

**Wx-0211 (11 Feb 2020)**  
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**1. Three day outlook**

*Synopsis* - Atlantic high pressure maintains steep pressure gradient and strong wind across domain. Scattered showers and isolated cumulus towers on the moist easterly winds. Haze encroaching. Seas choppy to rough.

*Forecast* – Today Hazy, winds gusty, occasional cloudy with isolated brisk showers, heavier at night. Winds ... Easterly at 20 to 25 kts gusting to 30 kts.

*Seas choppy to rough* - waves 8 to 9 feet. Swells every 11 ft from the east-northeast.

*3-day outlook* - Sub tropical high in place through Wednesday...Hazy with shallow cumulus patches are expected to dominate. Windy conditions and rough seas continue through to Wednesday,

*Air Mass Origin* - According to the IFS forecast, in the next three days, there is an ongoing influence of a relatively deep and moist trade wind layer with strong low-level easterlies (1000-700 hPa, blue, green and yellow pts). Above, in the layer 700-300 hPa, (orange and red pts) the airmasses follow the footprint of the upper-level jet before travelling southward and slightly descending slantwise above BB (see upper-level wave breaking from 5-8 February. These conditions may favour somewhat deeper convection and the formation of cold pools on Monday 10 to Wednesday 12 February. From 12 February onwards, airmasses from tropical South America arrive in the layer 800 to 500 hPa above BB (yellow and orange pts). From the IFS ensemble forecast, we can expect subcloud layer and cloud layer airmasses to pass over NTAS 21h before arrival and to travel in the northern part of the Trade Wind Alley. The airmasses arriving in the layer 800-700 hPa will probably enter the Trade Wind Alley from the South.

**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	750 ± 45 m	775 ± 75 m		789 ± 16 m
CBH-LCL	30 ± 30 m	35 ± 65 m		
CTH	0 - 0.8 km ***	4.0 - 4.8 km ***	3.1 - 4.0 km ***	0.8 - 1.6 km ***
CIRRUS TOP	-	-	-	-
AOD	-	-	0.5 ***	0.4 ***
PW (MM)	30.3 ± 2.4 mm	29.3 ± 0.9 mm **	31.3 ± 0.6 mm ****	27.5 ± 2.8 mm *
SFC WIND		11.5 m/s, 73° **	8 m/s ; 85 °	10.0 m/s ; 80 ° *
3KM WIND			5.4 m/s ; 88 °	
	10.6 m/s, 87 °	10.4 m/s, 76° **	****	7.9 m/s; 73 ° *
6KM WIND			4.8 m/s ; 317	
	10 m/s, 324°	10 m/s, 327° **	° ****	9.6 m/s ; 325 ° *
9KM WIND	17.2 m/s, 298°	17.5 m/s, 301° **	17.2 m/s ; 274 ° ****	13.1 m/s ; 309 ° *
SST		27.1 K **	26.3 °C	27.3 ° C *

<b>INVERSION HEIGHT</b>	2.8 ± 0.5 km	2.9 ± 0.3 km **	3 km ****	2.6 ± 0.4 km *
<b>EIS</b>	2.5 ± 0.5 K	2.7 ± 0.3 K **	2.5 ± 1.2 ****	2.4 ± 0.6 km *
<b>LTS</b>	13.3 ± 0.5 K	13.4 ± 0.3 K **	13.8 ± 0.7 K ****	12.8 K ± 0.6 K *
<b>CLOUD PATTERNS</b>	Sugar	nothing	Flowers	Sugar

\*from Atalante \*\*from Meteor \*\*\* from MODIS/Terra \*\*\*\*from Ron Brown  
 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>	2400-2500m		2100m	2.9 ± 0.3 km
<b>CIRRUS TOP PW</b>	no cirrus		no cirrus	
<b>SFC WIND</b>	8-9m/s		7 m/s	11.5 m/s, 73
<b>CLOUD PATTERNS</b>	sugar/gravel, 20-90%		Sugar/gravel	nothing

### 4. Figures – yesterday's conditions

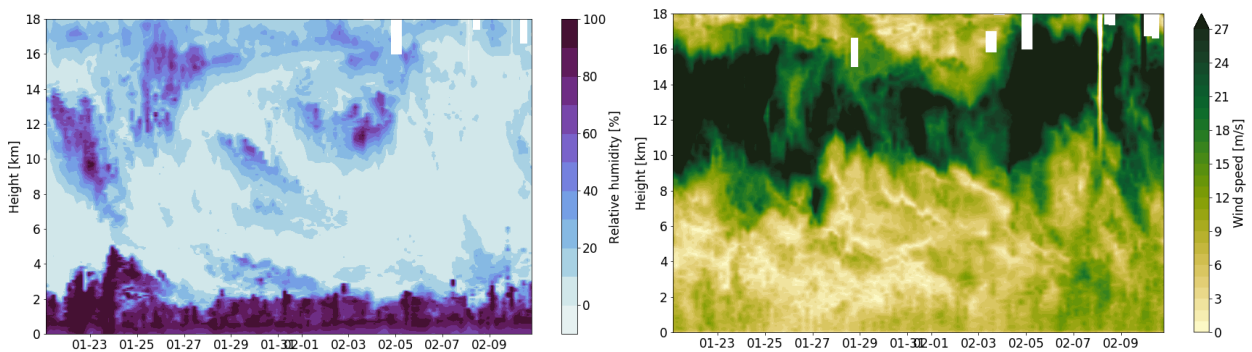


Figure 1: Soundings from BCO throughout EUREC<sup>4</sup>A of relative humidity (left) and wind speed (right). Note that the wind speed color bar is saturated.

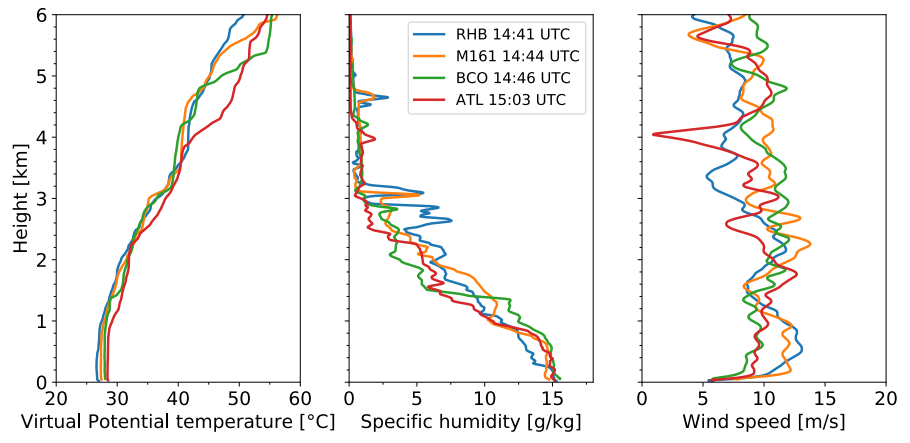
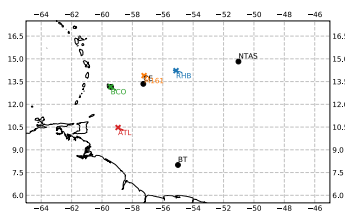


Figure 2: Soundings from four different platforms.