

Maria S Merian 0120 (20 January 2020)

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1. Objective

Upper ocean high resolution sampling with Moving Vessel Profiler perpendicular to wind. CTD with Microstructure Test. Deployment of Glider ifm03; Tests for Cloudkite; More intercomparisons with Meteor W Band Radar.; leaving Tradewind Alley going south for Eddy survey.

2. Synoptic Situation

Wind picked up and so did swell (4m);

3. Cruise-day Elements

Approx. Time (local)	Operation	Latitude	Longitude	Comm
	Mesoscale Decorrelation experiment			Increasing Pattern; MVP 6kn (+underway ocean/atmosphere)
10:00	Glider deployment	13° 47.10'N	13° 47.10'N	
13:00	Daily Meeting (Conference room)			
	CTD#5			
	MSS – 3 casts			
	Start southern transit			

Inter-calibration: with Meteor W Band radar

CTD Stations: CTD# 5

Overflights: no

4. Instrument Status

Operational:

Ocean – ADCP 38 & 75kHz; TSG; X-Band Radar; Underway O2, Chl-a (spectrometer); Incubation (PP; filtration); Nutrient/lab analysis; CTD/O2 +rosette; MSS; Moving vessel profiler;

Atmosphere – Halo Wind Lidar; Disdrometer; W-Band Radar. MRR (rain), sun photometer, Cloudcamera; SMPS (Aerosol; ship based); radiosondes; DWD Metrology package (incl. radiation);

In preparation:

Ocean – Ferrybox pCO2; glider; uCTD, Microstructure; MIMS (O2/Ar, DSMS)

Atmosphere – MPCK+ (atmospheric state parameters+cloud microphysics; Cloudkite); Mini MPCK (atmospheric state parameters and fluxes; Cloudkite); SMPS (Aerosol; Cloudkite);

ARTHUS Raman Lidar; Splash drone (atmospheric state parameters);

No functioning:
Ceilometer

Note: The W Band Radar stabilizer mainly works, except some interruptions that occur randomly. We are investigating why sometimes it just stops balancing the radar. Today,

5. Outlook

The cloud kite test-launch yesterday (20200119) will be further analyzed to come to an optimized technic for its use. During the test the kite stayed by chance exactly in the field of view of the W Band radar. Today the impact will be analysed. There is a big potential in combining the cloud kite in-situ observations on rain with volumes of air that the wband radar sees. This option represents a fantastic opportunity to forward simulate the radar signal and, in particular, to quantify the skewness transition in terms of drop sizes.

6. Figures

W Band radar:

The W Band radar has been up and running from the very first moment. It keeps running with the measurement settings we prepared in Germany. Today, we talked with Prof. Jun. Heike Kalesse to coordinate some tests for the radar settings.

The first test was the following:

- 19.1.2020: 9:00-9.30 local time: set the noise floor level to 3Db
- 19.1.2020: 9:30-10:00 local time: set the noise floor level to 0Db

After the test, we run again the radar using the standard measurement definition which has 6Db noise floor. We repeated the tests between 15:00 and 16:00 local time, using the same scheme above, 30 min for 3Db and 30 min for 0Db.

We also processed the data and produced the full moment output file and the compact output file. With this last file, we produced the quicklooks attached, for the 17/01/2020.

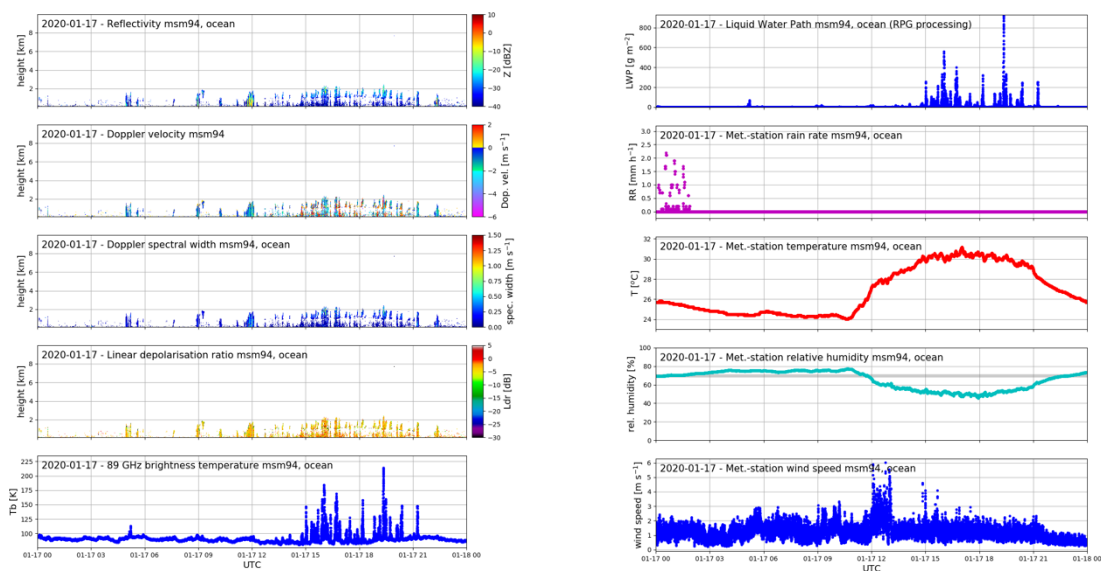


Figure: For caption see text; Note: should be MSM89 (not MSM94)