

# Meteor 0208 (2020)

Stefan Kinne (9 feb 2am)

## 1. Objective

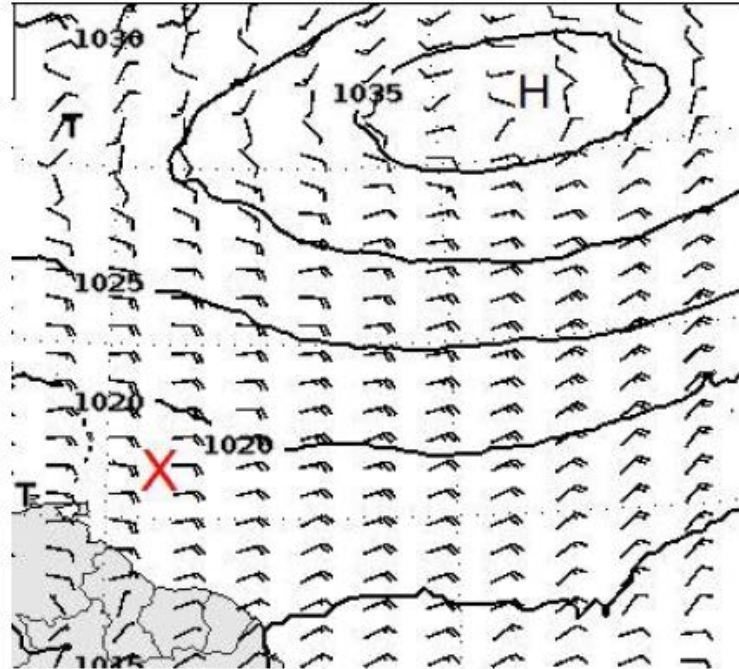
Search for the lost cloud-kite. Return to L2 for an entire day stay, for daily cycle sampling and continued local cloud kite operations overnight. Radiosondes launches at the regular times (2.45, 6.45, 10.45, 14.45, 16.33 (DWD), 18.45 and 22.45 UTC).

Just before sunrise 9.20UTC a rain band passed the stationary ship with gusts up the 18m/s. At that time the tethered line of the cloud-kite snapped and the cloud-kite with the attached instruments disappeared into the dark night (and low visibility due to the heavy rain). Contact to the kite was quickly lost and it remained unclear if there even was a response to the then initiated balloon self-destruction. With the initial sunrise we turned around and moved into the wind-direction searching the entire morning - without success. In the afternoon we returned to the L2 position to restart the day-long sampling period for capturing the daily cycle with regular CTD casts and radiosonde launches.

## 2. Synoptic Situation



Satellitenbild GOES16 08.02.2020 13:20 UTC



Vorhersage für Sonntag 12 UTC

## Weather observations (every 3hr)

```
20 02 08001 99124 70572 11598 20711 10261 20211 40165 52017 70380 82200 22282 04275
2//// 3//// 4//// 5//// 6//// ICE ////
20 02 08031 99124 70572 46//// /0609 10261 20212 40169 51004 7//// 8//// 22200 04276
2//// 3//// 4//// 5//// 6//// ICE ////
20 02 08061 99124 70572 13//// /0512 10260 20201 40150 56019 7//// 8//// 22200 04275
2//// 3//// 4//// 5//// 6//// ICE ////
```

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20 02 08091 99124 70572 46/// /0611 10256 20207 40147 55003 7///// 8///// 22200 04275
2///// 3///// 4///// 5///// 6///// ICE /////
20 02 08121 99124 70574 11498 70612 10261 20215 40163 51016 72581 873// 22261 04274
20302 307/// 40805 5///// 6///// ICE /////
20 02 08151 99123 70575 41498 20812 10263 20211 40171 50008 71581 82800 22251 04276
20302 306/// 40805 5///// 6///// ICE /////
20 02 08181 99124 70573 11598 50812 10267 20207 40146 58025 72581 85200 22211 04276
20302 307/// 40805 5///// 6///// ICE /////
20 02 08211 99124 70572 41598 10809 10266 20209 40144 55002 70111 81200 22221 04276
20302 308/// 40805 5///// 6///// ICE /////

```

The night and also well into the morning we had convective clouds ('fish'?) with occasional rain (rainbows at low sun-elevations) also to provide beautiful radar images. As the day progressed, the wind-speed and the cloud cover decreased, so sunphotometer samples were quite easy in the afternoon with lots of blue skies.

### 3. Cruise-day Elements

IWV (integrated water vapor): 32 kg /m2 +/- 5  
LWP (liquid water path): 266 g /m2 +/- ???

Time	0-3UTC	4-6UTC	7-9UTC	10-12UTC	13-15UTC	16-18UTC	19-21UTC
Height_m	827.29	715.49	782.57	916.72	670.77	782.57	804.93
max_hydro_frac_low	0.33	0.27	0.33	0.63	0.07	0.14	0.09
Height_m	1878.16	1542.78	1788.73	1207.39	1475.70	1587.49	1229.75
max_hydro_frac_mid	0.34	0.26	0.29	0.61	0.05	0.10	0.04
Height_m	6138.04	6138.04	5987.42	6138.04	12878.56	12878.56	12878.56
max_hydro_frac_high	0.00	0.00	0.00	0.02	0.00	0.00	0.00

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

### hourly means of ship data (1<sup>st</sup> line 0-1 UTC, 2<sup>nd</sup> 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/m <sup>2</sup>	sw Rad W/m <sup>2</sup>	lat °N	lon °E
35.6031	20.74	26.09	27.52	66.67	72.03	11.2	10.8	410.28	-1.12	12.42	-57.24
35.6007	20.27	26.21	27.56	59.18	69.43	11.32	10.93	409.77	-1	12.42	-57.25
35.5986	20.72	26.11	27.6	57.92	71.88	10.6	10.19	404.37	-1	12.42	-57.24
35.5993	20.9	25.65	27.57	59.45	74.62	10.37	9.98	408.12	-1.4	12.42	-57.24
35.5995	20.53	25.99	27.52	52.2	71.48	11.57	11.18	395.2	-1.1	12.42	-57.24
35.5991	20.6	26.02	27.5	46.82	71.77	11.37	10.98	401.15	-0.98	12.42	-57.24
35.6008	20.33	25.97	27.51	47.7	70.67	11.74	11.34	414.05	-0.87	12.42	-57.24
35.6003	19.98	25.89	27.5	43.2	69.5	12.17	11.76	390.78	-1	12.42	-57.24
35.6011	20.41	25.92	27.5	49.8	71.27	11.84	11.46	423.58	-0.63	12.42	-57.24

35.5941	21.32	23.05	27.4	79.65	89.63	12.15	11.77	440.38	-0.03	12.42	-57.25
35.5873	21.54	25.7	27.4	60.9	77.67	5.83	9.53	419.83	13.67	12.4	-57.29
35.5844	21.24	25.58	27.45	68.1	76.6	12.3	12.66	441.53	102.57	12.38	-57.42
35.4983	21.23	25.74	27.39	68	75.8	15.45	11.74	413.33	356.17	12.42	-57.34
35.5844	21.4	27.61	27.49	80.28	68.97	9.8	12.22	405.53	604.4	12.43	-57.29
35.5983	21.14	26.84	27.63	82.53	70.62	7.72	11.69	395.77	854.7	12.36	-57.44
35.5926	21.1	26.25	27.6	74.05	72.92	12.67	11.32	402.38	830.83	12.26	-57.49
35.5668	21.13	26.64	27.61	77.55	71.32	13.79	11.08	408.92	837.6	12.36	-57.48
35.5779	20.95	26.67	27.56	80.53	70.48	14.93	10.83	401.5	867.58	12.43	-57.39
35.5843	20.76	26.75	27.56	82.93	69.33	11.17	10.85	391.3	735.42	12.4	-57.33
35.5787	20.53	26.61	27.52	80.13	68.9	13.96	10.76	390.67	518.93	12.42	-57.29
35.5972	20.89	26.57	27.59	86.22	70.6	10.09	9.7	394.72	279.38	12.42	-57.25
35.4335	19.77	26.74	27.6	80.58	65.08	10.65	10.25	381.32	60.38	12.42	-57.25
35.3516	20.24	26.63	27.59	84.07	67.6	10.77	10.38	394.98	-1.03	12.42	-57.25
35.3422	20.03	26.64	27.58	90.12	66.69	10.75	10.34	386.19	-1.03	12.42	-57.25

inter-calibration: none  
CTD stations: 6  
radiosondes: 7  
overflights: none

station no.	UTC	device	action	latitude	longitude	depth	contact person
M161 145	8 feb 2020 / 02:30-03:03	CTD	CTD	12°25.123 N	57°14.699' W	800	Baranowski
M161 146	8 feb 2020 / 04:56-05:33	CTD	CTD	12°25.123 N	57°14.699' W	800	Baranowski
M161 147	8 feb 2020 / 06:50-07:26	CTD	CTD	12°25.123 N	57°14.700' W	800	Baranowski
M161 148	8 feb 2020 / 08:41-09:18	CTD	CTD	12°25.124 N	57°14.699' W	800	Baranowski
M161 149	8 feb 2020 / 20:29-21:04	CTD	CTD	12°25.129 N	57°14.701' W	800	Baranowski
M161 150	8 feb 2020 / 22:28-23:02	CTD	CTD	12°25.127 N	57°14.700' W	800	Baranowski

#### 4. Instrument Status

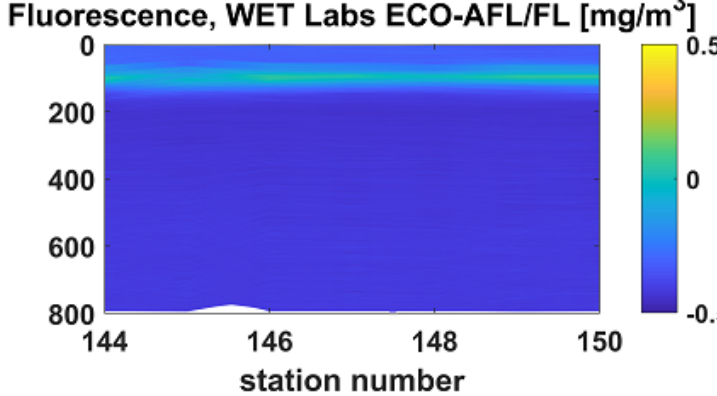
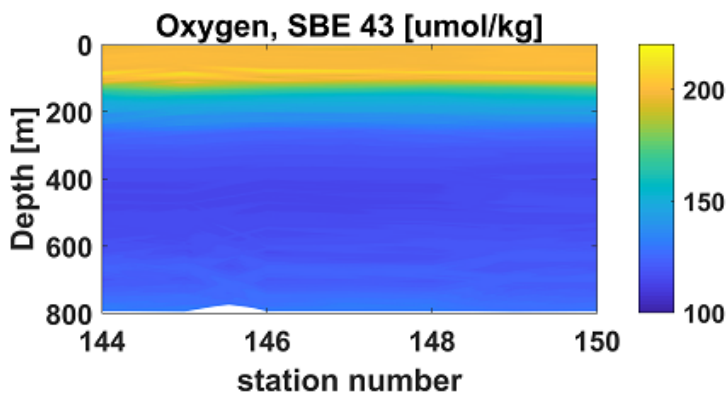
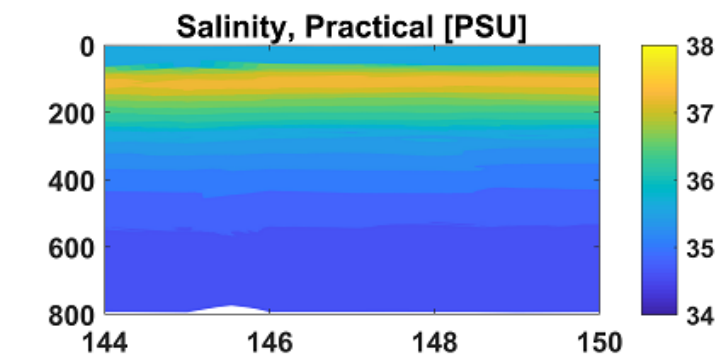
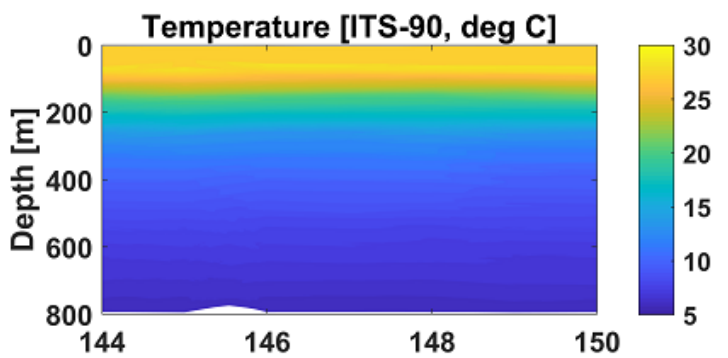
Instrument-Status (**W**-working, **P**-partially-working, **F**-failure, **U**-untested, **R**-ready, **L**-lost)

	status	operators
radiosondes	<b>W</b>	Katharina, Imke, Yanmichel, Almuth, Kevin, Sebastian, Geiske
cloud-radar	<b>W</b>	Heike, Johannes
micro-radiometer	<b>W</b>	Heike, Johannes
spect-radiometer	<b>W</b>	Heike, Johannes
Raman-lidar	<b>W</b>	Ludwig
cloud-kite	<b>L</b>	Oliver, Marcel, Marcel, Antonio, Robert, Sanola

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

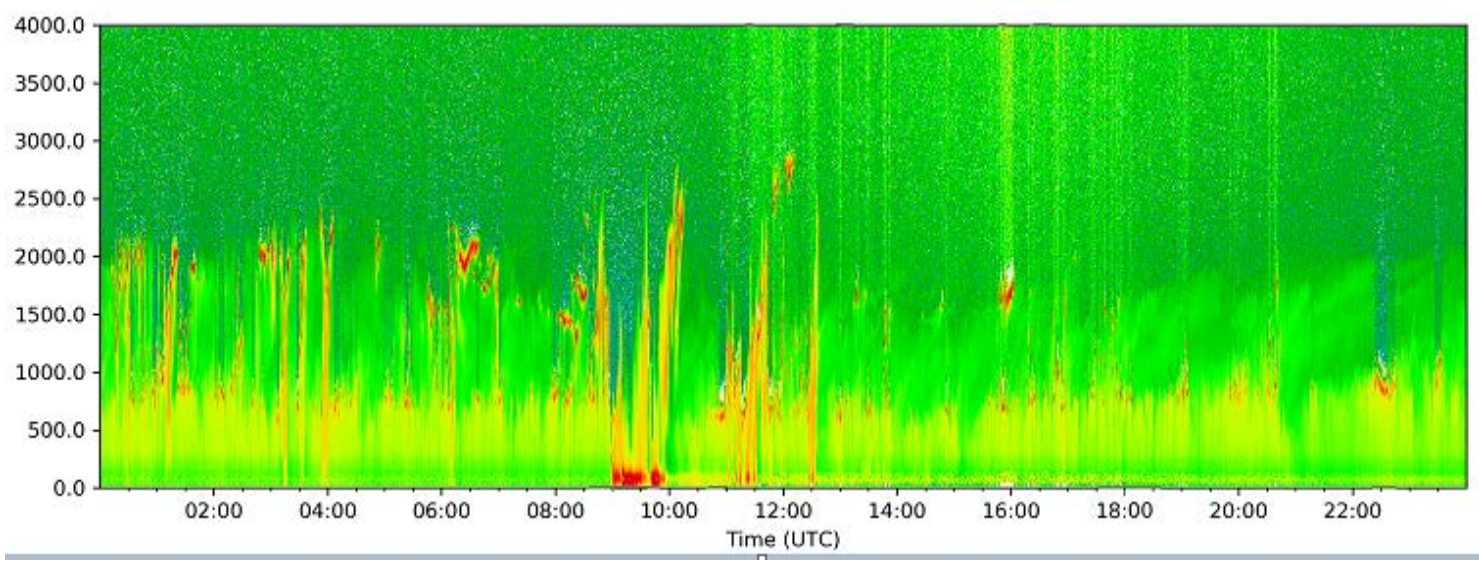
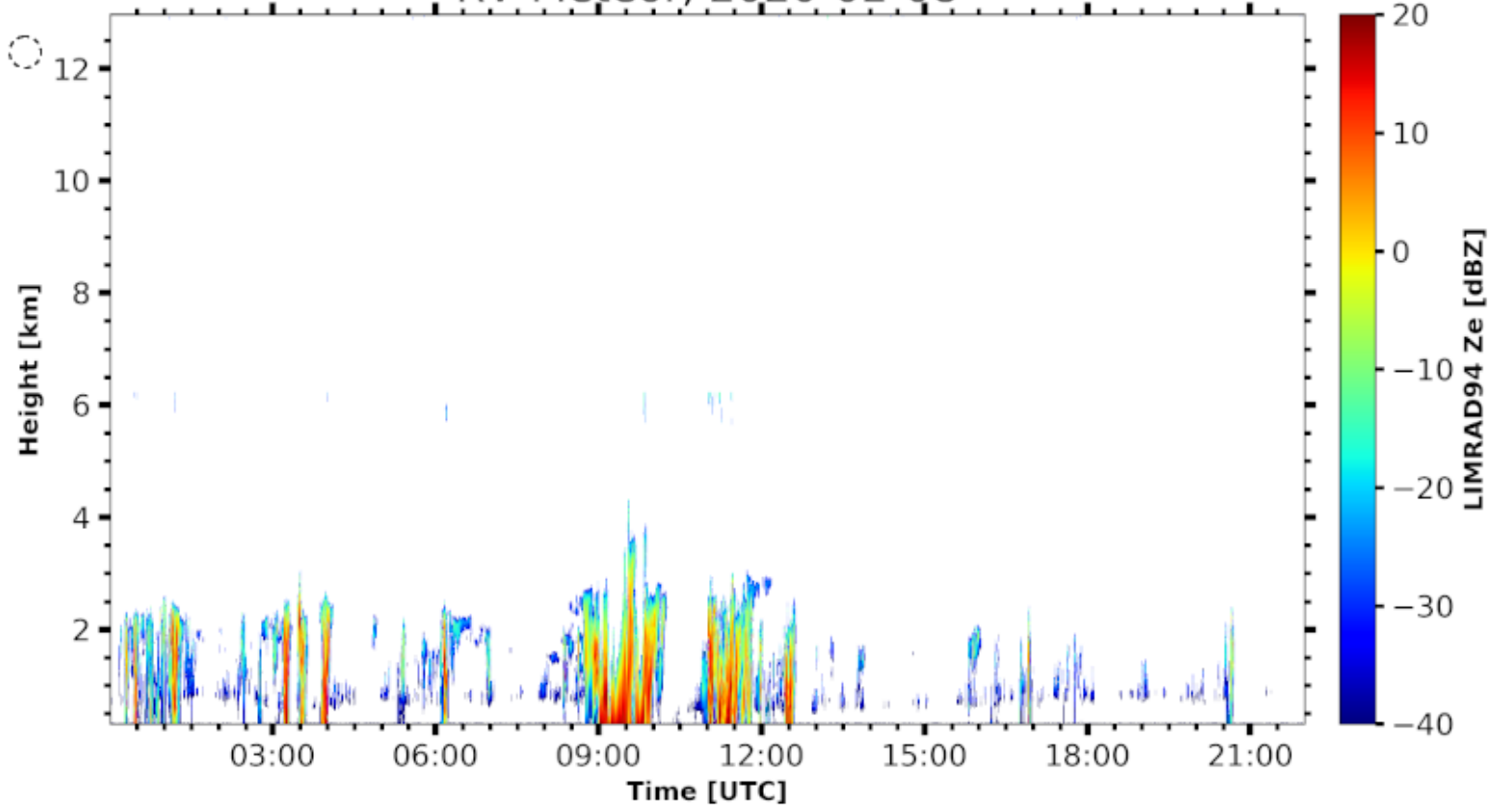
## 5. Outlook

We will slowly move northwards during the next days with day-long stops at the standard CTD sampling locations on the METEOR track. We plan to meet in two days near L1 with the MERIAN to exchange



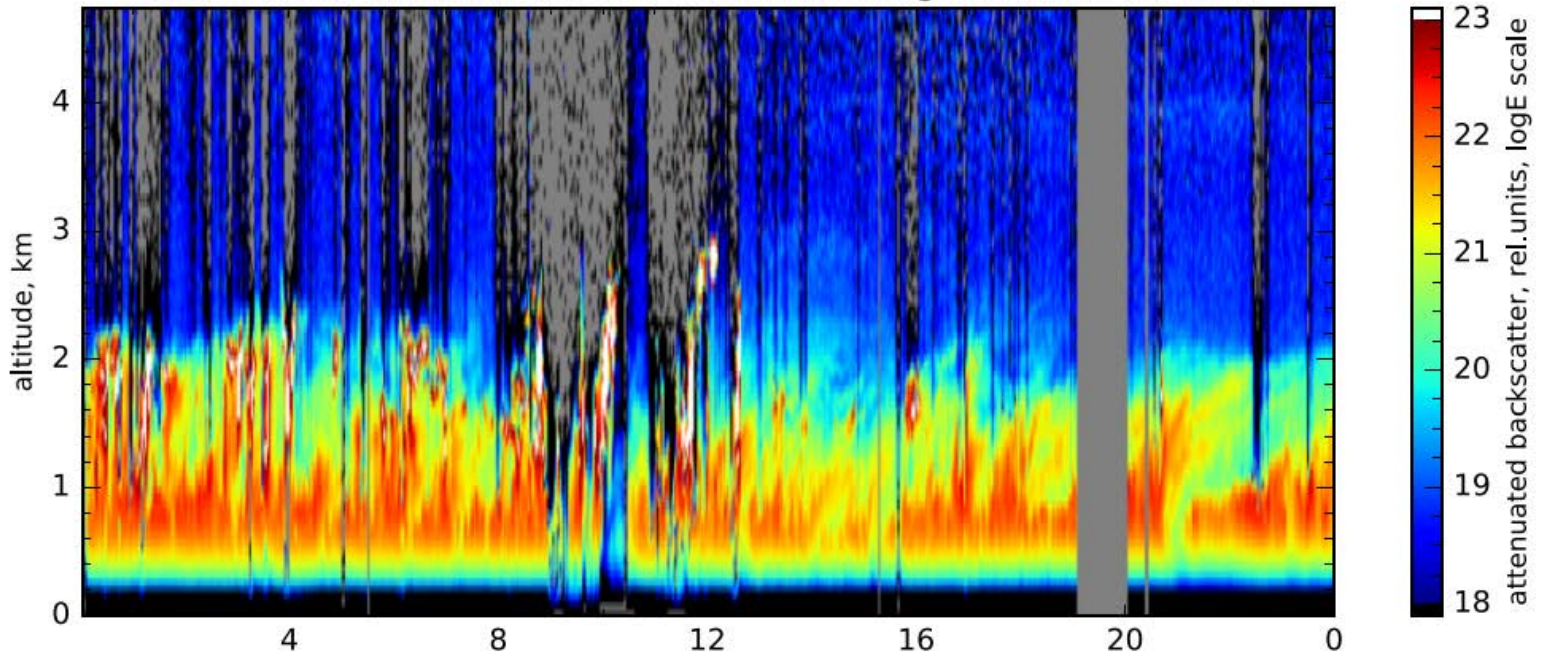
CTD profiles at L2 on Feb 8

# RV-Meteor, 2020-02-08

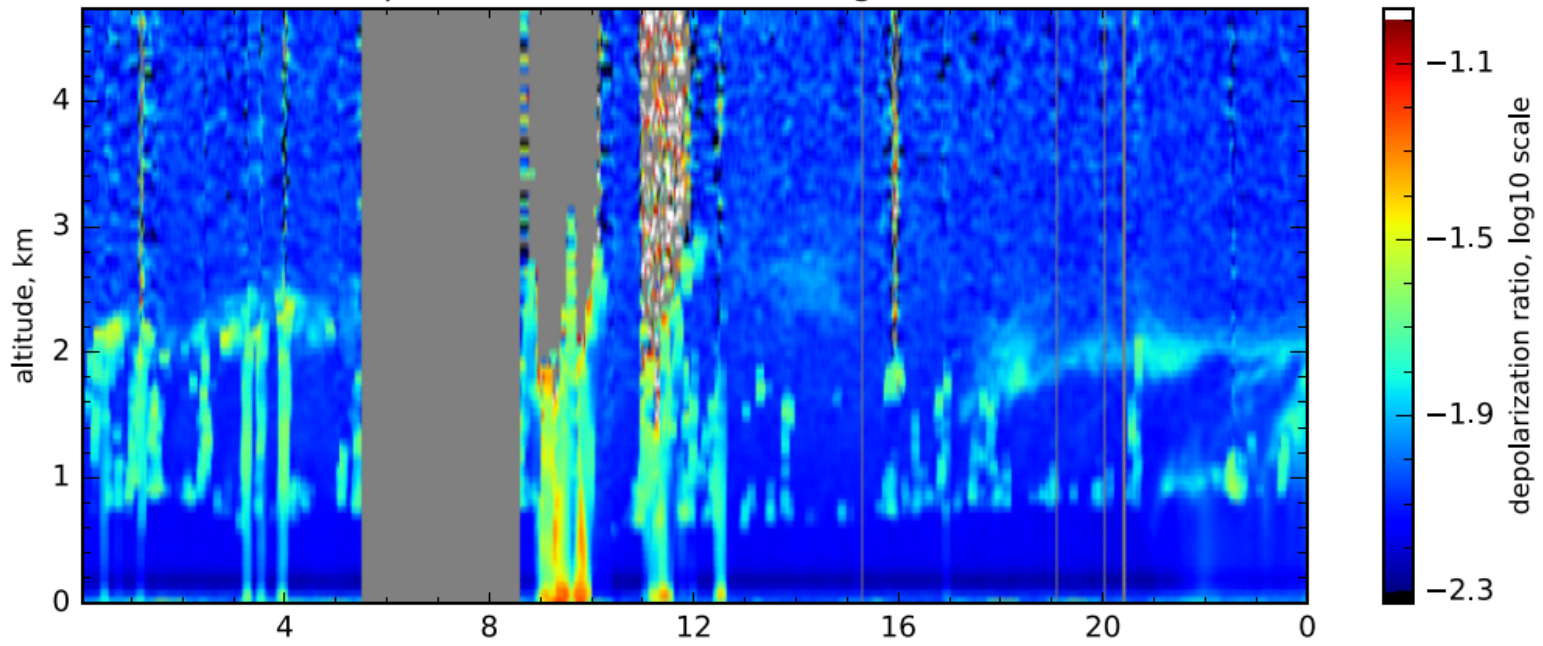


METEOR radar (top) and ceilometer (bottom) images for Feb 8

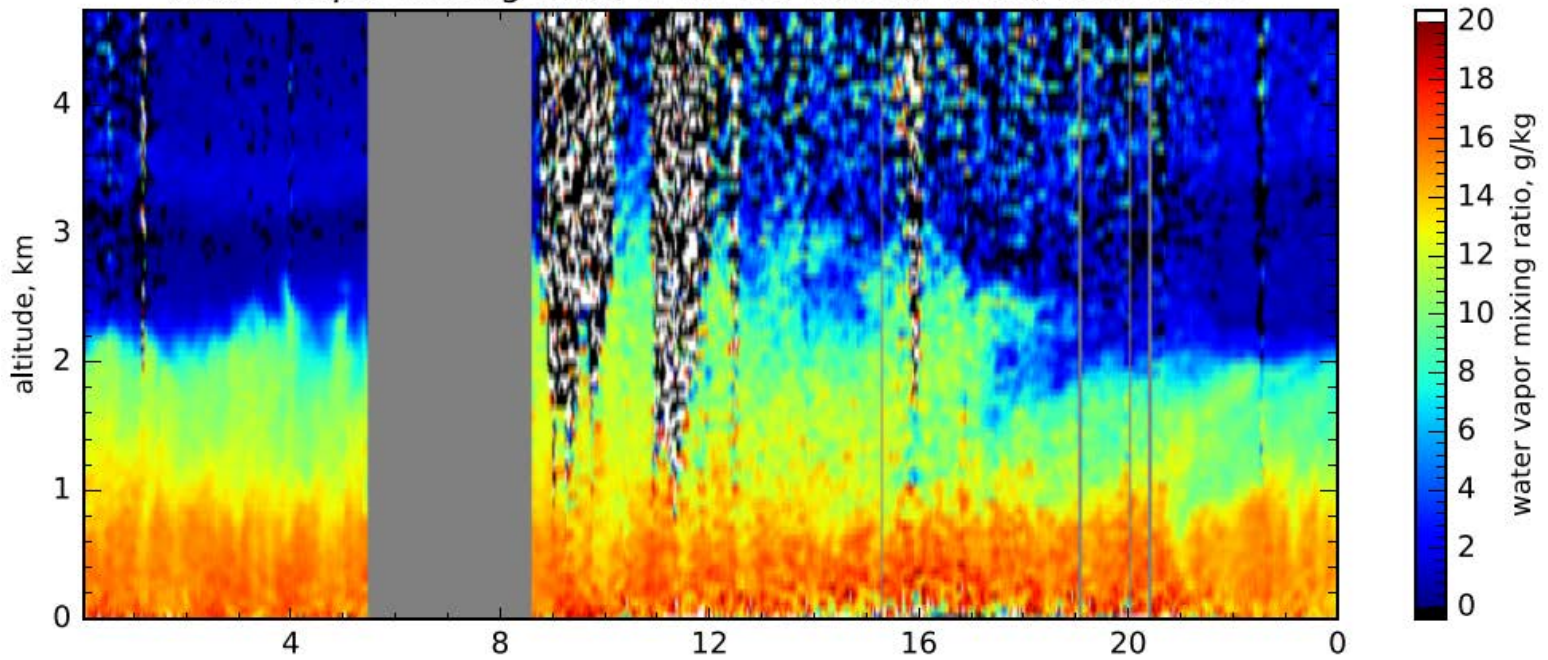
attenuated backscatter, 1064nm, near range, res.: 120s, 60m



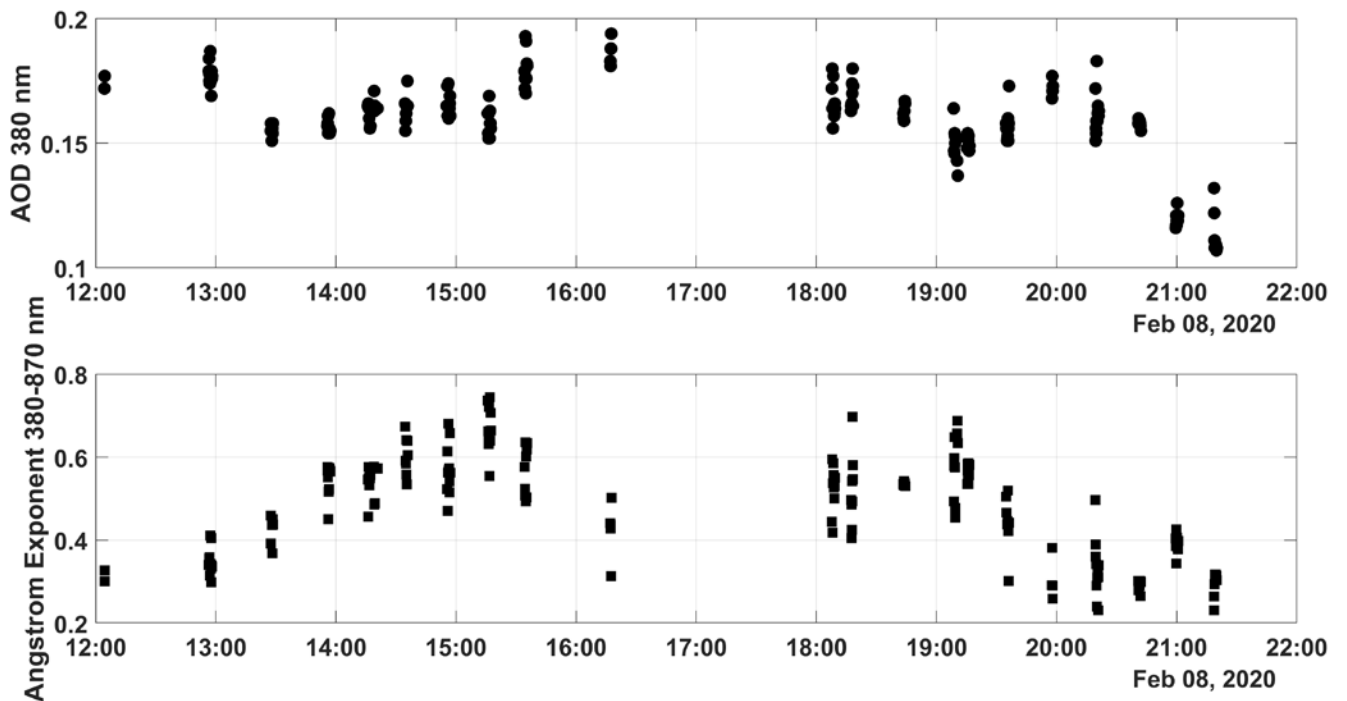
Volume linear depol. ratio, 532nm, near range, res.: 600s, 60m-180m



Water vapor mixing ratio, FAR+NEAR, res.: 600s, 60m-180m



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



Aerosol samples on the METEOR on Feb 8 (amount:at 380nm: top / inv.size: bottom)