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## Supplemental Material

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Supplementary table S1. Detailed statistics for 7 tags of the continuous high-resolution dataset and 43 tags of the low-resolution dataset considered in this study. Among others quantities, are presented mean CT, SA and RMS between raw and corrected data for CT, SA and sigma\_0.

tag ID	# of profiles	start date	end date	CT [°C]	SA [g.kg <sup>-1</sup> ]	RMS CT [°C]	RMS SA [g.kg <sup>-1</sup> ]	RMS sigma_0 [kg.m <sup>-3</sup> ]	optimal $\alpha_r$
<b>High-resolution</b>									
ct112-031-14	7281	2014,10,28	2015,1,15	2,01	34,57	0,008	0,008	0,006	0,09
ct112-048-14	6333	2014,10,20	2015,1,16	1,97	34,57	0,006	0,006	0,005	0,09
ct112-049-14	6268	2014,10,24	2015,1,11	2,23	34,54	0,005	0,005	0,004	0,09
ct112-050-14	6929	2014,10,27	2015,1,20	2,13	34,49	0,004	0,004	0,004	0,10
ct112-331-16	3848	2016,10,24	2016,12,28	2,78	34,38	0,005	0,005	0,004	0,07
ct139-331BAT-16	2955	2017,10,20	2017,12,14	3,19	34,17	0,007	0,007	0,006	0,10
ct139-F620-17	5569	2017,10,17	2018,1,1	2,29	34,49	0,008	0,008	0,006	0,08
<b>Low-resolution</b>									
ct112-031-14	631	2014,10,28	2015,1,15	2,00	34,51	0,005	0,005	0,004	
ct112-048-14	563	2014,10,20	2015,1,16	1,94	34,58	0,004	0,004	0,003	
ct112-049-14	471	2014,10,24	2015,1,11	2,23	34,49	0,004	0,004	0,003	
ct112-050-14	596	2014,10,27	2015,1,20	2,09	34,45	0,003	0,003	0,003	
ct120-265BAT-15	50	2015,11,1	2016,1,11	3,58	34,46	0,004	0,004	0,004	
ct120-266BAT-15	192	2015,11,2	2016,1,24	2,27	34,49	0,002	0,002	0,002	
ct131-265BAT-16	120	2016,11,2	2017,1,13	3,27	34,39	0,005	0,005	0,005	
ct132-331-16	18	2016,10,25	2016,12,28	2,80	34,28	0,003	0,003	0,003	
ct139-331BAT-16	56	2017,10,20	2017,12,14	3,22	34,10	0,004	0,004	0,004	
ct139-F620-17	30	2017,10,19	2018,1,1	2,35	34,38	0,003	0,003	0,003	
ct82-261-11	248	2011,10,25	2012,1,9	2,18	34,47	0,003	0,003	0,003	
ct96-02-13	434	2013,2,20	2013,30,18	6,89	34,60	0,007	0,007	0,007	
ct96-03-13	610	2013,2,27	2013,30,19	0,59	34,75	0,005	0,005	0,004	
ct96-09-13	475	2013,1,6	2013,9,9	0,18	34,62	0,005	0,005	0,004	
ct96-10-13	328	2013,1,6	2013,10,5	2,38	34,52	0,002	0,002	0,002	
ct96-16-13	649	2013,2,27	2013,30,13	0,78	34,68	0,008	0,008	0,007	
ct96-18-13	101	2013,1,1	2013,10,16	1,63	34,65	0,005	0,005	0,005	
ct96-20-13	406	2013,2,10	2013,10,5	2,35	34,49	0,002	0,002	0,002	
ct96-21-13	638	2013,2,21	2013,10,7	-0,92	34,70	0,006	0,006	0,005	
ct96-22-13	357	2013,2,25	2013,9,15	2,14	34,58	0,002	0,002	0,002	
ct96-23-13	578	2013,2,27	2013,10,7	1,53	34,67	0,006	0,006	0,005	
ct96-24-13	19	2013,2,10	2013,4,14	-0,64	34,59	0,005	0,005	0,004	
ct96-25-13	662	2013,4,4	2013,11,24	0,24	34,68	0,003	0,003	0,002	
ct96-28-13	548	2013,1,8	2013,10,15	1,43	34,70	0,003	0,003	0,003	
ct96-29-13	624	2013,2,20	2013,9,29	2,76	34,47	0,004	0,004	0,004	
ct98-31-13	554	2014,1,31	2014,9,21	2,97	34,49	0,004	0,004	0,004	
ct98-33-13	539	2014,1,6	2014,11,2	2,26	34,50	0,002	0,002	0,002	
ct98-34-13	349	2014,1,28	2014,30,21	2,28	34,51	0,002	0,002	0,002	
ct98-35-13	177	2014,2,2	2014,3,30	0,99	34,75	0,005	0,005	0,004	
ct98-39-13	543	2014,1,30	2014,10,4	1,68	34,68	0,004	0,004	0,004	
ct98-42-13	611	2014,1,29	2014,9,22	2,07	34,58	0,003	0,003	0,003	
ct98-43-13	606	2014,1,31	2014,9,30	1,53	34,71	0,005	0,005	0,004	
ct98-46-13	540	2014,2,1	2014,9,21	0,88	34,27	0,005	0,005	0,004	
ct98-49-13	543	2014,1,8	2014,9,27	1,33	34,54	0,003	0,003	0,003	
ft07-Cy26-11	95	2011,2,23	2011,10,1	1,67	34,67	0,003	0,003	0,003	
ft07-Cy28-11	113	2011,2,23	2011,10,7	3,23	34,44	0,004	0,004	0,004	
ft10-Cy34-11	77	2011,10,29	2012,1,25	2,88	34,44	0,003	0,003	0,003	
ft10-Cy35-11	83	2011,10,25	2012,1,19	1,93	34,61	0,004	0,004	0,003	
ft10-Cw03-11	68	2011,10,28	2012,1,13	2,29	34,51	0,004	0,004	0,003	
ft10-Cw04-11	82	2011,10,27	2012,1,14	2,19	34,47	0,002	0,002	0,002	
ft10-Cw05-11	69	2011,10,25	2012,1,20	2,78	34,54	0,004	0,004	0,004	
ft11-Cy90b-12	209	2012,2,12	2012,9,27	2,87	33,40	0,006	0,006	0,005	
ft18-74-12	120	2014,10,18	2014,12,21	2,03	34,45	0,040	0,040	0,032	