

Meteor 0207 (2020)

Stefan Kinne (8 feb 2am)

1. Objective

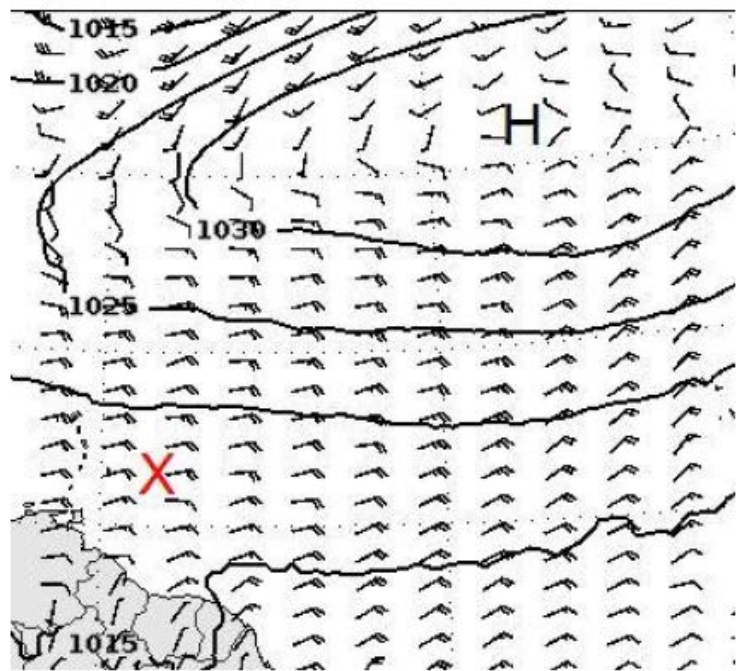
Parking next the MERIAN for data comparisons and a common CTD profile down to 4000m. Continuing on the track to southern turning point (with a regular CTD) and then returning to L2 for an entire day stay, for daily cycle sampling and continued local cloud kite operations overnight. Radiosondes launches at (almost) the regular times (3.05, 6.45, 10.45, 14.45, 16.33 (DWD), 18.45 and 22.45 UTC).

In the morning we reached the L2 point, where the MERIAN was already waiting (its cloud-kite was down due to strong winds). Both ships started a deep CTD but we had to cancel that effort at 1700m, as we had an instrument on the CTD that was only certified till 1000m depth. Thus, the common 4000m CTD casts were restarted on both ships. After the deep CTD, we waited next to the MERIAN for an extra 30 min as a passing rainband offered a brief comparison period under cloudy and raining conditions for atmospheric sensors (e.g. radar and lidar) on both ships. Then we left the MERIAN for the southern point on the METEOR track and after a CTD returned to L2, still finding the MERIAN there. The MERIAN was just leaving the L2 position for a brief unscheduled return to Bridgetown, as we set out the balloon kite instrument for an extended overnight sampling period, while capturing the daily cycle with regular CTD casts and radiosonde launches.

2. Synoptic Situation



Satellitenbild GOES16 07.02.2020 13:20 UTC



Vorhersage für Samstag 12 UTC

Weather observations (every 3hr)

20 02 07001 99135 70572 11598 10712 10264 20205 40175 53014 70100 81200 22242 04272
2//// 3//// 4//// 5//// 6//// ICE ////

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20 02 07031 99133 70572 46/// /0813 10266 20207 40179 51004 7///// 8///// 22241 04273
2///// 3///// 4///// 5///// 6///// ICE /////
20 02 07061 99130 70572 16/// /0812 10264 20188 40163 58016 7///// 8///// 22242 04276
2///// 3///// 4///// 5///// 6///// ICE /////
20 02 07091 99128 70572 46/// /0813 10264 20192 40158 56005 7///// 8///// 22241 04276
2///// 3///// 4///// 5///// 6///// ICE /////
20 02 07121 99124 70572 11598 10811 10264 20193 40176 53018 72581 81800 22242 04276
20302 307/// 40805 5///// 6///// ICE /////
20 02 07151 99124 70572 41598 10710 10266 20197 40182 50006 70100 81200 22260 04276
20302 308/// 40805 5///// 6///// ICE /////
20 02 07181 99124 70572 11598 10711 10265 20199 40154 58028 72581 81300 22241 04276
20302 308/// 40805 5///// 6///// ICE /////
20 02 07211 99121 70572 41598 20712 10266 20199 40148 55006 70380 82200 22241 04276
20302 308/// 40805 5///// 6///// ICE /////

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The passing clouds at least in the morning and at noon had traces of precipitation. No cirrus. Otherwise and windy day with mostly blue skies for good sun-photometer sampling conditions.

3. Cruise-day Elements

IWV (integrated water vapor): 26 kg /m2 +/- 3
LWP (liquid water path): 52 g /m2 +/- 268

Time	0-3UTC	4-6UTC	7-9UTC	10-12UTC	13-15UTC	16-18UTC	19-21UTC
Height_m	872.00	961.44	961.44	1006.16	983.80	939.08	872.00
max_hydro_frac_low	0.09	0.08	0.21	0.09	0.01	0.21	0.07
Height_m	1609.85	1699.29	1565.14	1207.39	1207.39	1609.85	1207.39
max_hydro_frac_mid	0.07	0.11	0.21	0.08	0.00	0.24	0.02
Height_m	12920.65	5987.42	6138.04	12878.56	12920.65	5987.42	12878.56
max_hydro_frac_high	0.00	0.00	0.00	0.00	0.00	0.00	0.00

low=up to 1200m, mid=up to 6000m, high=up to 15000m

hourly means of ship data (1st line 0-1 UTC, 2nd line 1-2 UTC ... last line 23-24 UTC)

salinity	Tdew	Tair	Twater	TrueDir	RH	rel.Wind	trueWind	lw Rad	sw Rad	lat	lon
PSU	°C	°C	°C	deg	%	m/s	m/s	W/m ²	W/m ²	°N	°E
35.4795	20.31	26.43	27.2	73.47	68.73	11.91	11.98	378.58	-1	13.46	-57.24
35.3564	20.09	26.47	27.25	78.7	67.73	12.39	12.16	392.73	-1	13.34	-57.25
35.3188	20.3	26.43	27.3	78.72	68.65	11.99	11.57	390.3	-1	13.3	-57.24
35.3247	20.18	26.3	27.37	80.77	68.77	13.2	12.51	401.43	-1	13.22	-57.24
35.424	19.49	26.39	27.52	81	65.48	14.9	14.41	380.85	-1	13.05	-57.25
35.4084	18.87	26.38	27.57	80.78	62.95	13.35	12.93	373.68	-1	12.97	-57.25
35.4101	18.76	26.3	27.6	79.24	62.92	11.83	11.39	372.46	-1	12.97	-57.25
35.411	19.37	25.49	27.58	77.42	68.6	12.22	11.76	411.68	-0.8	12.97	-57.25

35.4085	19.56	26.05	27.58	78.5	67.1	12.54	12.23	386.5	-0.98	12.9	-57.24
35.3796	19.47	26.18	27.58	77.27	66.08	13.25	12.99	386.35	-0.98	12.73	-57.24
35.3623	19.83	25.82	27.5	62.35	69.27	11.15	12.14	384.33	17.83	12.55	-57.24
35.5299	19.41	26.05	27.59	70.75	66.68	11.91	11.85	386.18	246.82	12.44	-57.25
35.544	18.71	26.6	27.59	65.9	61.68	12.15	11.72	380.28	468.27	12.44	-57.25
35.5563	19.62	26.46	27.59	64.86	65.98	11.84	11.43	383.38	680.26	12.44	-57.25
35.5663	19.63	26.44	27.65	69.07	65.82	10.58	10.15	383.17	858.68	12.44	-57.25
35.5735	19.33	26.61	27.63	71.67	63.88	10.11	9.69	387.48	921.58	12.44	-57.25
35.5777	19.97	24.83	27.54	59.93	74.4	10.22	9.81	425.18	632.85	12.44	-57.25
35.5923	20.06	26.14	27.55	64.43	68.9	9.88	9.72	388.97	849.92	12.41	-57.23
35.579	19.97	26.47	27.59	64.15	67.08	11.77	11.48	399.95	596.69	12.29	-57.23
35.5501	19.7	26.41	27.62	65.17	66.23	10.29	11.95	382.97	532.32	12.19	-57.23
35.5361	20.09	26.53	27.64	66.23	67.38	11.98	11.26	390.63	243.58	12.13	-57.25
35.551	20.01	26.5	27.62	65.3	67.15	14.05	10.82	378.35	48.97	12.23	-57.24
35.5955	19.84	26.37	27.61	63	67	12.97	10.87	385.65	-0.88	12.39	-57.25
35.6054	20.42	26.22	27.57	66.81	70.07	11.23	10.84	398.07	-1	12.42	-57.25

inter-calibration: with MERIAN (12-17 UTC)
CTD stations: 7
radiosondes: 7
overflights: none

station no.	UTC	device	action	latitude	longitude	depth	contact person
M161 139	7 feb 2020 / 02:01-02:33	CTD	CTD	13°18.009 N	57°14.725' W	800	Baranowski
M161 140	7 feb 2020 / 05:05-06:02	CTD	CTD	12°58.030 N	57°14.761' W	800	Baranowski
M161 141	7 feb 2020 / 07:25-07:52	CTD	Sample	12°58.032 N	57°14.762' W	250	Mohr
M161 142a	7 feb 2020 / 11:31-12:07	CTD	with MERIAN	12°26.154 N	57°14.789' W	1737	Baranowski
M161 142b	7 feb 2020 / 13:03-16:32	CTD	with MERIAN	12°26.152 N	57°14.788' W	4485	Baranowski
M161 143	7 feb 2020 / 20:06-20:41	CTD	CTD	12°07.524 N	57°14.801' W	1737	Baranowski
M161 144	7 feb 2020 / 23:24-23:58	CTD	CTD	12°25.120 N	57°14.801' W	800	Baranowski

4. Instrument Status

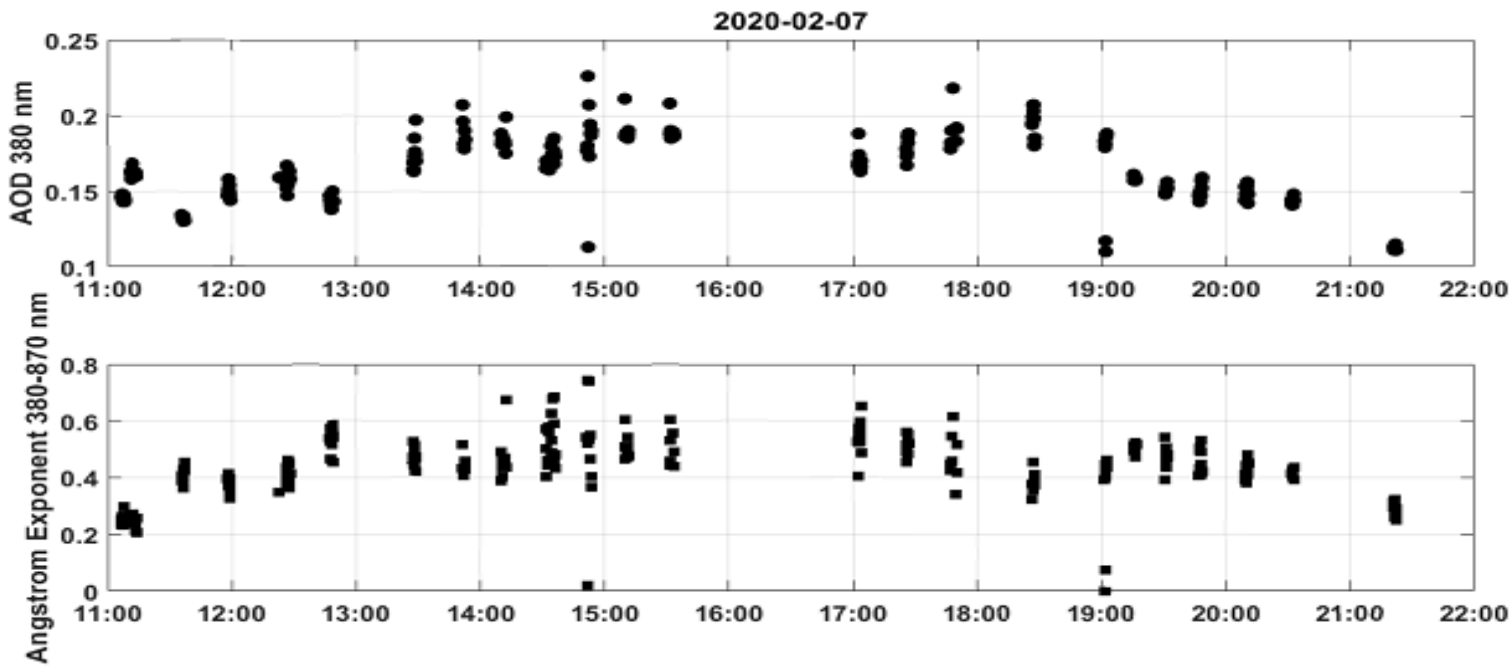
Instrument-Status (**W**-working, **P**-partially-working, **F**-failure, **U**-untested, **R**-ready)

	status	operators
radiosondes	W	Katharina, Imke, Yanmichel, Almuth, Kevin, Sebastian, Geiske
cloud-radar	W	Heike, Johannes
micro-radiometer	W	Heike, Johannes
spect-radiometer	W	Heike, Johannes

Raman-lidar			W	Ludwig
cloud-kite			W	Oliver, Marcel, Marcel, Antonio, Robert, Sanola
Picarro			P	Sebastian
micro-biology			W	Wiebke, Jan, Abiel
ADPC ocean curr.			W	Callum, Beth
thermosalinograph			W	Callum, Beth
glider			W	Callum, Beth
UAV			W	Darek, Jakub, Michal, Wojciech
eddy-flux-data			W	Katharina, Imke, Heike
wind-lidar (DTU)			W	Geiske, Kevin
wind-lidar (Bre)			P	Geiske, Kevin
MAX-DOAS			W	Alma
ceilometer			W	Stefan
cloud camera			W	Stefan
sunphotometer			W	Stefan, Przemek, Andreas, John, Sanola
aero scat/abs			W	Przemek (Mr P)
WRAS (aero size)			W	Alma
CTD			W	Darek, Przemek, Beth, Callum, Alma, Sanola, Kevin, Robert, Wojtek, Almuth
Rodney			W	Darek, Jakub, Przemek

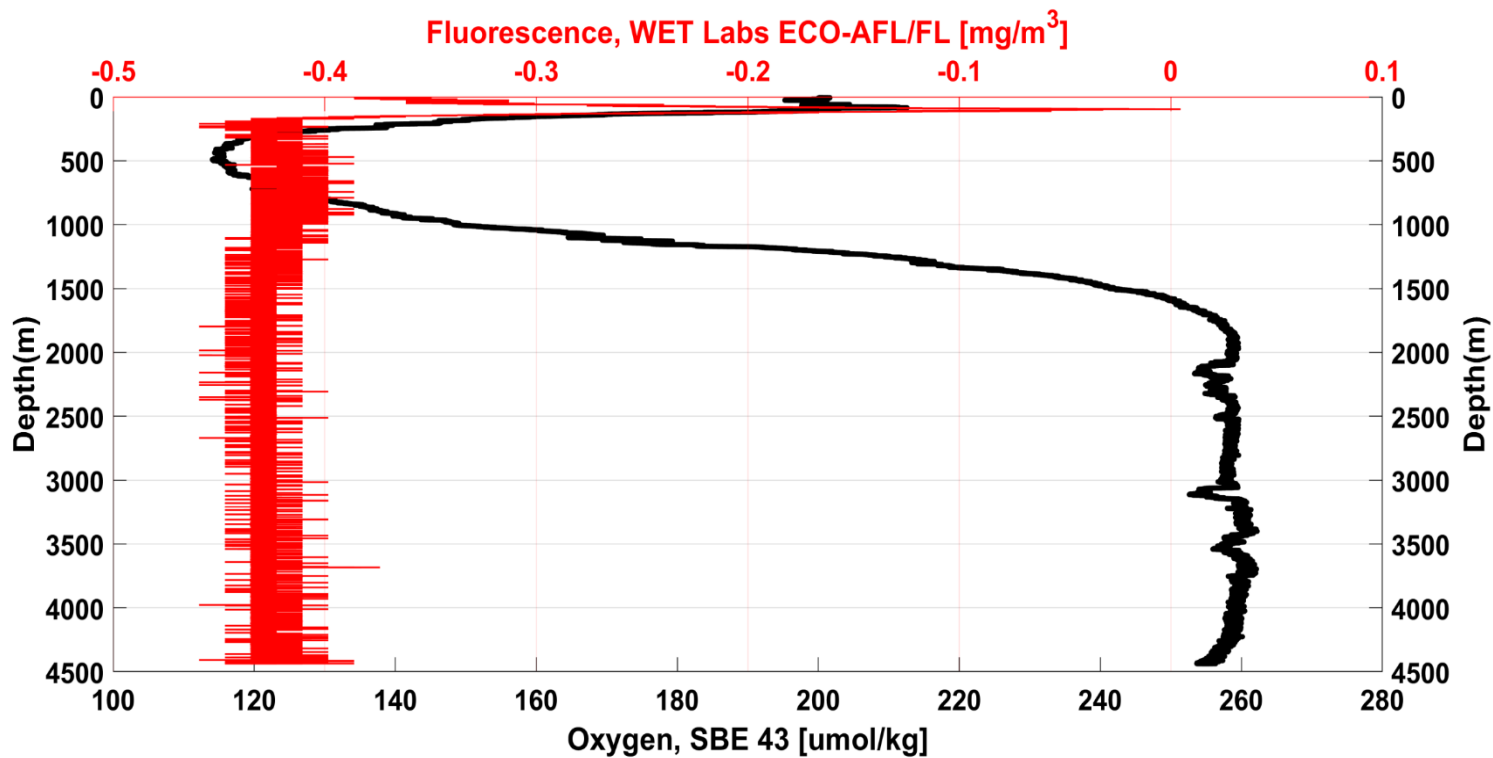
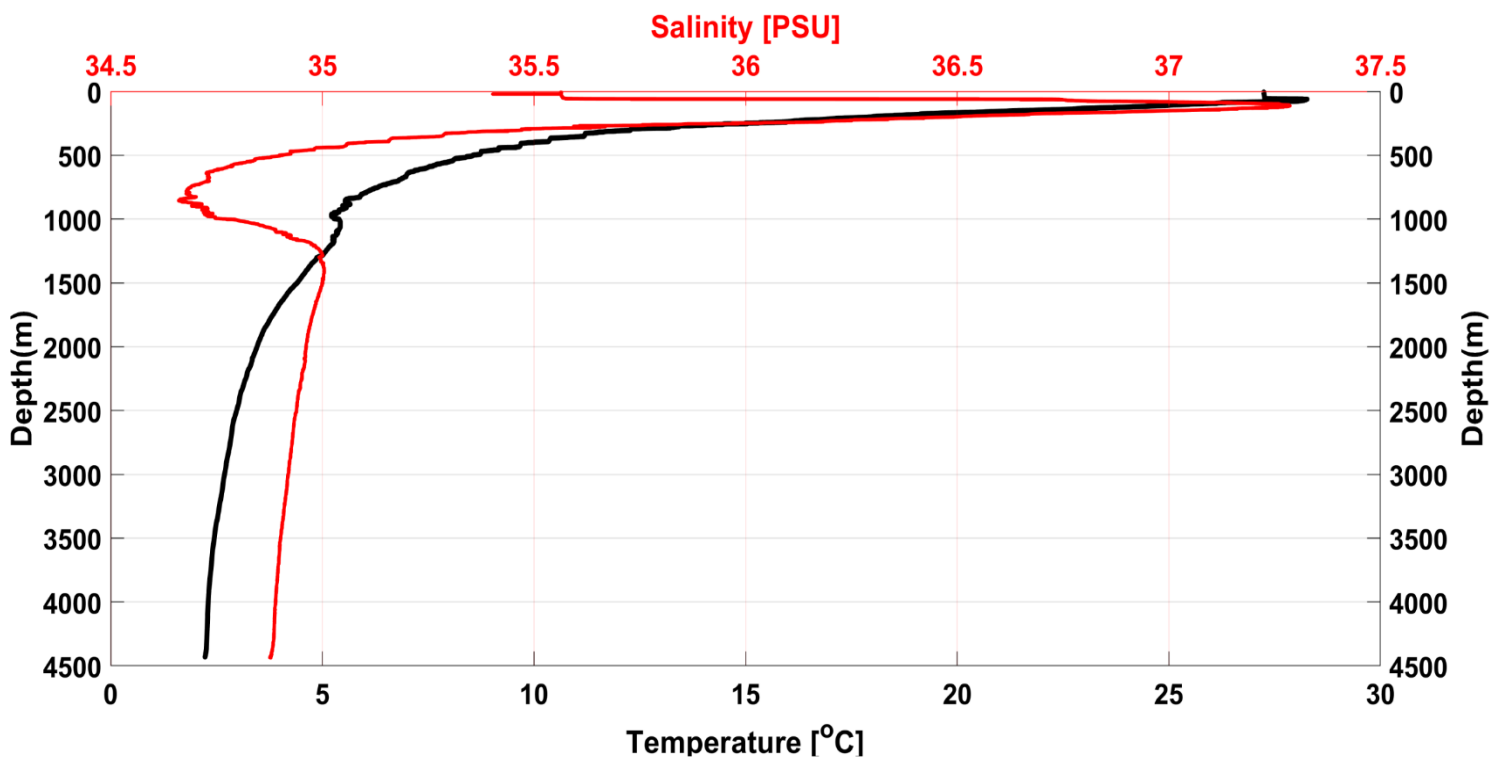
5. Outlook

We will slowly move northwards during the next days with day-long stops at the standard CTD sampling locations on the METEOR track. The goal is to collect daily cycle data at different track-locations and give the cloud-kite instrument extended (10+hr) sampling time, as the wind over the next days is strong enough to keep the cloud-kite instrument aloft without the need to steam into the wind.

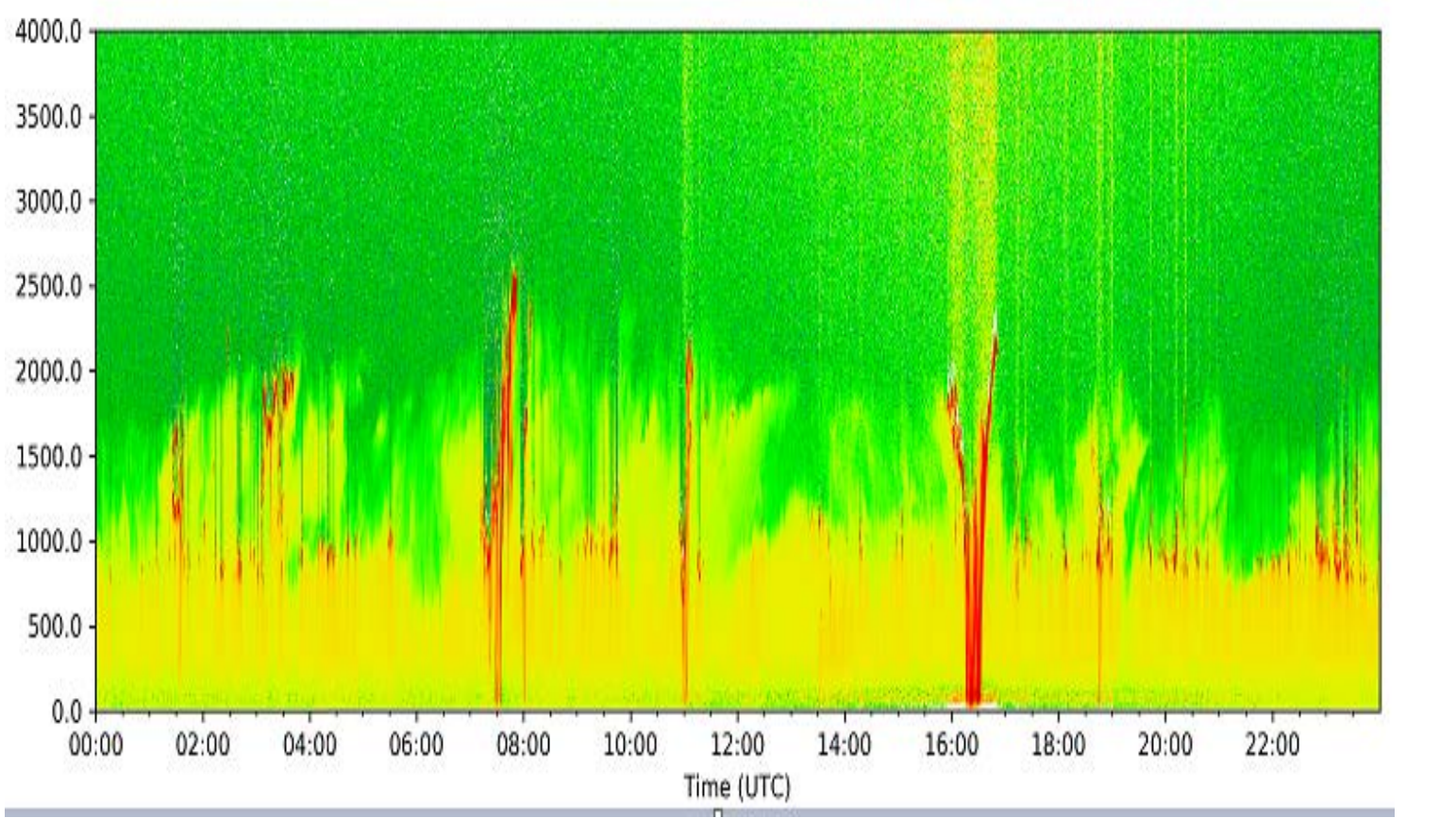
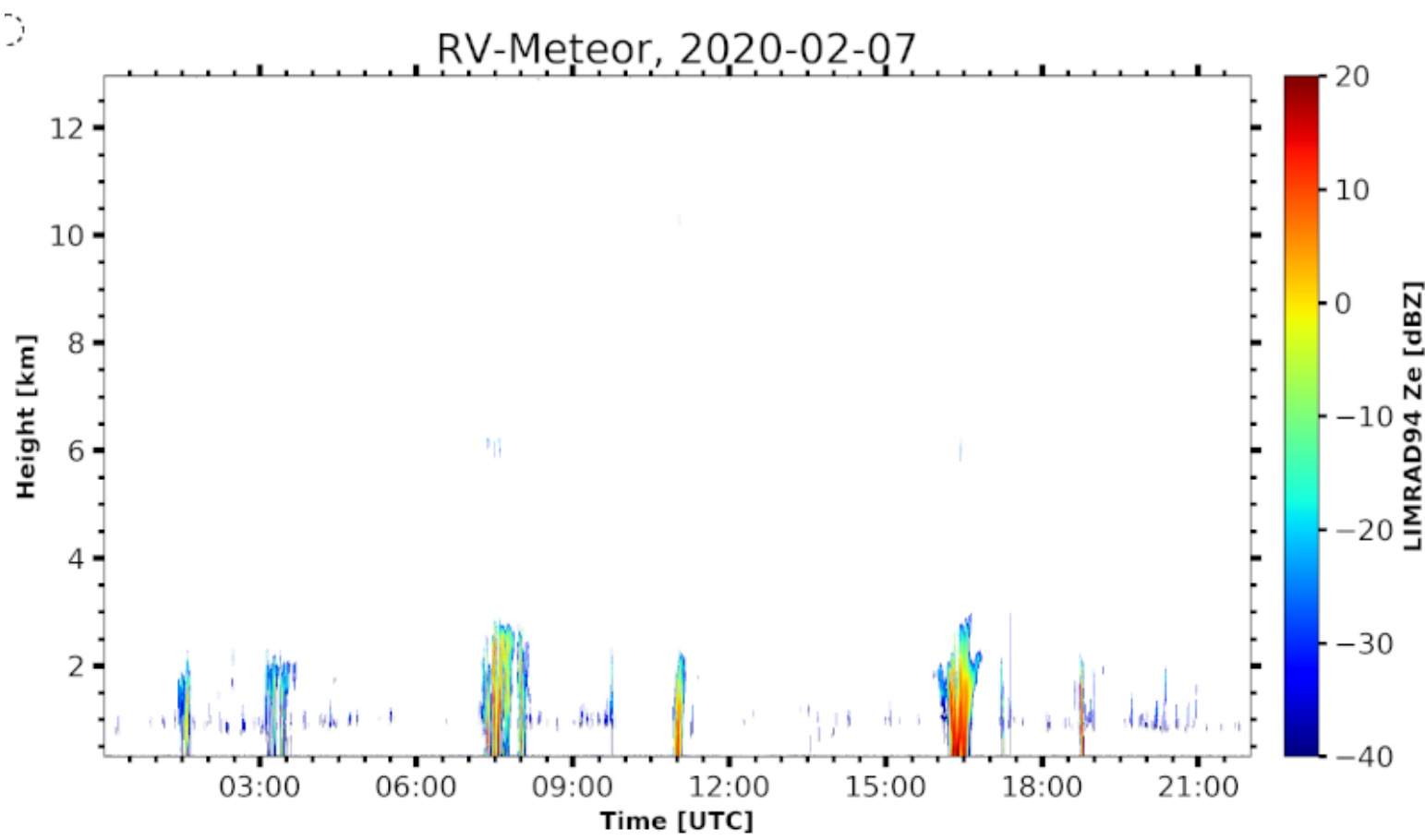


Aerosol samples on the METEOR on Feb 7 (amount:at 380nm: top / inv.size: bottom)

CTD 142b 2020-02-07
12 26.154' N 57 14.787' W



Deep ocean CTD profile, next to (and in parallel with) the MERIAN and Feb 7.



METEOR radar (top) and ceilometer (bottom) images for Feb 7