

Wx-0126 (26 Jan 2020)

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1. Three day outlook

Synopsis — Remnant clouds west and south of Barbados, induce trough just east. Dry air advection in mid and upper levels continues. Slack pressure gradient contributing to 10 to 15 kts from the east southeast is expected to increase.

Forecast — Scattered shallow clouds today, but line of cumulus towards wind moves through afternoon and night. Seas moderate – northerly waves 2 to 2.5 metres, NNE swells every 14 to 15 sec from the north and northeast.

3-day outlook — A pre-frontal trough weakening but could induce showers when coupled with trough in the vicinity of Barbados late Saturday into Sunday, clearing into Monday. Seas projected to be moderate to rough with 2 to 3 m into Monday.

Air mass origin — According to the IFS forecast, the airmasses at upper levels (300-500hPa, red pts.) are advected by westerlies. At mid-levels (500-900 hPa, orange, yellow and green pts.) the airmasses exit the westerly flow approx. 30°N and partially travel southwards before returning to the latitude of BB. In the surface layer (900-1000hPa, blue pts.) the airmasses arrive at BCO from the east, part of these airmasses still originate from the extratropics (link).

2. Data for Flight Planning

Yesterday's conditions at various sites representative for local noontime:

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 /m	620	450		710 **
CBH /m	600	760		
CTH /km	1.5/ 4.7	2.5-3.5	3.5-4.5	
Cirrus Top /km	12	14	14	15
AOD	n/a	n/a	n/a	n/a
PW /mm	35.8	34.7 *		23.6 **
Sfc Wind /m/s; °	2.7; 70	4.3; 293 *	7; 135	
3km Wind /m/s; °	2.2; 36	5.4; 44 *		7.8; 50 **
6km Wind /m/s; °	2.8; 181	3.4; 96 *		2.1; 333 **
9km Wind /m/s; °	26.5; 320	27.9; 324 *		19.8; 325**
SST /°C	n/a	27.39	26.3	
Inversion height /km	3.2	2.2 *		1.4 **
EIS /K	1.4	3.3 *		3.6 **
LTS /K	12.5	15.7 *		14.2 **
Cloud Patterns	mixed	mixed	mixed	sugar/gravel

CE: circle east, BT: Boulevard des Tourbillons

* Mean from Merian and Meteor Soundings (14:45 UTC and 18:45 UTC)

** Atalante (14:45 UTC)

3. Figures

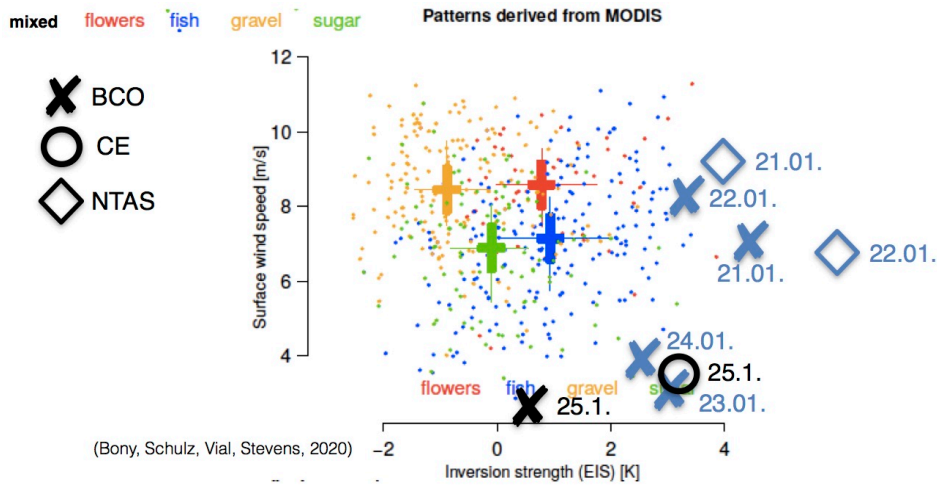


Figure 1: Cloud patterns as observed at BCO, CE and NTAS (so far all fish, in the direct surrounding of fish or mixed) as a function of surface wind speed and estimated inversion strength. Figure from Bony et al. 2020.

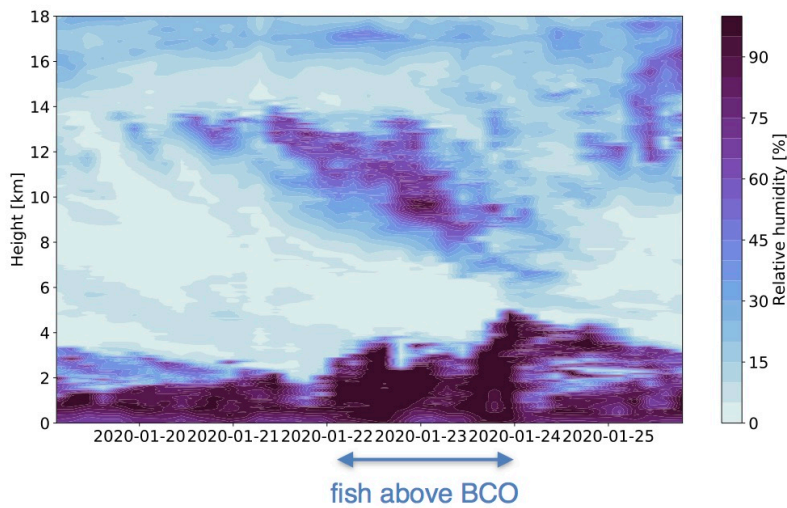


Figure 2: RH at BCO throughout EUREC4A and fish clouds above BCO.

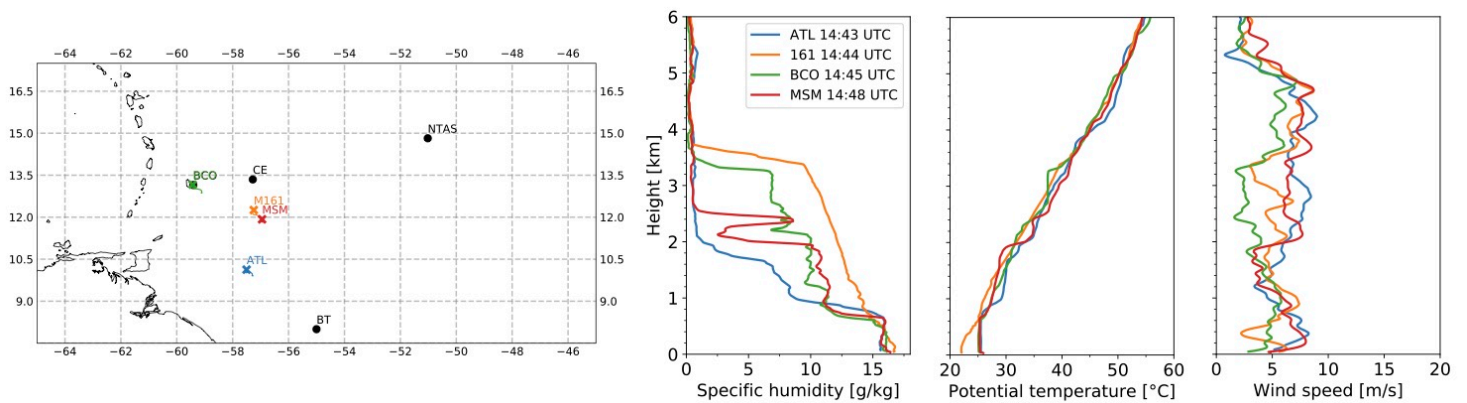


Figure 3: Soundings from four different stations.