

Meteor 019 (2020)

Stefan Kinne (20 feb 2am)

1. Objective

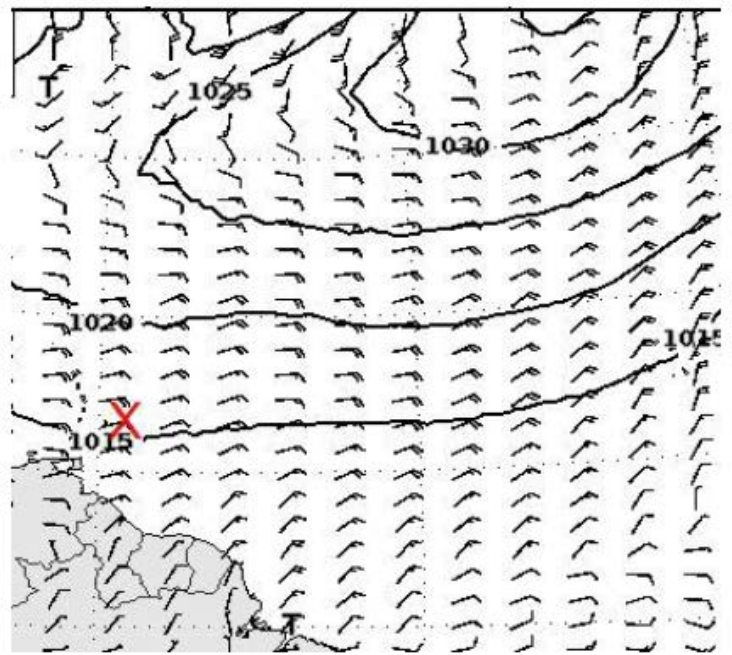
Barbados day: Co-located sampling 1 mile off the BCO site. (Re-) Packing deck items and transfer of goods with the MERIAN in quiet waters.

Overnight we were on the way (in the wind) to the BCO site. We passed the MERIAN, which was parked 10nm off the site, and reached our 1 mile off-position when it was still dark (9:20UTC). Just after 10UTC a heavy shower passed us, as it had passed the MERIAN earlier and the BCO a little bit later. It remained cloudy that day - also for the common (METEOR and BCO) radiosonde launch at 11UTC. At 12UTC we continued towards Bridgetown for quieter waters in front of the hotels and the southern beaches. There overdue (broken launching flap) and future (packing the winch and relocating the helium bottles, getting equipment ready for the next cruise) deckwork was accomplished and even the rescue boats got test-drives. At 19UTC the MERIAN arrived and it turned just in front of us (for many picture opportunities ... though no sun). Around 20 UTC we completed the transfer of goods (glider and radiosondes for wind-lidar spare part and microbiology frozen probes). Afterwards we were off into the wind to the METEOR track for a last microbiology sample on our transit voyage to the Azores. From now on, we have always 1 DWD (UTC) midnight radiosonde launch and if appropriate/needed ...additional ones (ca 15 sondes are left for the last 2 weeks).

2. Synoptic Situation



Satellitenbild GOES16 19.02.2020 11:50 UTC



Vorhersage für Donnerstag 12 UTC

Weather observations (every 3hr)

20 02 19001 99133 70577 11497 70710 10260 20208 40161 53012 72582 878// 22262 04269
 2//// 3//// 4//// 5//// 6//// ICE ////

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20 02 19031 99132 70582 46/// /0910 10305 20219 40165 50004 7///// 8///// 22263 04273
2///// 3///// 4///// 5///// 6///// ICE /////
20 02 19061 99132 70588 16/// /0910 10302 20220 40145 58020 7///// 8///// 22263 04273
2///// 3///// 4///// 5///// 6///// ICE /////
20 02 19091 99132 70594 46/// /1007 10256 20220 40142 55003 7///// 8///// 22263 04272
2///// 3///// 4///// 5///// 6///// ICE /////
20 02 19121 99132 70594 11497 70910 10262 20225 40160 52018 72582 878// 22261 04272
20302 307// 40804 5///// 6///// ICE /////
20 02 19151 99131 70596 41497 70710 10244 20218 40169 50009 72582 878// 22261 04272
20100 315// 40302 5///// 6///// ICE /////
20 02 19181 99131 70596 11597 70808 10256 20206 40145 58024 72582 878// 22200 04272
20100 315// 40301 5///// 6///// ICE /////
20 02 19211 99130 70596 41497 80710 10265 20202 40136 57009 72582 888// 22231 04271
20100 312// 40403 5///// 6///// ICE /////

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Overnight we had a mix of clouds and blue skies on the approach to the BCO site. Cloudy conditions while parking off the BCO site. Some clear-sky opportunities on the way to Bridgetown indicated dust as visibility was poor all day. Near the beach of Bridgetown we had overcast conditions all day with intermitted precipitation events.

3. Cruise-day Elements

IWV (integrated water vapor): 41 kg /m2 +/- 5
LWP (liquid water path): 427 g /m2 +/- ???

Time	0-3UTC	4-6UTC	7-9UTC	10-12UTC	13-15UTC	16-18UTC	19-21UTC
Height_m	648.41	581.34	1028.52	626.05	760.21	335.39	1185.03
max_hydro_frac_low	0.08	0.15	0.25	0.53	0.35	0.60	0.84
Height_m	1408.62	1967.60	1989.96	2996.12	1319.19	2504.22	1989.96
max_hydro_frac_mid	0.09	0.24	0.43	0.74	0.37	0.87	0.91
Height_m	12920.65	12836.47	12836.47	12878.56	5987.42	5987.42	6100.39
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	Tdew	Tair	Twater	TrueDir	RH	rel.Wind	trueWind	lw Rad	sw Rad	lat	lon
PSU	°C	°C	°C	deg	%	m/s	m/s	W/m ²	W/m ²	°N	°E
35.5522	21.67	28.62	27.07	80.57	66.25	5.38	10.81	402.08	-0.03	13.27	-57.8
35.5641	21.9	31.36	27.25	85.77	57.5	5.2	10.69	408.68	-0.78	13.25	-57.98
35.6035	22	32.16	27.3	86.78	55.13	5.09	10.57	402.23	-1	13.24	-58.16
35.6904	21.74	30.16	27.34	86.6	60.82	4.66	10.2	400.1	-1.7	13.23	-58.34
35.6914	21.87	26.51	27.31	73.9	75.57	4.22	9.35	407.37	-1.02	13.22	-58.53
35.7411	22.22	29.82	27.33	82.5	65.07	4.47	9.82	428.8	-1	13.21	-58.71
35.7911	21.8	27.5	27.27	78.83	71.12	5.53	10.89	423.32	-1.1	13.2	-58.89
35.8431	21.83	29.88	27.28	90.78	62.28	5.3	10.78	412.03	-1.35	13.19	-59.08
35.7765	21.93	25.52	27.23	97.12	80.2	2.59	7.89	441.8	-1.22	13.17	-59.26

35.7624	21.63	25.2	27.22	91.55	80.37	6.77	7.83	441.27	-0.62	13.16	-59.4
35.7704	21.75	26.03	27.19	89.32	76.83	9.37	8.96	438.42	17.53	13.16	-59.4
35.7868	21.84	26.15	27.2	88.35	76.78	9.89	9.47	439.88	110.05	13.16	-59.4
35.8197	21.6	25.84	27.14	90.62	77.08	11.76	11.47	419.23	373.03	13.13	-59.4
35.8847	21.33	25.9	27.19	91.88	75.5	7.09	11.07	399.98	686.75	13.03	-59.51
35.9075	21.74	25	27.18	73.63	81.93	10.23	10.84	436.23	402.47	13.08	-59.62
35.9044	21.29	24.23	27.17	67.95	83.2	11.24	11.23	436.88	534.98	13.08	-59.62
35.9093	20.6	23.87	27.2	69.33	81.5	9.53	9.53	436.43	387.65	13.08	-59.62
35.9247	20.78	25.33	27.2	71.52	75.7	8.12	8.12	437.43	400.98	13.08	-59.62
35.9279	20.66	25.6	27.25	72.35	73.8	7.6	7.59	436.6	272.88	13.08	-59.62
35.9251	20.16	23.87	27.2	61	79.45	8.19	8.19	439.23	138.5	13.08	-59.62
35.9118	20.41	24.36	27.18	65.75	78.4	9.35	7.81	437.2	95.5	13.06	-59.6
35.9243	20.42	26.08	27.1	76.18	70.75	16.09	12.33	439.03	29.3	13.02	-59.49
35.8067	20.21	26.08	27.1	64.35	69.72	15.88	12.19	435.43	0.17	13.04	-59.37
35.8884	19.54	26.38	27.05	68.08	65.6	16.35	12.75	403.08	-0.93	13.07	-59.25

inter-calibration: Merian (close at 19 UTC), BCO-Meteor(1nm off) -MERIAN (10nm off) (9:20-12:00 UTC)
CTD stations: 0
radiosondes: 2
overflights: none

station no.	UTC	device	action	latitude (N)	longitude (W)	depth (m)	contact
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4. Instrument Status

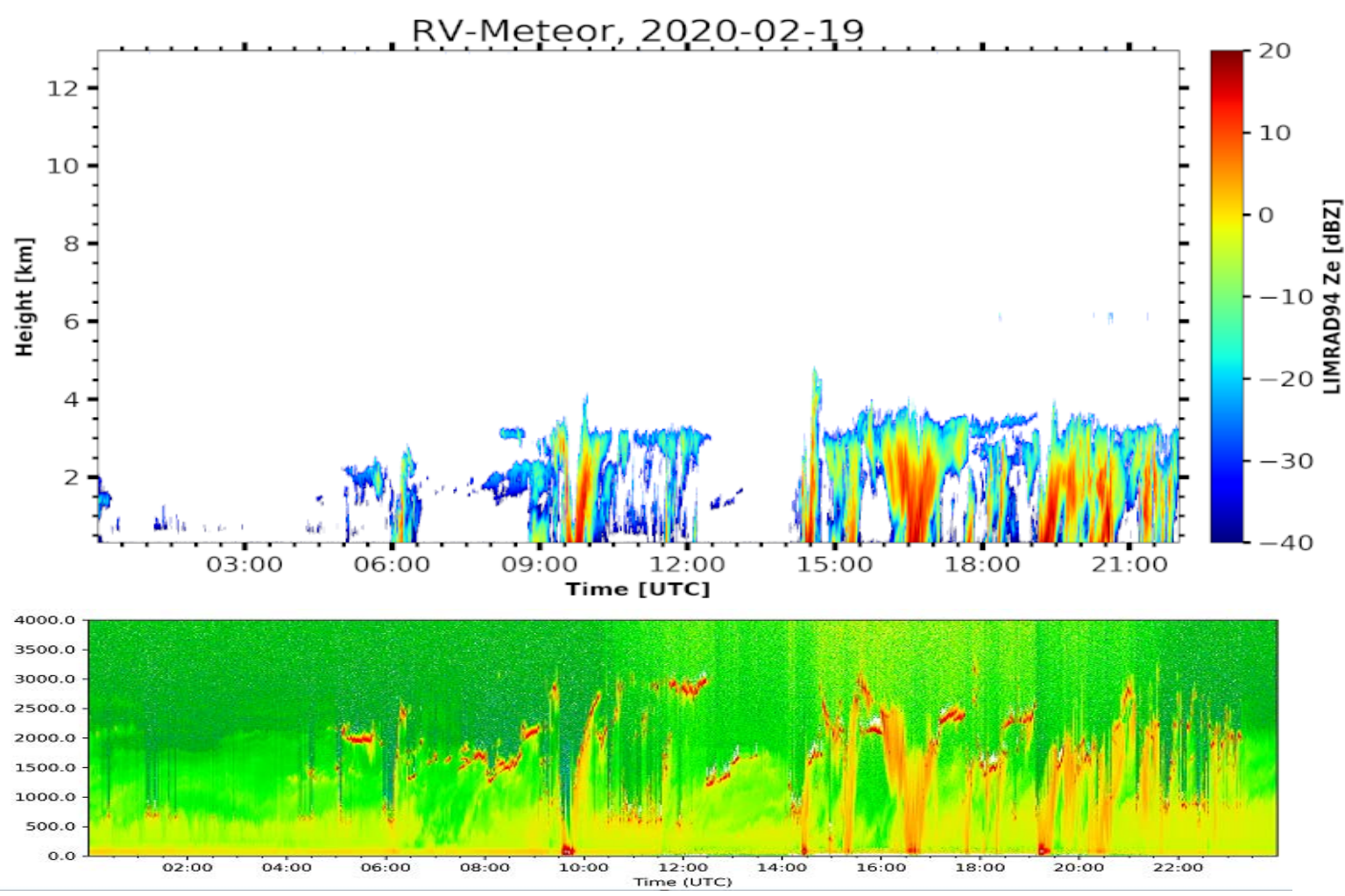
Instrument-Status (W-working, P-partially-working, F-failure, U-untested, R-ready, L-lost, S-stopped)

			status	operators
radiosondes			R	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
spare cloud-kite			F	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			S	Callum, Beth
UAV			R	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, 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			R	Darek, Jakub, Przemek

5. Outlook

Tomorrow morning we will have a final microbiology (CTD) sample and will deploy the second of our 5 ARGO floats, once we have left the Barbados EEZ.



METEOR cloud-radar data (top) and ceilometer (bottom) on Feb19