

Wx-0129 (29 Jan 2020)

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1. Three day outlook

Synopsis — Ridge continues to dominate over the operational area. Area is mostly clear with fair weather cumulus. Very weak pressure gradient. Winds Southeast 5 to 10 kts but may be increasing into tomorrow.

Forecast — Scattered shallow clouds today, fed by low level moisture from the southeast. Large dust plume moving in from the east, increasingly hazy. Seas moderate: northeast to east waves 1.0 to 1.5 m, NE 6 m swells every 12 to 14 sec from the northeast.

3-day outlook — Hazy: Ridge to weakening by dust and poor visibility. Weak trough and moisture south of 11° N and high-level cirrus thus occasionally overcast. Seas projected to be moderate with 2.0 to 2.5 m into Thursday with 6.0 to 6.5 m swells becoming more easterly.

air mass origin — According to the IFS forecast, air masses arriving in BB at 300-500 hPa (red pts.) are advected by westerlies in the zonally oriented jet stream. Part of these air masses originate at lower levels in the southern hemisphere and rise on their way north where they join the westerly flow (link and link). At mid levels (500-800 hPa, orange and yellow pts.) air masses are advected by westerlies and loop southward before reaching BB. Air masses arriving at 800-900 hPa reach BB from many directions, and partially pass the NTAS buoy on their way. Finally, air masses arriving at 900-1000 hPa are mostly advected by the easterly trade winds, after spending a few days off the coast of West Africa (link).

2. Data for Flight Planning

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

Field	BCO	Meteor CE	HALO CE	NTAS	BT
Lat	13°09'46"	13°21'	13°21'	14°49'	08°00'
Lon	59°25'44"	57°17'	57°17'	51°01'	55°00'
LCL	520 +/- 90 m	580 +/- 30 m**‡	650 - 700 m		560 +/- 40 m*
CBH	~650 m	640 ± 57 m			
CTH	0.8 +/- 0.1 km	1.0 +/- 0.2 km			1.2 +/- 0.4 km
Cirrus Top	-	-		-	-
AOD	-	0.067 +/- 0.014			0.42 +/- 0.12 *
PW	30.9 +/- 2.8 mm	30.8 +/- 0.7 mm**	32.4 +/- 3.1 mm		48.1 +/- 1.7 mm*
Sfc Wind	3 m/s, 100°	7.6 m/s, 96°		5.4 m/s, 68°	
3km Wind	2.1 m/s, 235°	1.3 m/s, 226° **	2.4 m/s		2.9 m/s, 330°*
6km Wind	4.0 m/s, 344°	4.2 m/s, 330° **	5.0 m/s		5.4 m/s, 197°*
9km Wind	5.8 m/s, 295°	8.1 m/s, 286° **	6.8 m/s		6.8 m/s, 285°*
SST		27.3 °C		26.3 °C	
Inversion height	1.7 +/- 0.5 km	2.3 +/- 0.9 km**			1.9 +/- 0.2 km*
EIS	4.9 +/- 0.7 K	4.8 +/- 0.6 K**			3.1 +/- 1.3 K*
LTS	16.2 +/- 0.8 K	16.2 +/- 0.6 K**	16.0 K		14.0 +/- 1.2 K*
Cloud Patterns	sugar(+cold pool)	sugar	sugar	sugar	sugar to flower

CE: circle east, BT: Boulevard des Tourbillons

* Soundings from Atalante; ** Soundings from Meteor (2:45 UTC - 10:45 UTC)

‡ Meteor LCL from sfc measurements: 620 ± 64m

3. Model forecast

Forecast for today at the modelled EUREC⁴A position (57°30'W and 13°30' N):

Field	UK MET
LCL	500 m
CTH	1 - 2 km
Cirrus Top	n/a
PW	30 mm
Sfc wind	5 m/s, 85°
SST	27 °C
Cloud pattern	sugar

4. Figures

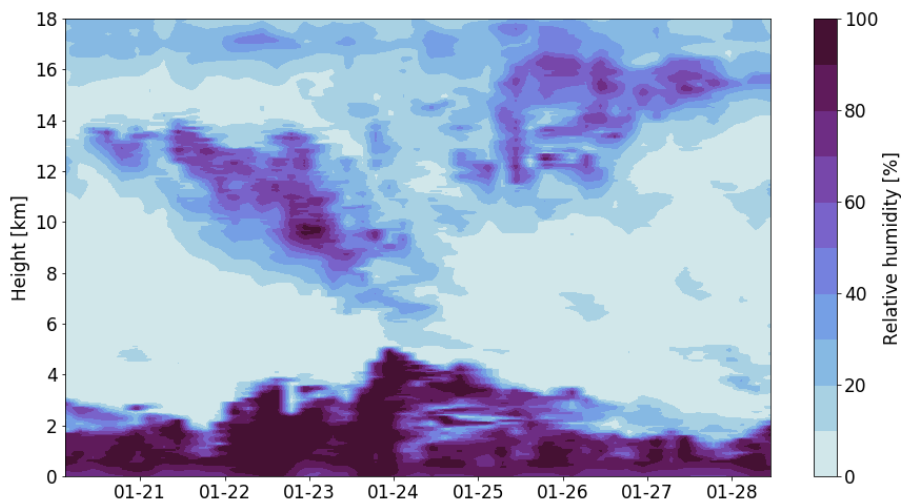


Figure 1: Soundings from BCO throughout EUREC⁴A.

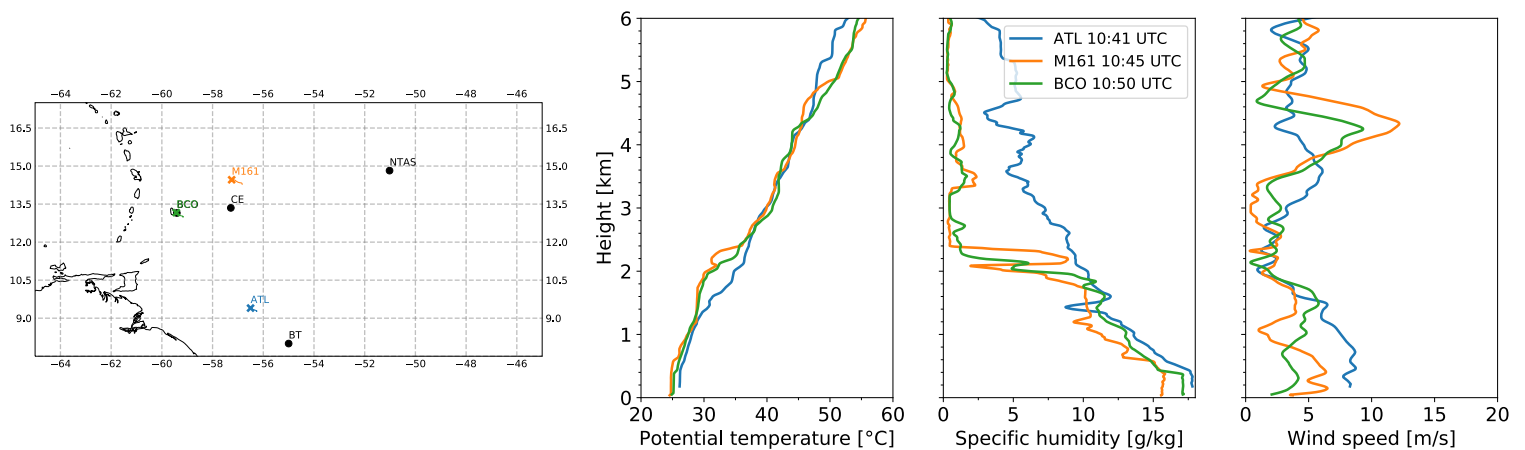


Figure 2: Soundings from three different stations.