

**Wx-0212 (12 Feb 2020)**  
 Tim Cronin, Marc Prange, et al.

**1. Three day outlook**

*Synopsis* – A strengthened Atlantic high pressure maintains the ridge over Barbados and the remainder of the Caribbean. A steep pressure gradient continues to induce strong winds from the east to east north east across the area. Moisture at the surface and lower levels give way to partly cloudy to cloudy conditions with stratocumulus and cumulus clouds. Scattered showered and towering cumulus cells also persist. Haze encroaching to the east. Seas are moderate to rough.

*Forecast* – Partly cloudy to cloudy with scattered showers with improvement overnight. Tomorrow partly cloudy and hazy with isolated showers. Winds easterly at 20 to 25 knots.

Seas moderate to rough with waves 8 to 9 feet. Swells every 11 seconds from the northeast.

*3-day outlook* – Sub Tropical High and ridge will continue to persist with windy conditions. Hazy conditions with patches of cumulus are expected to dominate and seas will continue to be moderate rough.

*Air Mass Origin* - According to the IFS forecast, the origin of the airmasses arriving in two particular layers, 1000-900 hPa and 700-500 hPa, is about to change within the next three days On Wed 12.2. the airmasses in the surface layer are directly transported from the African continent towards BB, however on Fri 14.2 the airmasses in this layer originate from higher latitudes, exiting the westerlies and recurving towards the east in front of the African west coast approx. 6 days before arrival. In the layer 700-500 hPa, the airmasses are mainly advected from the North on Wed 12.2. and Thu 13.2., but on Fri 14.2. are replaced by moist continental airmasses from South America. Compared to the preceding days, the airmasses between 700-500hPa are more moist and are advected more isobarically.

**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	4.8 - 5.6 km ***	0 - 0.8 km ***	0 - 0.8 km ***	1.6 - 2.3 km ***
CIRRUS TOP	-	-	-	-
AOD	-	0.3 ***	0.3 ***	0.3 ***
PW (MM)	40.1 ± 2 mm	36.8 ± 1.2 mm **		46.5 ± 4.8 mm *
SFC WIND	7 m/s, 90°	10.5 m/s ; 100 ° **	8.3 m/s ; 64 °	9.0 m/s ; 50 °
3KM WIND	5.6 m/s, 112°	5.2 m/s ; 172 ° **		8.2 m/s ; 152 ° *
6KM WIND	11.7 m/s, 252°	12.8 m/s ; 257 ° **		13.4 m/s ; 211 ° *
9KM WIND	20.6 m/s, 280°	22.3 m/s ; 270 ° **		15.5 m/s ; 271 ° *
SST		26.8 °C **	25.9 °C	27.3 °C

<b>INVERSION HEIGHT</b>	2.5 ± 0.2 km	2.2 km **	2.5 km *
<b>EIS</b>	1 ± 0.6 K	2.0 K **	2.5 K *
<b>LTS</b>	12.4 ± 0.5 K	13.0 ± 0.9 K **	13.7 ± 0.4 K *
<b>CLOUD PATTERNS</b>		Sugar	Flowers

\*from Atalante, only 10 and 14 UTC soundings, \*\* From Ron Brown soundings

\*\*\* From MODIS on Terra, 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>	800 m		600m	
<b>INVERSION HEIGHT</b>	~ 1900m		2300m, with some cloud higher especially earlier in day	
<b>CIRRUS TOP</b>	no cirrus		no cirrus	
<b>PW</b>	35 mm		40mm	
<b>SFC WIND</b>	8-9 m/s		9 m/s	
<b>CLOUD PATTERNS</b>	Flowers, fish(south)		Fish-> gravel	

### 4. Figures – yesterday's conditions

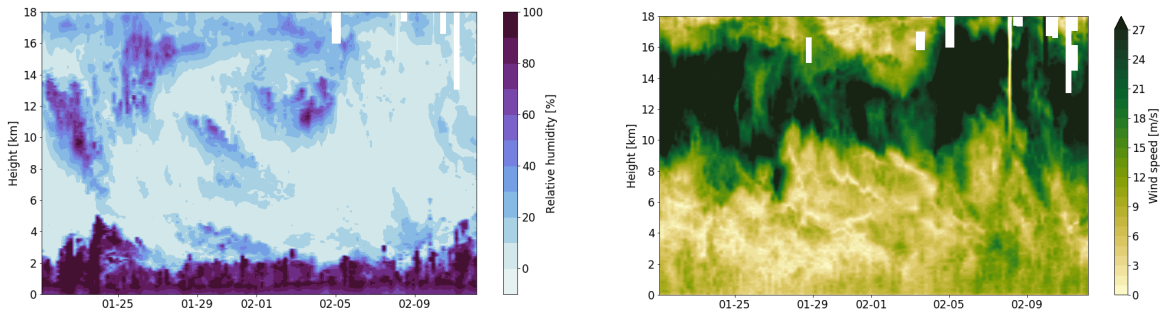


Figure 1: Soundings from BCO throughout EUREC<sup>4</sup>A of relative humidity (left) and wind speed (right). Note that the wind speed color bar is saturated.

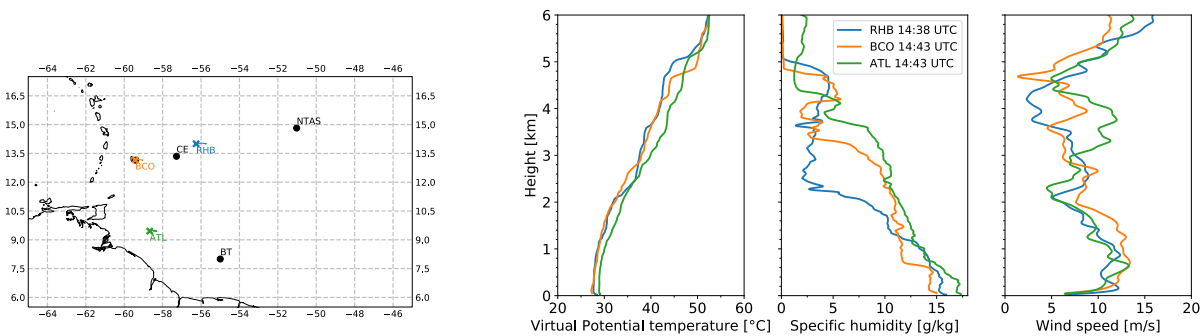


Figure 2: Soundings from four different platforms.