



## Daily cruise report (28 January 2020)

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### 1. Objective

Today we achieved the survey of Ring2 with a very regular but intense rhythm of observations. The results are somewhat surprising. Also Ring2 is a “pizza-like” anticyclone. The imprint from satellite altimetry, a very large and visible anticyclone, correspond to a very slim structure, only 100 m deep! Moreover, on its northwestern corner, where satellite altimetry was showing a northward flowing jet and a portion of Ring2 we found a huge and intense anticyclone (the “groundhog” Ring) with velocities exceeding  $50 \text{ cm s}^{-1}$ . Now we wait the completion of R/V Maria S Merian of Ring3 located in French Guyana waters, just at the North Brazil Current (NBC) Retroflexion to understand if NBC Rings are born as “pizza-like” anticyclones (at least in this season) or if the NBC rings separate in two different structures at the Suriname subsurface promontory. Figures illustrating the “pizza” and “groundhog” anticyclonic structures can be found below.

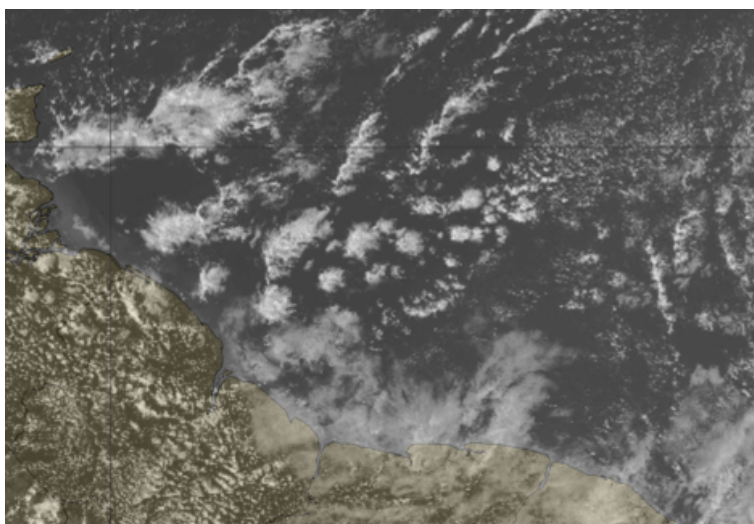
### 2. Synoptic Situation

Moderate trade winds. Mostly sunny with isolated clouds.

Easterly wind 15kt. The waves are about 4-5 feet.

Mesoscale cloud patterns (18utc): flowers and sugar over the Northeast.

Isolated sargassums.



**Cloud observations : 01/27/20**

| Time (local) | Coverage | Types | remarks |
|--------------|----------|-------|---------|
| 0800         | 0/8 High | -     |         |
|              | 0/8 Mid  | -     |         |
|              | 3/8 Low  | Cu    |         |
| 1200         | 1/8 High | Ci    |         |
|              | 0/8 Mid  | -     |         |
|              | 2/8 Low  | Cu    |         |
| 1600         | 0/8 High | -     |         |
|              | 2/8 Mid  | Ac    |         |
|              | 1/8 Low  | Cu    |         |

**Inter-calibration:** No intercalibration today.

**Stations:**

| Date   | Approx Local Time                       | Operation  | Lat    | Lon     | NM | Operations  |
|--|---|--|--------|---------|----|---|
| 27/01  | From 18:00 27/01 to 10:00 28/01         | From 9°24'N 56°55'W go eastward to waypoint 9°24'N 56°55'W :<br>speed 8 kts during transit, 6 kts during uCTD      | 9°24'N | 55°50'W | 80 | Cycle of 1 uCTD and 1 CTD 2000 m distant 6 NM from each other<br>CTD-6NM-uCTD-6NM-CTD-6NM-uCTD... |
| <b>Exiting the North Brazilian Current Ring 2:</b> |   |  |        |         |    |   |
| 28/01  | From 10:00 To 18:30                     | From 9°24'N 56°18'W go eastward to waypoint 9°24'N 55°50'W :<br>speed 8 kts during transit, 6 kts during uCTD      | 9°24'N | 55°50'  | 30 | Cycle of 1 uCTD and 1 CTD 2000 m distant 6 NM from each other<br>CTD-6NM-uCTD-6NM-CTD-6NM-uCTD... |
| 28/01  | From 18:30 to approx. 21:00             | From 9°24'N 55°50'W go eastward to waypoint 9°24'N 55°30'W :<br>speed 8 kts during transit, 6 kts during uCTD      | 9°24'N | 55°30'W | 20 | Cycle of 1 uCTD every 6 NM  |
| 28/01  | 21:00                                   | 1 CTD  | 9°24'N | 55°30'W |    | 1 CTD 2000 m  |
| 28/01  | 22:30                                   | 1 VMP  | 9°24'N | 55°30'W |    | 600 m   |
| 28/01-29/01  | From 23:00 28/01 to approx. 08:30 29/01 | From 9°24'N 55°30'W go southwestward to waypoint 8°30'N 54°45'W :<br>speed 8 kts during transit, 6 kts during uCTD | 8°30'N | 54°45'W | 74 | Cycle of 1 uCTD every 6 NM  |

**Autonomous systems deployed:** None

**Overflights:** No overflights. We are too far south.

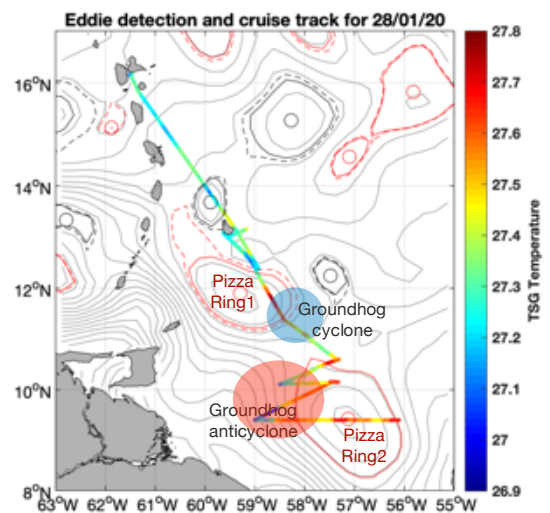
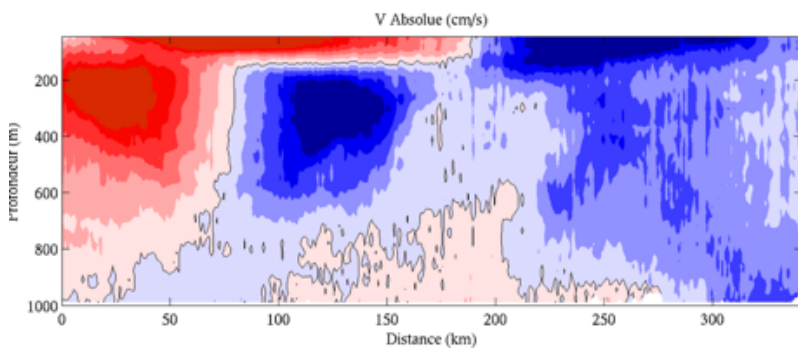
**4. Instrument Status**

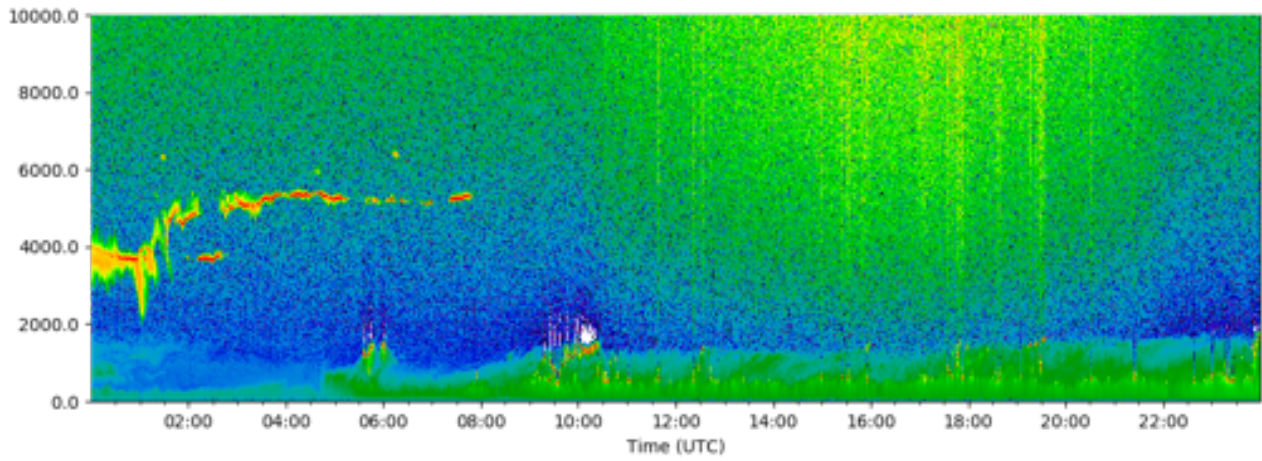
All instruments seem to work well. Today Vaisala radiosounding reception was more stable.

**5. Outlook**

Tonight we are sailing eastward to sample the other half of Ring2.

**6. Figures**





Celiometer R/V Atalante 28 January 2020

