

Wx-0204 (04 Feb 2020)
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1. Three day outlook

Synopsis –The passage of weakened front north of 20N will slacken pressure gradient along with associated winds and waves. Shallow haze persists. Winds are light to breezy over open water 8 to 12 kts E to ESE.

Forecast – Hazy with shallow clouds10 to 15 kts Winds ...Easterly kts occasionally 20 kts.

Seas moderate - Waves 1.5 to 2.5 metres, swells every 10 to 14 sec from the northeast.

3-day outlook –Dramatic increase in pressure gradient as ridge builds behind dissipating front. Dust haze should thin into Tuesday. Winds in increase to 12 to 15 kts gusting to 22 kts. Seas into Wednesday increasing to moderate and occasionally rough seas with approaching.

Air Mass Origin- According to the IFS forecast, the advection of airmasses at low- to mid-levels doesn't change much within the next three days. The airmasses at low-levels (1000-900 hPa, blue pts.) are continuously advected from the east after spending several days above the central North Atlantic, and the airmasses at mid-levels (900-700 hPa, green and yellow pts.) still originate from the Amazon basin. However, the transport history of the upper-level airmasses (700-300hPa, red and orange pts.) changes from advection from the west on 4.2 to advection from the northwest on the 5.-6.2. due to an upper-level ridge centered northwest of BB. Part of these airmasses (500-300 hPa, red pts.) are accelerated within the next three days (see position 4 days before arrival) and experience a strong ascent 5-2 days before arrival in contrast to the currently more isobaric advection.

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	700 ± 30 m			
CBH	750 ± 30 m	765 ± 45 m		
CTH	0.8 - 1.6 km	0.0 - 0.8 km	0.8 - 1.6 km	0.8 - 1.6 km
CIRRUS TOP				
AOD				
PW (MM)	30.5 ± 1.0 mm	26.9 ± 1.0 mm*		33.2 ± 3.3 mm**
SFC WIND			5 m/s	8 m/s; 50°
3KM WIND	5.9 m/s; 105°	4.0 m/s, 88° *		14.5 m/s, 78° **
6KM WIND	6.2 m/s; 19°	4.1 m/s, 17° *		14.5 m/s, 78° **
9KM WIND	13.3 m/s; 303°	13.5 m/s, 304°*		10.5 m/s, 325°**
SST	-	27.6 °C	26.2 °C	26.7 °C
INVERSION HEIGHT	2.3 ± 0.3 km	1.8 ± 0.2 km*		2.1 ± 0.07 km(*)
EIS	5.3 ± 0.8 K	5.6 ± 0.2 K*		3.1 ± 1.2 K**
LTS	16.4 ± 1.0 K	16.6 ± 0.5 K*		13.9 ± 1.0 K**
CLOUD PATTERNS	Sugar/cirrus	Sugar	Flowers?	Sugar

CE: circle east, BT: Boulevard des Tourbillons

*from Ron Brown

** from Atalante

(*) second inversion at ~3.2 km

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
LCL			780 m	
INVERSION HEIGHT			2 km	1.8 ± 0.2 km*
CIRRUS TOP			13 km	
PW			19.1 mm	26.9 ± 1.0 mm*
SFC WIND			6 m/s, 82°	
CLOUD PATTERNS			gravel/sugar	Sugar

4. Figures

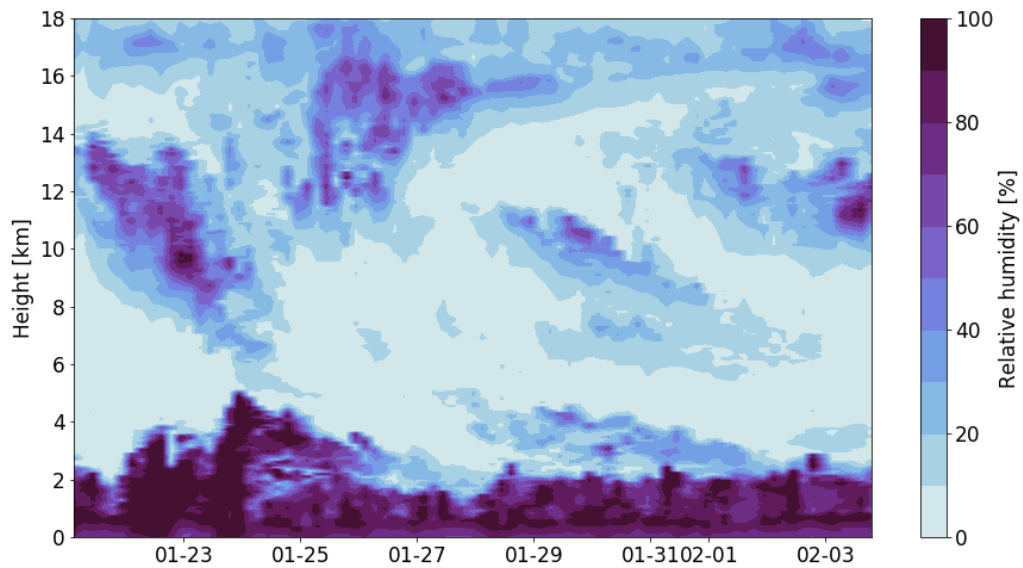


Figure 1: Soundings from BCO throughout EUREC⁴A.

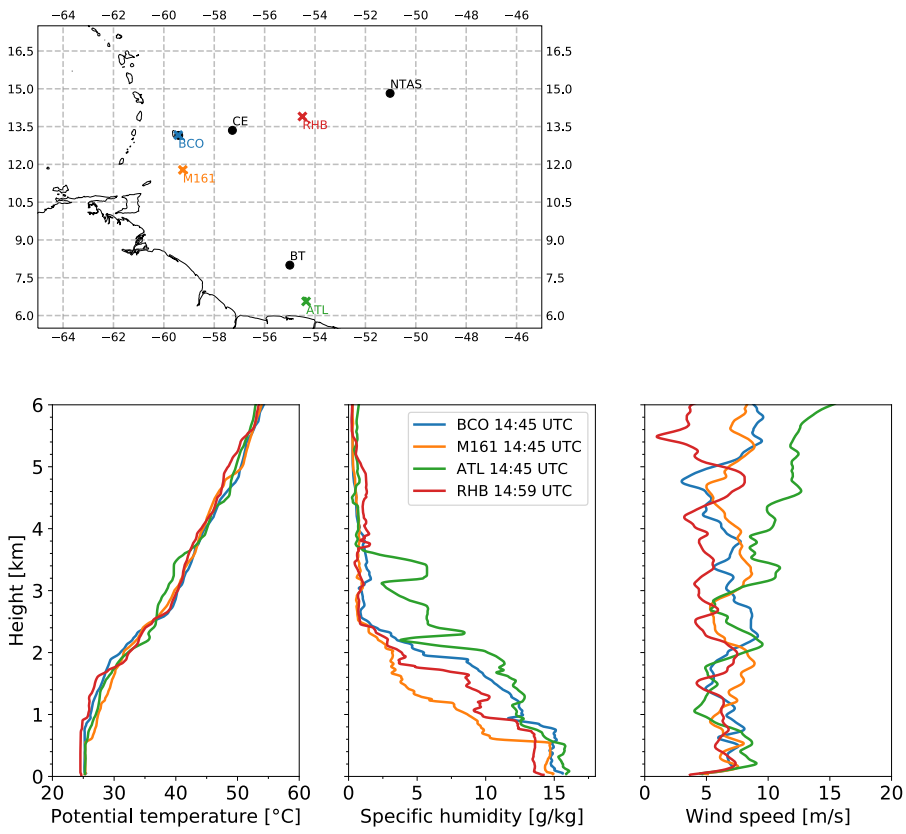


Figure 2: Soundings from four different stations.