



*Supplement of*

## **Biomass burning and marine aerosol processing over the southeast Atlantic Ocean: a TEM single-particle analysis**

**Caroline Dang et al.**

*Correspondence to:* Caroline Dang ([carolinevandang@gmail.com](mailto:carolinevandang@gmail.com)) and Michal Segal-Rozenhaimer ([msegalro@tauex.tau.ac.il](mailto:msegalro@tauex.tau.ac.il))

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**Supplementary Material**

**Table S1 Filter samples, flight and particles analyzed**

<b>Sample name</b>	<b>Flight</b>	<b>Date</b>	<b>Start time</b>	<b>End time</b>	<b>Particles Analyzed</b>	<b>Total Flow (L)</b>
Gold 1	C030	8/17/2017	15:19	15:24	49	198
Gold 8	C033	8/22/2017	12:09	12:21	27	66
Gold 9	C035	8/23/2017	16:52	17:01	39	152
Gold 10	C037	8/24/2017	13:58	14:08	42	157
Gold 11	C036	8/24/2017	9:43	9:48	54	229
Gold 14	C042	8/28/2017	11:26	11:36	47	180
Gold 15	C042	8/28/2017	10:58	11:09	22	279
Gold 18	C044	8/29/2017	11:01	11:17	32	315
Gold 19	C046	8/30/2017	9:59	10:11	57	271
Gold 20	C046	8/30/2017	10:43	10:57	30	536
Gold 21	C055	9/7/2017	16:06	16:27	43	325
Gold 22	C049	9/2/2017	10:08	10:19	43	520
Gold 23	C049	9/2/2017	11:56	12:12	44	289
Gold 24	C050	9/4/2017	15:08	15:33	24	720
RF02_1	RF02	9/30/2018	10:05:00	10:15:34	23	317
RF02_2	RF02	9/30/2018	11:22:17,11:45:22	11:27:24,11:49:16	35	297
RF03	RF03	10/2/2018	13:16:59, 13:21:10	13:18:29,13:30:20	59	315
RF04	RF04	10/3/2018	10:01:52	10:13:00	65	334
RF05_1	RF05	10/5/2018	7:34:19	7:44:30	55	305
RF05_2	RF05	10/5/2018	8:09:30	8:19:50	64	310
RF05_3	RF05	10/5/2018	9:06:21	9:18:10	37	355
RF06_1	RF06	10/7/2018	11:43:09	11:48:45	49	168
RF06_2	RF06	10/7/2018	13:22:50	13:33:40	39	325
RF07_1	RF07	10/10/2018	10:25:05	10:34:52	43	293
RF07_2	RF07	10/10/2018	12:05:41	12:15:49	29	304
RF09	RF09	10/15/2018	11:11:52	11:20:26	56	257
RF10	RF10	10/17/2018	9:59:04	10:06:58	66	237
RF11	RF11	10/19/2018	10:23:38	10:35:27	62	355
RF13	RF13	10/23/2018	10:44:57, 10:50:10, 10:54:46, 11:02:56	10:47:09, 10:51:55, 10:58:28, 11:12:03	33	501
RF11Filter5	RF11	8/30/2017	10:29	10:41	47	360

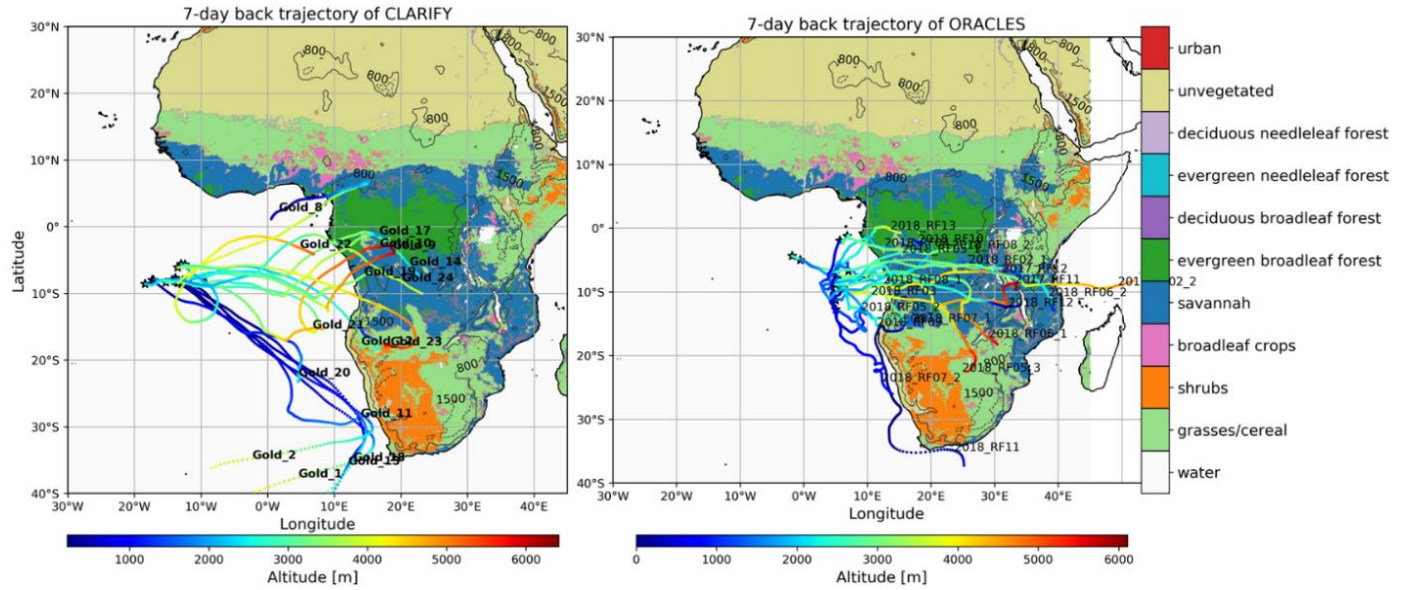


Figure S1 7-day back trajectories and sources of collected filters. The colors represent different broadleaf forests, urban, unvegetated areas, savannah, crop, grasses, and shrubland as denoted by the MODIS land use vegetation classifications.

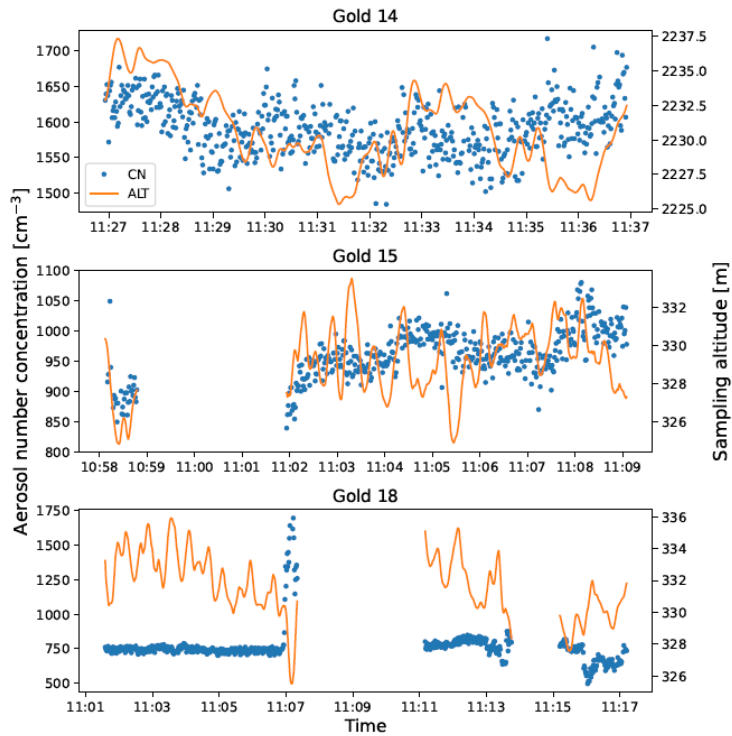


Figure S2 Particle count and altitude for Cl-dominated filters Gold 14, Gold 15, and Gold 18 during filter exposure times

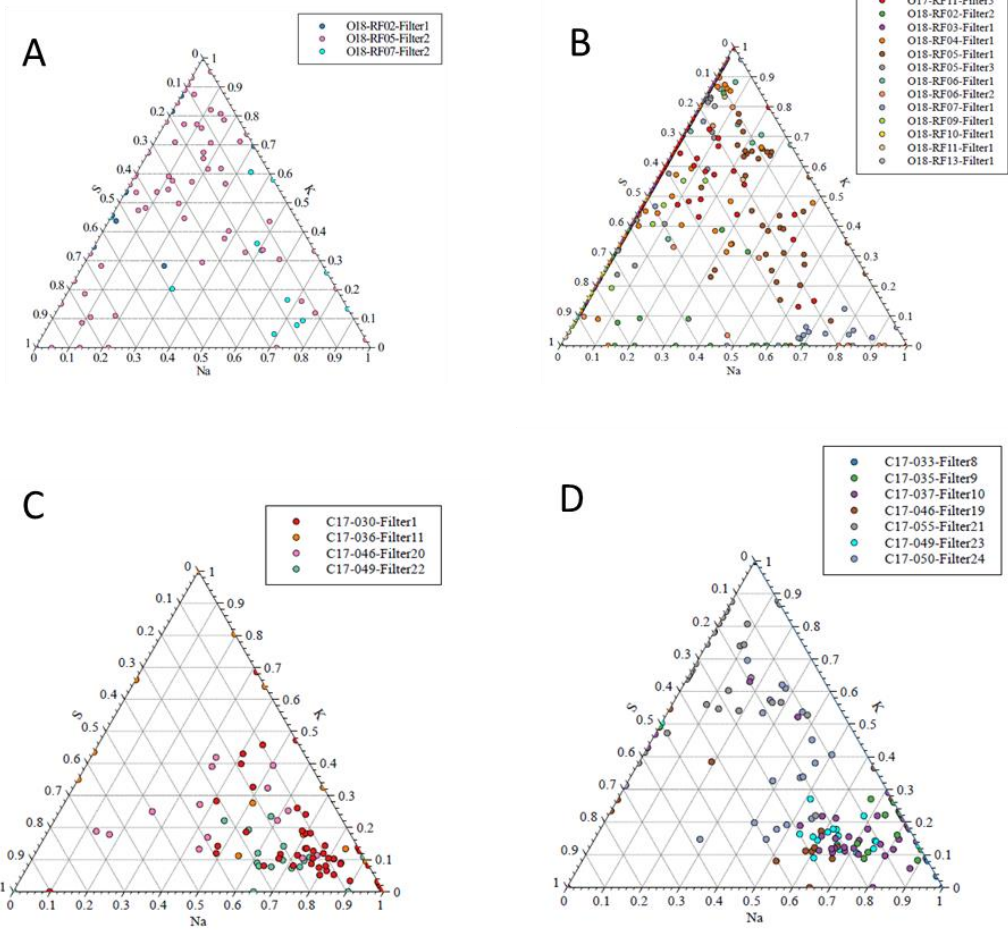
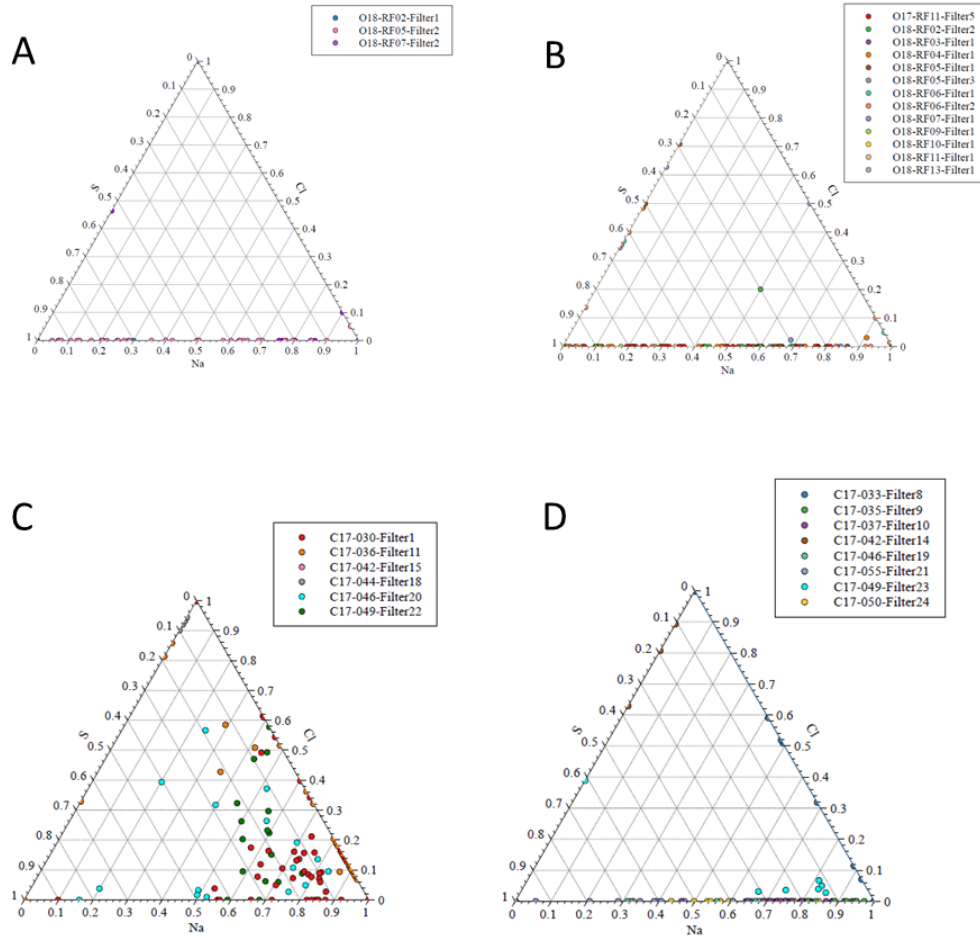


Figure S3 Na-S-K ternary diagrams for A) ORACLES below cloud B) ORACLES above cloud C) CLARIFY below cloud and D) CLARIFY above cloud.



**Figure S4 Na-S-Cl ternary diagrams for A) ORACLES below cloud B) ORACLES above cloud C) CLARIFY below cloud and D) CLARIFY above cloud. Note that the dearth of particles in A) and B) are due to the majority of particles having no Cl as well as most Cl-containing particles not containing Na or S.**