

Maria S Merian 0125 (25 January 2020)

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0125,23:00 UTC

1. Objective

Continue eddy survey – crossing southwest to northeast through the determined centre (vertical structure 0-2000m depth with CTD; and MSS dissipation 0-150m for flux estimate). Radiosounding every 4h. First launch of Cloudkite with advanced sensor package (MPCK+).

Deployment of SVP drifter in Vmax region. Three biology casts at 3:30am.

2. Synoptic Situation

Intense tropical rain 0124 morning; cloudy morning; wind picked up again 4-5Bft;

3. Cruise-day Elements

Approx. Time (local)	Operation	Latitude	Longitude	Comm
00:30	CTD#26	11°46.18'N	57°21.93'W	2000m
	MSS – 3 casts	same pos.		
03:30	CTD#27 – time is critical	On way		600m
	CTD#28 -	same pos.		200m
	CTD#29 -	same pos.		200m
	CTD#30 -	11°50.81'N	57°09.39'W	2000m!
	MSS – 3 casts	same pos.		
06:30	CTD#31	11°55.44'N	56°56.84'W	2000m
	MSS – 3 casts	Same pos.		
09:30	CTD#32	12°00.07'N	56°44.30'W	2000m
	MSS – 3 casts	Same pos.		
12:30	CTD#33	12°04.70'N	56°31.75'W	2000m
	MSS – 3 casts	Same pos.		
13:00	Daily Meeting (Conference room)			
14:00	Cloudkite launch			
	uCTD to waypoint			6kn
	SVP Drifter Deployment	12°00.00'N,	56°45.00'W	

Inter-calibration: no

CTD Stations: see table

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; Moving vessel profiler; Microstructure sonde; Ferrybox pCO2; MIMS (O2/Ar, DSMS)

Glider ifm09; ifm 03; ifm12 (see <https://gliderweb.geomar.de/> -> swarm 12;

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

In preparation:

Ocean –uCTD

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

No functioning:

Ceilometer

Note: The W Band Radar stable table continues to get stuck sometimes and needs continuous surveillance.

5. Outlook

Waiting for Guyana clearance to enter EEZ; start cloudkite operations; compare records of rain from different devices (Radar; Lidar, cloudkite);

Track (Figure 1): Starting in the southwest (WP) the track towards the northeast cross an anticyclonic (surface)/cyclonic (below 100m) eddy and ends in a region with high cloud occurrence (gray spots). The course then moves to the southwest crossing a feature with cyclonic surface signature (and cloud cocurance). Then moving south towards the center of a large anticyclone (in Guyana EEZ – awaiting permission to enter).

6. Figures

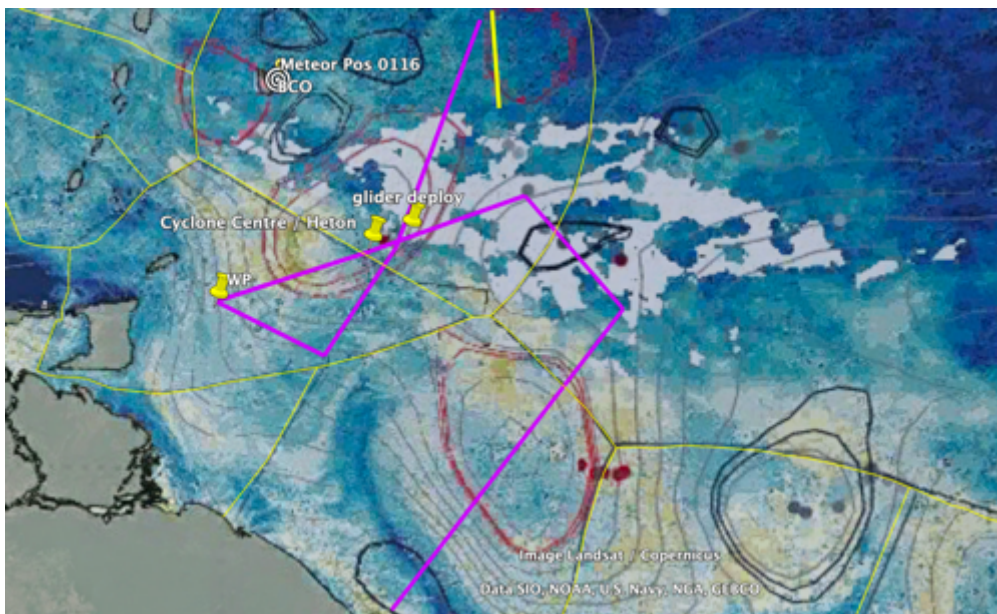


Figure 1: Anticipated cruise track overlaid on Satellite SST from 23. Jan. 2020.

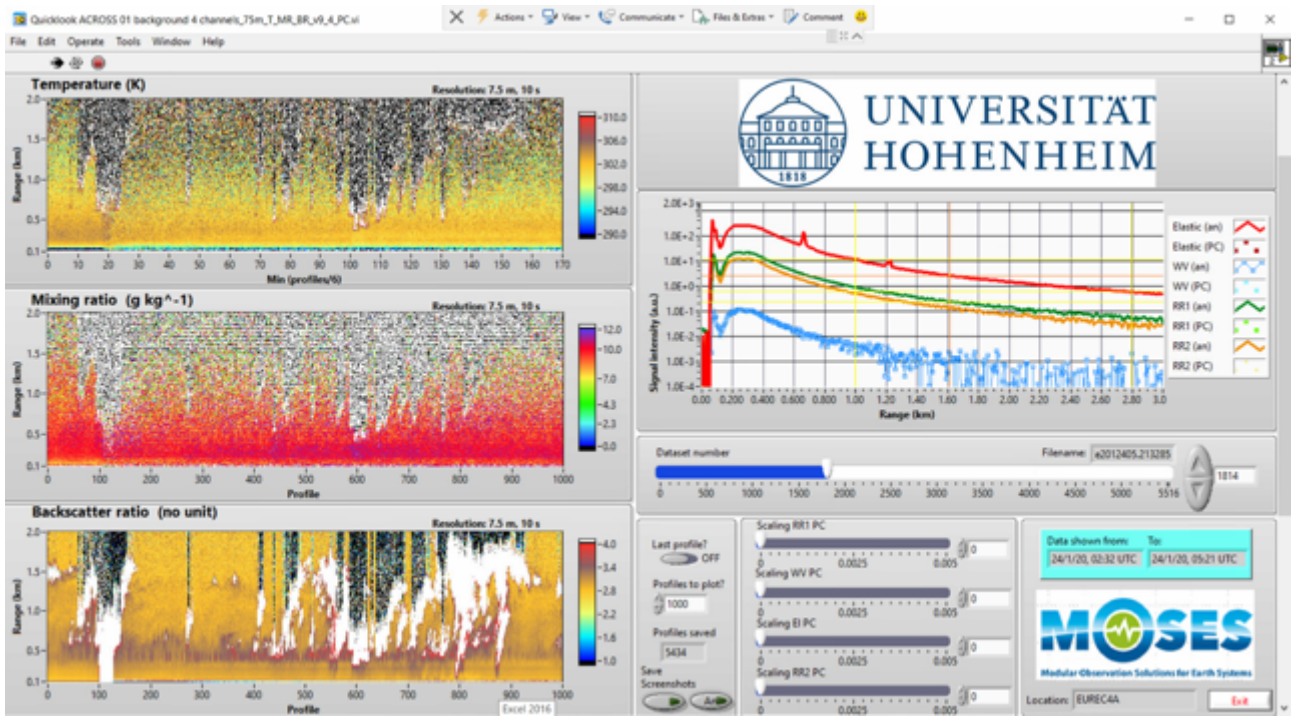


Figure: ARTHUS is working!