

Table S1: Instrument acronyms, information and calibration method

No	Country	Institute	Type of radiometer	Network	Acronym	Calibration method
1	Switzerland	PMOD/WRC	PFR-N	GAW-PFR	PFR_CH_N06_IZO	Langley, High mountain site
2	Switzerland	PMOD/WRC	PFR-N	GAW-PFR	PFR_CH_N21_IZO	Langley, High mountain site
3	Switzerland	PMOD/WRC	PFR-N	GAW-PFR	PFR_CH_N24_MLO	Langley, High mountain site
4	Switzerland	PMOD/WRC	PFR-N	GAW-PFR, WORCC triad	PFR_CH_N01	PFR Triad (in situ & Langley checks)
5	Switzerland	PMOD/WRC	PFR-N	GAW-PFR, WORCC triad	PFR_CH_N25	PFR Triad (in situ & Langley checks)
6	Switzerland	PMOD/WRC	PFR-N	GAW-PFR, WORCC triad	PFR_CH_N27	PFR Triad (in situ & Langley checks)
7	Sweden	SMHI	PFR-N	GAW-PFR, As. Station	PFR_SE_N35	Comparison with PFR triad
8	Germany	DWD-MOL	PFR-N	GAW-PFR, As. Station	PFR_DE_N44	Comparison with PFR triad
9	Switzerland	Meteo Swiss	PFR-N	Swiss-national	PFR_MS_N11*	Davos Langley
10	Switzerland	PMOD/WRC	CIMEL	AERONET	CIM_CH_354	Comparison with reference (Langley)
11	Spain -France	Univ. Valladolid -	CIMEL	AERONET-Europe	CIM_ES_627_VLD	Langley / high mountain

		LOA Lille				
12	Spain	AEMET (Izaña Atmos. Res. Cen.)	CIMEL	AERONET	CIM_ES_917_IZO	Langley / high mountain
13	Italy	ARPA Valle d'Aosta	POM-2	SKYNET	POM_IT	In situ Langley
14	Germany	DWD-MOL	POM-2	Germany-national	POM_DE	In situ Langley
15	Japan	Jap. Met. Agency	POM-2	Japan-national	POM_JP	Compared to reference (Langley)
16	USA	NOAA	SPO2		SPO_US_1	Langley
17	Australia	Bureau of Meteorology	SPO2	Australian-national	SPO_AU_1	Langley
18	USA	NASA-Langley SSAI	MFRSR		MFR_US_1	Langley (Davos)
19	USA	NOAA	MFRSR	SURFRAD	MFR_US_2	Langley (Davos)
20	USA	NOAA	MFRSR	SURFRAD	MFR_US_3	Langley (Davos)
21	Germany	DWD-MOL	MFRSR	Germany-national	MFR_DE	Langley (Davos)
22	Germany	DWD-MOL	PSR	Germany-national	PSR_004	Absolute calibration
23	Germany	DWD-MOL	PSR	Germany-national	PSR_006	Absolute calibration
24	Switzerland	PMOD/WRC	PSR	Now at NOA/Greece	PSR_007	Absolute calibration
25	Canada	Cofovo energy Inc	SSIM	commercial	SSM_CA_SN102	Comparison to reference (absolute calibration)
26	Canada	Cofovo energy Inc	SSIM	commercial	SSM_CA_SN103	Comparison to reference

						(absolute calibration)
27	Canada	Cofovo energy Inc	SSIM	commercial	SSM_CA_SN112	Comparison to reference (absolute calibration)
28	Canada	Cofovo energy Inc	SSIM	commercial	SSM_CA_SN113	Comparison to reference (absolute calibration)
29	Greece	NOA	Microtops	Campaign based	MIC_GR	Comparison to CIMEL/Athens