Meteor 0209 (2020)

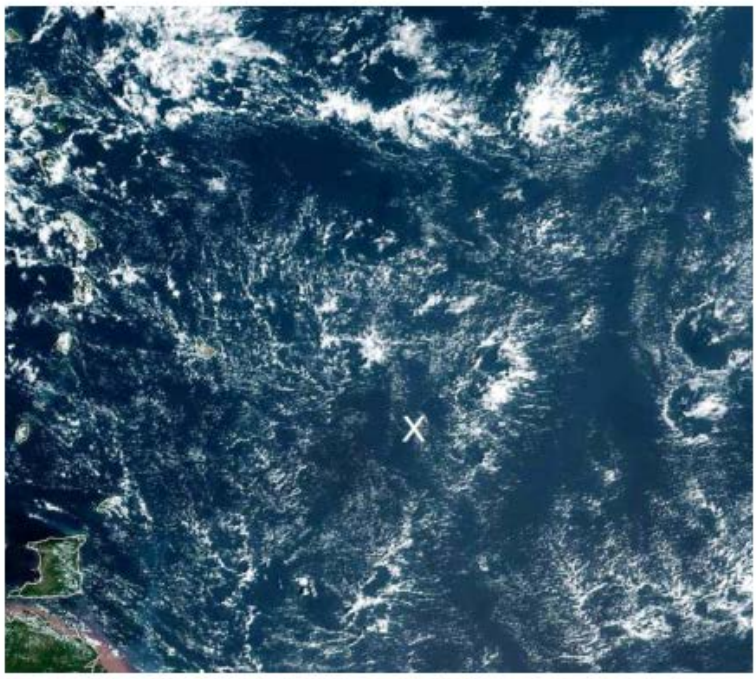
Stefan Kinne (10 feb 11am)

1. Objective

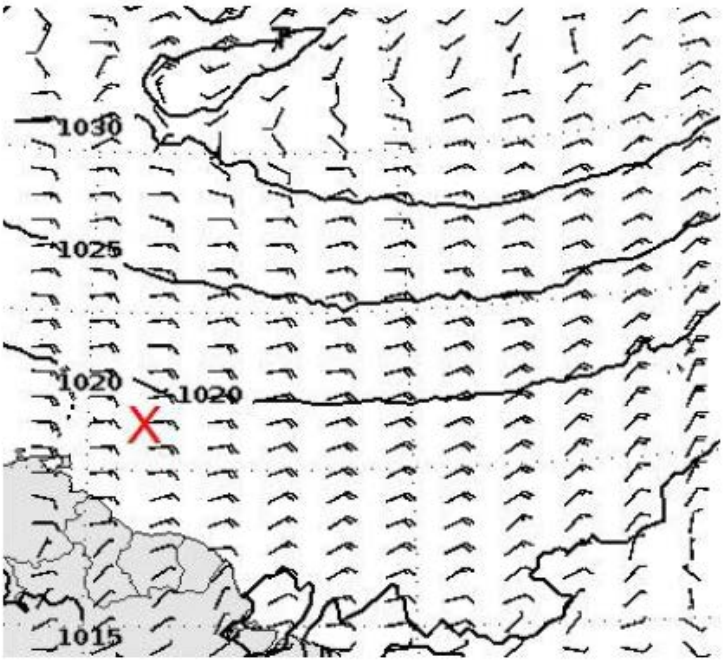
Entire day stationary at L2 (into the wind) for investigations of the daily cycle in the southern METEOR region with CTD casts every 2 hours and regular radiosondes launches (2.45, 6.45, 10.45, 14.45, 16.33 (DWD), 18.45, 22.45UTC).

It was a quiet (sun-) day, as we stayed the entire day at the L2 point. It was not as cloudy as on the day before and no rain and significant convection either. Occasional low attitude clouds passed with often almost invisible elements at the edges. Otherwise good sun-photometer sampling conditions yielded relatively high AOD values of 0.3 all day. Elevated aerosol layers up to 2km in altitude and also the visual aspects (loss of color to sun and sky, sun setting well above the horizon) has the looks of dust, although the lidar depolarization was (other than for the last major dust event) relatively low (aged dust?)

2. Synoptic Situation



Satellitenbild GOES16 **09.02.2020** 13:00 UTC



Vorhersage für Montag 12 UTC

Weather observations (every 3hr)

```
20 02 09001 99124 70572 11598 10910 10267 20194 40164 53020 70211 81200 22200 04276
2//// 3//// 4//// 5//// 6//// ICE /////
 20 02 09031 99124 70572 46/// /0910 10265 20207 40175 51011 7//// 8//// 22200 04275
2//// 3//// 4//// 5//// 6//// ICE /////
 20 02 09061 99124 70572 16/// /0811 10264 20204 40158 58017 7//// 8//// 22200 04275
2//// 3//// 4//// 5//// 6//// ICE /////
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 20 02 09091 99124 70572 46/// /0911 10264 20208 40160 53002 7//// 8//// 22200 04275
2//// 3//// 4//// 5//// 6//// ICE /////
 20 02 09121 99124 70572 11498 10911 10264 20207 40178 53018 70200 81200 22200 04275
20302 308// 40704 5//// 6//// ICE /////
 20 02 09151 99124 70572 41598 30712 10267 20214 40192 51014 70300 83200 22200 04275
20302 308// 40804 5//// 6//// ICE /////
 20 02 09181 99124 70572 11598 10810 10270 20201 40171 58021 70181 81200 22200 04276
20302 308// 40804 5//// 6//// ICE /////
 20 02 09211 99124 70572 41598 20811 10269 20206 40168 55003 70200 82200 22200 04276
20302 308// 40804 5//// 6//// ICE /////
```

Mostly a sunny day with relatively many low clouds during lunchtime only.

3. Cruise-day Elements

IWV (integrated water vapor): 28 kg /m2 +/- 3
LWP (liquid water path): 41 g /m2 +/- 242

Time	0-3UTC	4-6UTC	7-9UTC	10-12UTC	13-15UTC	16-18UTC	19-21UTC
Height_m	804.93	804.93	760.21	693.13	715.49	849.65	894.36
max_hydro_frac_low	0.11	0.11	0.06	0.11	0.07	0.19	0.09
Height_m	1207.39	1274.47	1207.39	1229.75	1229.75	1319.19	1207.39
max_hydro_frac_mid	0.07	0.07	0.02	0.00	0.02	0.17	0.01
Height_m	12878.56	12836.47	12836.47	12836.47	5987.42	12836.47	12836.47
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 PSU	Tdew °C	Tair °C	Twater °C	TrueDir deg	RH %	rel.Wind m/s	trueWind m/s	lw Rad W/m²	sw Rad W/m²	lat °N	lon °E
35.3348	19.97	26.67	27.54	89.2	66.32	10.54	10.15	391.98	-1.08	12.42	-57.25
35.3331	20.31	26.58	27.51	87.38	68.08	11.33	10.95	389.12	-0.73	12.42	-57.25
35.3172	20.62	26.45	27.5	88.45	69.9	10.76	10.35	389.65	-1	12.42	-57.25
35.3269	20.69	26.41	27.52	85.4	70.45	10.16	9.76	389.7	-1	12.42	-57.25
35.3257	20.76	26.35	27.5	86.9	70.92	10.59	10.22	401.62	-1.1	12.42	-57.25
35.3198	20.62	26.36	27.5	85.3	70.3	10.71	10.32	389.82	-1	12.42	-57.25
35.3202	20.64	26.26	27.51	81.17	70.83	11.23	10.87	393.67	-1	12.42	-57.25
35.3222	20.72	26.29	27.5	78.65	71.05	11.55	11.19	387.32	-1	12.42	-57.25
35.319	20.56	26.4	27.5	80.63	69.97	11.87	11.5	391.13	-1	12.42	-57.25
35.3284	20.82	26.41	27.52	85.22	70.98	11.11	10.74	388.03	-0.98	12.42	-57.25
35.3325	20.83	26.41	27.54	84.37	71.08	10.88	10.51	391.13	30.97	12.42	-57.25
35.3332	20.75	26.43	27.55	87.72	70.68	11.05	10.68	392.63	207.52	12.42	-57.25

35.3192	20.76	26.57	27.59	84.53	70.03	10.96	10.59	383.78	445.05	12.42	-57.25
35.3218	20.84	26.71	27.6	85.23	69.82	12.11	11.73	389.68	661.83	12.42	-57.25
35.3232	21.2	26.74	27.59	79.26	71.33	12.5	12.16	403.24	704.24	12.42	-57.25
35.3215	21.5	26.7	27.6	73	73	12.6	12.3	399	865	12.42	-57.25
35.3167	21.21	26.37	27.6	79.48	72.94	10.48	10.14	421	632.76	12.42	-57.25
35.3087	20.09	26.87	27.63	88.33	65.98	10.99	10.63	398.17	765.25	12.42	-57.25
35.3058	20.19	26.89	27.6	84.45	66.43	10.52	10.16	393.1	724.2	12.42	-57.25
35.3206	20.12	26.88	27.6	81.52	66.07	10.86	10.47	390.4	491.67	12.42	-57.25
35.3176	20.38	26.86	27.59	79.32	67.28	10.78	10.41	388.4	238.83	12.42	-57.25
35.3362	20.64	26.74	27.58	80.42	68.88	12.54	10.87	390.82	45.83	12.47	-57.25
35.2705	20.9	26.68	27.46	78.58	70.27	13.32	11.25	402.13	-0.83	12.62	-57.25
35.1676	20.41	26.7	27.48	78.37	68.07	12.41	11.84	403.46	-1.05	12.71	-57.25

inter-calibration: **none**
CTD stations: **12**
radiosondes: **7**
overflights: **none**

station no.	UTC	device	action	latitude	longitude	depth	contact person
M161 151	9 feb 2020 / 00:33-01:04	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 152	9 feb 2020 / 02:34-03:04	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 153	9 feb 2020 / 04:36-05:12	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 154	9 feb 2020 / 06:29-07:06	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 155	9 feb 2020 / 08:27-09:03	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 156	9 feb 2020 / 10:29-11:04	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 157	9 feb 2020 / 12:32-13:05	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 158	9 feb 2020 / 14:30-15:02	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 159	9 feb 2020 / 16:35-17:12	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 160	9 feb 2020 / 18:27-19:05	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 161	9 feb 2020 / 20:28-21:03	CTD	CTD	12°25.127 N	57°14.703' W	800	Baranowski
M161 162	9 feb 2020 / 23:10-23:44	CTD	CTD	12°42.731 N	57°14.744' W	800	Baranowski

4. Instrument Status

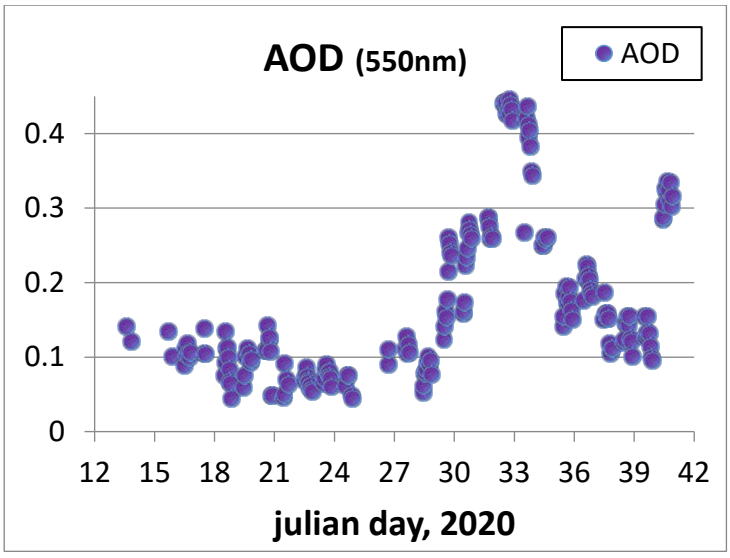
Instrument-Status (**W**-working, **P**-partially-working, **F**-failure, **U**-untested, **R**-ready, **L**-lost)

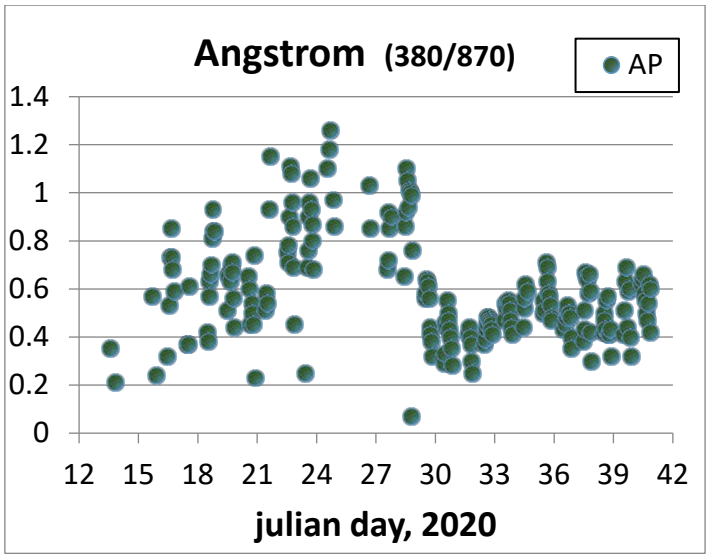
			status	operators
radiosondes			W	Katharina, Imke, Yanmichel, Almuth, Kevin, Sebastian, Geiske
cloud-radar			W	Heike, Johannes

micro-radiometer			W	Heike, Johannes
spect-radiometer			W	Heike, Johannes
Raman-lidar			W	Ludwig
cloud-kite			L	Oliver, Marcel, Marcel, Antonio, Robert, Sanola
Picarro			W	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

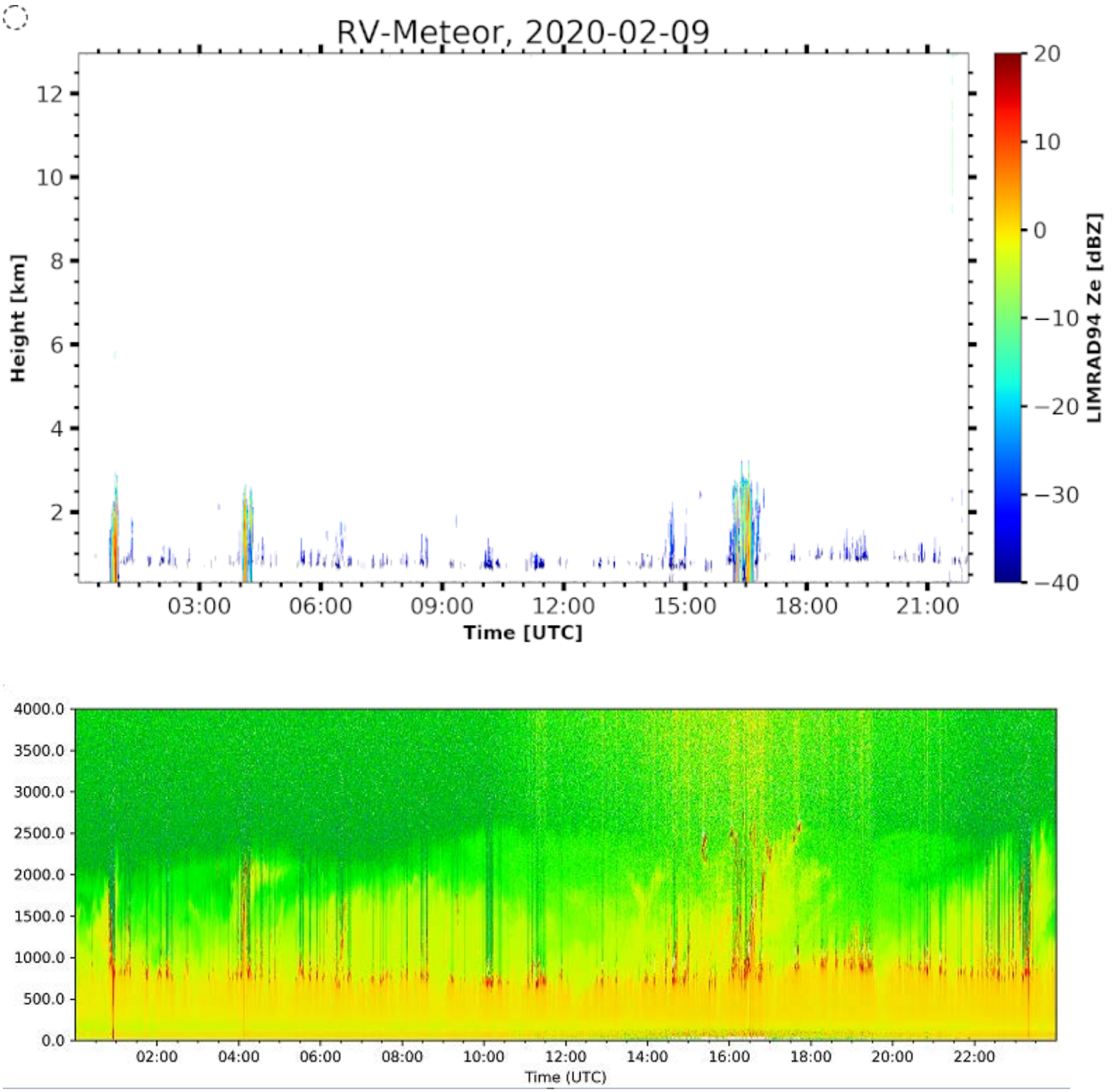
5. Outlook

We will move northward this night to reach L1 the next day at about lunchtime. If the weather is calm we will deploy the (pink) U.E.Anglia glider near the glider box. In any case we plan on another full stationary day now at the northern L1 point.

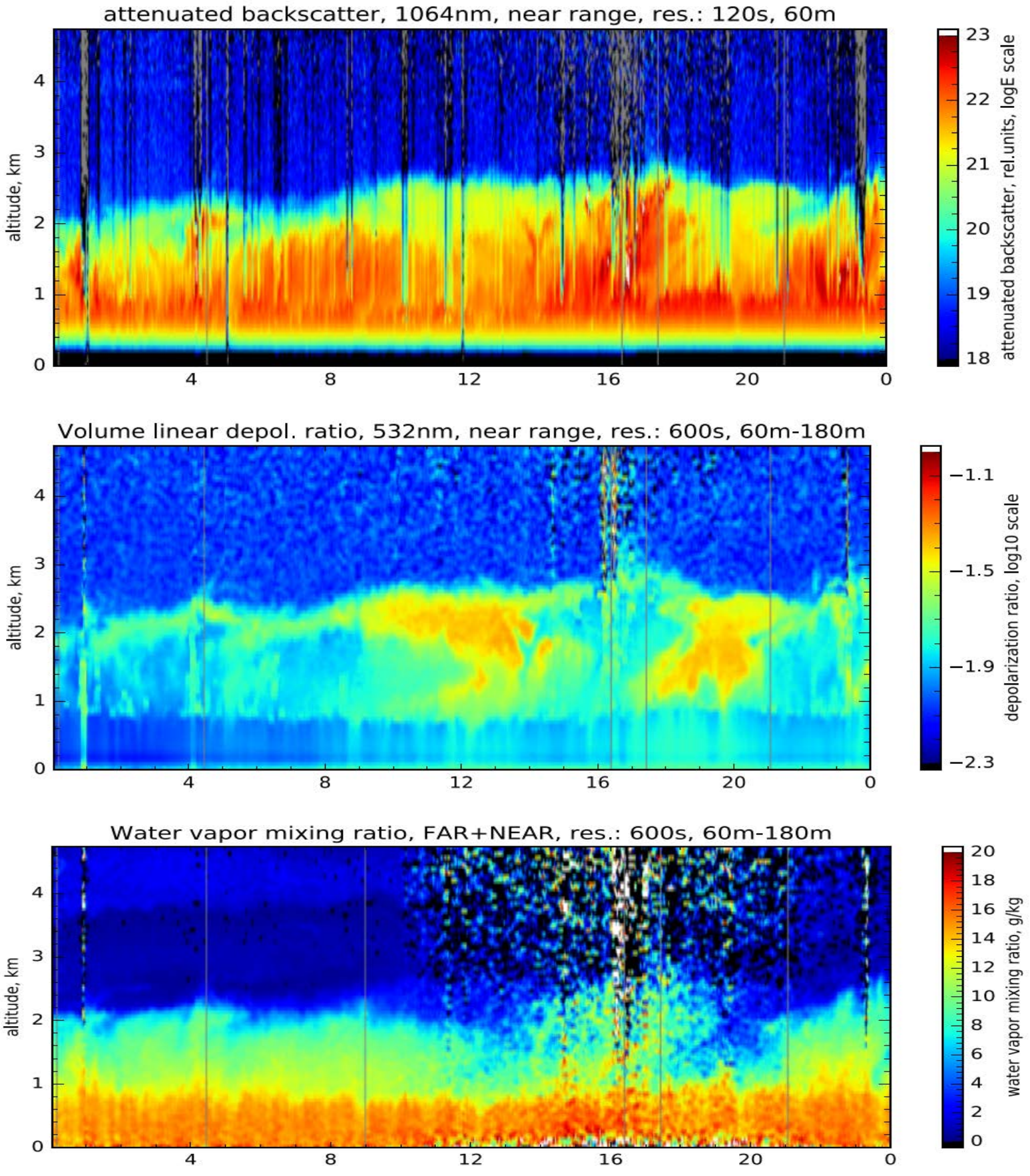




AOD and Angstrom parameter (inverse size) until Feb 9



METEOR radar (top) and ceilometer (bottom) images for Feb 9



RAMAN lidar data on the METEOR on Feb 8 (backscatter, depolarization and water vapor