Meteor 0122 (2020)

Stefan Kinne

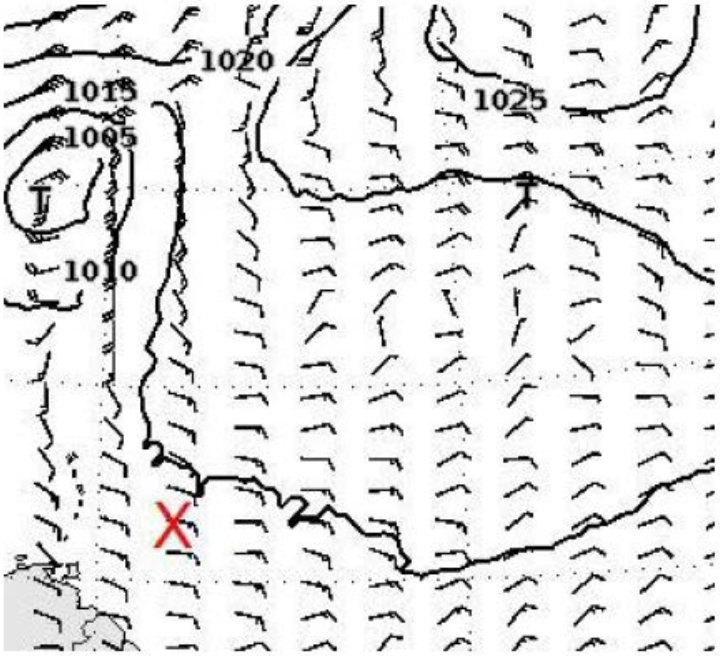
1. Objective

CTD survey of daily cycles or upper ocean properties at the (new) L1 (14.182N/57.345W) location and the METEOR serving as surface reference site for HALO overpasses and HALO instrument calibrations. UAV quadcopters were launched several times – always with safe returns! Cloud-kite instruments are still being prepared and 7 radiosondes were launched at 2.45, 6.45, 10.45, 14.45, 16.30 18.45 and 22.45 UTC.

The METEOR arrived in the morning at the glider position. However, wind and especially waves were too strong and too high for a save release of the by-boat. Thus, the deployment of the gliders was moved to the next morning. Since the METEOR today was tasked to provide a surface reference and calibration platform for expected HALO aircraft overpasses (between 15.30 and 23.30 UTC) we needed to stay at the same location. We used this opportunity to conduct frequent (every 2 hours) CTDs at the same position for investigations of daily cycles of upper ocean properties.

2. Synoptic Situation

Satellitenbild GOES **22.01.2020** 12:40 UTC



Vorhersage für Donnerstag 12 UTC

Weather observations (every 3hr)

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 20 01 22001 99142 70572 11598 50612 10258 20200 40145 53017 70182 85200 22222 04271
2//// 3//// 4//// 5//// 6//// ICE /////
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 20 01 22031 99142 70569 46/// /0612 10255 20187 40144 58001 7//// 8//// 22222 04270
2//// 3//// 4//// 5//// 6//// ICE /////
 20 01 22061 99143 70570 16/// /0710 10252 20189 40133 58011 7//// 8//// 22271 04271
2//// 3//// 4//// 5//// 6//// ICE /////
 20 01 22091 99144 70572 46/// /0611 10253 20183 40127 56006 7//// 8//// 22261 04272
2//// 3//// 4//// 5//// 6//// ICE /////
 20 01 22121 99142 70572 11598 60610 10252 20186 40145 53018 70122 86801 22241 04272
20302 30406 40904 50603 6//// ICE /////
 20 01 22151 99142 70572 41598 20710 10255 20179 40150 50005 70211 81101 22200 04273
20302 30607 40903 50603 6//// ICE /////
 20 01 22181 99142 70572 11498 10708 10256 20192 40125 56025 70111 81102 22200 04273
20301 30609 40903 50603 6//// ICE /////
 20 01 22211 99142 70572 41598 20807 10257 20200 40121 55004 70300 81135 22200 04274
20301 30609 40903 50603 6//// ICE /////
```

Once the morning stratocumulus deck broke open, we had predominantly blues skies with intermittent cloud cells at low altitudes and occasional cirrus streaks.

3. Cruise-day Elements

IWV (integrated water vapor): 27 kg /m2 +/- 2
LWP (liquid water path): 16 g /m2 +/- 27

time	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24
Height (m)	1207	827	827	872	313	335	804	
max cover	0.10	0.08	0.12	0.06	0.00	0.00	0.02	

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/m²	W/m²	°N	°E
35.3198	19.8	25.76	27.09	67.82	69.12	13.28	11.35	420.07	-1	14.18	-57.11
35.3186	19.46	25.71	27.04	68.2	67.98	14.11	11.53	426.63	-1	14.18	-57.08
35.4157	19.17	25.58	27.02	57.7	67.2	16.2	11.89	420.02	-1	14.18	-56.94
35.5608	19.61	25.45	27.05	64.83	69.77	13.46	10.87	390.8	-1	14.18	-56.8
35.5577	19.24	25.35	27.07	68.92	68.5	9.94	10.75	380.68	-1	14.2	-56.81
35.6005	19.16	25.27	27.07	67.77	68.5	8.94	10.76	381.62	-1	14.29	-56.95
35.6464	19.16	25.19	27.2	68.15	68.78	8.31	10.14	398.35	-1	14.4	-57.12
35.6587	19.21	25.22	27.22	73.39	68.93	9.54	10.1	409.97	-1	14.47	-57.24
35.6088	18.66	25.26	27.2	66.05	66.48	10.03	10.28	405.3	-1	14.45	-57.25
35.3883	18.91	25.27	27.12	60.57	67.42	8.96	10.09	402.57	-0.95	14.28	-57.25
35.3364	18.69	25.27	27.21	59.15	66.58	10.41	10.01	419.9	18.9	14.18	-57.25
35.3324	18.14	25.32	27.27	56.5	64	10.55	10.05	394.07	185.43	14.18	-57.25
35.3337	18.14	25.82	27.27	57.73	62.28	10.43	10.23	386.12	473.22	14.18	-57.24
35.3307	18.29	25.45	27.3	61.57	64.17	10.22	9.8	375.05	665.3	14.18	-57.25

35.33	18.13	25.5	27.3	66.44	63.28	9.85	9.52	375.21	776.74	14.18	-57.25
35.3296	18.33	25.56	27.31	74.32	63.88	9.3	8.93	375.17	895.65	14.18	-57.25
35.3295	18.14	25.58	27.32	74.13	63.08	9.13	8.83	373.52	905.17	14.18	-57.25
35.3283	18.43	25.55	27.32	73.61	64.53	8.98	8.65	372.14	834.05	14.18	-57.25
35.3281	18.67	25.59	27.37	78.1	65.23	7.89	7.58	373.87	687.97	14.18	-57.25
35.3272	18.39	25.87	27.31	80.5	62.92	7.79	7.5	374.25	487.72	14.18	-57.25
35.3263	19.07	25.86	27.37	82.03	65.8	7.49	7.23	376.17	245.97	14.18	-57.25
35.3238	19.67	25.64	27.31	76.27	69.18	7.99	7.66	379.92	31.7	14.18	-57.25
35.3222	19.53	25.63	27.3	75.5	68.7	8.58	8.24	379.98	-1.2	14.18	-57.25
35.3219	19.69	25.67	27.3	80	69.19	8.72	8.39	386.41	-1	14.18	-57.25

inter-calibration: none
CTD stations: 9
radiosondes: 7
overflights: many (by HALO)

station no.	UTC	device	action	latitude	longitude	depth	contact person
M161 15	22 jan 2020 / 00:35-01:12	CTD	CTD	14°10.901 N	57°06.343' W	800	Baranowski
M161 16	22 jan 2020 / 03:43-04:18	CTD	CTD	14°10.893 N	56°47.049' W	800	Baranowski
M161 17	22 jan 2020 / 07:35-08:11	CTD	CTD	14°28.476 N	57°14.851' W	800	Baranowski
M161 18	22 jan 2020 / 10:17-11:09	CTD	CTD	14°10.926 N	57°14.703' W	1000	Baranowski
M161 19	22 jan 2020 / 14:04-14:41	CTD	CTD	14°10.926 N	57°14.703' W	800	Baranowski
M161 20	22 jan 2020 / 16:09-16:46	CTD	CTD	14°10.926 N	57°14.703' W	800	Baranowski
M161 21	22 jan 2020 / 18:03-18:42	CTD	CTD	14°10.926 N	57°14.703' W	800	Baranowski
M161 22	22 jan 2020 / 19:59-20:36	CTD	CTD	14°10.926 N	57°14.703' W	800	Baranowski
M161 23	22 jan 2020 / 22:03-22:45	CTD	CTD	14°10.926 N	57°14.703' W	800	Baranowski

4. Instrument Status

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

		status	operators
radiosondes		W	Katharina, Imke, Yanmichel, Dorothea, Kevin
cloud-radar		W	Heike, Johannes
micro-radiometer		W	Heike, Johannes
spect-radiometer		W	Heike, Johannes
Raman-lidar		W	Ludwig
cloud-kite		U	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		U	Callum, Beth
UAV		W	Darek, Jakub, Michal, Wojciech
eddy-flux-data		W	Katharina, Imke, Heike
wind-lidar (DTU)		W	Geiske, Kevin
wind-lidar (Bre)		F	Geiske, Kevin
MAX-DOAS		W-	Alma
ceilometer		W-	Stefan
cloud camera		W-	Stefan
sunphotometer		W-	Stefan, Przemek, Andreas.John
aero scat/abs		W	Przemek
WRAS (aero size)		W-	Alma
CTD		W	Darek and friends

5. Outlook

Tomorrow morning, after finishing the 2 hour CTD daily cycle with a 1000m sample, we plan to deploy both (a yellow and a pink) E.Anglia gliders at the deployment (L1) point. Direct after the deployment CTDs are planned around the (from now on off-limits) glider area. Then the METEOR plans to head in a southern direction (along 57.245W) with regular CTDs every 3 hours. An extended stop is (stops are?) planned once the cloud-kite has been filled with helium, for first cloud-kite launching and recovery tests.