

**Wx-0210 (10 Feb 2020)**  
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**1. Three day outlook**

*Synopsis* - Little change, very strong pressure gradient, windy conditions and choppy seas; Isolated showers related to patchy clouds (flowers) on the moist easterly winds. NHC GALE WARNING in place (<https://www.nhc.noaa.gov/text/MIAOFFNT3.shtml>).

*Forecast* – Today winds gusty, occasional cloudy with isolated brisk showers. Winds ... Easterly at 20 to 25 kts gusting to 35 kts.

*Seas choppy to rough* - waves 8 to 9 feet, 10 ft east of 55 W. Swells every 12 ft from the northeast.

*3-day outlook* - Sub tropical high being reinforced by high from the west...shallow cumulus clouds are expected to dominate. An upper level trough just east of the islands will continue to induce only a few showers. Windy conditions continue through to Tuesday.

*Air Mass Origin* - According to the IFS forecast, within the next three days low level airmasses (1000-800 hPa, blue, green and yellow pts.) are advected from Africa’s west coast, while upper level airmasses (800-300hPa, orange and red pts.) partly still follow the wave breaking over the North Atlantic before recurving towards BB and partly are transported towards BB directly from the West. Some upper-level air parcels (red and orange pts) rise from tropical boundary layer before recurving within the jet stream and sinking back into the tropics. Due to the zonal (easterly) advection at low levels (1000-900hPa), the airmasses move in the center of the Tradewind Alley and will most likely pass south of the NTAS buoy 18-24h before arrival at the BCO.

**2. Data for Flight Planning**

Yesterday’s conditions at various sites represented by daily mean and standard deviation:

FIELD	BCO	CE	NTAS	BT
LAT	13°09'46"	13°21'	14°49'	08°00'
LON	59°25'44"	57°17'	51°01'	55°00'
LCL				
CBH-LCL				
CTH	0.8 - 1.6 km **	4.0 - 4.8 km **	1.6 - 2.3 km **	0 - 0.8 km **
CIRRUS TOP	-	-	-	-
AOD	0.2 **	0.34 ± 0.1 ****	0.5 **	0.6 ± 0.02***
PW (MM)	32.1 ± 4 mm		29.5 ± 3 mm *	33.3 ± 4.0 mm ***
SFC WIND				
3KM WIND			8.4 m/s, 93 °	
	7.9 m/s, 80°		*	7.8 m/s ; 80 ° ***
6KM WIND			3.8 m/s, 70°	
	10.5 m/s, 343°		*	6.5 m/s ; 318 ° ***
9KM WIND			16.9 m/s, 302° *	20.5 m/s ; 265 ° ***
SST	20.3, 346°			
INVERSION HEIGHT	2.1 ± 0.15 km		2 ± 0.1 km *	2.5 ± 0.3 km ***

<b>EIS</b>	1.9 ± 1 K		1.9 ± 0.8 K *	1.2 ± 0.3 K ***
<b>LTS</b>			12.9 ± 0.7 K	
	12.7 ± 1.1 K		*	12.4 ± 0.4 K ***
<b>CLOUD PATTERNS</b>	Sugar streets with isolated chimneys	Sugar streets with isolated chimneys	Empty cold pools	Gravel/clear

\* from Ron Brown (between CE and NTAS)

\*\* from MODIS on Terra

\*\*\* from Atalante

\*\*\*\* from Meteor

CE: circle east, BT: Boulevard des Tourbillons

### 3. Model forecast

Comparison of yesterday's conditions to one-day forecasts for 57° 30 'W and 13° 30 ' N:

FIELD	AROME	HARMONIE	UK MET	OBS CE
<b>LCL</b>	750 m		600 m	
<b>INVERSION HEIGHT</b>	~ 2000 m		2500 m	
<b>CIRRUS TOP</b>	no cirrus		no cirrus	
<b>PW</b>	30-35		32 mm	
<b>SFC WIND</b>	9-10 m/s		10 m/s, 90 deg	
<b>CLOUD PATTERNS</b>	Sugar/gravel		Gravel (localized)	

### 4. Figures – yesterday's conditions

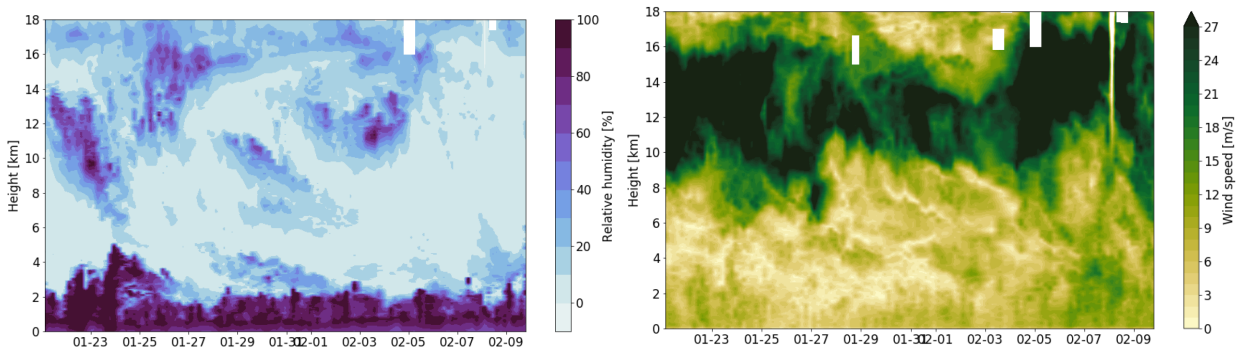


Figure 1: Soundings from BCO throughout EUREC<sup>4</sup>A of relative humidity (left) and wind speed (right). Note that the wind speed color bar is saturated.

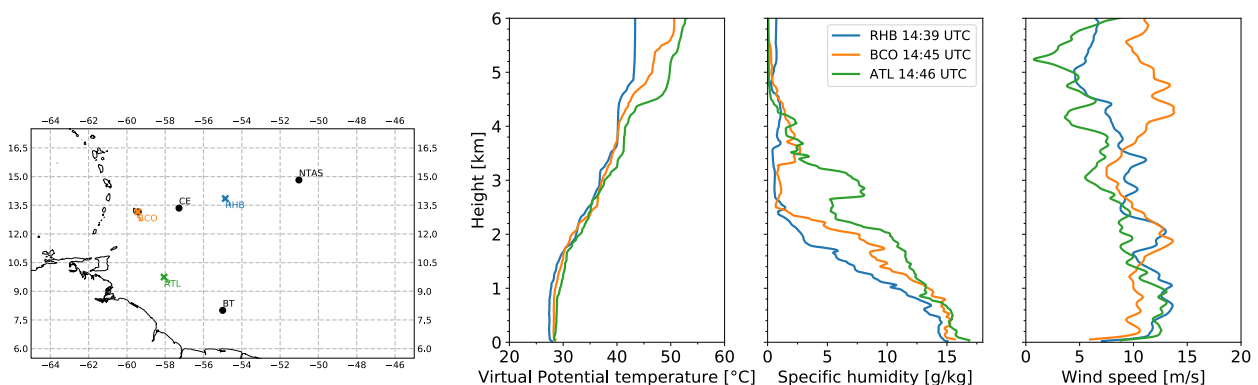


Figure 2: Soundings from three different platforms.