

Table 7: Details of all aerosol particles analyzed by single particle analysis.

Grain_spot	$^{34}\text{S}/^{32}\text{S}$	$\pm 1\sigma$	$\delta^{34}\text{S}$	$\pm 1\sigma$	group	description	diameter
			[‰]	[‰]			[ $\mu\text{m}$ ]
<b>Filter 1: 02.-03. August</b>							
20050808_8	0.0439	0.0001	32	7	6	dried droplet mixed sulfate needles	0.6-1.3
20050808_10	0.0433	0.0003	18	9	6	dried droplet mixed sulfate needles	1.1
20050808_11	0.0434	0.0002	24	7	6	dried droplet mixed sulfates	2.8
20050808_15	0.0434	0.0002	23	7	5	dried droplet + Gypsum needle	2.1
20050808_16	0.0429	0.0001	13	7	3a	sulfates on silicate	7.7
20050808_17	0.0426	0.0001	2	7	6	mixed sulfates	3.1
20050808_18	0.0429	0.0002	31	8	9	plant debris + secondary gypsum	12.5
20050808_19	0.0435	0.0001	25	7	6	dried droplet mixed sulfate needles	0.7-2.1
20050808_21	0.0422	0.0002	-14	7	4a		1.2
20050808_22	0.0425	0.0003	-6	8	4a		
20050808_27	0.0434	0.0001	21	7	6	dried droplet + secondary gypsum	1.1
20050808_28	0.0434	0.0001	19	6	5	dried droplet + secondary gypsum	1.6
20050808_29	0.0412	0.0002	-35	7	4a		
20050808_30	0.0424	0.0002	0	7	6	dried droplet mixed sulfates	2.8
20050808_31	0.0435	0.0002	21	7	6	dried droplet	0.2
20050808_32	0.0425	0.0001	9	6	9	biological particles	5.2
20050808_33	0.0431	0.0001	24	6	6	dried droplet mixed sulfates	6.1
20050808_35	0.0427	0.0002	7	8	5	gypsum	3.5
20050808_36	0.0421	0.0001	-4	6	9	pollen	3.6
20050808_37	0.0430	0.0001	6	6	3a	coating on soot/silicate particle	2.7
20050808_41	0.0429	0.0001	12	7	2	gypsum/Halite/sodium sulfate	2.5
20050808_42	0.0431	0.0001	24	6	6	dried droplet mixed sulfates	6.7
20050808_45	0.0441	0.0001	37	7	6	mixed sulfate needles	1.8
20050808_46	0.0423	0.0001	-4	7	4a		
20050808_47	0.0434	0.0001	29	6	6	iron oxides + secondary gypsum	5.0
20050808_48	0.0432	0.0001	15	6	4b	dried droplet	1.8

20050808_49	0.0434	0.0001	25	7	6	dried droplet	3.1
20050808_50	0.0425	0.0002	-5	7	4a		
20050808_52	0.0417	0.0001	-28	7	4a		

**Filter 2: 03.-04. August**

20050808_63	0.04212	0.0002	-10	6	4a	secondary particle	2.5
20050808_64	0.04248	0.0001	-5	6	4a	secondary particle	<1
20050808_65	0.04323	0.0001	38	6	9	biological particles	18.2
20050808_66	0.04336	0.0002	16	6	4a	secondary particle	<1
20050808_68	0.04350	0.0001	22	6	6	secondary particle	1.9
20050808_69	0.04250	0.0002	-3	6	4a	secondary particle	1.1
20050808_71	0.04275	0.0001	7	6	9	biological particles	6.8
20050808_72	0.04347	0.0001	24	6	4b	secondary particle	3.5
20050808_73	0.04303	0.0002	8	6	4a	secondary particle	<1
20050808_74	0.04269	0.0002	37	6	5	dried droplet	21.5
20050808_75	0.04290	0.0001	23	6	9	biological particles	10
20050808_76	0.04280	0.0003	14	6	4b	mixed sulfates	7.3
20050808_77	0.04338	0.0001	19	6	4b	secondary particle	5.0
20050808_78	0.04210	0.0002	7	6	9	mixed sulfates/silicate	9.7
200511_23	0.04405	0.0001	15	6	4a	not identified	<1
4@2	0.04359	0.0002	0	7	4a	secondary particle	<1
4@3	0.04334	0.0002	-6	7	4a	secondary particle	<1
200511_28	0.04350	0.0002	2	7	4a	dried droplets	2.5
200511_29	0.04350	0.0002	33	9	5	gypsum, secondary particle	7.5
200511_31	0.04431	0.0001	39	6	5	gypsum ,secondary particle	<1

**Filter 4: 17.-18. August**

200510_8	0.04384	0.0003	18	7	5	gypsum. secondary particle	3.1
200510_9	0.04344	0.0002	4	6	5	gypsum, secondary particle	<1
200510_10	0.04447	0.0003	28	7	5	gypsum, secondary particle	<1
200510_11	0.04288	0.0001	-12	4	4a	secondary particle	2.3
200510_12	0.04315	0.0002	-9	6	3a	silicate with coating	<1
200510_15	0.04301	0.0001	-12	4	4a	secondary particle	<1

200510_16	0.04364	0.0001	7	4	4b	secondary particle	<1
200510_17	0.04319	0.0001	-8	3	4a	secondary particle	<1
200510_19	0.04404	0.0001	18	3	5	gypsum, secondary particle	<1
200510_20	0.04356	0.0002	1	4	4b	secondary particle	<1
200510_21	0.04286	0.0002	-9	6	5	gypsum, secondary particle	<1
200510_22	0.04374	0.0002	11	5	5	gypsum, secondary particle	<1
200510_23	0.04381	0.0001	13	4	5	gypsum, secondary particle	<1
200510_24	0.04368	0.0001	4	3	3a	silicate with coating	<1
200510_25	0.04389	0.0002	15	5	5	gypsum, secondary particle	<1
200510_26	0.04352	0.0001	2	4	3a	silicate with coating	1.4
200510_27	0.04369	0.0002	6	5	3a	silicate with coating	1.8
200510_28	0.04321	0.0001	-2	4	3a	silicate with coating	3.7
200510_35	0.04367	0.0002	9	5	5	gypsum, secondary particle	<1
200510_36	0.04358	0.0002	7	4	5	gypsum, secondary particle	<1

**Filter 5: 18.-19. August**

20050830_42	0.04368	0.0001	11	5	5	gypsum, secondary particle	<1
20050830_44	0.04287	0.0003	-13	7	6	secondary particle	<1
20050830_46	0.04309	0.0001	-2	5	5	gypsum, secondary particle	<1
20050830_47	0.04313	0.0002	-1	6	5	gypsum, secondary particle	<1
20050830_48	0.04313	0.0001	2	5	3a	silicate with coating +sec. particle	2.4
20050830_49	0.04266	0.0002	-17	6	4a	secondary particle	<1
20050830_50	0.04300	0.0001	16	4	3a	silicate with coating	12.7
20050830_51	0.04283	0.0001	-4	5	6	secondary particle	2.6
20050830_52	0.04321	0.0001	-3	5	3a	iron oxide + sulfate coating	1.8
20050830_53	0.04339	0.0001	17	5	3a	silicate with coating	9.2
20050830_53	0.04240	0.0001	-1	5	6	Na- sulfate	10.1
20050830_56	0.04323	0.0001	23	5	6	Ca-phosphate/sulfate	13.6
20050830_57	0.04316	0.0001	19	4	9	biological particles + secondary particles	
20050830_58	0.04330	0.0001	3	5	5	gypsum, secondary particle	<1
20050830_59	0.04261	0.0001	-13	5			<1
20050830_60	0.04274	0.0001	-10	5			<1

20050830_61	0.04352	0.0002	9	5	3a	silicate with coating	1.3
20050830_62	0.04349	0.0001	1	5	4b	secondary particle	<1
20050830_63	0.04343	0.0001	17	4	9	pollen	4.5
20050830_64	0.04341	0.0001	-1	5	4b	secondary particle	<1
20050830_65	0.04329	0.0001	-4	5	4a	secondary particle	<1
20050830_66	0.04387	0.0001	16	5	5	gypsum, secondary particle	<1
20050830_68	0.04378	0.0002	7	6	4b	secondary particle	<1
20050830_69	0.04306	0.0001	-3	5	5	gypsum, secondary particle	<1
20050830_71	0.04352	0.0002	8	5	5	gypsum, secondary particle	<1
200511_21	0.04400	0.0001	12	6	4b	secondary particle	<1
200511_22	0.04397	0.0002	12	6	4b	secondary particle	<1

**Filter 7: 20.-22. August**

20050830_5	0.04316	0.0001	1	4	3a	silicate with coating	5.0
20050830_6	0.04286	0.0001	-11	5	4a	secondary particle	2.2
20050830_7	0.04332	0.0001	9	4	3a	silicate with coating	7.5
20050830_8	0.04367	0.0001	16	4	5	gypsum primary	3.2
20050830_9	0.04363	0.0001	3	5	4a	secondary particle	<1
sple@6	0.04397	0.0001	20	5	5	iron oxide + secondary gypsum	1.5
sple@2	0.04364	0.0001	15	4	5	gypsum primary	3.2
sple@3	0.04377	0.0001	10	5	4b	secondary particle	1.9
sple@4	0.04356	0.0001	10	4	6	secondary particle	<1
20050830_11	0.04375	0.0002	13	6	5	secondary gypsum	<1
20050830_12	0.04360	0.0002	9	6	5	secondary gypsum	<1
20050830_13	0.04387	0.0003	9	7	4a	secondary particle	<1
20050830_14	0.04433	0.0001	26	5	5	thin layer of secondary gypsum	6.5
20050830_15	0.04417	0.0001	22	4	5	thin layer of secondary gypsum	4.6
20050830_16	0.04360	0.0001	26	5	9	pollen	8.0
20050830_17	0.04416	0.0002	25	6	5	secondary gypsum	1.9
20050830_18	0.04430	0.0001	28	4	5	iron oxide + sulfur coating	1.5
20050830_19	0.04392	0.0001	17	5	5	secondary gypsum	<1
20050830_21	0.04366	0.0001	21	4	5	primary gypsum + silicate	6.2

20050830_22	0.04359	0.0001	10	4	5	secondary gypsum	<1
20050830_23	0.04369	0.0001	12	5	5	secondary gypsum	<1
20050830_24	0.04365	0.0001	24	5	5	coating on silicate particle	8.1
20050830_26	0.04389	0.0002	18	6	5	secondary gypsum	1.4
20050830_27	0.04410	0.0003	15	7	4b	secondary particle	<1
20050830_28	0.04407	0.0002	20	6	5	secondary gypsum	<1
20050830_29	0.04441	0.0003	22	7	4b	secondary particle	<1
20050830_30	0.04352	0.0001	12	5	6	carbon, oxygen, extremely hard	6.5
20050830_31	0.04443	0.0001	30	5	3a	coating on silicate	5.2
20050830_32	0.04426	0.0001	20	5	4b	gypsum + ammonium silicate	1.2
20050830_33	0.04346	0.0001	7	5	3a	coating on silicate	4.8
20050830_34	0.04356	0.0001	13	5	3a	coating on silicate	6.9
20050830_35	0.04415	0.0001	25	5	6	coating on silicate	1.8
200511_15	0.04371	0.0002	3	7	4a	secondary particle	1.4
200511_16	0.04366	0.0002	8	7	5	secondary gypsum	<1
200511_17	0.04349	0.0001	-2	6	4a	secondary particle	<1
200511_18	0.04383	0.0002	7	7	4a	secondary particle	1.0
200511_19	0.04350	0.0001	4	6	6	secondary particle	<1
200511_20	0.04347	0.0001	4	6	5	secondary gypsum	<1

**Filter 8: 22.-23. August**

200511_6	0.04366	0.0001	9	6	4b	ammonium sulfate	4.9
200511_7	0.04377	0.0001	22	6	3a	silicate	7.3
200511_8	0.04386	0.0001	13	6	4b	ammonium sulfate	4.5
200511_9	0.04342	0.0001	5	6	5	gypsum needle	1.4
sample@1	0.04285	0.0002	3	7	3a	ammonium sulfate + silicate	12.7
sample@2	0.04351	0.0001	9	6	4b	ammonium sulfate	6.9
sample@3	0.04193	0.0001	-15	6	4b	gypsum + ammonium sulfate	12.7
sample@4	0.04352	0.0001	7	6	5	gypsum needle	1.8
200511_10	0.04372	0.0001	11	6	5	secondary gypsum	1.4
200511_11	0.04401	0.0001	17	6	6	secondary mixed sulfate	2.7
200511_12	0.04370	0.0001	11	6	4b	ammonium sulfate	5.3

sample@5	0.04410	0.0001	27	6	5	large gypsum needle	5.5
sample@6	0.04343	0.0002	2	7	6	secondary particles	1.9
sample@7	0.04307	0.0002	-1	7	3a	gypsum needle and silicate particle	3.1
sample@8	0.04308	0.0001	-2	6	5	gypsum needle	1.9
sample@9	0.04374	0.0003	13	9	4b	coarse mode ammonium sulfate	5.8

