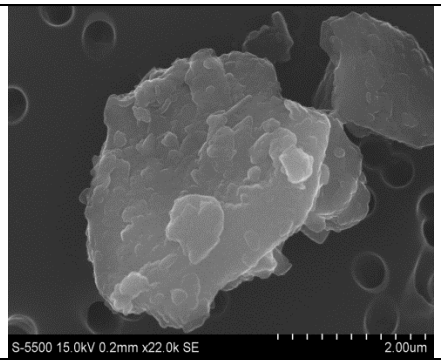
Sample S1013: Cape Verde. Composite particle of apatite (Ca, P), with possible minor amounts of illite clay (Mg, Al, Si, K, Fe), gypsum (Ca, S), and halite (Na, Cl)



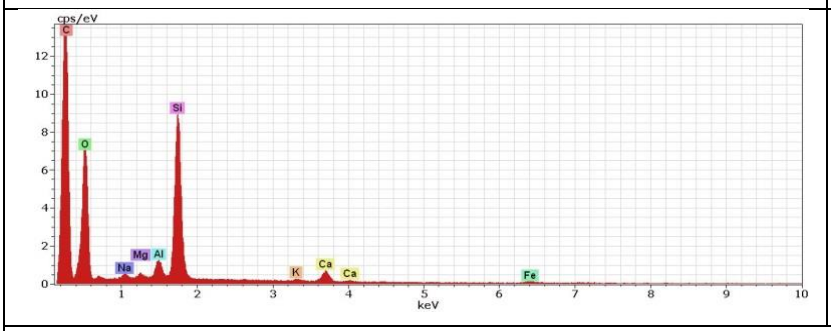


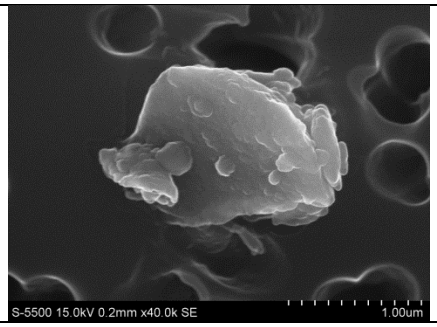
Sample S1014: NW China. Calcite (Ca) with surface coating of illite (Mg, Al, Si, K)



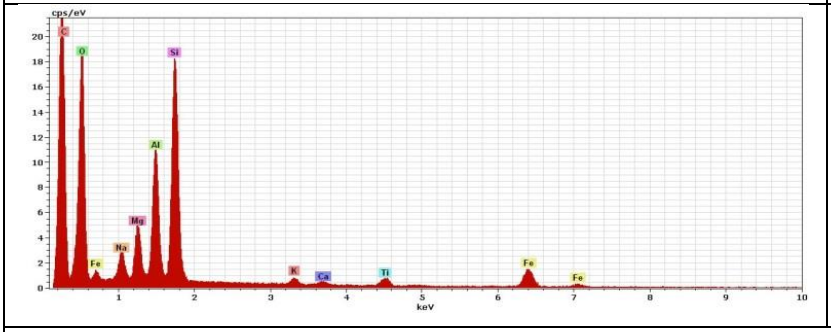


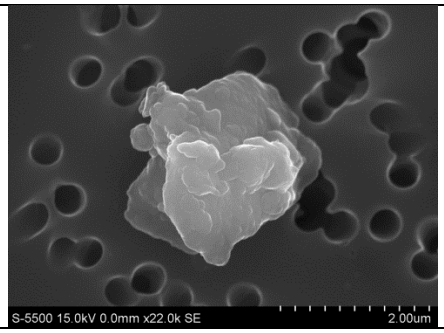
Sample S1014: NW China. Particle of the clay mineral illite (Mg, Al, Si, K, Fe) and trace of halite (Na)



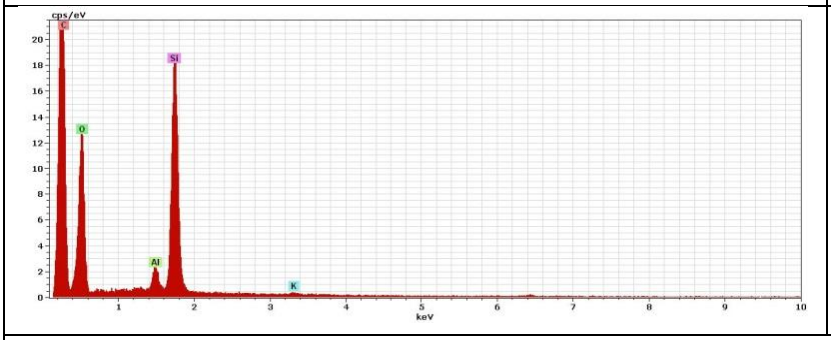


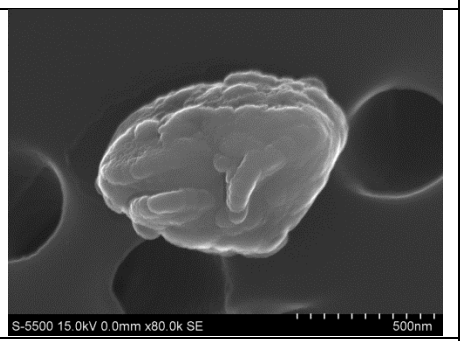
Sample S1014: NW China. Particle of the quartz (Si) with the clay mineral illite (Mg, Al, Si, K, Fe) and trace amounts of calcite (Ca) and halite (Na)



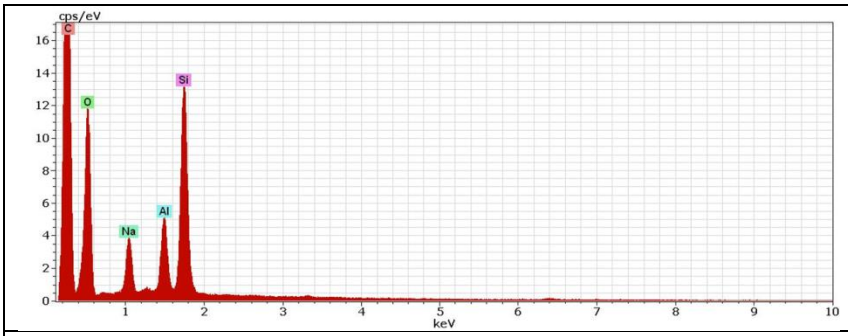


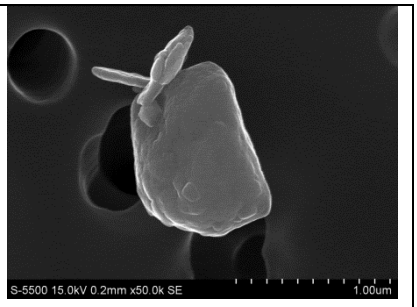
Sample S1016: NW China: Particle, possibly of the amphibole (hornblende) (Na, Mg, Al, Si, K, Ca, Ti, Fe) mixed with illite clay (Mg, Al, Si, K, Fe)



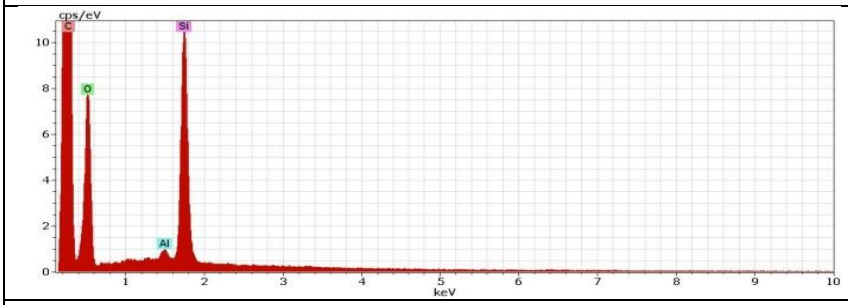


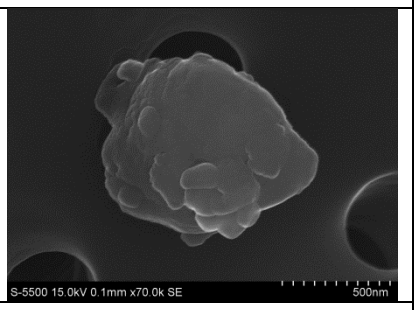
Sample S1016: NW China: Quartz (Si) particle with small amount of clay (Al, Si, K) attached



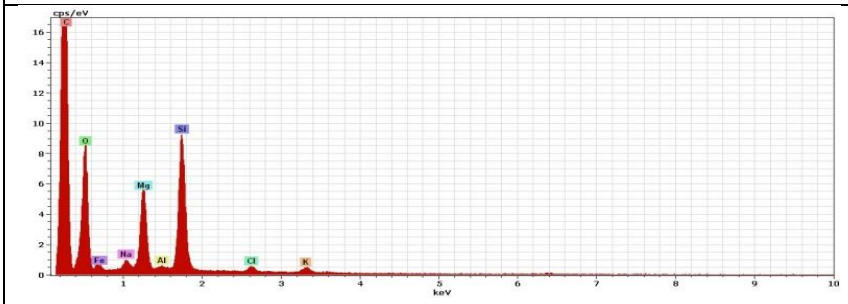


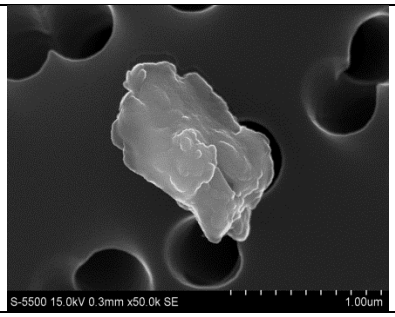
Sample S1017: NW China. Plagioclase feldspar (Na, Al, Si) with needles of undetermined phase



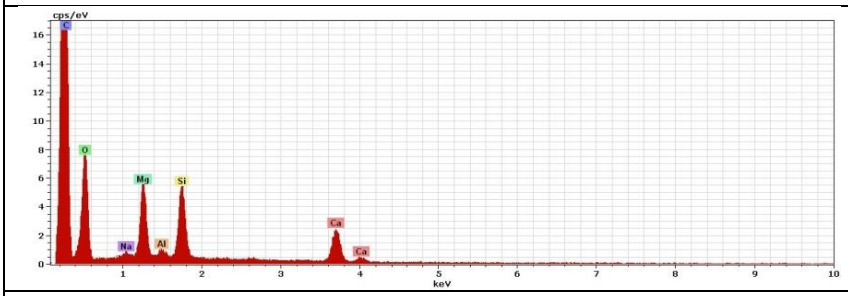


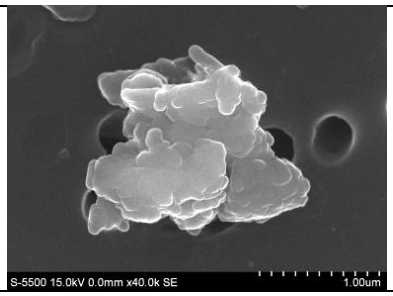
Sample S1018: NW China. Quartz particle (Si) with small amount of clay (Al)



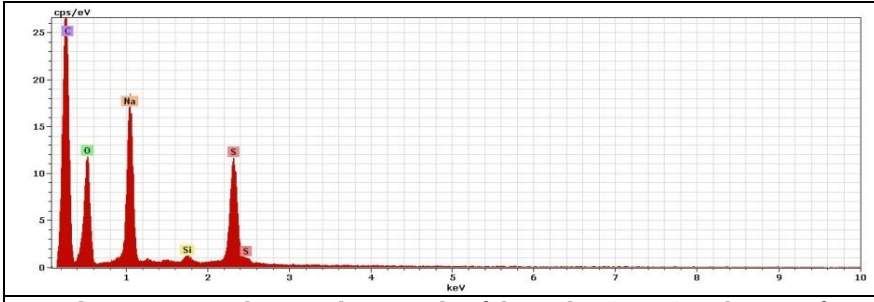


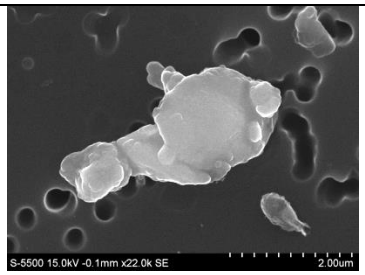
Sample S1019: USA, Owens Lake. Sepiolite or serpentine (Mg, Si) particle with traces of halite (Na, Cl) and illite clay (Mg, Al, Si, K, Fe)



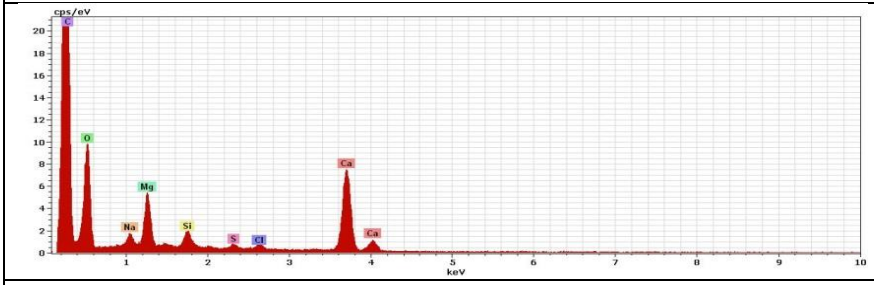


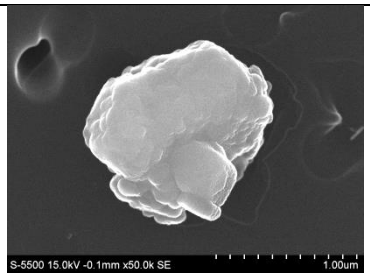
Sample S1022: Namibia, Etosha: Composite particle of sepiolite or serpentine (Mg, Si) and calcite (Ca), and/or dolomite (Mg, Ca) with traces of halite (Na) and clay (Al, Si)



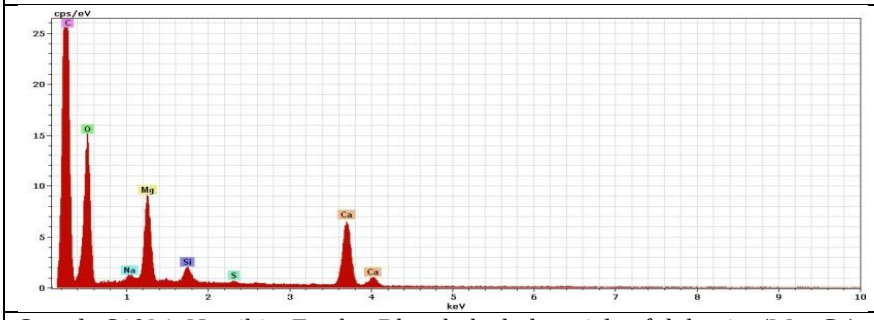


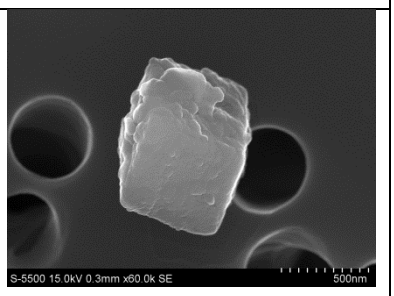
Sample S1023: Namibia, Etosha. Particle of thenardite (Na, S) with trace of quartz (Si)



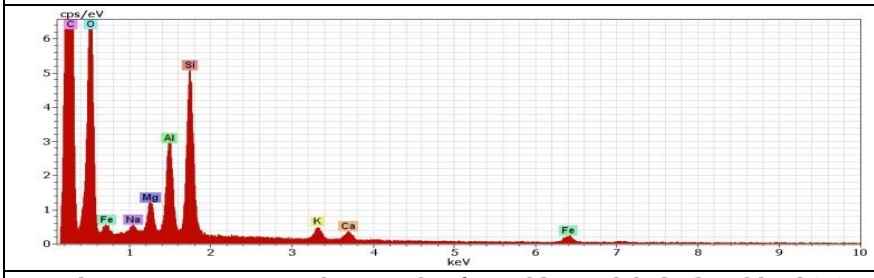


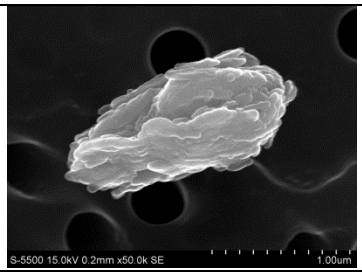
Sample S1023: Namibia, Etosha: Particle of dolomite (Mg, Ca) with traces of halite (Na, Cl) and of quartz (Si)



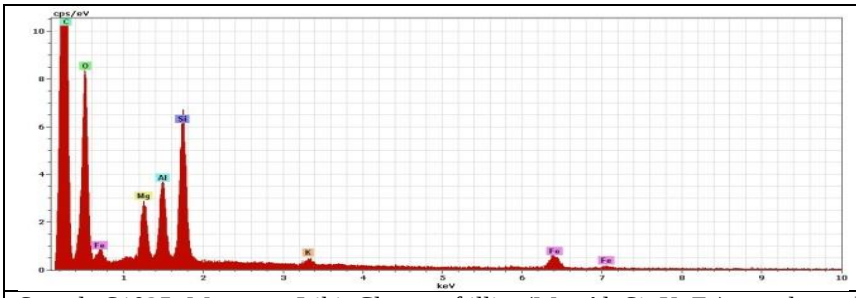


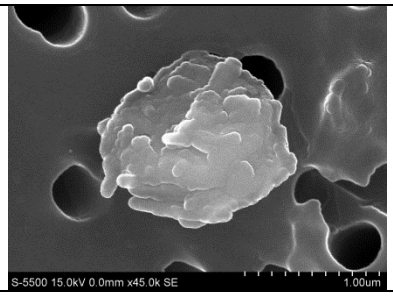
Sample S1024: Namibia, Etosha: Rhombohedral particle of dolomite (Mg, Ca) with traces of thenardite (Na, S) and quartz (Si)



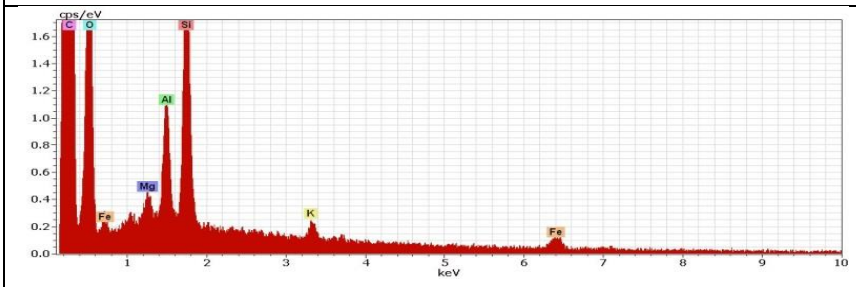


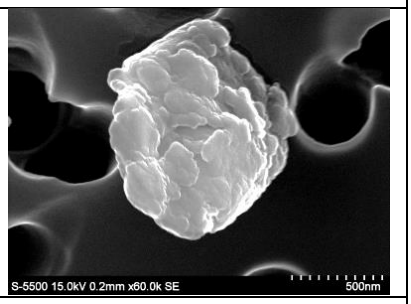
Sample S1025: Morocco, Iriki: Particle of possibly amphibole (hornblende) (Na, Mg, Al, Si, K, Ca, Fe)



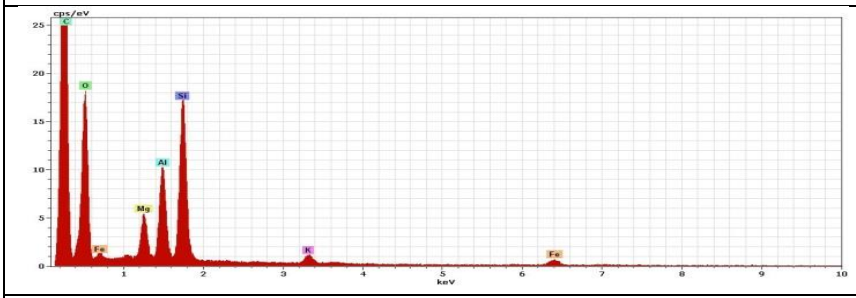


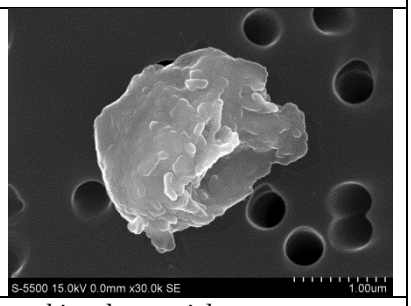
Sample S1025: Morocco, Iriki: Cluster of illite (Mg, Al, Si, K, Fe) or palygorskite clay particles



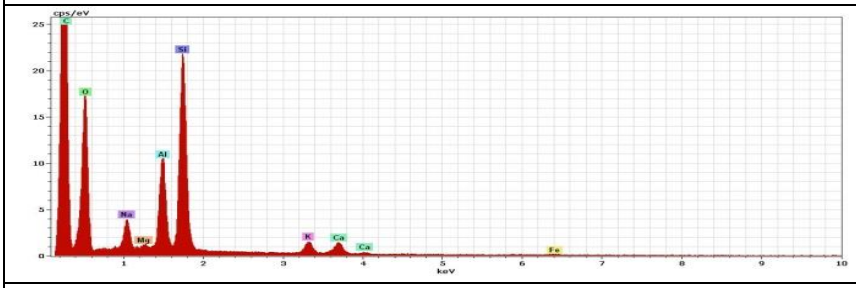


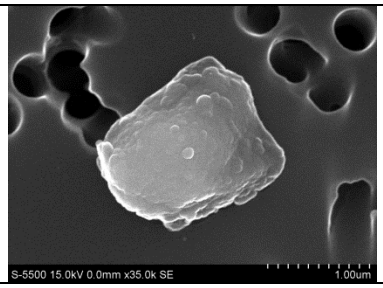
Sample S1027: Spain, Gran Canaria: Particle of illite clay (Mg, Al, Si, K, Fe)



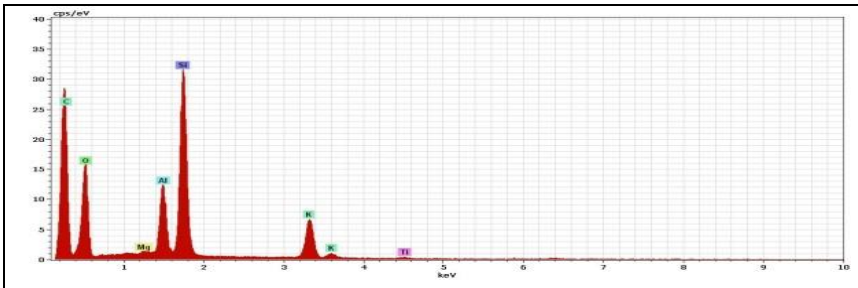


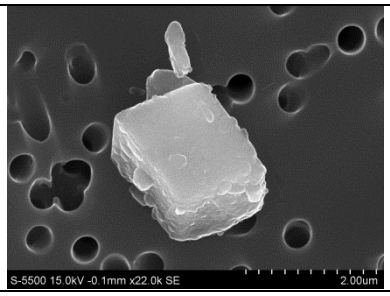
Sample S1033: Spain, Fuerteventura: Cluster of illite (Mg, Al, Si, K, Fe) or palygorskite clay particles



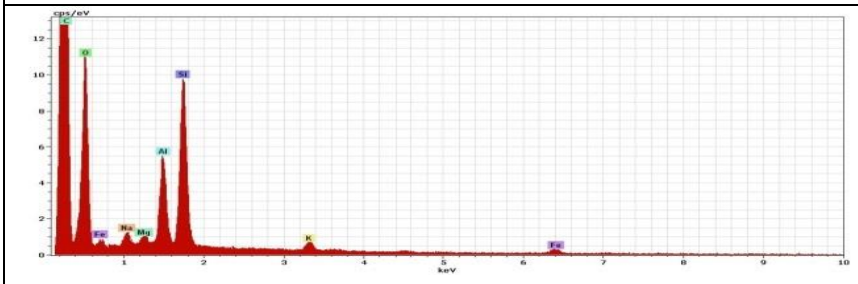


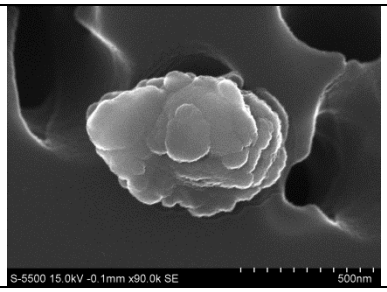
Sample S1033: Spain, Fuerteventura: Particle of plagioclase (Na, Al, Si, Ca) with coating of clay (Mg, Al, Si, K, Fe)



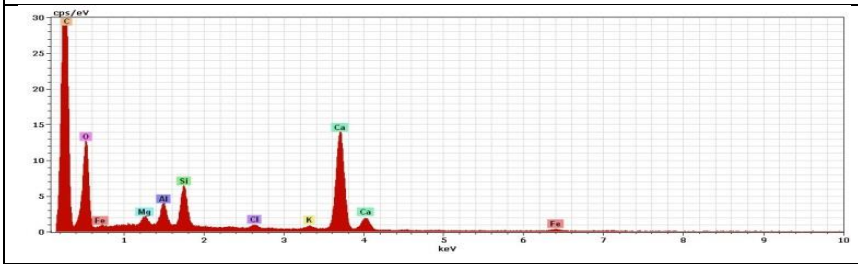


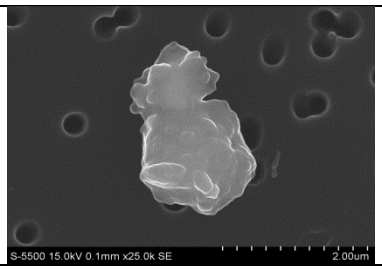
Sample S1034: Spain, Fuerteventura: Cleavage flake of potassium feldspar (orthoclase) (Al, Si, K) with traces of clay (Mg, Al)



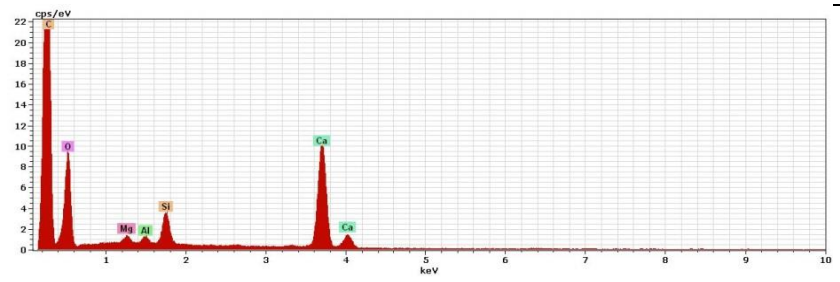


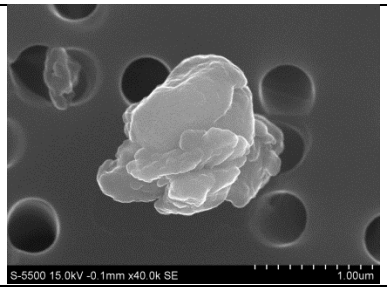
Sample S1034: Spain, Fuerteventura: Particle of kaolinite clay (Al, Si) with trace amounts of other clays and possibly mica (K, Mg, K, Fe)



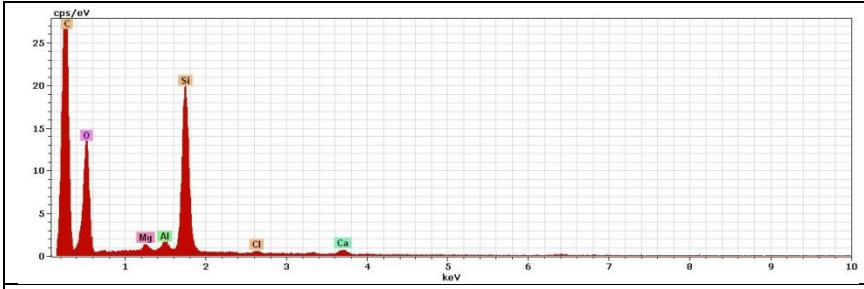


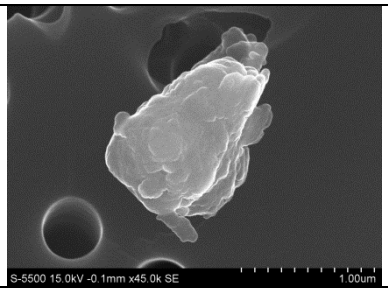
Sample S1035: Spain, Fuerteventura: Calcite particle (Ca) with illite (Mg, Al, Si, K, Fe) clay coating and trace of halite (Cl)



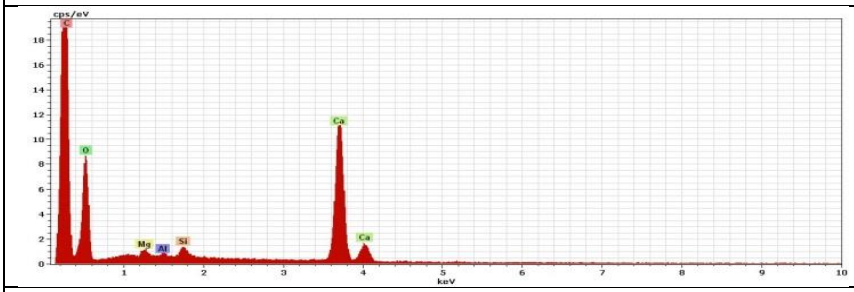


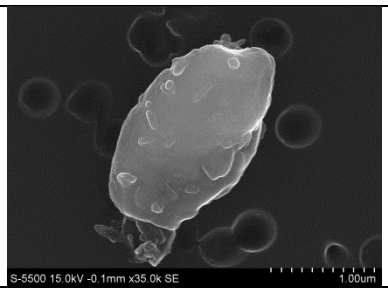
Sample S1038: Botswana, Makgadikgadi: Calcite particle (Ca) with small amounts of illite (Mg, Al, Si, K, Fe) clay attached



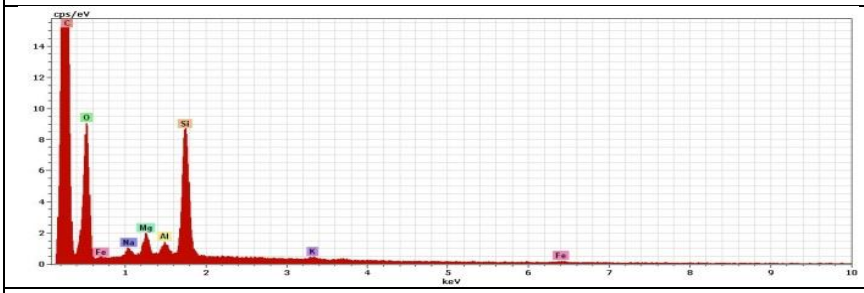


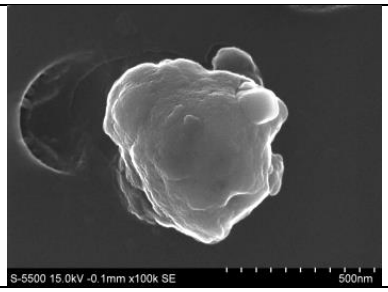
Sample S1038: Botswana, Makgadikgadi: Quartz particle (Si) with small amounts of clay (Mg, Al, Si) and traces of halite (Cl) and calcite/dolomite (Ca, Mg) attached



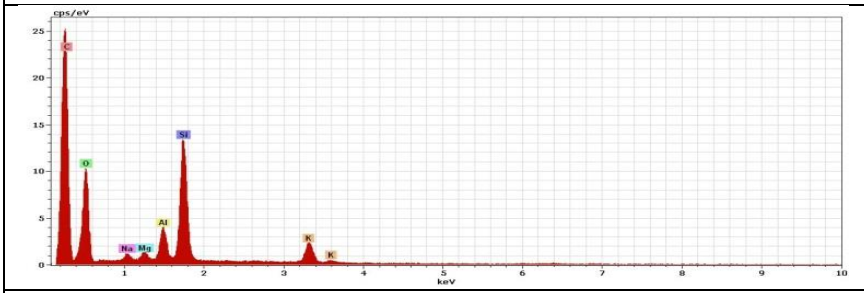


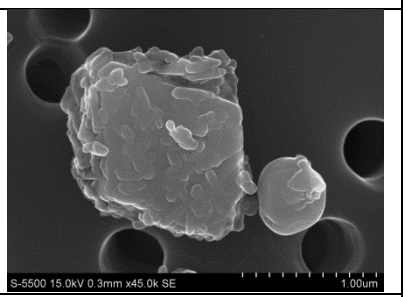
Sample S1039: Botswana, Makgadikgadi: Rounded calcite particle (Ca) with small attachments of clay (Mg, Al, Si)



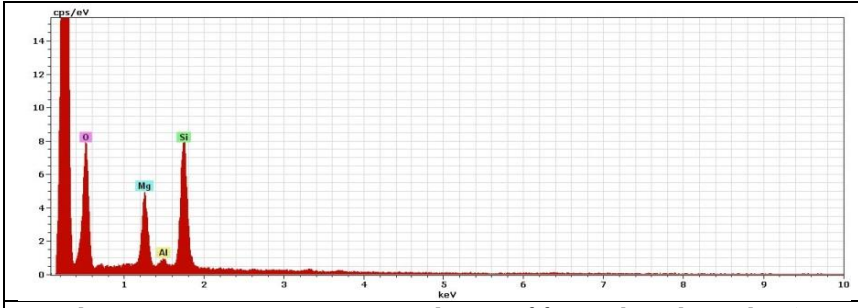


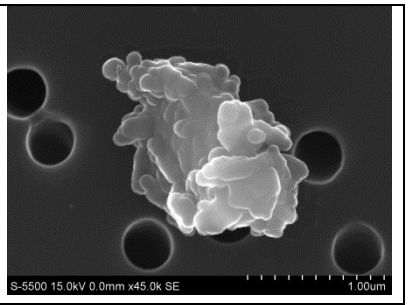
Sample S1039: Botswana, Makgadikgadi: Rounded quartz particle (Si) with small attachments of clay (Mg, Al, Si, K, Fe) and trace of halite (Na)



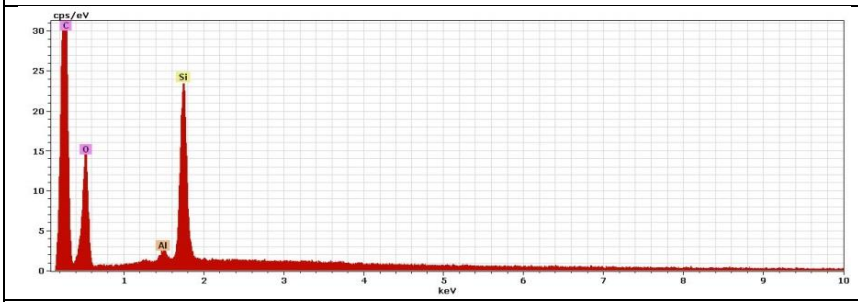


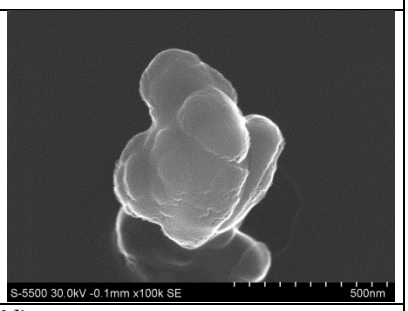
Sample S1040: Botswana, Makgadikgadi: Angular cleavage flake of potassium feldspar (K, Al, Si, Na) completely coated by clay (Mg, Al, Si), possibly palygorskite. Smaller well rounded particle of halite to the lower right of feldspar



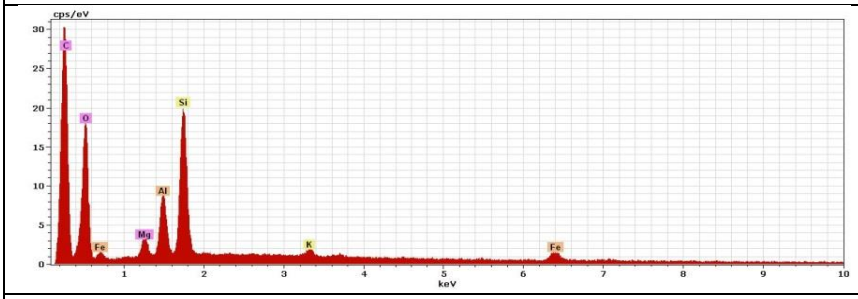


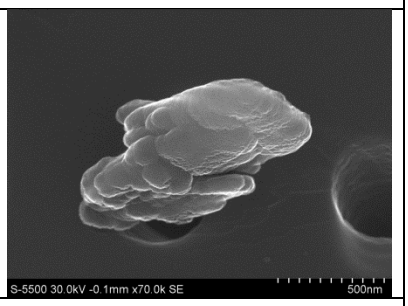
Sample S1041: Botswana, Nxai Pan: Clusters of finger shaped sepiolite (Mg, Si) crystals, with a trace of clay (Mg, Al, Si)



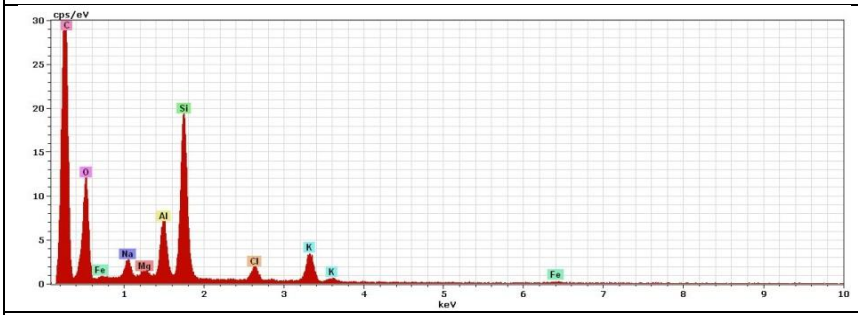


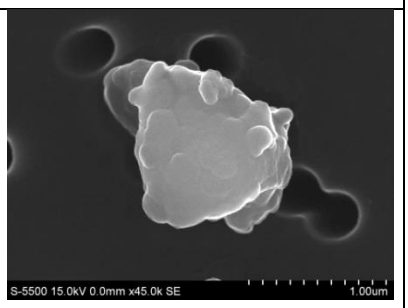
Sample S1042: Chile, Atacama: Clusters quartz grains (Si) with a trace of clay (Al)



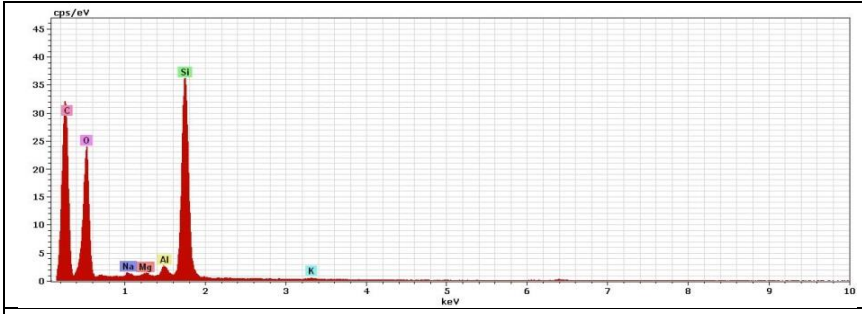


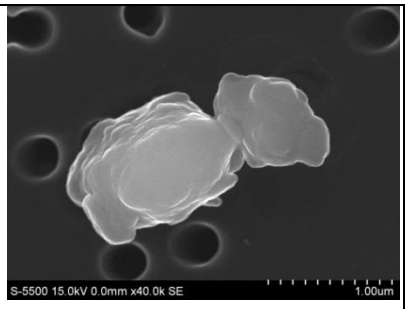
Sample S1042: Chile, Atacama: Illite clay particle (Mg, Al, Si, K, Fe)



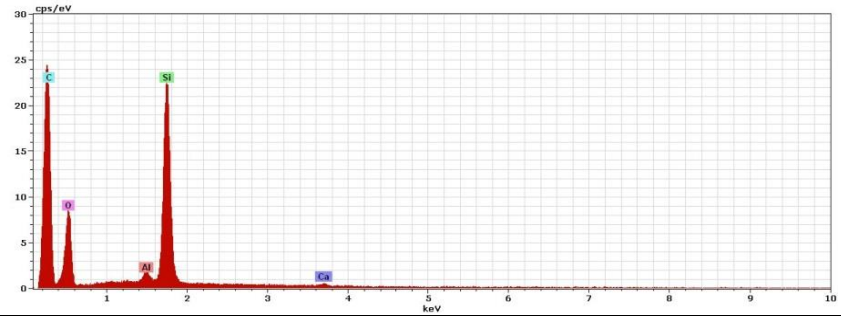


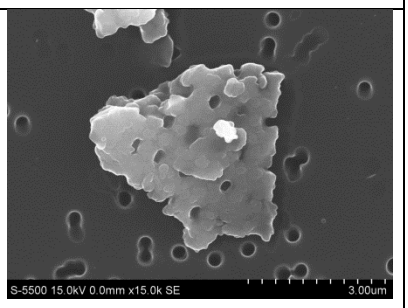
Sample S1045: USA, Nevada: Potassium feldspar (Na, Al, Si, K, Fe) with coating of halite (Na, Cl) and illite clay (Mg, Al, Si, K, Fe)



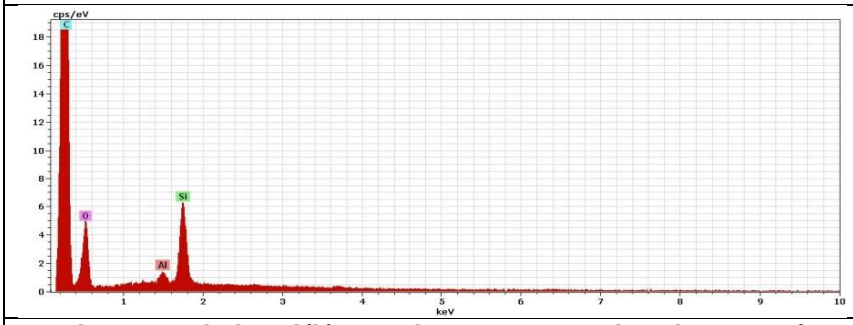


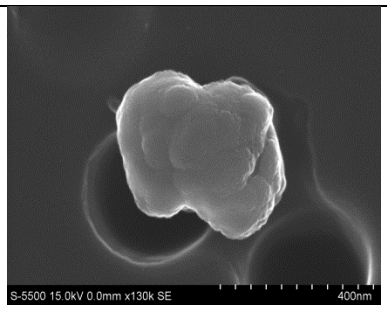
Sample S1045: USA, Nevada: Quartz (Si) with coating of illite clay (Mg, Al, Si, K) and trace of halite (Na)



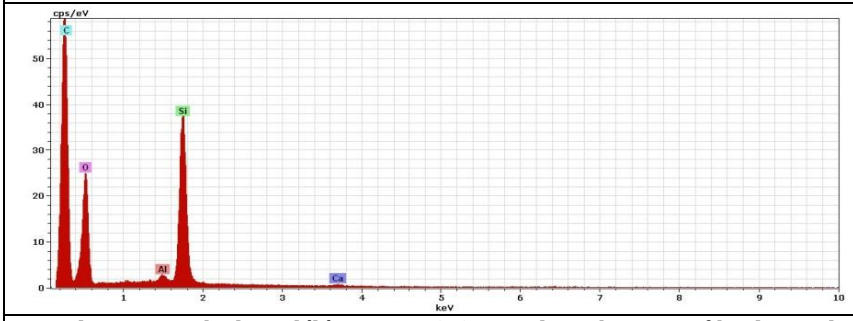


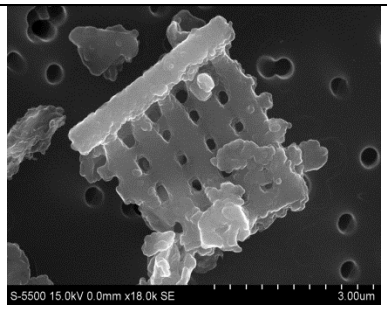
Sample S1049: Chad, Bodélé: Diatom (Si) with coating of possibly kaolinite clay (Al, Si) and trace of calcite (Ca)



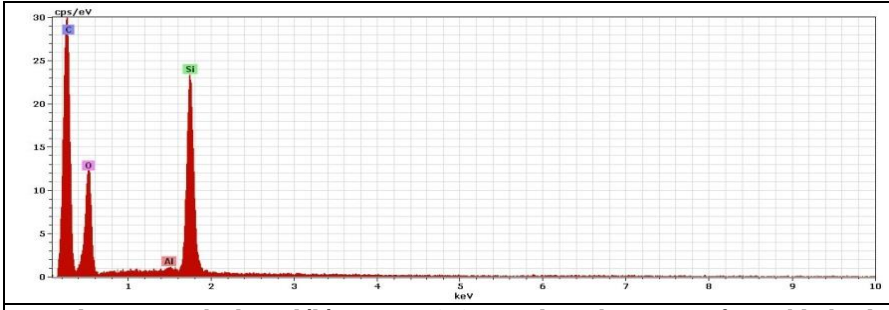


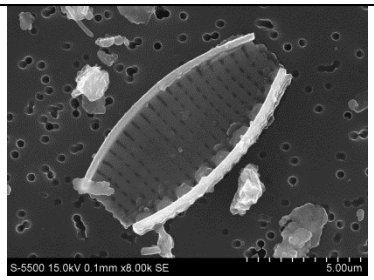
Sample S1049: Chad, Bodélé: Smooth quartz (Si) particle with coating of possibly kaolinite clay (Al, Si)



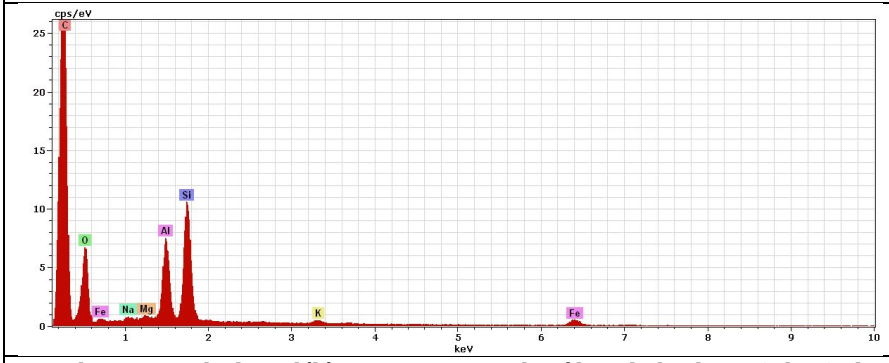


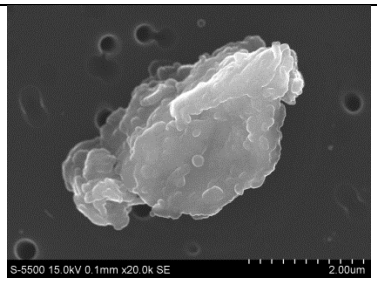
Sample S1050: Chad, Bodélé: Diatom (Si) particle with traces of kaolinite clay (Al, Si) and calcite (Ca)



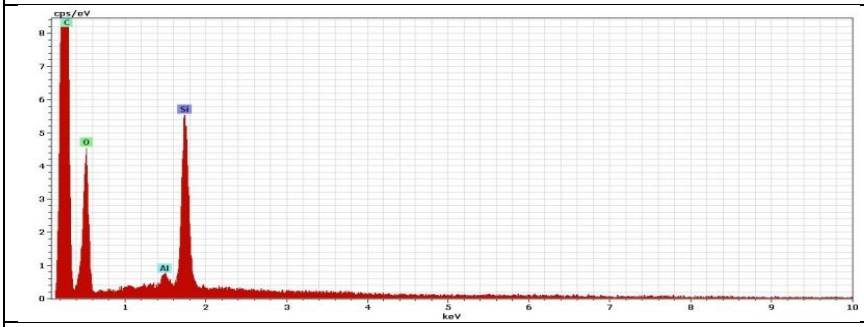


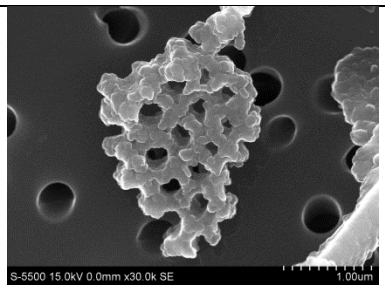
Sample S1051: Chad, Bodélé: Diatom (Si) particle with coating of possibly kaolinite clay (Al, Si)



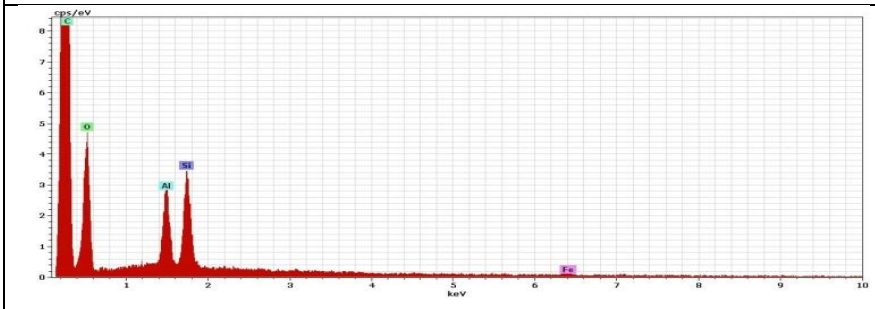


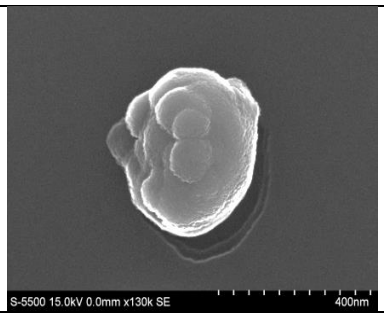
Sample S1051: Chad, Bodélé:Composite particle of largely kaolinite (Al, Si) clay with trace amounts of illite (Mg, Al, Si, K, Fe) clay and halite (Na)



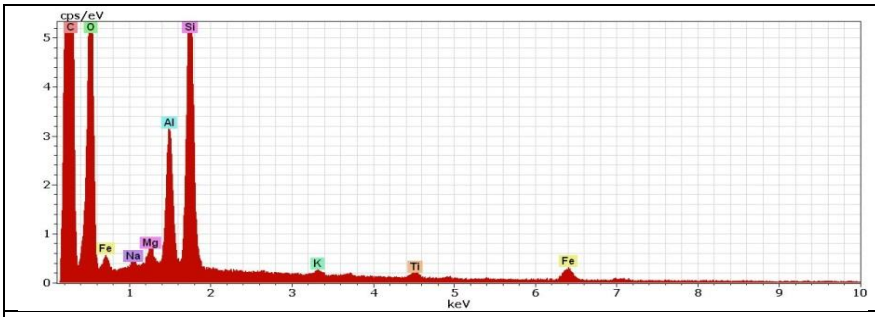


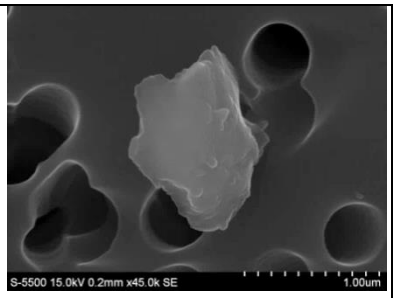
Sample S1052: USA, Nevada: Diatom (Si) with trace amounts of kaolinite (Al, Si) clay



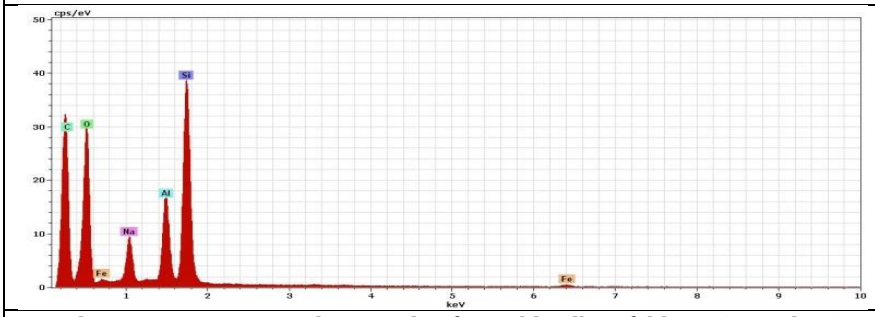


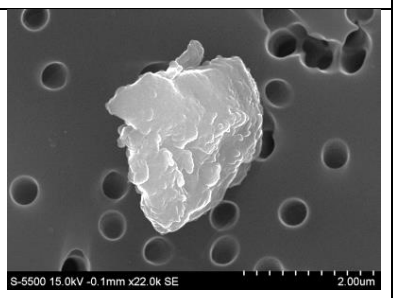
Sample S1052: USA, Nevada: Ball of kaolinite (Al, Si) clay



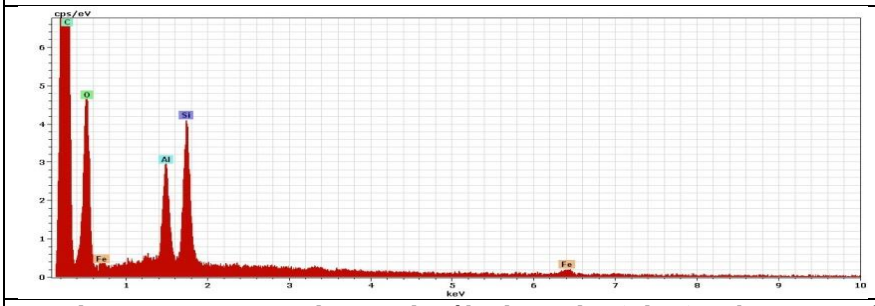


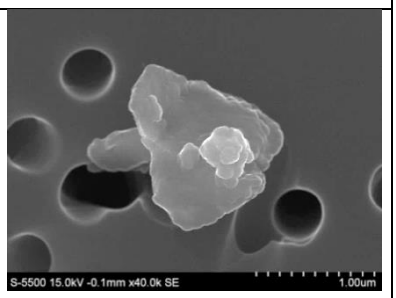
Sample S1052: USA, Nevada: Particle of biotite (Na, Mg, Al, Si, K, Ti, Fe)



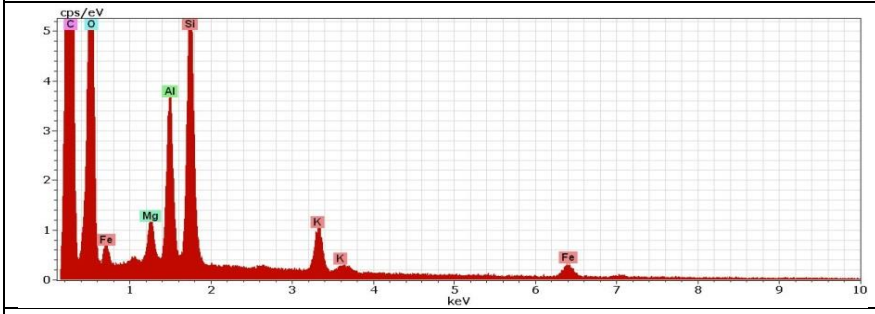


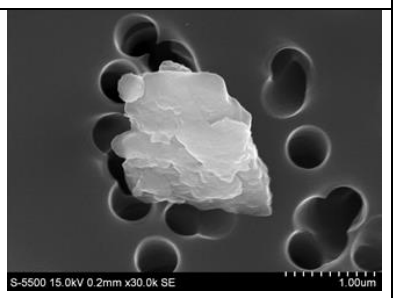
Sample S1053: USA, Nevada: Particle of possibly albite feldspar (Na, Al, Si)



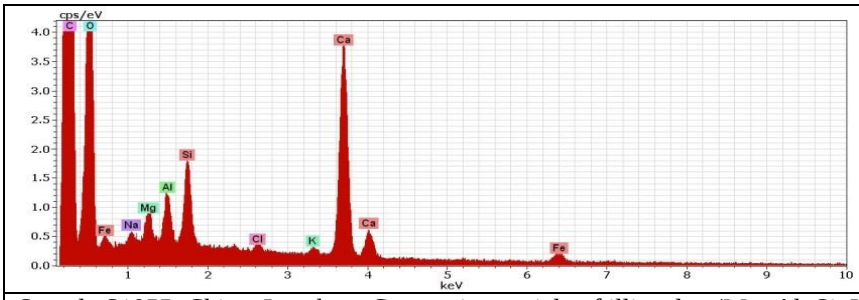


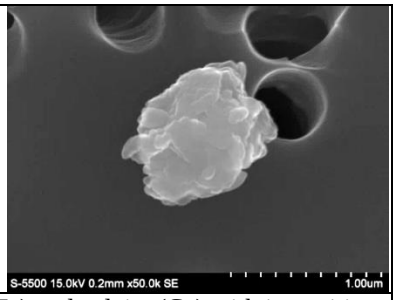
Sample S1053: USA, Nevada: Particle of kaolinite clay (Al, Si) with impurity of iron oxide/hydroxide (Fe)



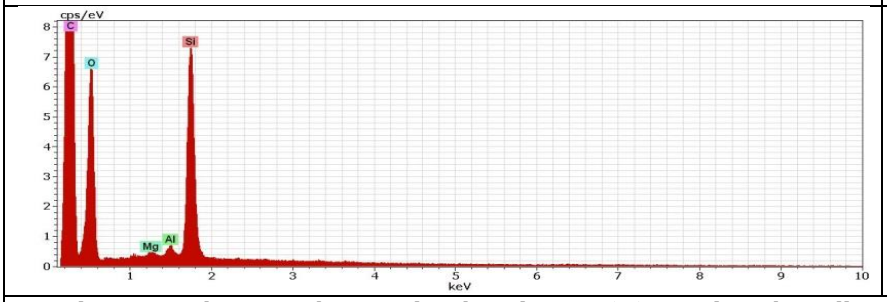


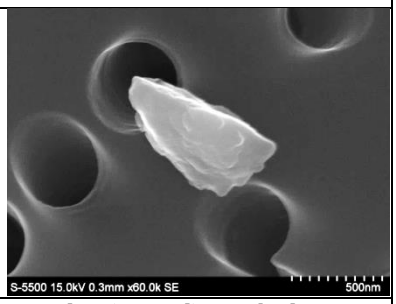
Sample S1055: China, Lanzhou: Particle of illite clay (Mg, Al, Si, K, Fe)



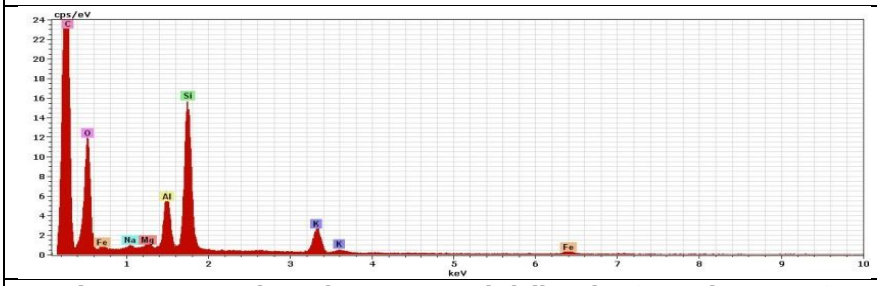


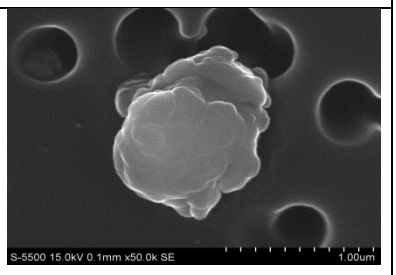
Sample S1055: China, Lanzhou: Composite particle of illite clay (Mg, Al, Si, K, Fe) and calcite (Ca) with impurities of halite (Na, Cl)



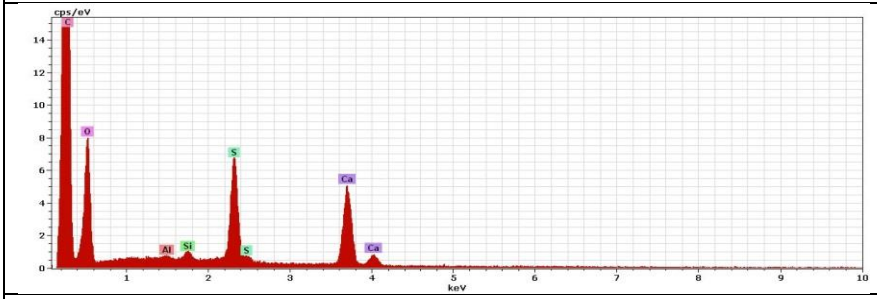


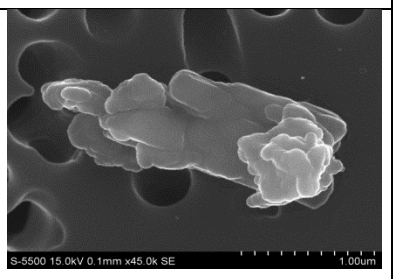
Sample S1055: China, Lanzhou: Wedge shaped quartz (Si) particle with small amount clay (Mg, Al) attached



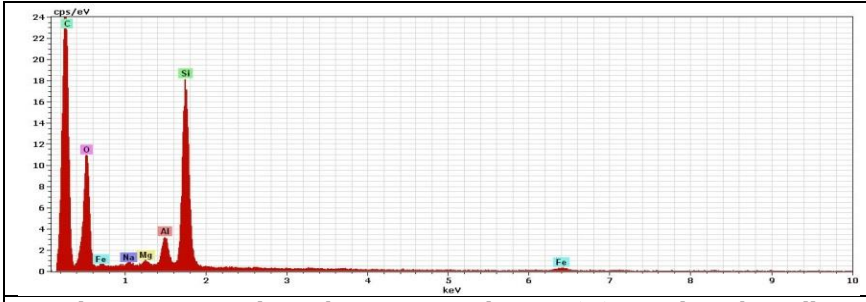


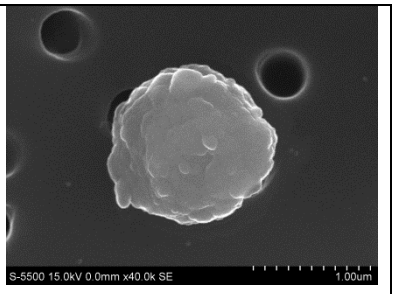
Sample S1056: Australia, Lake Eyre: Rounded illite clay (Mg, Al, Si, K, Fe) particle with trace of halite (Na)



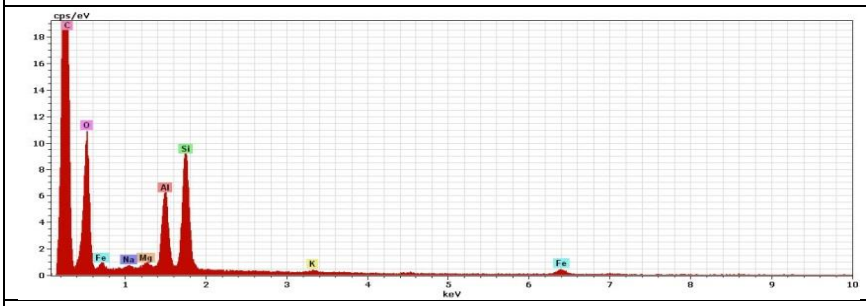


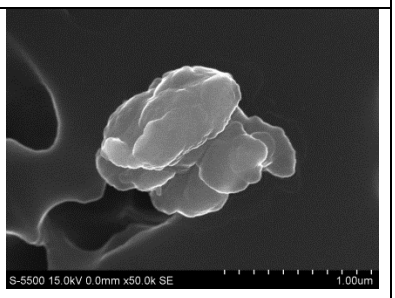
Sample S1056: Australia, Lake Eyre: Irregular shaped gypsum (Ca, S) particle with trace of clay (Al, Si)



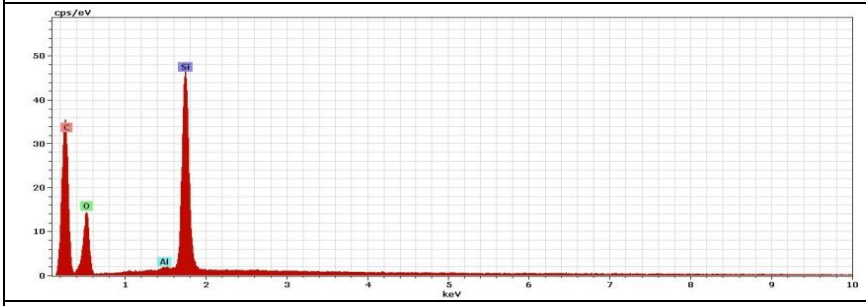


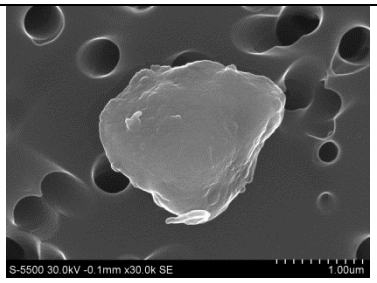
Sample S1057: Australia, Lake Eyre: Round quartz (Si) particle with small amounts of clay (Mg, Al), halite (Na) and iron oxide (Fe)



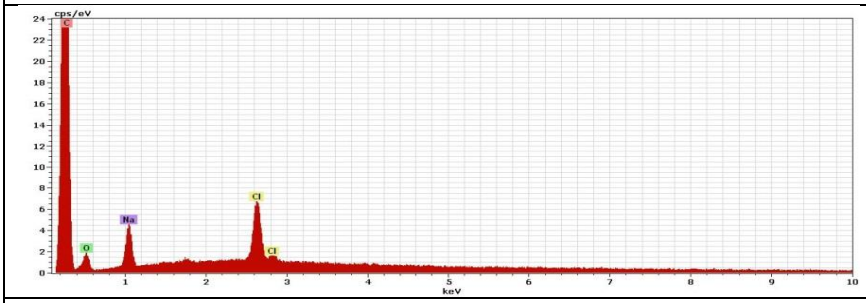


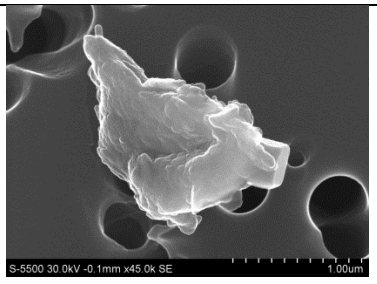
Sample S1057: Australia, Lake Eyre: Kaolinite (Al, Si) particle with traces of illite (Mg, Al, Si) halite (Na) and iron oxides (Fe)



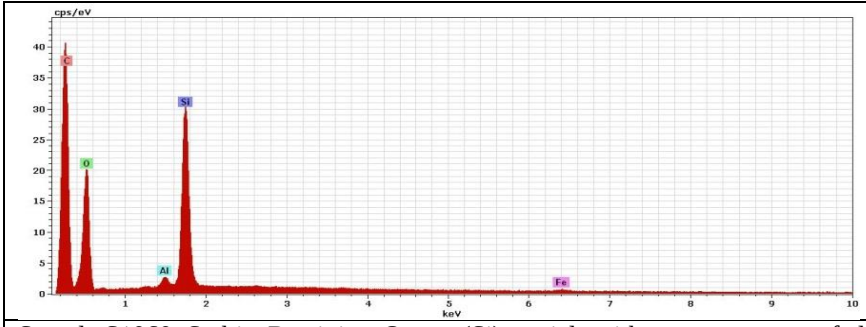


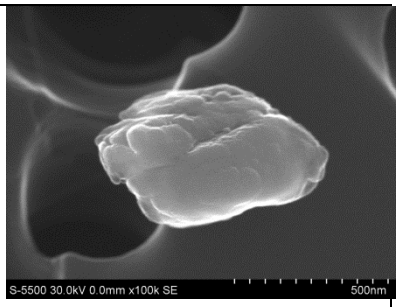
Sample S1058: Australia, Lake Frome: Quartz (Si) particle with trace of clay (Al, Si)



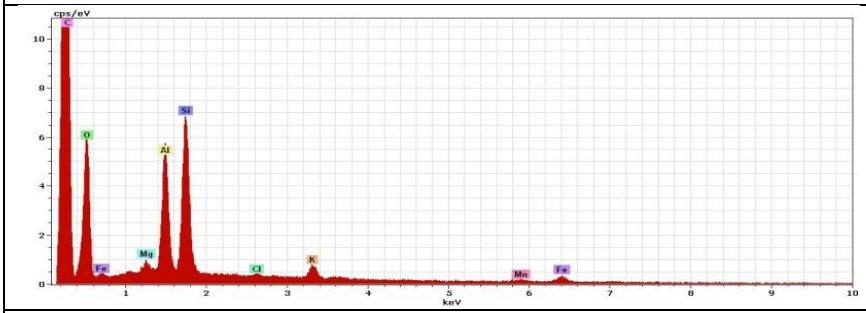


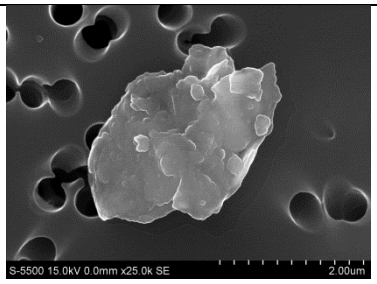
Sample S1058: Australia, Lake Frome: Cube of halite (Na, Cl) (to the right of particle) attached to a flake of illite clay



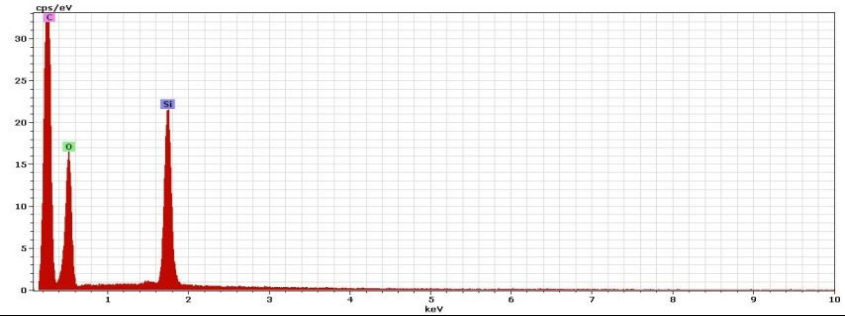


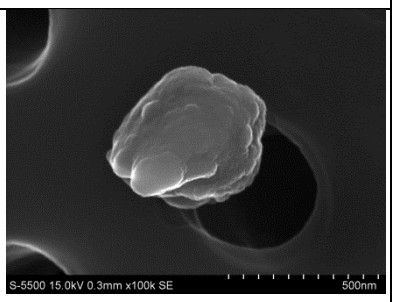
Sample S1060: Serbia, Batajnica: Quartz (Si) particle withy trace amounts of clay (Al) and iron oxide (Fe)



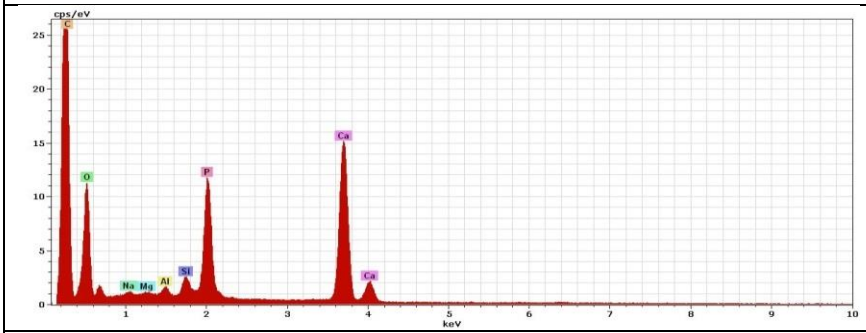


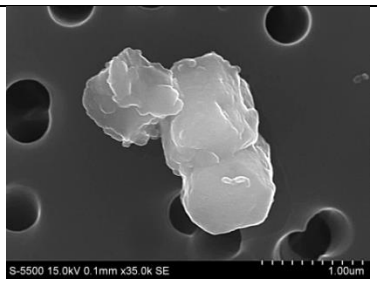
Sample S1062: Serbia, Kostolac: Particle composed of kaolinite (Al, Si) with small amount of illite (Mg, Al, Si, K, Fe, Mn)



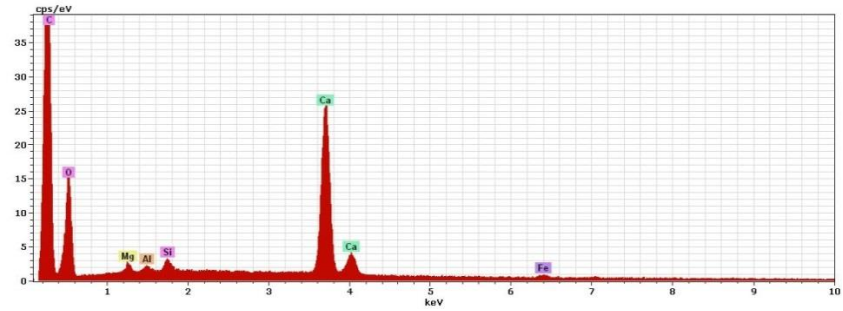


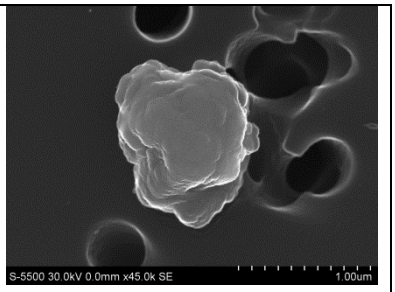
Sample S1062: Serbia, Kostolac: Rounded quartz (Si) particle



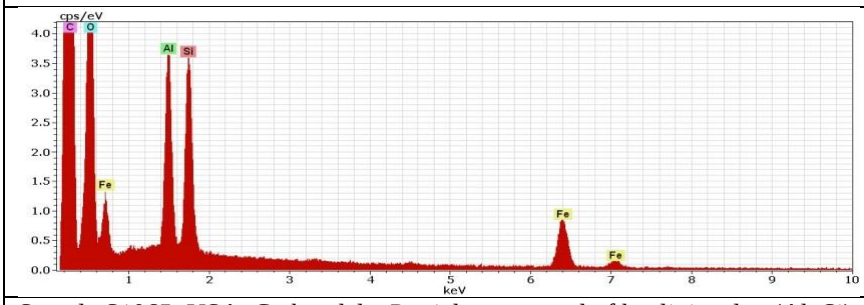


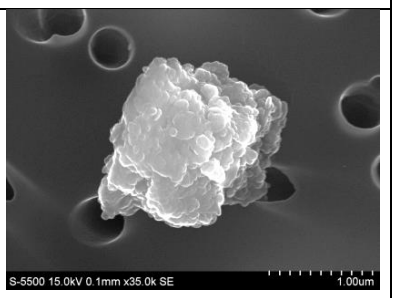
Sample S1064: Serbia, Stari Slankamen: Particle of apatite (Ca, P) with small amount of clay (Mg, Al, Si) and halite (Na)



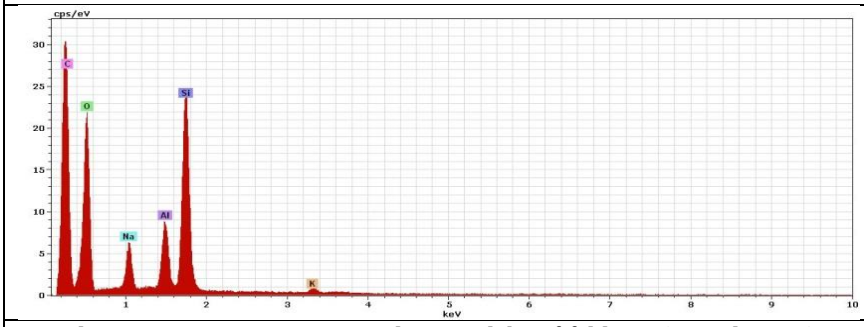


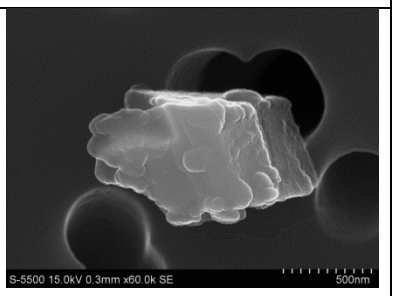
Sample S1064: Serbia, Stari Slankamen: Particle of calcite (Ca) with small amount of clay (Mg, Al, Si, Fe)



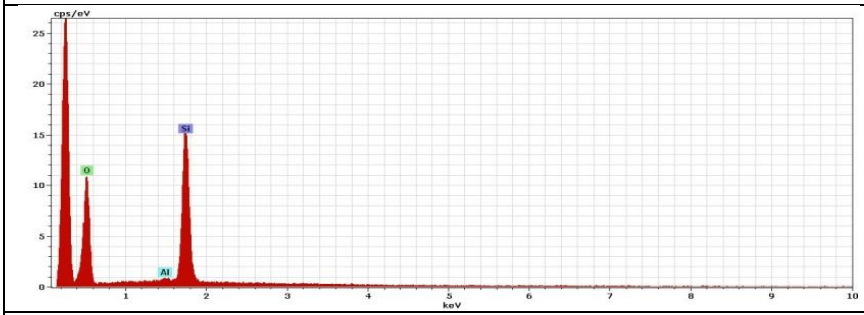


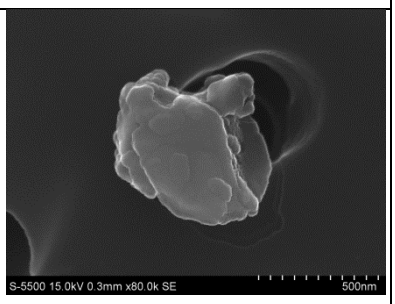
Sample S1065: USA, Carbondale: Particle composed of kaolinite clay (Al, Si) mixed with iron oxide (hematite) (Fe)



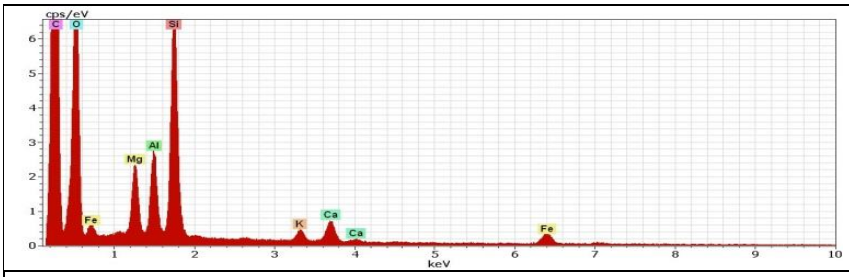


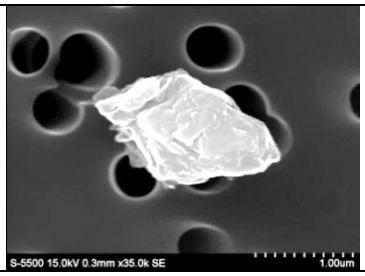
Sample S1066: USA, Arizona Road Dust: Flake of feldspar (Na, Al, Si, K)



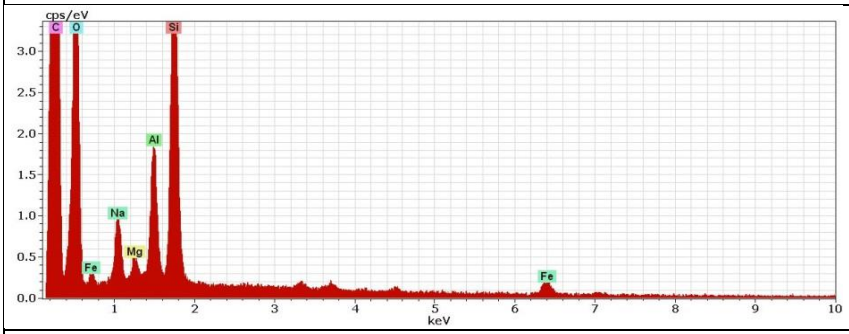


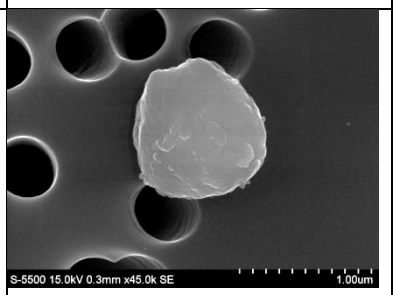
Sample S1066: USA, Arizona Road Dust: Quartz (Si) particle with trace of clay (Al)



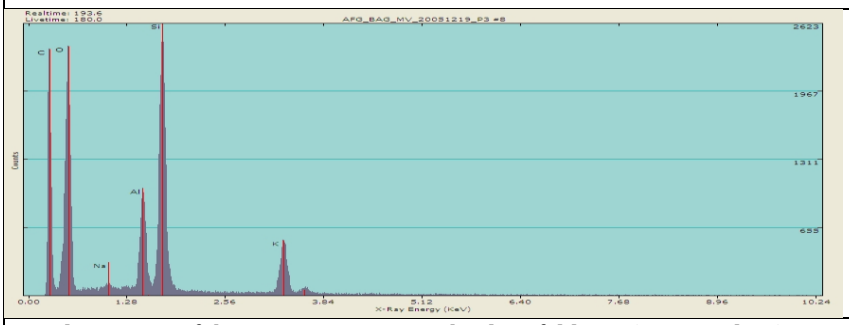


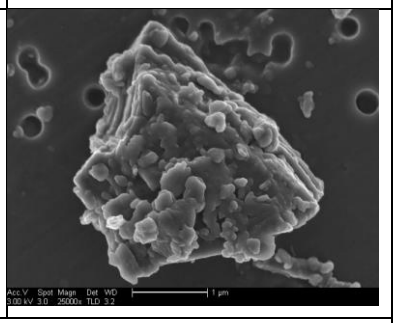
Sample S2001: Djibouti, Lemonnier: Illite clay (Mg, Al, Si, K, Fe) encapsulating a calcite (Ca) particle



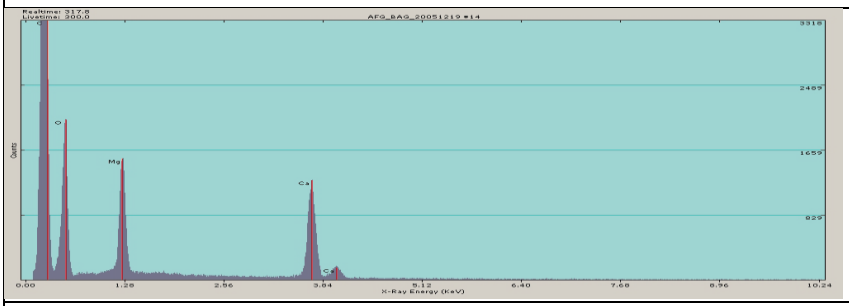


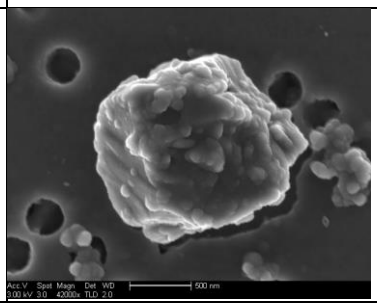
Sample S2001: Djibouti, Lemonnier: Plagioclase feldspar (Na, Al, Si) with small amount of surface clay (Mg, Al, Si)



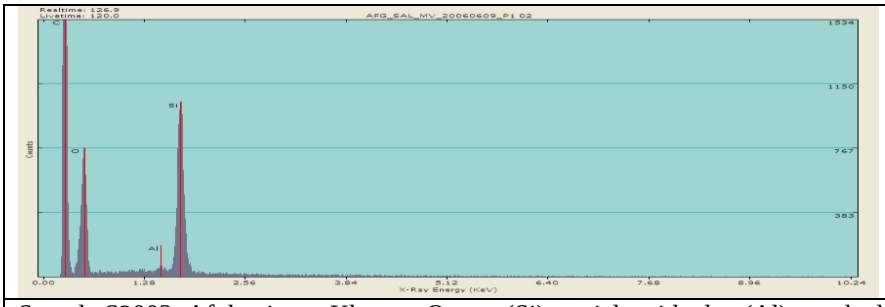


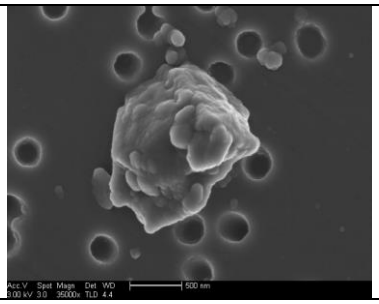
Sample S2002: Afghanistan, Bagram: Orthoclase feldspar (K, Na, Al, Si)



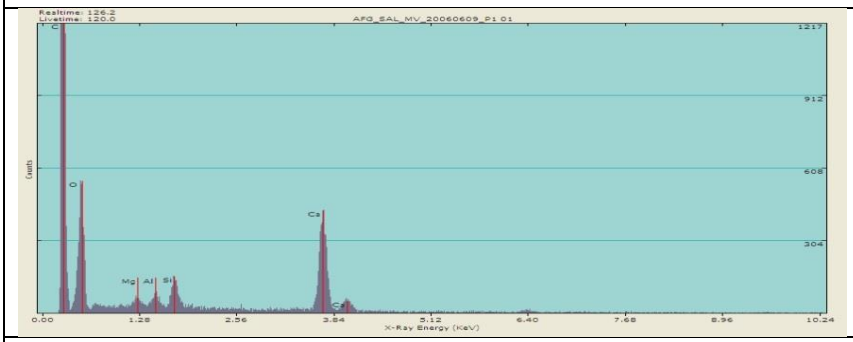


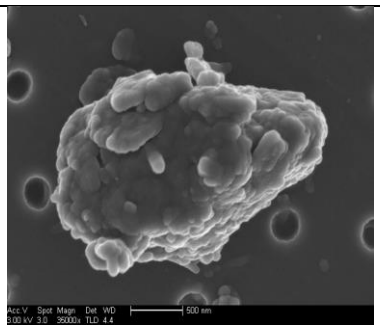
Sample S2002: Afghanistan, Bagram: Pseudo rhomb of dolomite (Mg, Ca)



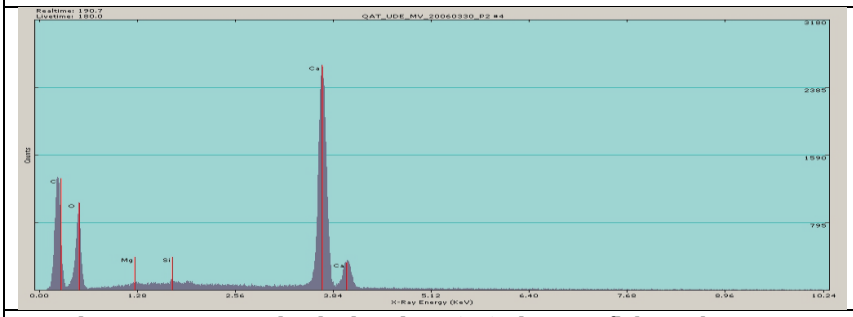


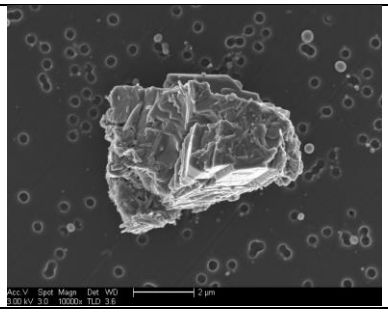
Sample S2003: Afghanistan, Khowst. Quartz (Si) particle with clay (Al) attached



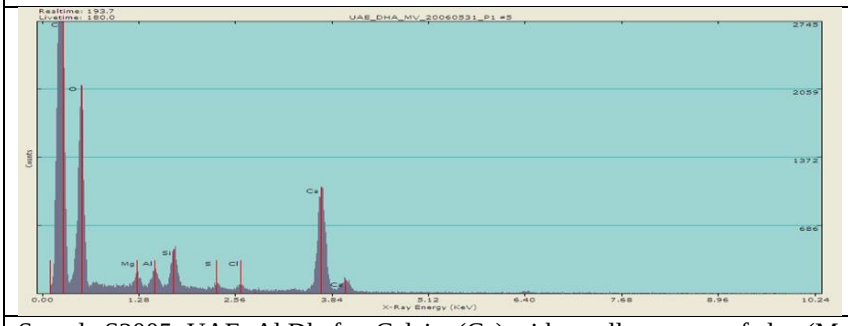


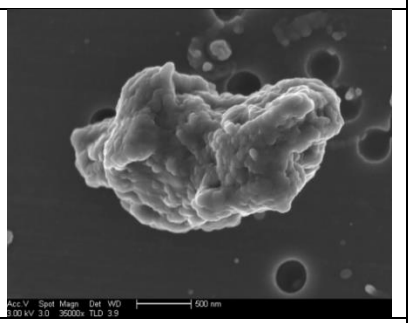
Sample S2003: Afghanistan, Khowst. Calcite (Ca) particle with finger shaped clay (Mg, Al, Si) particles on surface, possibly montmorillonite, illite or palygorskite



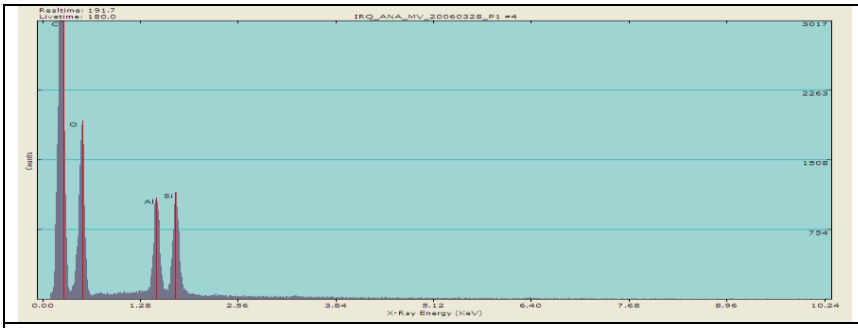


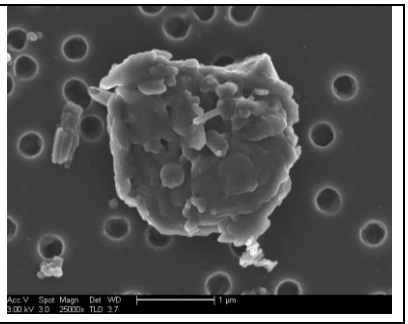
Sample S2004: Qatar, Al Udeid. Calcite (Ca) cleavage flake with trace amounts of clay (Mg)



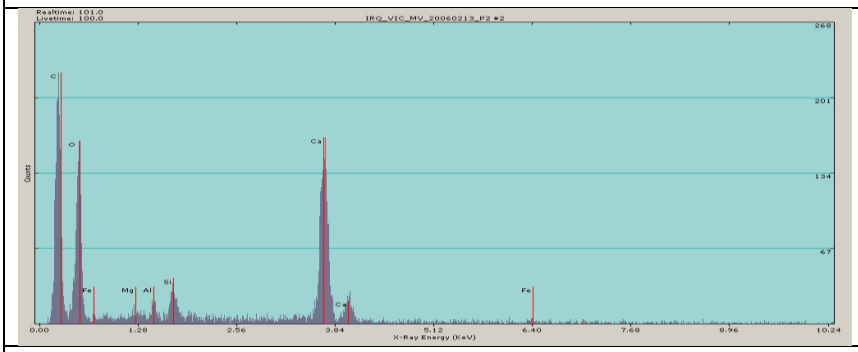


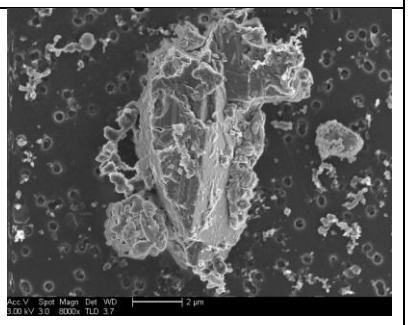
Sample S2005: UAE, Al Dhafra. Calcite (Ca) with small amounts of clay (Mg, Al, Si), and trace amounts of gypsum (Ca, S) and halite (Cl)



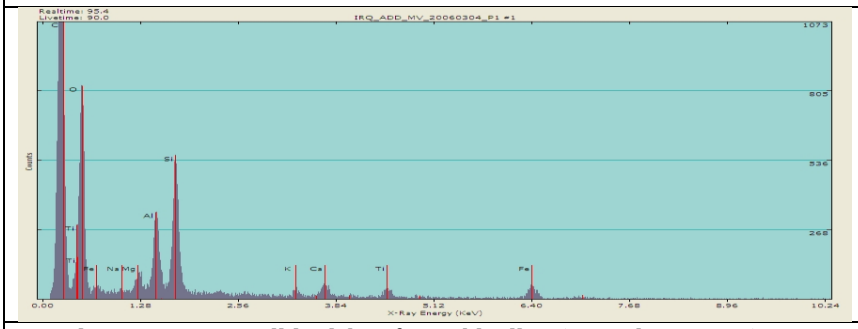


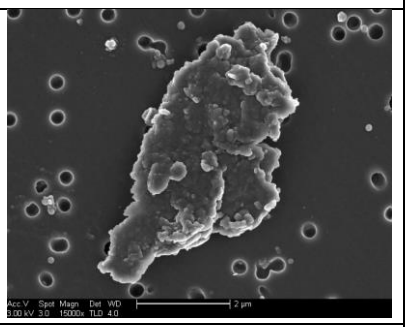
Sample S2006: Iraq, Balad. Particle largely of kaolinite (Al, Si) with needles of possible palygorskite attached



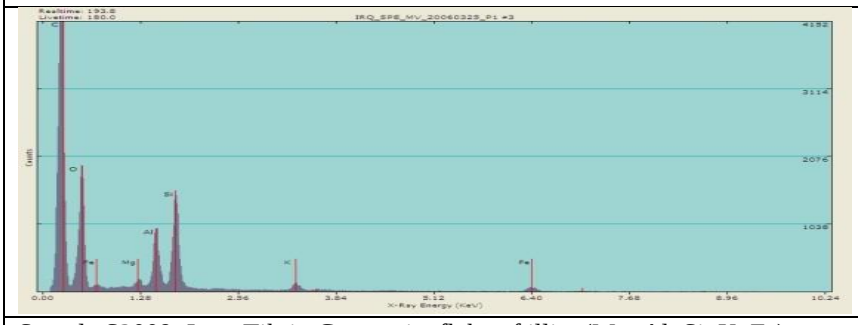


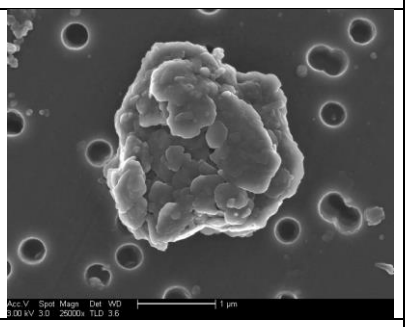
Sample S2007: Iraq, Baghdad. Rhomb of calcite (Ca) with small attachments of clay (Mg, Al, Si, Fe)



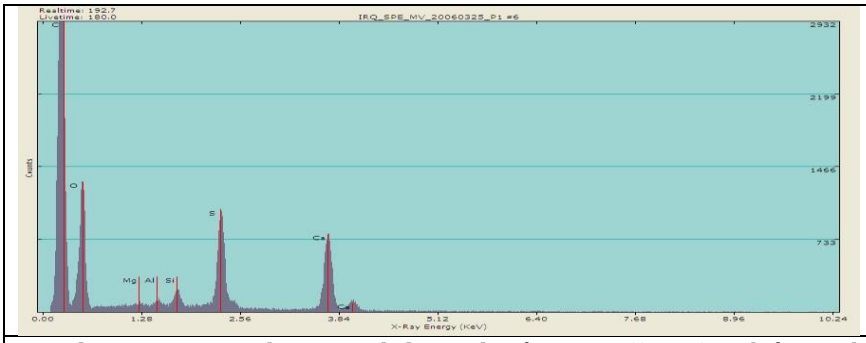


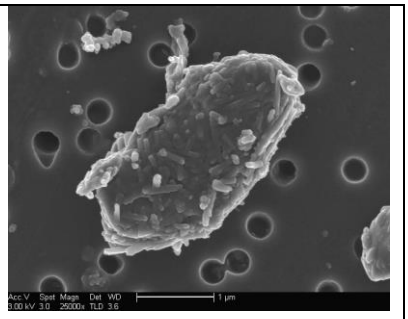
Sample S2008: Iraq, Tallil. Flake of possible illite (Mg, Al, Si, K, Fe) or mica (Mg, Al, Si, K, Ti, Fe) with small amount of calcite (Ca)



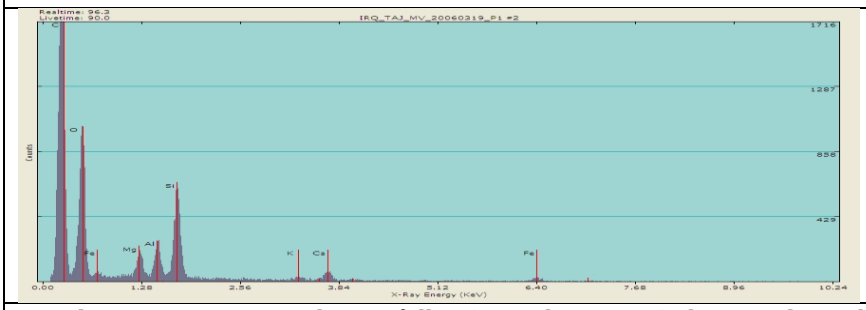


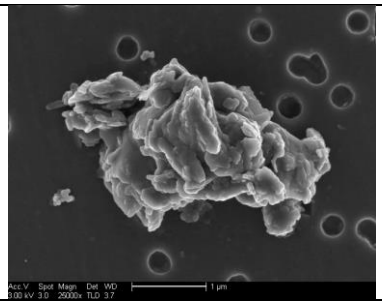
Sample S2009: Iraq, Tikrit. Composite flake of illite (Mg, Al, Si, K, Fe)



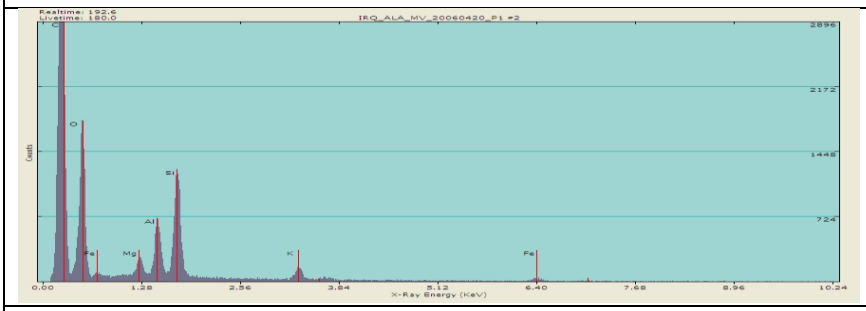


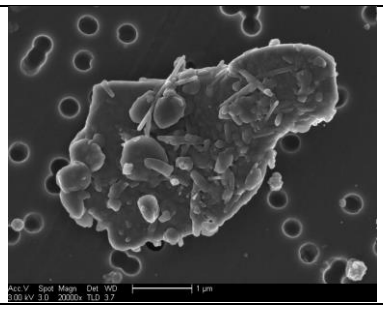
Sample S2009: Iraq, Tikrit. Rounded particle of gypsum ((S, Ca) with finger shaped particles of clay, possibly palygorkite (Mg, Al, Si) on the surface



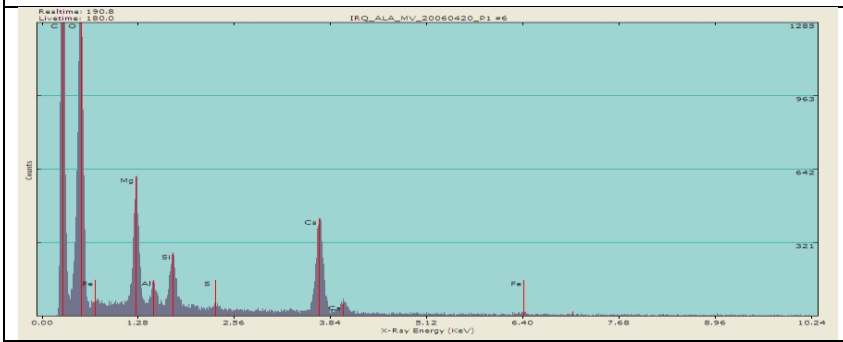


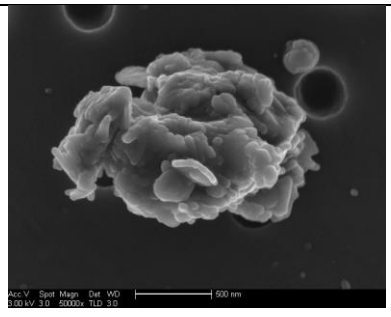
Sample S2010: Iraq, Taji. Cluster of illite (Mg, Al, Si, K, Fe) clay particles with a trace of calcite (Ca)



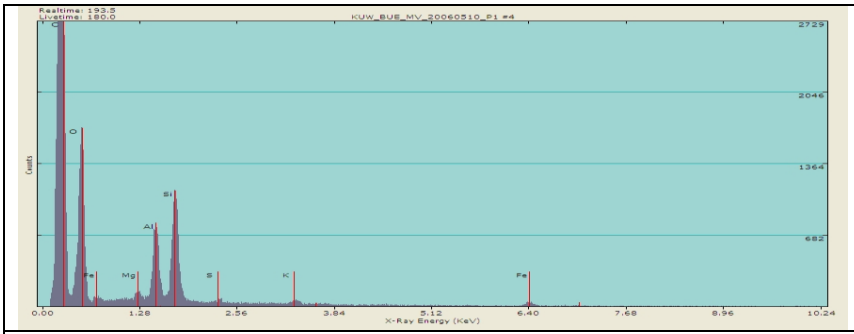
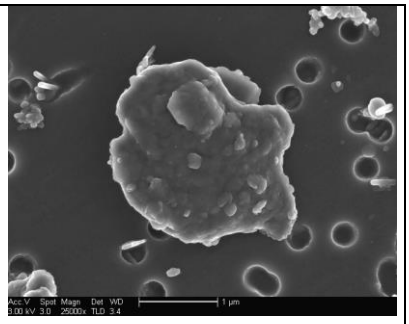


Sample S2011: Iraq, Al Asad. Flake of illite (Mg, Al, Si, K, Fe) with finger shaped palygorskite particles on the surface

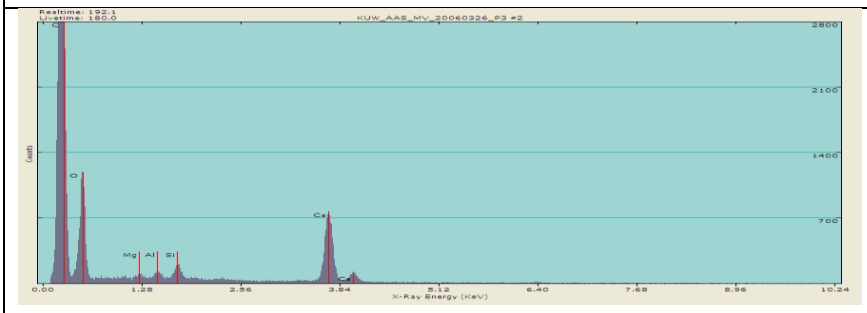




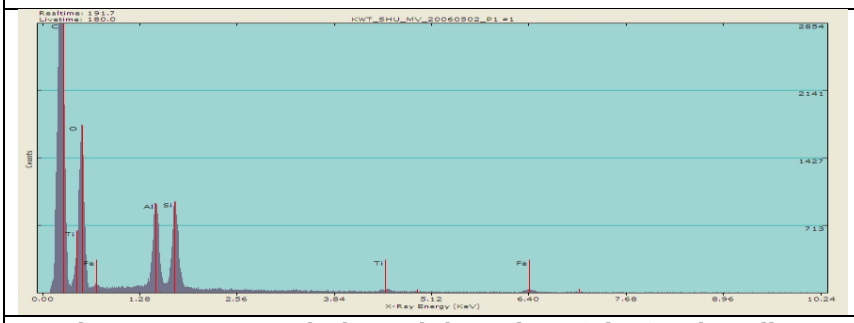
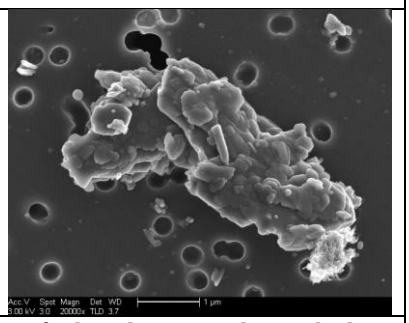
Sample S2011: Iraq, Al Asad. Cluster of dolomite crystals (Mg, Ca) small amounts of clay (Mg, Al, Si, Fe) and trace of gypsum (Ca, S)

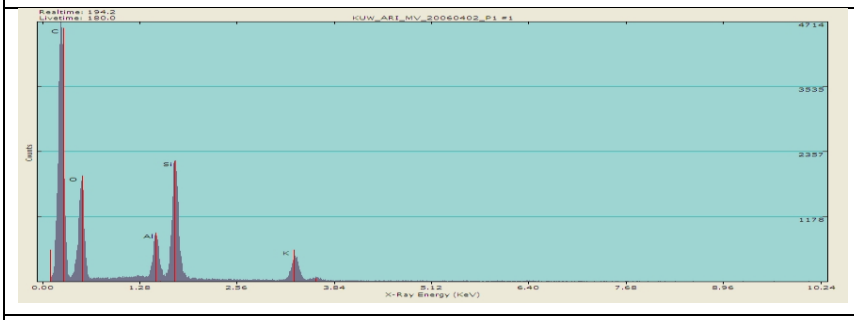
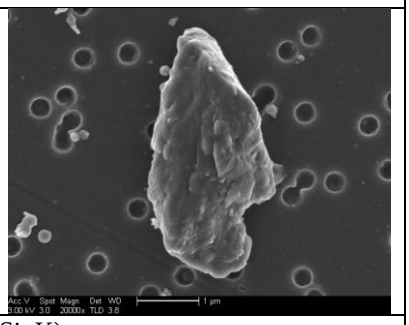
Sample S2012: Kuwait, Buehring. Particle of illite (Mg, Al, Si, K, Fe) clay and trace of gypsum (S)



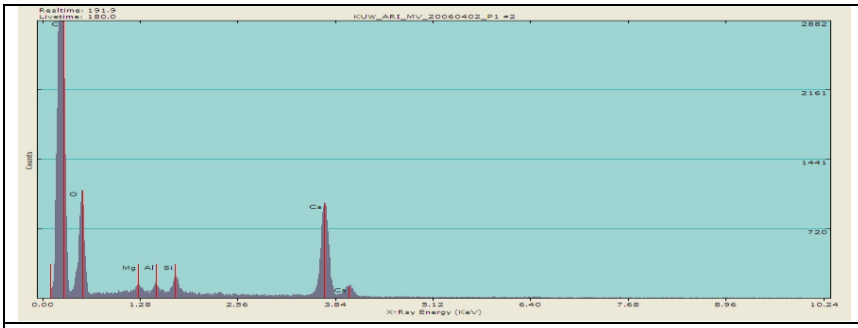

Sample S2013: Kuwait, Ali Al Salem. Particle of calcite (Ca) with coating of finger shaped clay particles, possibly palygorskite (Mg, Al, Si)

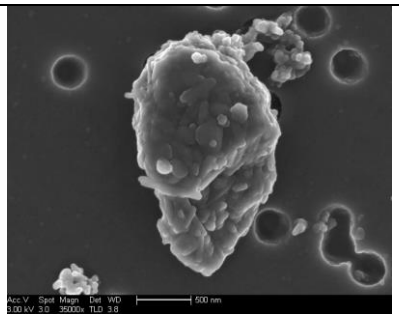



Sample S2014: Kuwait, Ash Shu Ayabah. Kaolinite (Al, Si) with smaller particles of other clay minerals attached

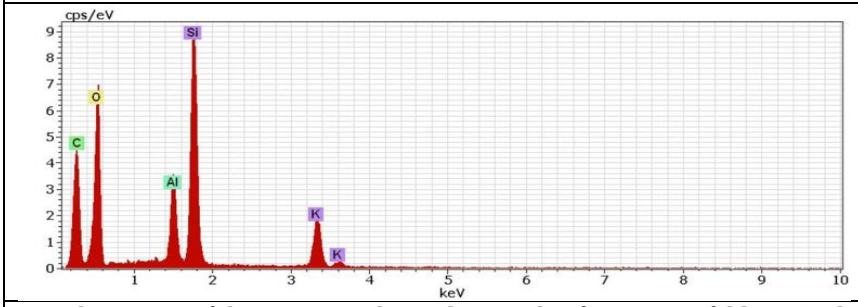



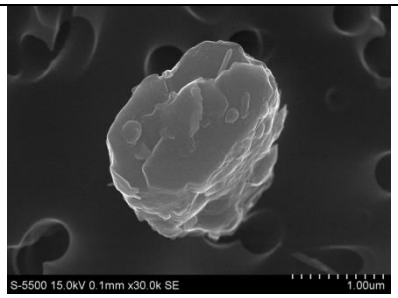
Sample S2015: Kuwait, Arifjan. Particle of potassium feldspar (orthoclase) (Al, Si, K)



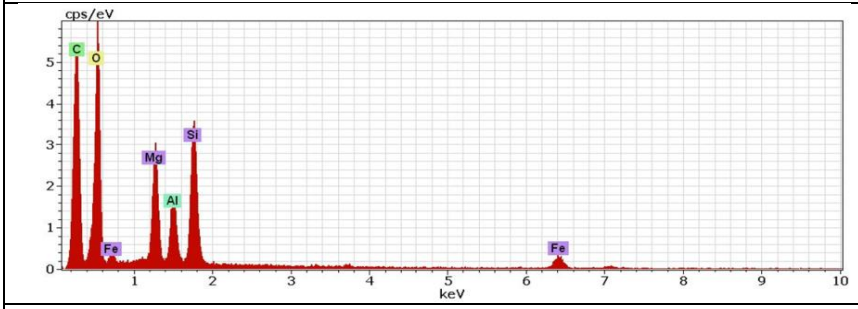


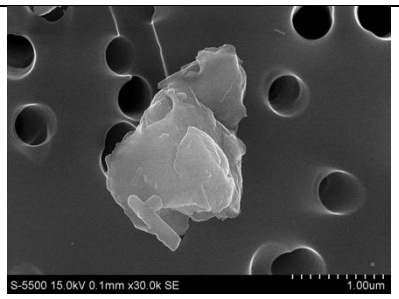
Sample S2015: Kuwait, Arifjan. Particle of calcite (Ca) with finger shaped particles of palygorskite (Mg, Al, Si) clay on surface



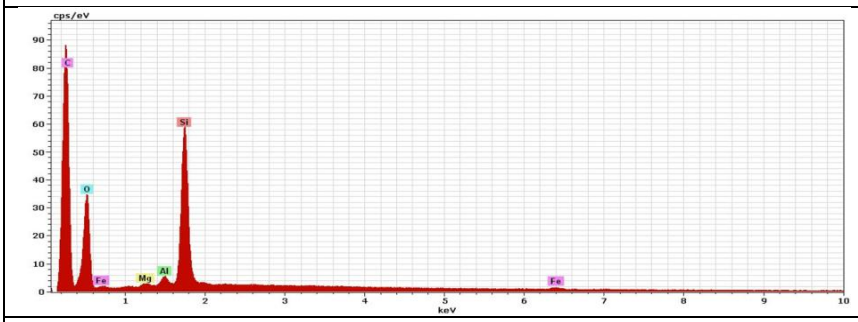


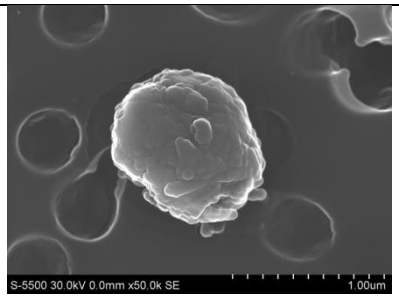
Sample S2016: Afghanistan, Leatherneck. Particle of potassium feldspar (orthoclase) (Al, Si, K)



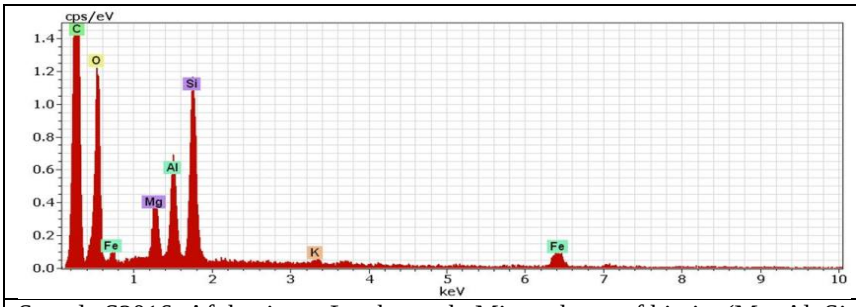


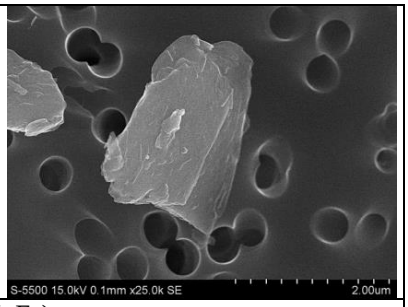
Sample S2016: Afghanistan, Leatherneck. Particle of possibly palygorskite (Mg, Al, Si) and iron oxide (Fe)



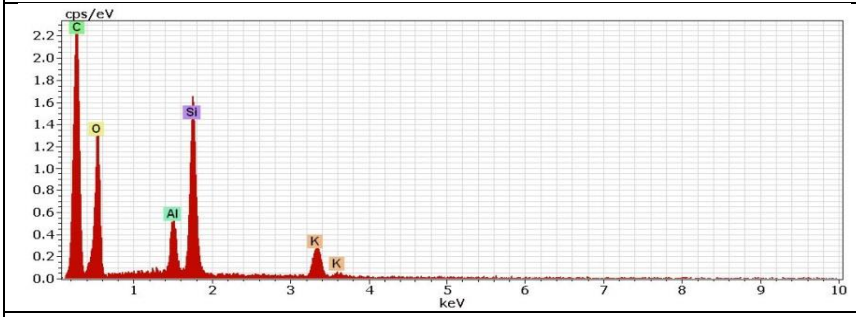


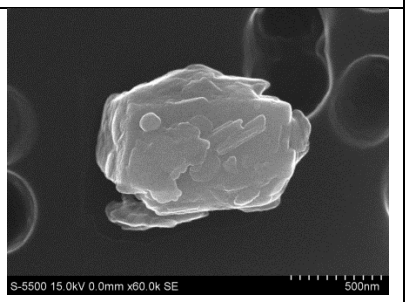
Sample S2016: Afghanistan, Leatherneck. Round quartz (Si) grain with coating of clay (Mg, Al, Si, Fe)



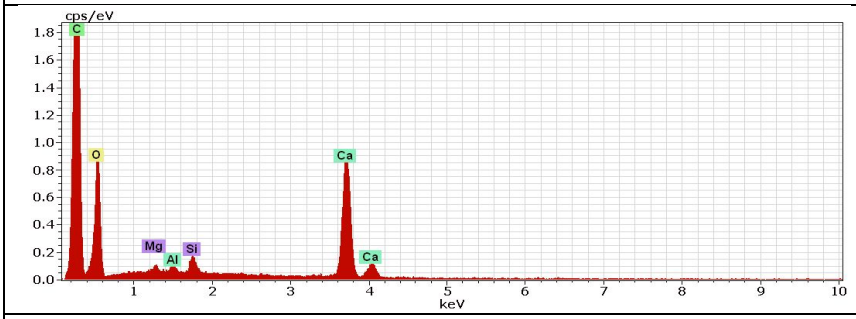


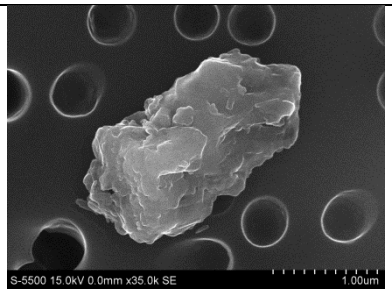
Sample S2016: Afghanistan, Leatherneck. Micro-sheets of biotite (Mg, Al, Si, K, Fe)



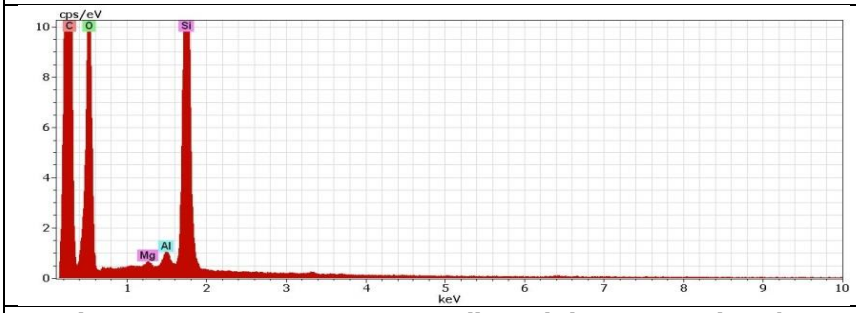


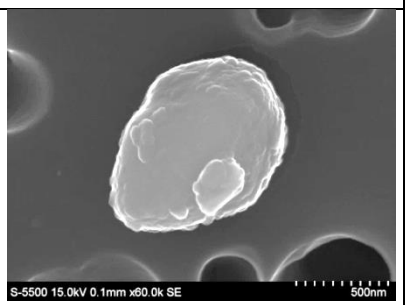
Sample S2017: Kuwait, Ash Shu Ayabah. Crystal of orthoclase feldspar (Al, Si, K)



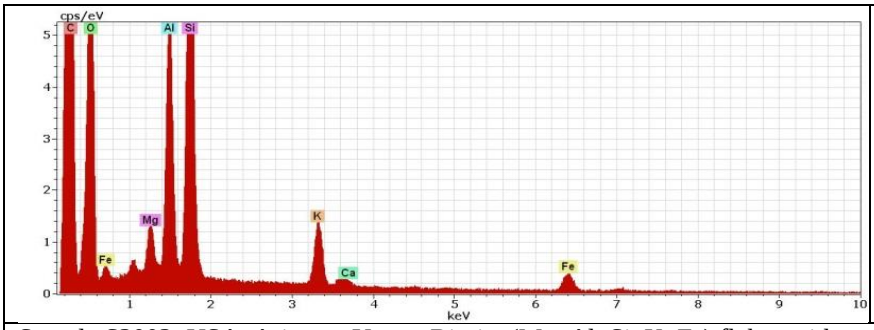


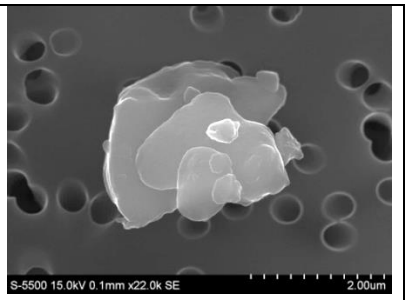
Sample S2017: Kuwait, Ash Shu Ayabah. Eroded crystal of calcite (Ca) with trace of attached clay (Mg, Al, Si)



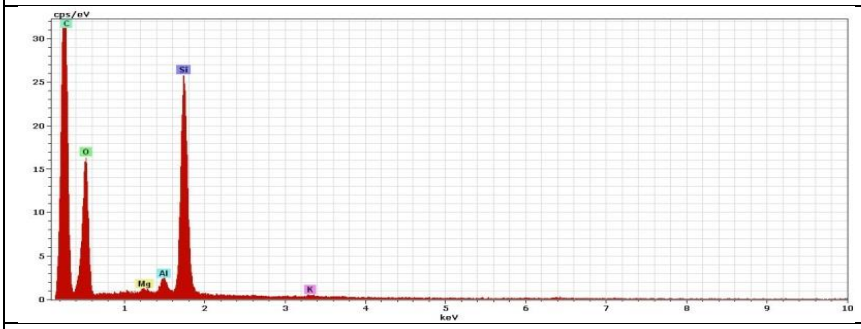


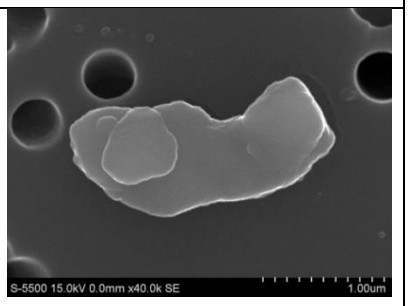
Sample S3003: USA, Arizona, Yuma. Well rounded quartz particle with trace of attached (coating) clay (Mg, Al, Si)



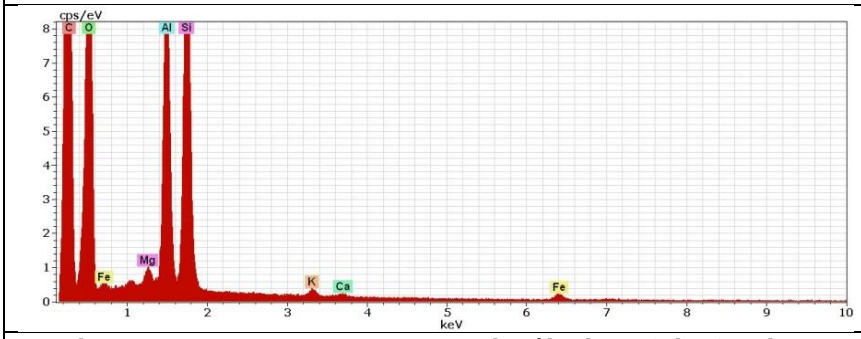


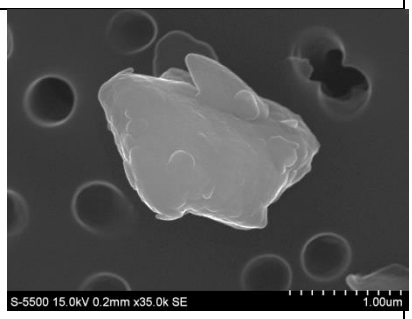
Sample S3003: USA, Arizona, Yuma. Biotite (Mg, Al, Si, K, Fe) flakes with trace of calcite (Ca)



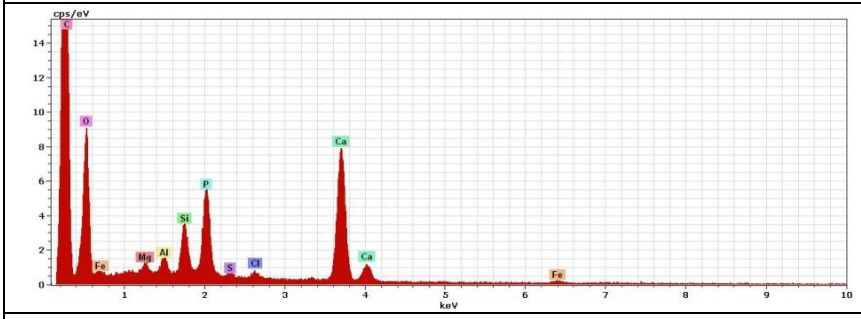


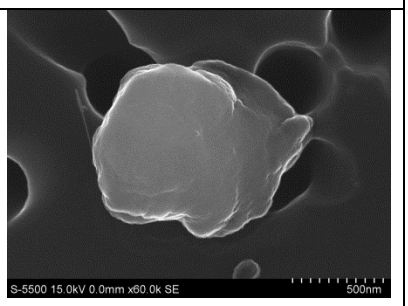
Sample S3004: USA, Arizona, Yuma. Irregularly shaped quartz (Si) particle with trace coating of illite (Mg, Al, Si, K)



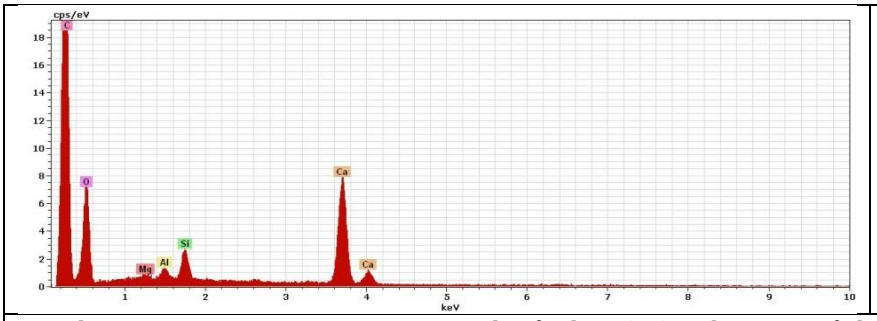


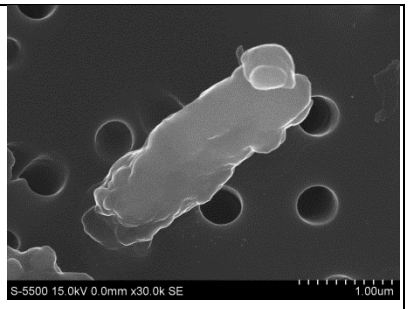
Sample S3004: USA, Arizona, Yuma. Particle of kaolinite (Al, Si) with trace amounts of illite (Mg, Al, Si, K) and calcite



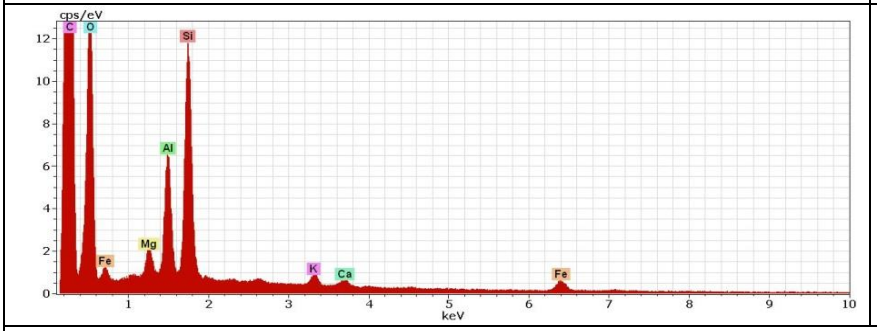


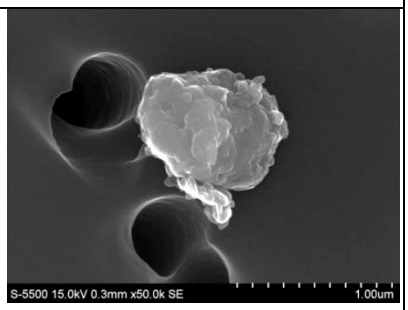
Sample S3008: USA, Arizona, Yuma. Composite particle of apatite (P, Ca) with small amounts of clay (Mg, Al, Si, Fe) and traces of gypsum (S, Ca) and halite (Cl)



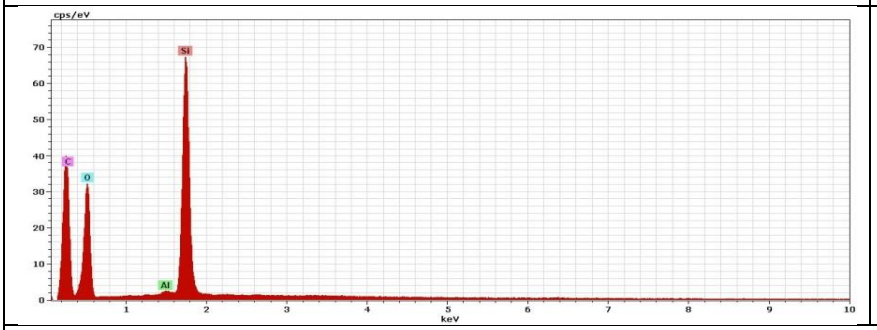


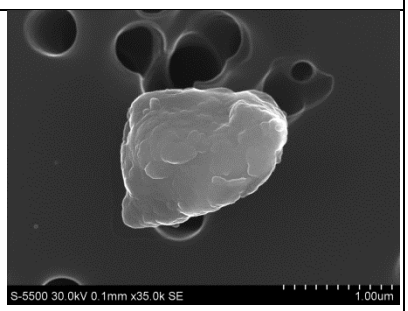
Sample S3008: USA, Arizona, Yuma. Particle of calcite (Ca) with coating of clay (Mg, Al, Si)



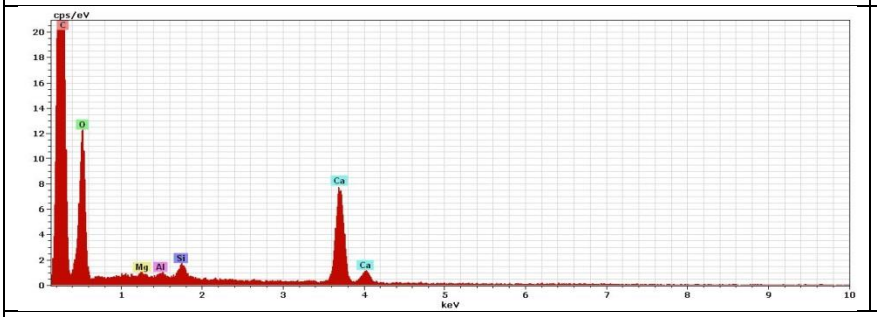


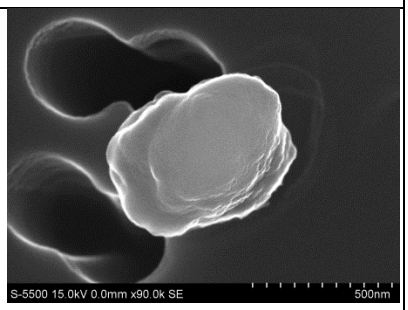
Sample S3011: USA, Colorado, Ft Carson. Cluster of illite/montmorillonite (Mg, Al, Si, K, Ca, Fe) clay particles



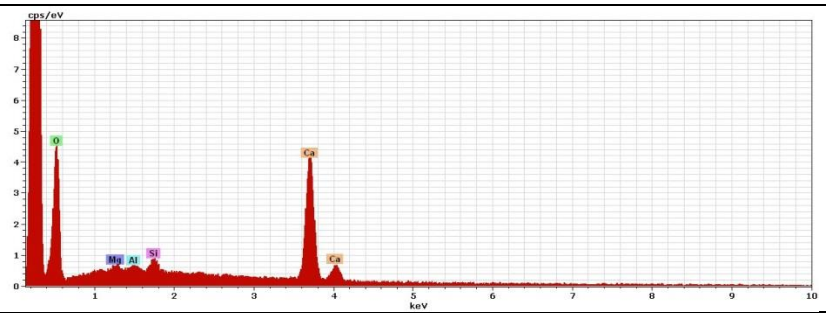


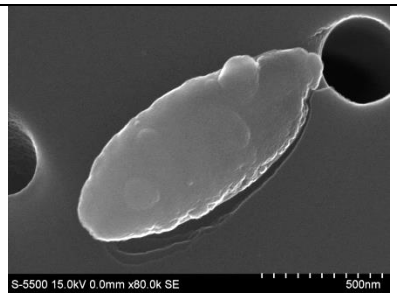
Sample S3011: USA, Colorado, Ft Carson. Rounded particle of quartz (Si) with clay (Al, Si) coating



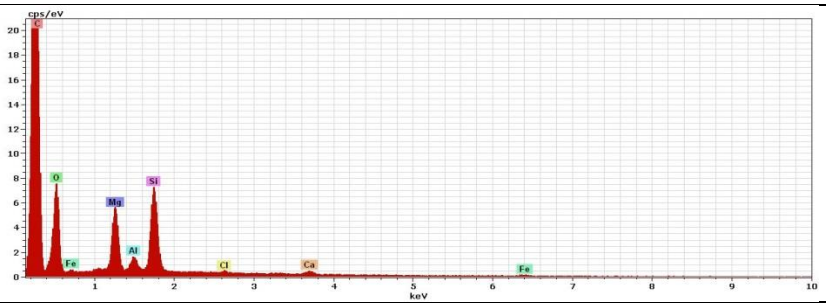


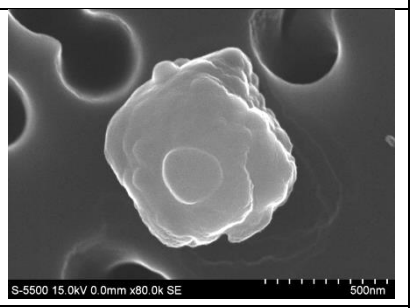
Sample S3016: USA, Utah, Dugway. Rounded particle of calcite (Ca) with a coating of clay (Mg, Al, Si)



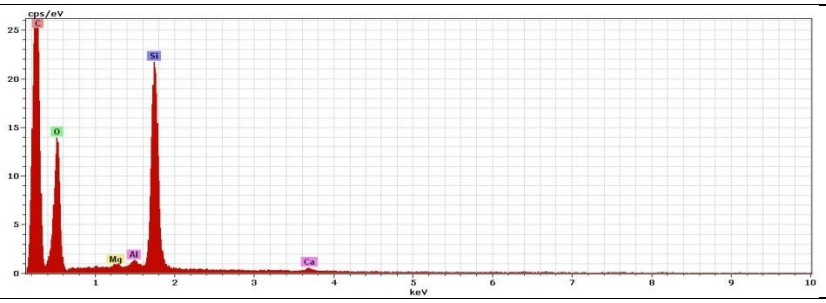


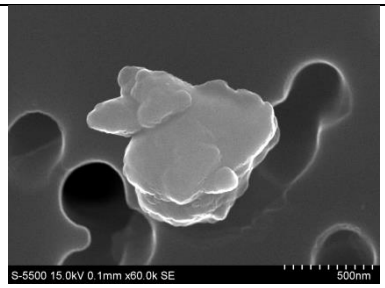
Sample S3016: USA, Utah, Dugway. Oblong-shaped particle of calcite (Ca) possibly of biogenetic origin with a coating of clay (Mg, Al, Si)



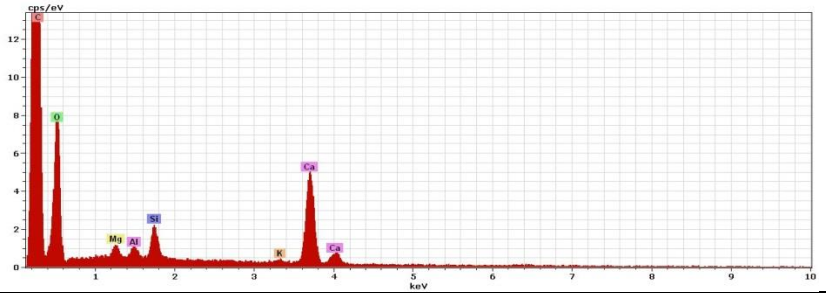


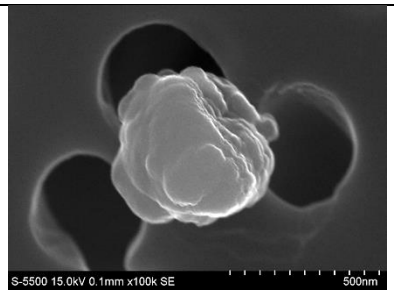
Sample S3016: USA, Utah, Dugway. Rounded particle of palygorskite or serpentine (Mg, Si) with coating of illite clay (Mg, Al, Si, Fe) and trace of halite (Cl)





Sample S3017: USA, Utah, Dugway. Irregularly shaped particle of quartz (Si) with trace of clay (Mg, Al, Si) and calcite (Ca)





Sample S3017: USA, Utah, Dugway. Composite particle of calcite (Ca) with component (coating) of illite (Mg, Al, Si) clay