

Wx-0203 (03 Feb 2020)

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1. Three day outlook

Synopsis – Ridge in place over area with patches of clouds and few brisk showers from the east and southeast. Winds are light to breezy over open water 12 to 15 knts E to ESE. Dust haze persists.

Forecast – Hazy with the chance of brisk showers on the breeze....10 to 20Winds ... Easterly to East to South-easterly at 10 to 15 kts occasionally 20 kts.

Seas moderate - waves 1.5 to 2.5 metres, swells every 14 to 15 sec from the east northeast.

3-day outlook – Ridge will weaken with approaching front from the west. Dust haze should thin by late Monday. Moderate winds will give way to a brief period of weaker winds and quiet seas on Tuesday and increasing moderate to rough seas with approaching front/shearline by Wednesday.

air mass origin - According to the IFS forecast, there is an interesting “airmass recycling” phenomenon taking place in the next few days. Due to the strong and zonal subtropical jet stream from last week, air masses passing above Barbados at 600-700 hPa between 26 and 29 January have recurved anticyclonically north/northwest of NTAS and will arrive over BB again, this time in the subcloud layer (900 and 1000 hPa, blue pts) on 2-4 February. (https://data.iac.ethz.ch/eurec4a/20200201_12/lowres_fc_traj_anim_p_20200204_18.gif). A large part of the cloud layer airmass (900-800 hPa, green pts) still originates from the Amazon basin. Due to the stationary ridge over Barbados the airmasses arriving at mid- to upper-levels descend slowly spiral-wise anticyclonically over BB (orange and red pts, 700-300hPa).

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	746 +/- 77 m	830 +/- 110 m*		
CBH-LCL	-34 +/- 52 m	22 +/- 136 m		
CTH	2300-3100 m	2300-3100 m		
Cirrus Top				
AOD				
PW (mm)	33.1 +/- 2.0 mm	29.3 +/- 3.5 mm*	27.5 +/- 1.7 mm***	26.76 +/- 2.6 mm**
Sfc Wind	3 m/s, 90	6.1 m/s, 90*	7.3 m/s, 75	
3km Wind	10.4 m/s, 83	10.4, 91*	7.9 m/s, 69***	10.9 m/s, 96**
6km Wind	4.1 m/s, 60	3.4, 56*	5.7 m/s, 13***	16.4 m/s, 60**
9km Wind	8.4 m/s, 301	10.0, 299*	10.2 m/s, 317***	15.6 m/s, 302**
SST	-	27.5 C****	26.0 C	
Inversion height	2.4 +/- 0.3 km	2.7 (2.5-3.0) km*	1.6 +/- 0.14 km	1.7 +/- 0.2 km**
EIS	6.5 +/- 0.8 K		7.1 +/- 1.4 K***	6.2 +/- 0.5 K**
LTS	17.4 +/- 1.0 K	17.4 +/- 0.7K*	17.8 +/- 1.4 K***	16.5 +/- 0.5 K**
Cloud Patterns	flowers	flowers	sugar->flowers	flowers

CE: circle east, BT: Boulevard des Tourbillons

* HALO dropsondes (surface values correspond to 10m altitude)

** from Atalante

*** from Ron Brown

****from Meteor

3. Model forecast

Field	UK MET	OBS CE
LCL	600 m	830 +/- 110 m
Inversion Height	2.3 km	2.7 (2.5-3.0) km
Cirrus Top	hard to estimate from plots	
PW	26 mm	29.3 +/- 3.5 mm
Sfc wind	6 m/s, 95	6.1 m/s, 90
Cloud Patterns	gravel	flowers

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

4. Figures

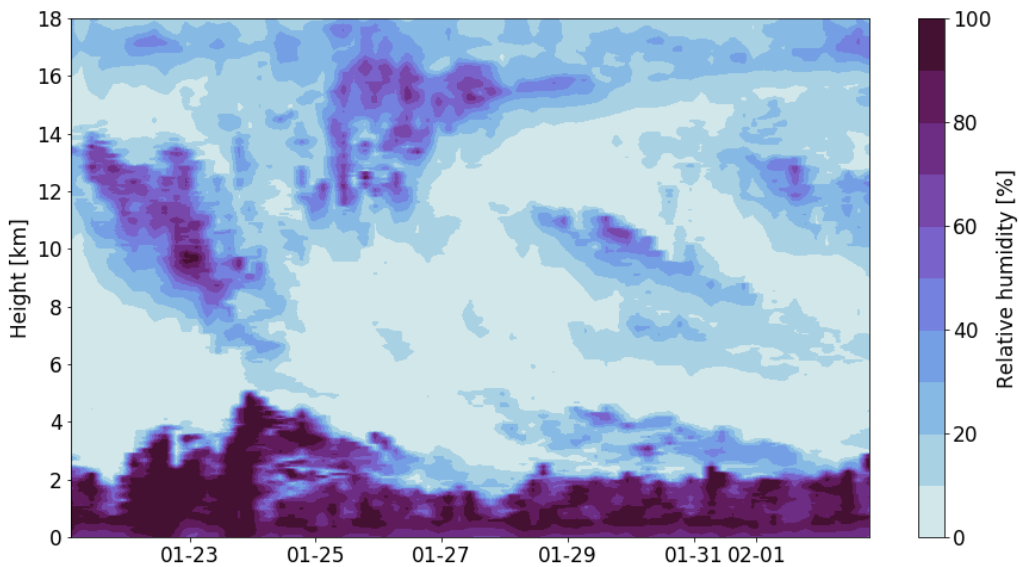


Figure 1: Soundings from BCO throughout EUREC4A.

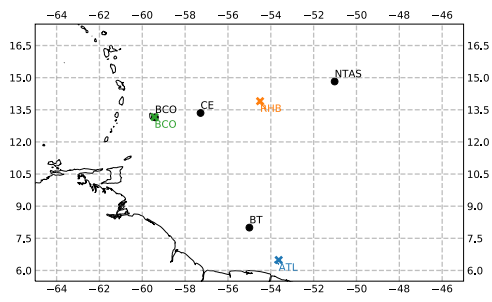


Figure 2: Soundings from four different stations.

