

# Meteor 022 (2020)

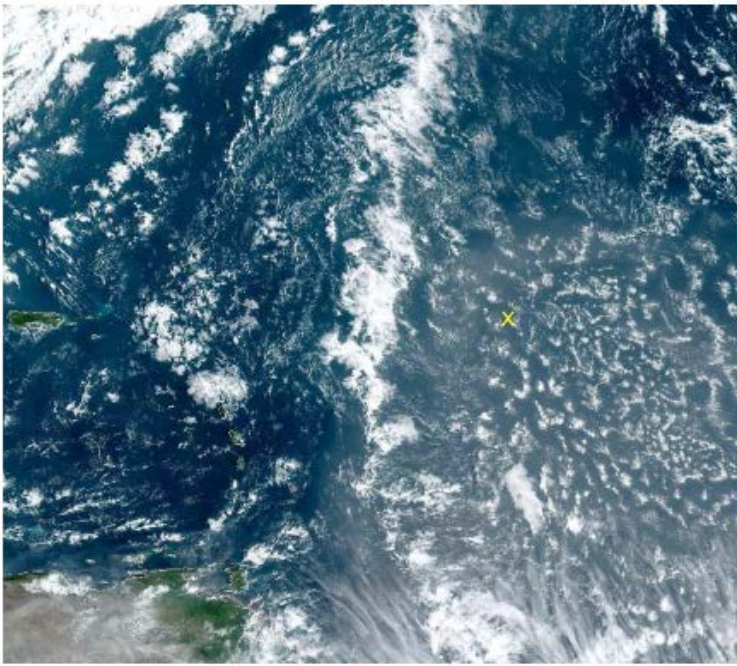
Stefan Kinne (23 feb 2am)

## 1. Objective

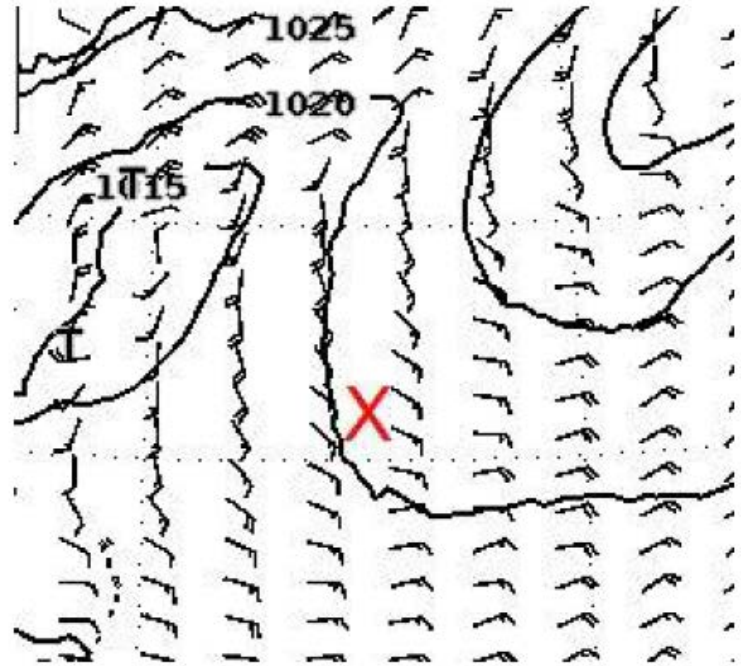
Heading towards the Azores. (no stops but two radiosondes:10.35 MPI, 22.35 DWD).

Stiff winds and good swell (especially in the morning) slowed the speed. Dust was still in the air but decreasing from .45 to .30 (AOD, 550nm).

## 2. Synoptic Situation



Satellitenbild GOES16 22.02.2020 12:20 UTC



Vorhersage für Sonntag 12 UTC

## Weather observations (every 3hr)

```
20 02 22001 99169 70543 11496 11010 10255 20211 40167 53012 70681 81200 22212 04261
2//// 3//// 4//// 5//// 6//// ICE ////
20 02 22031 99172 70540 46//// /1111 10252 20205 40178 51011 7//// 8//// 22212 04256
2//// 3//// 4//// 5//// 6//// ICE ////
20 02 22061 99176 70537 16//// /1111 10249 20198 40161 58017 7//// 8//// 22212 04257
2//// 3//// 4//// 5//// 6//// ICE ////
20 02 22091 99179 70534 46//// /1212 10249 20196 40163 53002 7//// 8//// 22212 04256
2//// 3//// 4//// 5//// 6//// ICE ////
20 02 22121 99183 70531 11597 11110 10249 20199 40180 51017 70281 81800 22212 04257
2//// 3//// 4//// 5//// 6//// ICE ////
20 02 22151 99186 70527 41597 11110 10248 20197 40187 50007 70200 81200 22212 04253
20302 308// 40904 5//// 6//// ICE ////
```

20 02 22181 99190 70524 11597 21109 10246 20195 40166 57021 70300 82200 22212 04255  
 20302 309// 40904 5///// 6///// ICE /////  
 20 02 22211 99193 70521 41598 31108 10246 20192 40172 53006 70300 83800 22212 04253  
 20301 309// 40904 5///// 6///// ICE /////

no cirrus, just scattered low clouds, which often were difficult to see in a dust scattered sky near the sun.

### 3. Cruise-day Elements

IWV (integrated water vapor): 28 kg /m2 +/- 3  
 LWP (liquid water path): 28 g /m2 +/- 102

Time	0-3UTC	4-6UTC	7-9UTC	10-12UTC	13-15UTC	16-18UTC	19-21UTC
Height_m	536.62	626.05	648.41	693.13	693.13	804.93	1140.31
max_hydro_frac_low	0.25	0.17	0.12	0.11	0.11	0.08	0.13
Height_m	1207.39	1207.39	1207.39	1408.62	1319.19	1207.39	1207.39
max_hydro_frac_mid	0.14	0.13	0.04	0.08	0.05	0.02	0.12
Height_m	12878.56	12836.47	12836.47	12836.47	12878.56	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 (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
35.8256	21.06	25.41	26	107.82	76.45	13.99	11.14	406.4	-1	16.95	-54.26
35.8674	20.94	25.25	25.96	109.92	76.62	14.21	11.61	415.82	-1.13	17.07	-54.15
36.2585	20.88	25.16	25.72	111.12	76.82	13.94	11.56	394.97	-1.02	17.18	-54.05
36.2454	20.52	25.14	25.66	113.18	75.23	13.56	11.26	396.7	-1	17.29	-53.95
36.1149	20.08	25.06	25.75	114.27	73.48	13.68	11.15	399.67	-0.92	17.4	-53.85
36.2457	20.05	24.89	25.67	115	74.07	13.44	10.85	390.58	-0.95	17.52	-53.75
36.581	19.89	24.82	25.73	113.87	73.67	13.38	10.92	387.22	-1	17.63	-53.64
36.2896	19.76	24.78	25.7	109.77	73.2	13.16	10.65	388.42	-1	17.75	-53.54
36.3773	19.64	24.8	25.67	115.93	72.55	13.32	11.16	384.82	-1	17.86	-53.43
36.3739	19.59	24.77	25.73	116.55	72.45	12.77	10.48	384.07	-0.43	17.98	-53.33
36.3985	19.6	24.76	25.75	110.47	72.57	12.66	10.04	394.17	59.6	18.1	-53.22
36.5085	19.47	24.93	25.72	109.62	71.28	12.93	10.25	377.3	272.43	18.22	-53.11
36.4371	19.86	24.87	25.67	104.52	73.3	13.09	10.19	390.62	431.27	18.33	-53.01
36.5069	19.7	24.9	25.61	106.17	72.45	13.21	10.51	383.4	685.78	18.45	-52.9
36.6422	19.61	24.83	25.55	105.63	72.28	13.62	10.83	385.72	810.05	18.56	-52.8
36.956	19.13	24.7	25.41	111.18	70.8	13.22	10.74	380.68	886.97	18.68	-52.69
37.0115	19.12	24.65	25.43	109.68	70.98	12.63	9.9	382.82	833.09	18.8	-52.58
36.9943	19.31	24.68	25.44	111.98	71.74	12.22	9.51	389.64	694.96	18.92	-52.48
37.0291	19.31	24.7	25.45	115.43	71.48	11.91	9.4	380.3	606.62	19.03	-52.37

37.0818	19.29	24.76	25.38	113.7	71.18	11.17	8.53	386.73	387.27	19.16	-52.26
37.1559	19.31	24.7	25.35	110.73	71.52	10.95	8.06	386.23	151.93	19.28	-52.15
37.015	19.23	24.52	25.26	112.73	71.95	10.13	7.2	376.72	10.87	19.4	-52.04
37.1322	19.64	24.4	25.14	112.9	74.33	9.09	5.87	385.2	-1	19.53	-51.92
36.7382	19.59	24.46	25.29	102.05	73.92	10.92	7.23	390.47	-1	19.65	-51.81

inter-calibration: none  
CTD stations: 0  
radiosondes: 2  
overflights: none

station no.	date / time UTC	device	action	latitude [°N]	longitude[°W]	depth [m]	contact
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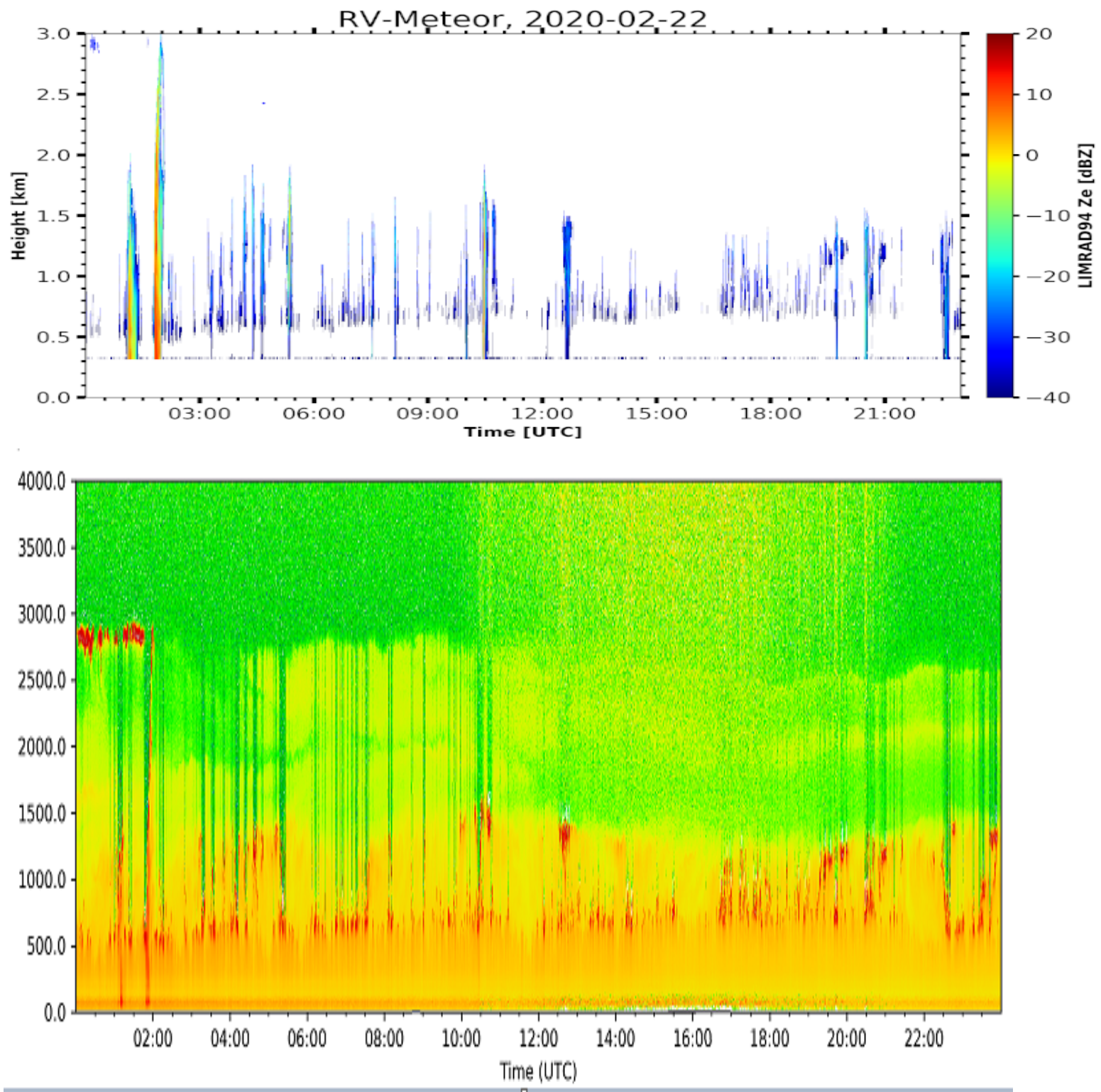
#### 4. Instrument Status

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

		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
spare cloud-kite		<b>F</b>	Oliver, Marcel, Marcel, Antonio, Robert, Sanola
Picarro		<b>W</b>	Sebastian
micro-biology		<b>S</b>	Wiebke, Jan, Abiel
ADPC ocean curr.		<b>W</b>	Callum, Beth
thermosalinograph		<b>W</b>	Callum, Beth
glider		<b>S</b>	Callum, Beth
UAV		<b>S</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>W</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>S</b>	Darek, Przemek, Beth, Callum, Alma, Sanola, Kevin, Robert, Wojtek, Almuth
Rodney		<b>R</b>	Darek, Jakub, Przemek

### 5. Outlook

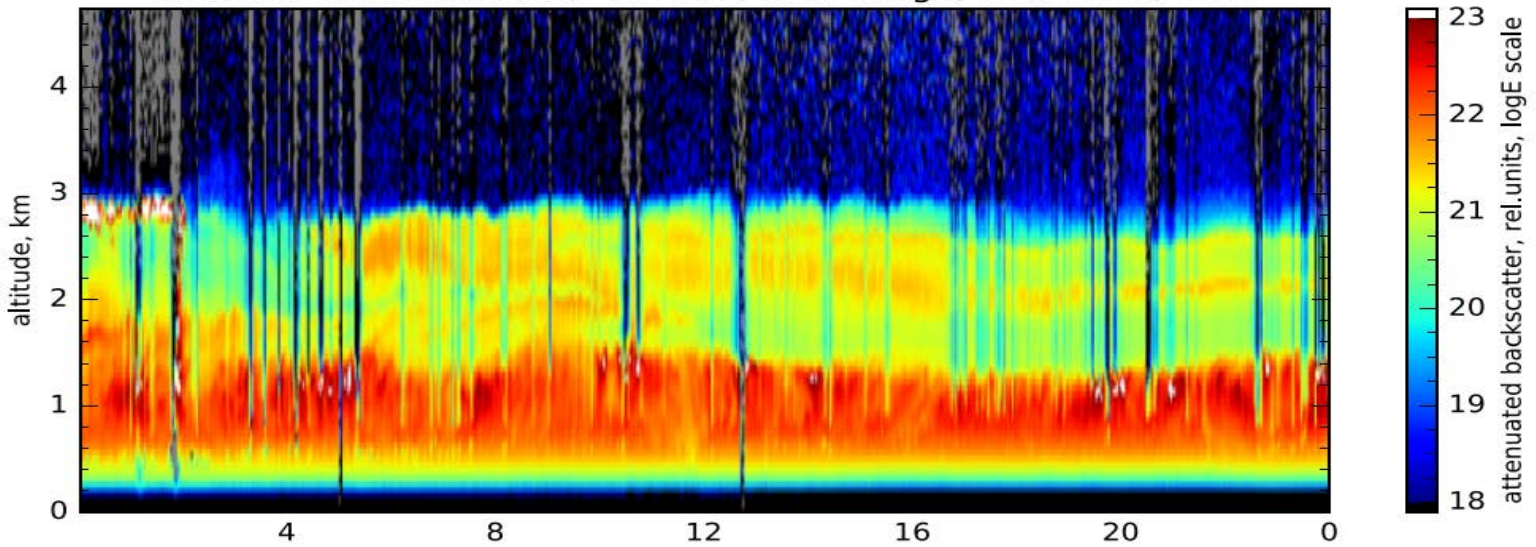
Tomorrow will be transfer day, possibly with a few stops for UAV flights and CTD casts.



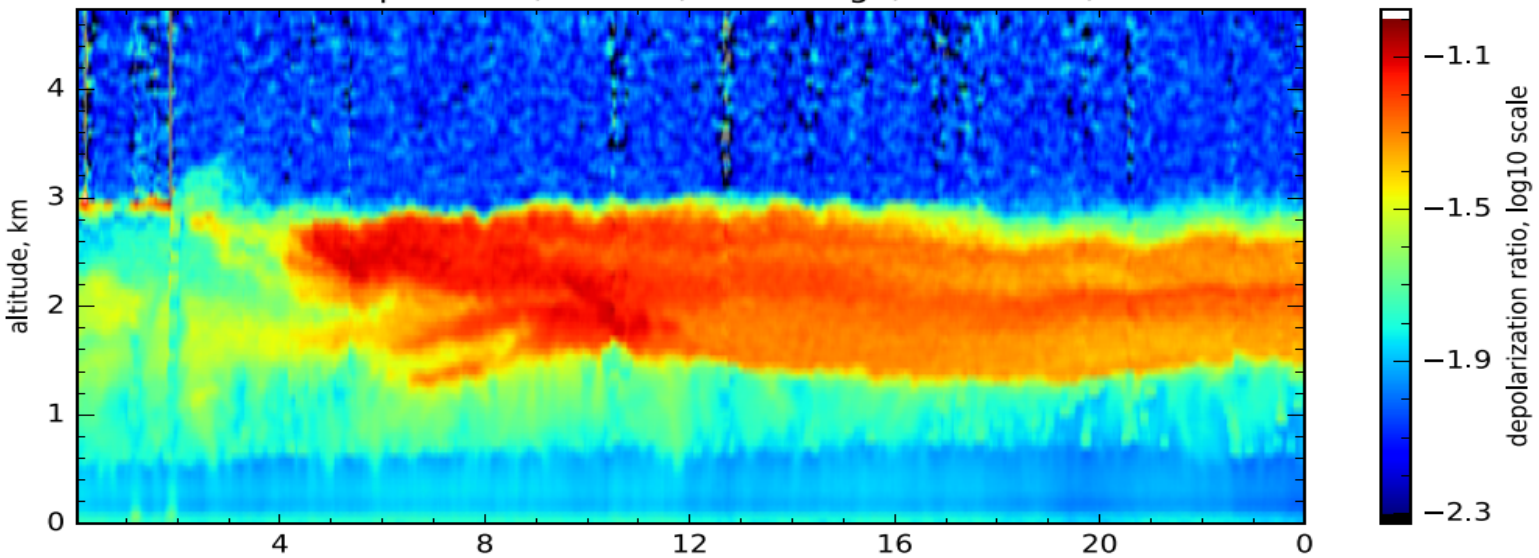
METEOR cloud-radar data (top) and ceilometer (bottom) of Feb 22



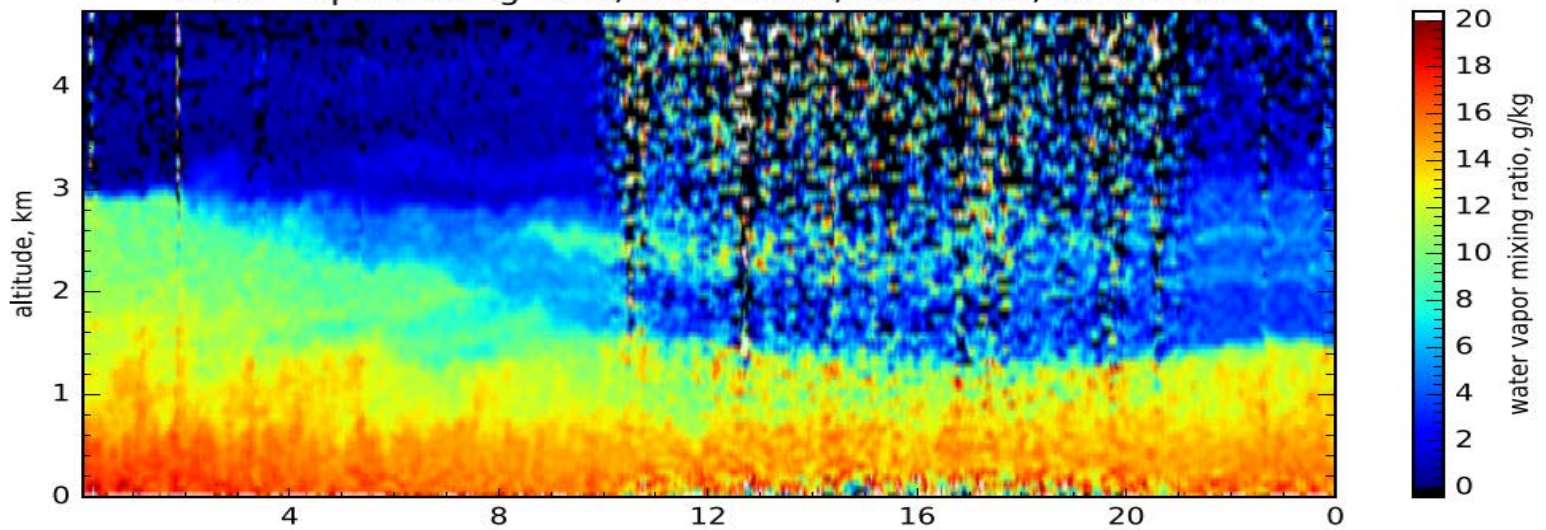
attenuated backscatter, 1064nm, near range, res.: 120s, 60m



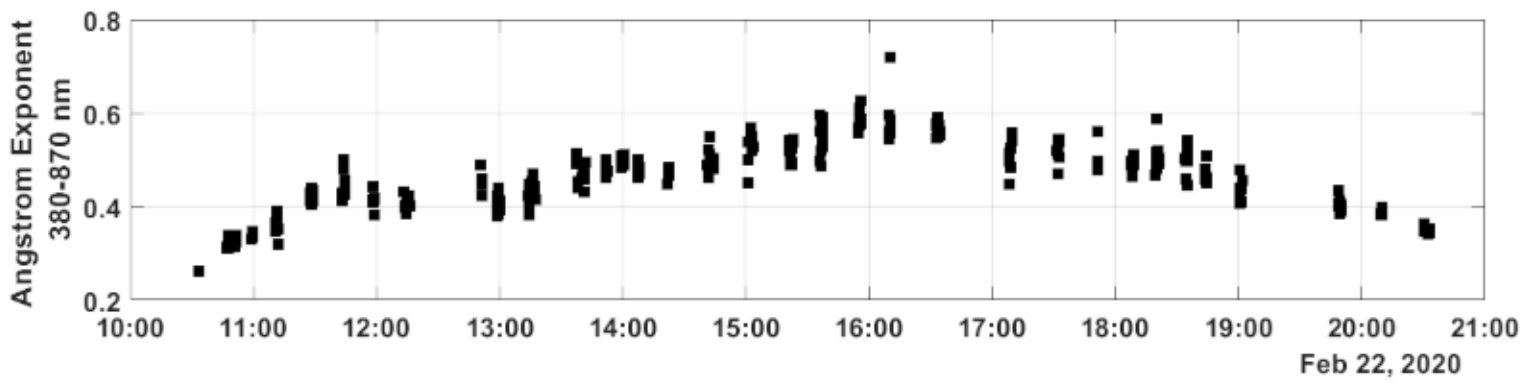
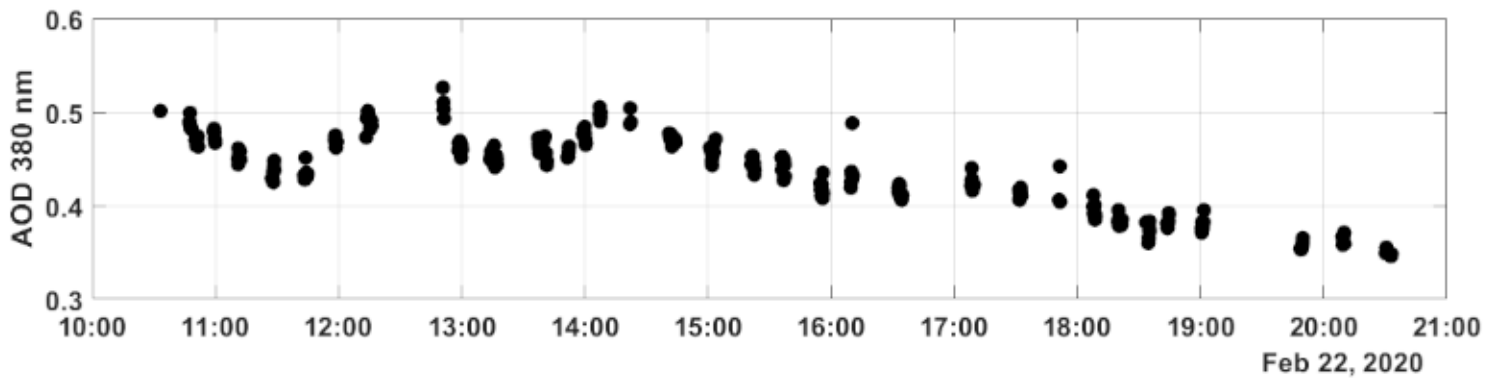
Volume linear depol. ratio, 532nm, near range, res.: 600s, 60m-180m



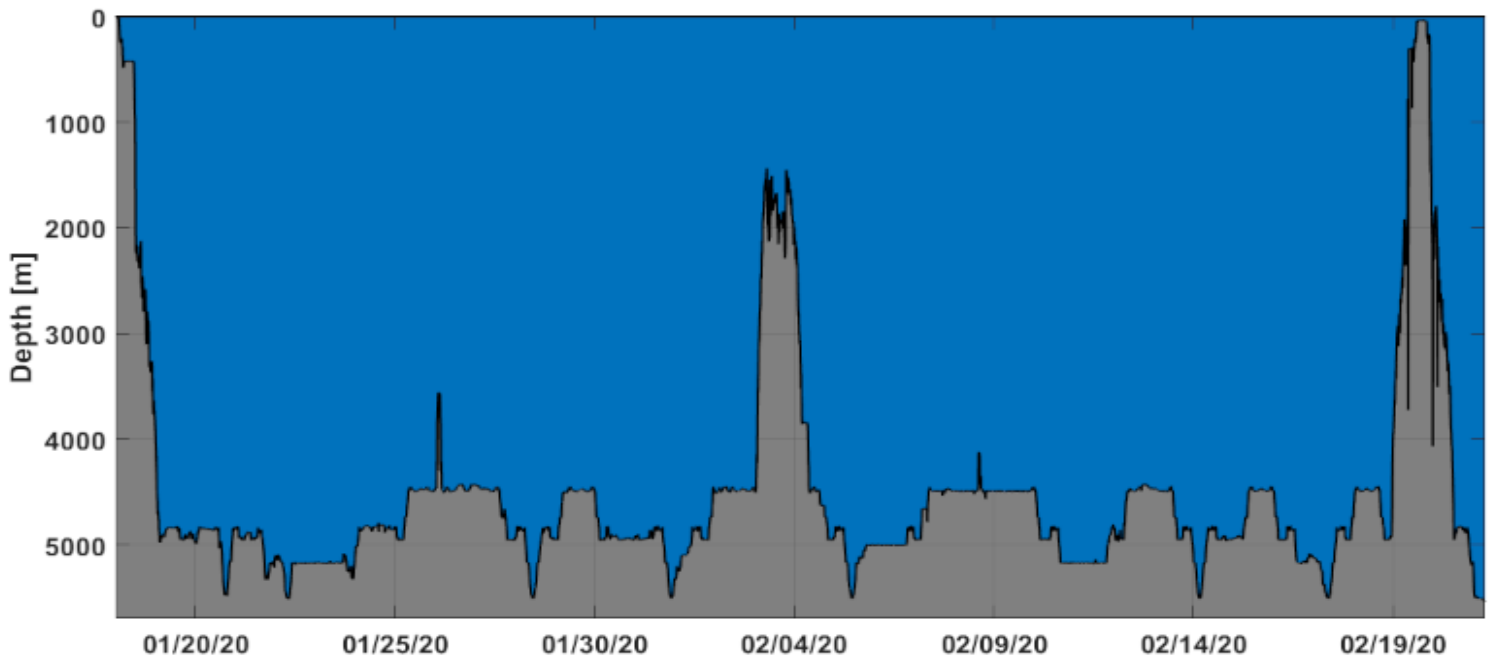
Water vapor mixing ratio, FAR+NEAR, res.: 600s, 60m-180m



Raman Lidar profiles up to 5km for Feb 22 (backscatter, depolarization, water vapor)

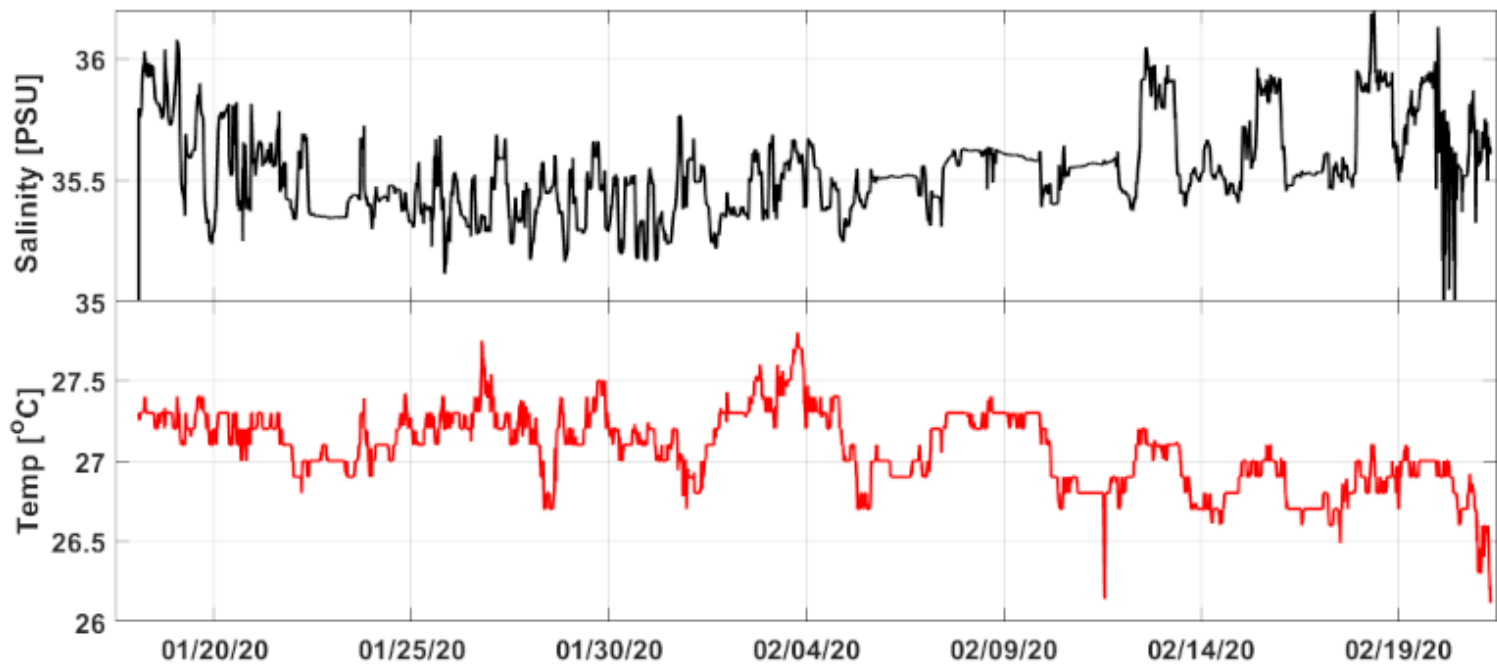


MICROTOPS measurements during Feb 22 ... as dust loads died down as the day progressed



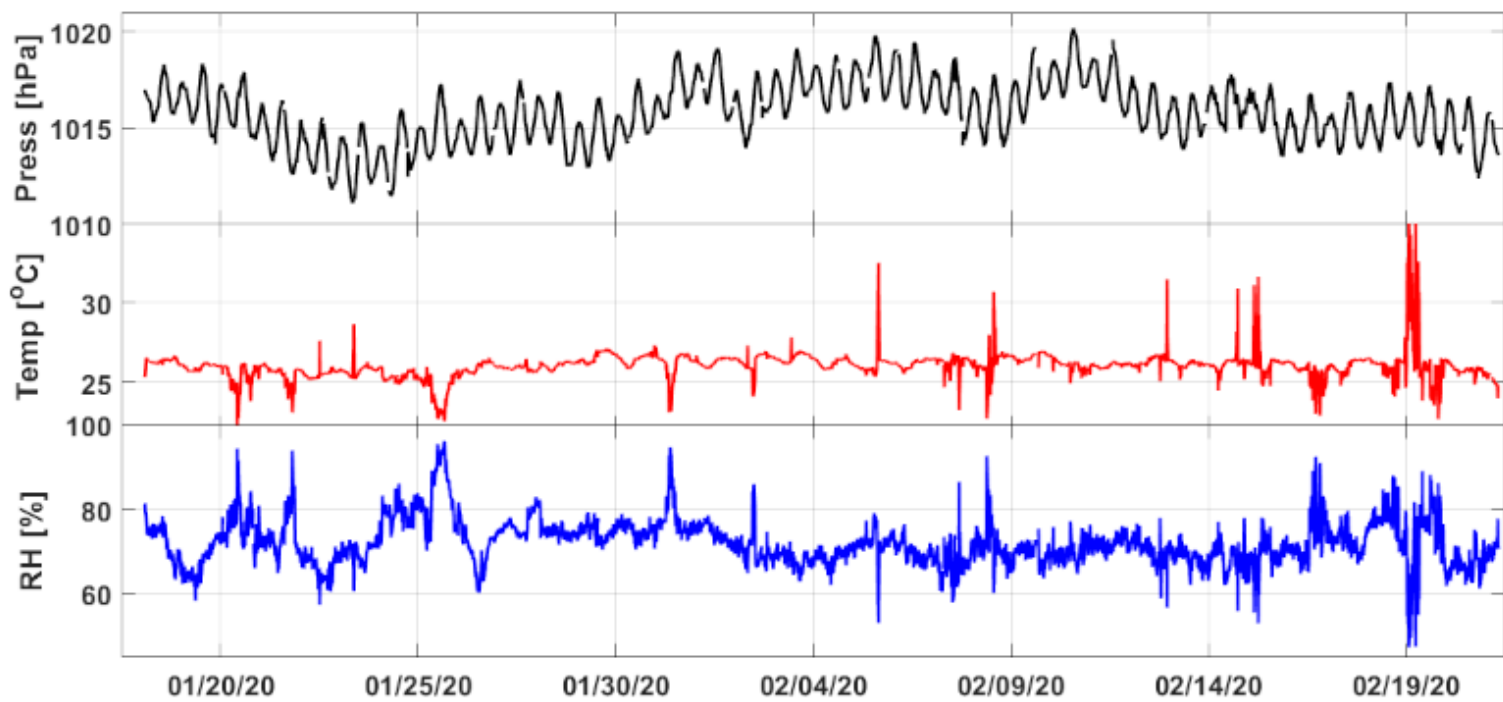
Ocean depth for the Jan 17 to Feb 21 time period (M161 cruise)

### 2020-01-17 - 2020-02-21 EUREC<sup>4</sup>A Water



Salinity and Sea Surface Temperature for the Jan 17 to Feb 21 time period (M161 cruise)

### 2020-01-17 - 2020-02-21 EUREC<sup>4</sup>A Air



Pressure, air-temperature and relative humidity at the surface for the Jan 17 to Feb 21 time period (M161)