# Meteor 0206 (2020)

Stefan Kinne ( 7 feb 2am)

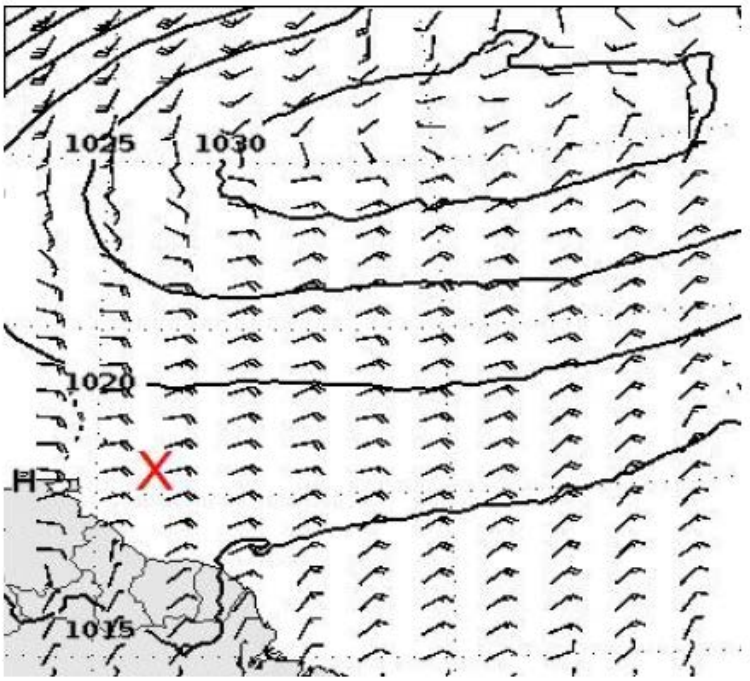
## 1. Objective

Daily cycle sampling near L1, with CTD casts every 2 hours and launch radiosondes at the regular times (2.45, 6.45, 10.45, 14.45, 16.33 (DWD), 18.45 and 22.45 UTC). Extended air-time for the cloud-kite instruments.

Since yesterday late afternoon we stayed on the METEOR track just south of L1 for almost 24 hours, for investigations of the daily cycle – today at rather breezy 10m/s. This relatively strong wind provided sufficient lift for the cloud-kite and its instruments and kite data for ca 20 hours (15 +5) were collected. During the afternoon we started to move southward on the track (with regular CTD every 3 hours) to meet the MERIAN near L2 the next morning at ca 8am – at least for a common deep CTD.

## 2. Synoptic Situation

Satellitenbild GOES16 **06.02.2020** 12:50 UTC




Vorhersage für Freitag 12 UTC

**Weather observations** (every 3hr)

```
20 02 06001 99141 70572 11598 10711 10262 20210 40182 52015 70200 81200 22200 04273
2//// 3//// 4//// 5//// 6//// ICE /////
 20 02 06031 99141 70572 46/// /0711 10261 20211 40190 51008 7//// 8//// 22200 04273
2//// 3//// 4//// 5//// 6//// ICE /////
 20 02 06061 99141 70572 16/// /0810 10258 20208 40168 58022 7//// 8//// 22200 04273
2//// 3//// 4//// 5//// 6//// ICE /////
 20 02 06091 99141 70572 46/// /0812 10259 20203 40161 55007 7//// 8//// 22200 04272
2//// 3//// 4//// 5//// 6//// ICE /////
```

```
 20 02 06121 99141 70572 11598 30712 10261 20202 40180 53019 70200 83200 22200 04272
20302 308// 40804 5//// 6//// ICE /////
 20 02 06151 99141 70572 41598 10912 10265 20203 40188 50008 70100 81200 22200 04273
20302 308// 40804 5//// 6//// ICE /////
 20 02 06181 99141 70572 11598 20810 10263 20199 40166 56022 70200 82200 22200 04273
20302 307// 40904 5//// 6//// ICE /////
 20 02 06211 99139 70572 41598 20812 10265 20206 40161 55005 70200 82200 22241 04273
20302 309// 40905 5//// 6//// ICE /////
```

More frequent a more convective clouds with higher wind-speeds in the morning … once the low cloud cover minimized at higher solar insolation, lots of blue skies (no rain and no cirrus) Despite the higher wind-speeds, the AOD at 0.1 was rather moderate.

## 3. Cruise-day Elements

IWV (integrated water vapor): 27 kg /m2 +/- 2
LWP (liquid water path): 28 g /m2 +/- 83

| Time | 0-3UTC | 4-6UTC | 7-9UTC | 10-12UTC | 13-15UTC | 16-18UTC | 19-21UTC |
|---|---|---|---|---|---|---|---|
| Height_m | 693.13 | 737.85 | 715.49 | 872.00 | 827.29 | 849.65 | 849.65 |
| max_hydro_frac_low | 0.16 | 0.06 | 0.11 | 0.25 | 0.11 | 0.10 | 0.03 |
| Height_m | 1274.47 | 1207.39 | 1386.26 | 1207.39 | 1207.39 | 1296.83 | 1207.39 |
| max_hydro_frac_mid | 0.09 | 0.00 | 0.06 | 0.14 | 0.08 | 0.00 | 0.00 |
| Height_m | 5987.42 | 12878.56 | 12836.47 | 12836.47 | 12836.47 | 12836.47 | 12836.47 |
| max_hydro_frac_high | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

L ow=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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35.4867 | 21.31 | 26.18 | 27.3 | 68.93 | 74.18 | 10.42 | 10.09 | 402.66 | -1 | 14.08 | -57.25 |
| 35.4896 | 20.88 | 26.19 | 27.31 | 70.02 | 72.2 | 11.35 | 11.01 | 394.62 | -1 | 14.08 | -57.25 |
| 35.4919 | 20.56 | 26.17 | 27.31 | 74.37 | 70.88 | 11.44 | 11.06 | 383.33 | -1 | 14.08 | -57.25 |
| 35.4929 | 20.55 | 26.11 | 27.3 | 71.95 | 71.07 | 10.83 | 10.47 | 385.76 | -1 | 14.08 | -57.25 |
| 35.4937 | 20.52 | 26.02 | 27.3 | 77.55 | 71.35 | 10.75 | 10.38 | 384.07 | -1 | 14.08 | -57.25 |
| 35.4909 | 20.66 | 25.92 | 27.3 | 78.6 | 72.38 | 10.71 | 10.32 | 385.7 | -1 | 14.08 | -57.25 |
| 35.4907 | 20.85 | 25.74 | 27.26 | 74.72 | 74 | 12.02 | 11.66 | 393.5 | -1 | 14.08 | -57.25 |
| 35.4898 | 20.68 | 25.71 | 27.27 | 77.02 | 73.42 | 11.9 | 11.55 | 392.7 | -1 | 14.08 | -57.25 |
| 35.4898 | 19.85 | 25.82 | 27.21 | 79.97 | 69.23 | 12.63 | 12.29 | 383.7 | -1 | 14.08 | -57.25 |
| 35.4904 | 19.9 | 25.84 | 27.25 | 80.8 | 69.38 | 12.7 | 12.31 | 382.47 | -1 | 14.08 | -57.25 |
| 35.4919 | 20.12 | 25.87 | 27.24 | 78.07 | 70.13 | 12.63 | 12.24 | 395.78 | 20.23 | 14.08 | -57.25 |
| 35.494 | 20.35 | 25.98 | 27.25 | 72.47 | 70.65 | 12.65 | 12.21 | 404.67 | 155.28 | 14.08 | -57.25 |
| 35.4961 | 20.36 | 26.18 | 27.29 | 74.82 | 69.98 | 12.58 | 12.16 | 402.6 | 336.05 | 14.08 | -57.25 |
| 35.4969 | 20.27 | 26.26 | 27.28 | 77.62 | 69.27 | 13.15 | 12.72 | 394.6 | 608.58 | 14.08 | -57.25 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35.4962 | 20.21 | 26.38 | 27.3 | 81.1 | 68.52 | 13.11 | 12.68 | 384.9 | 815.38 | 14.08 | -57.25 |
| 35.4956 | 20.11 | 26.33 | 27.3 | 81.58 | 68.2 | 11.04 | 10.61 | 382.92 | 925.13 | 14.08 | -57.25 |
| 35.4944 | 20 | 26.29 | 27.3 | 81.5 | 67.97 | 11.09 | 10.62 | 387.85 | 915.22 | 14.08 | -57.25 |
| 35.4928 | 20.05 | 26.29 | 27.3 | 80.98 | 68.1 | 10.62 | 10.17 | 389.52 | 769.92 | 14.08 | -57.25 |
| 35.4913 | 19.84 | 26.33 | 27.3 | 82.25 | 67.13 | 10.71 | 10.32 | 381.45 | 719.32 | 14.08 | -57.25 |
| 35.4785 | 20.07 | 26.4 | 27.29 | 81.27 | 67.77 | 12.09 | 11.53 | 383.85 | 507.38 | 14.07 | -57.24 |
| 35.4278 | 20 | 26.48 | 27.3 | 84.53 | 67.17 | 12.78 | 12.07 | 380.93 | 283.1 | 13.93 | -57.24 |
| 35.4184 | 20.41 | 26.45 | 27.26 | 83.7 | 69.05 | 12.32 | 11.47 | 405.05 | 50.98 | 13.77 | -57.24 |
| 35.5144 | 20.7 | 26.41 | 27.2 | 73.95 | 70.45 | 11.68 | 11.45 | 388.45 | -0.9 | 13.62 | -57.25 |
| 35.5305 | 20.54 | 26.43 | 27.2 | 71.98 | 69.66 | 12.02 | 11.94 | 383.95 | -1 | 13.58 | -57.24 |

**inter-calibration:** **none**
**CTD stations:** **11**
**radiosondes**: **7**
**overflights:** **none**

| station no. | UTC | device | action | latitude | longitude | depth | contact person |
|---|---|---|---|---|---|---|---|
| M161 128 | 6 feb 2020 / 00:31-01:08 | CTD | CTD | 14°04.928 N | 57°14.744' W | 800 | Baranowski |
| M161 129 | 6 feb 2020 / 02:31-03:03 | CTD | CTD | 14°04.928 N | 57°14.744' W | 800 | Baranowski |
| M161 130 | 6 feb 2020 / 04:37-05:13 | CTD | CTD | 14°04.927 N | 57°14.744' W | 800 | Baranowski |
| M161 131 | 6 feb 2020 / 06:32-07:11 | CTD | CTD | 14°04.928 N | 57°14.744' W | 800 | Baranowski |
| M161 132 | 6 feb 2020 / 08:34-09:09 | CTD | CTD | 14°04.928 N | 57°14.744' W | 800 | Baranowski |
| M161 133 | 6 feb 2020 / 10:41-11:15 | CTD | CTD | 14°04.928 N | 57°14.744' W | 800 | Baranowski |
| M161 134 | 6 feb 2020 / 12:31-13:10 | CTD | CTD | 14°04.928 N | 57°14.744' W | 800 | Baranowski |
| M161 135 | 6 feb 2020 / 14:32-15:13 | CTD | CTD | 14°04.928 N | 57°14.744' W | 800 | Baranowski |
| M161 136 | 6 feb 2020 / 16:30-17:07 | CTD | CTD | 14°04.928 N | 57°14.744' W | 800 | Baranowski |
| M161 137 | 6 feb 2020 / 19:15-19:54 | CTD | CTD | 14°04.928 N | 57°14.744' W | 800 | Baranowski |
| M161 138 | 6 feb 2020 / 22:38-23:13 | CTD | CTD | 13°35.666 N | 57°14.798' W | 800 | Baranowski |

## 4. Instrument Status

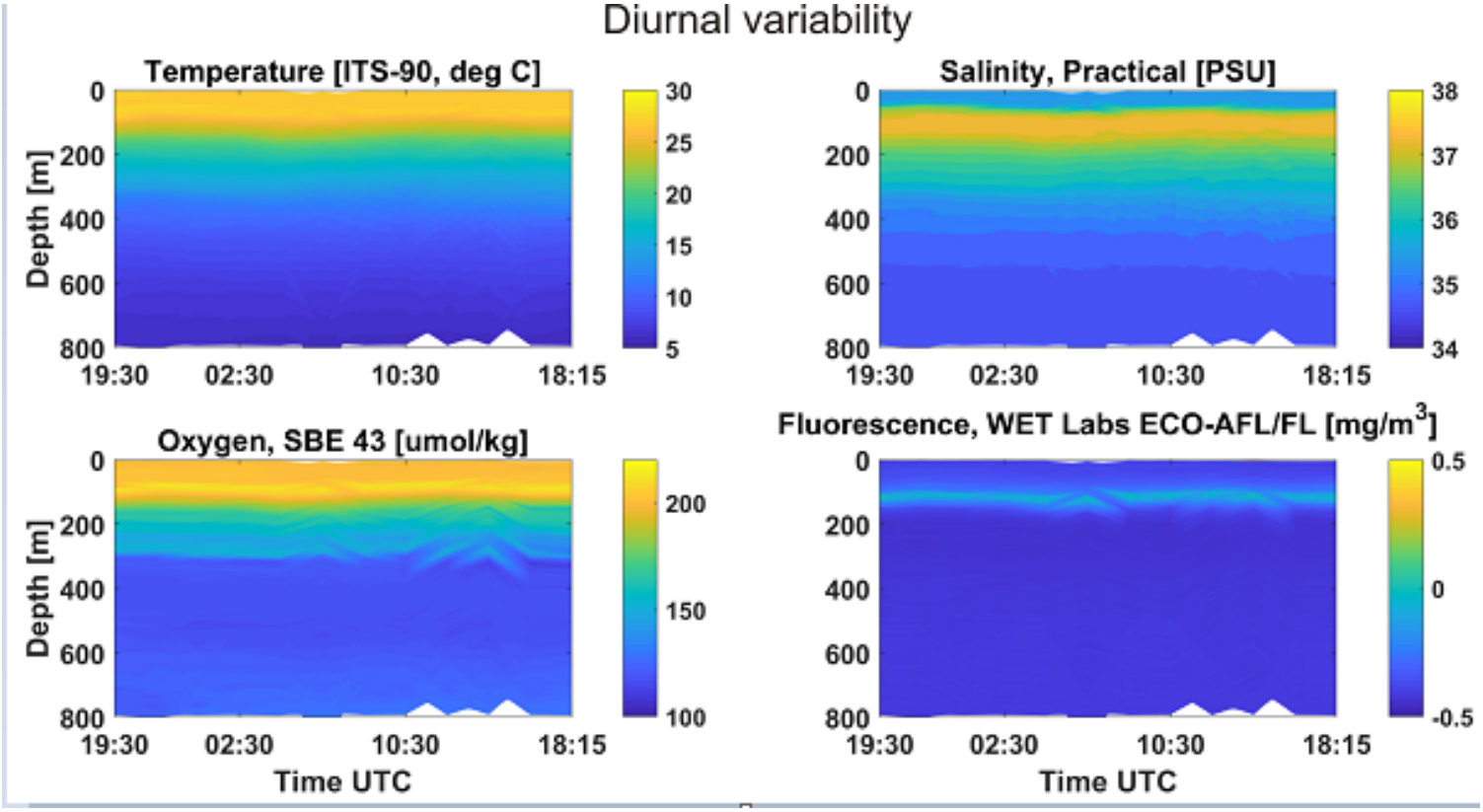
Instrument-Status (**W**-working, **P**-partially-working, **F**-failure, **U**-untested, **R**-ready)

| | | | 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 |

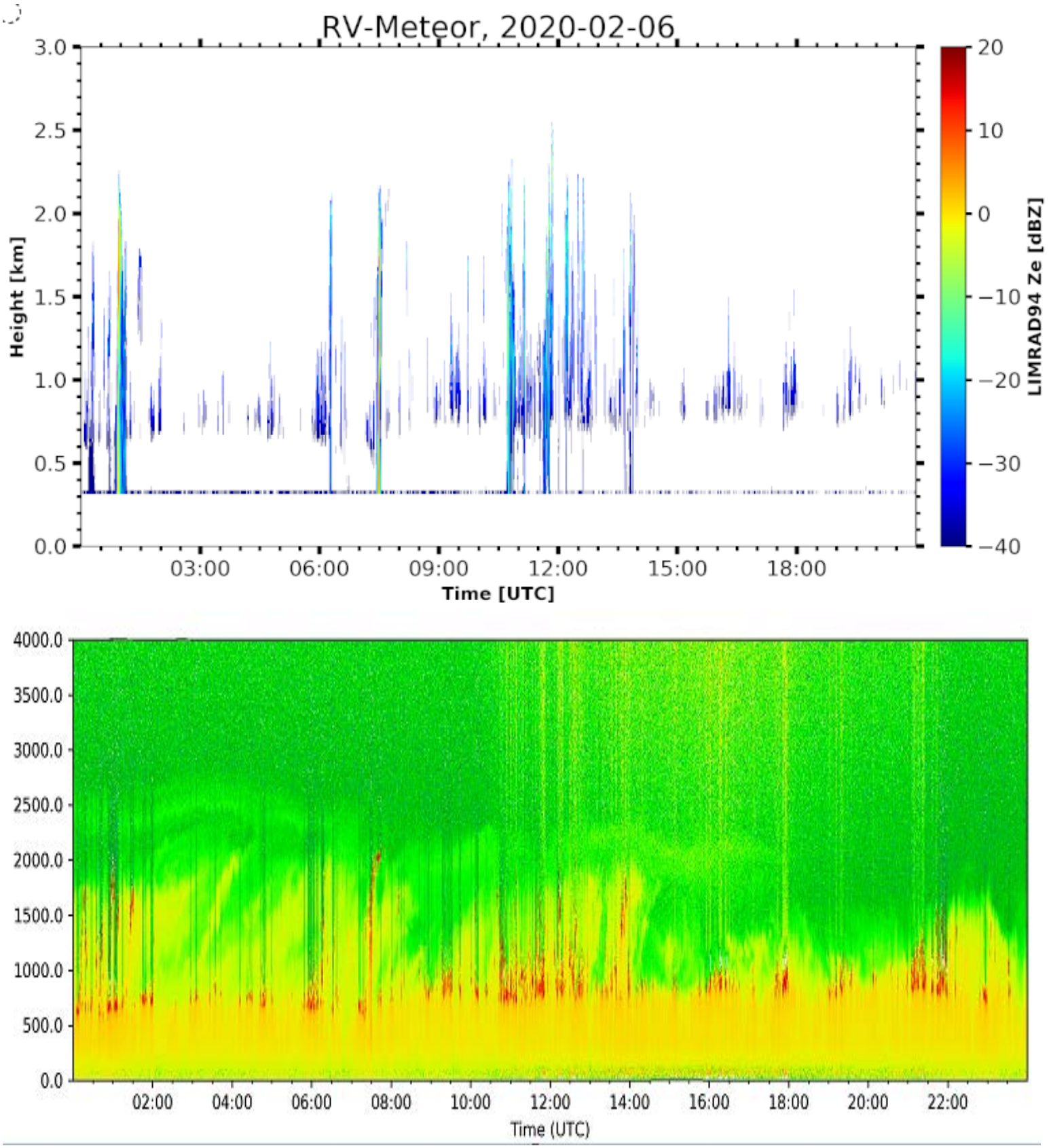
| | | | | |
|---|---|---|---|---|
| cloud-kite | | | W | Oliver, Marcel, Marcel, Antonio, Robert, Sanola |
| Picarro | | | P | Sebastian |
| micro-biology | | | W | Wiebke, Jan, Abiel |
| ADPC ocean curr. | | | W | Callum, Beth |
| thermosalinograph | | | W | Callum, Beth |
| glider | | | W | Callum, 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

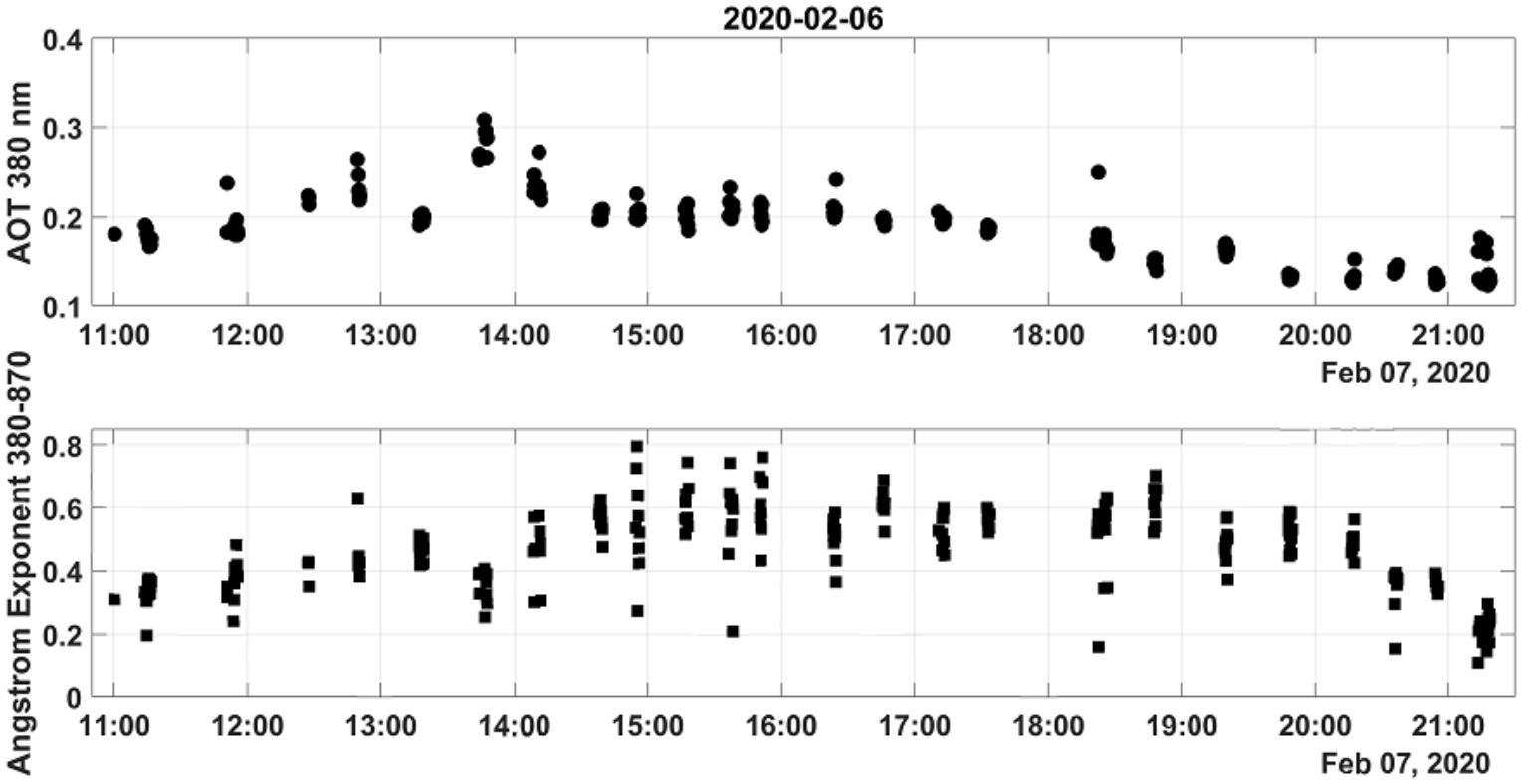
After the common CTD with the MERIAN we plan to stay on the Meteor track heading northward – possibly even with the cloud-kite up, as wind-speeds are expected to remain high.



daily variability in the ocean near L1, Feb 6




METEOR radar (top) and ceilometer (bottom) images for Feb 6




METEOR daytime aerosol properties (amount: top / inv.size: bottom)