

Temporal evolution of the atmospheric column over Barbados during EUREC⁴A

This supplement provides alternative illustrations of the temporal evolution of the atmospheric column over Barbados or research vessels nearby during EUREC⁴A (compared to Fig. 2 and Fig. 4 in the paper). The effect of the time step before arrival at which the transport diagnostics are extracted is demonstrated in Fig. S1.1 and S1.2. In Fig. S1.3 the ERA5 pseudo-soundings from the BCO are compared to the measurements of the radio soundings (Stephans et al., 2020) launched from the BCO and the four research vessels, i.e., R/V RonBrown, R/V Meteor, R/V MS-Merian, and R/V Atalante.

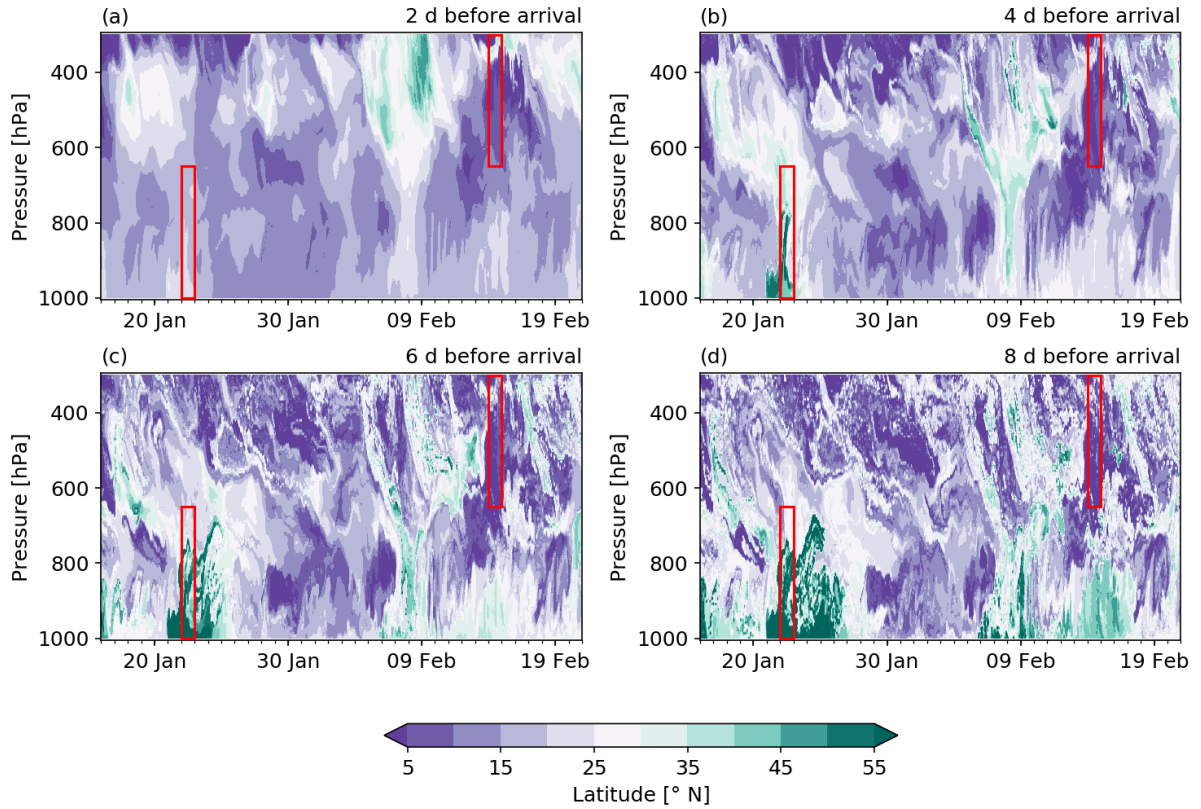


Figure S1.1: Time series of vertical profiles of the transport conditions at the BCO from 16 January to 20 February 2020. Shown is the latitudinal position of the backward trajectories started from the BCO (a) 2, (b) 4, (c) 6, and (d) 8 d before arrival. The red boxes indicate the two case study days 22 January and 14 February 2020.

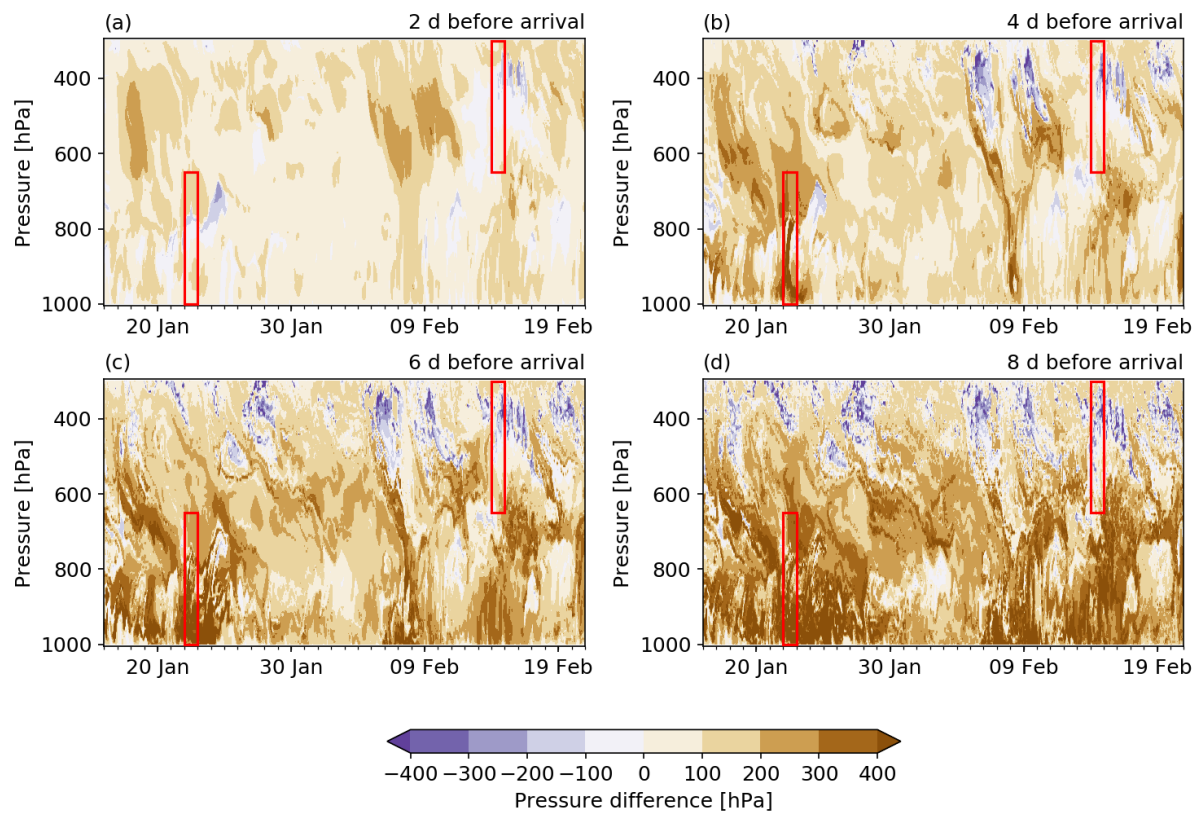


Figure S1.2: Similar to Fig. S1.1 but shown is the difference in pressure relative to the arrival pressure (positive/negative values indicating descent/ascent towards the arrival location).

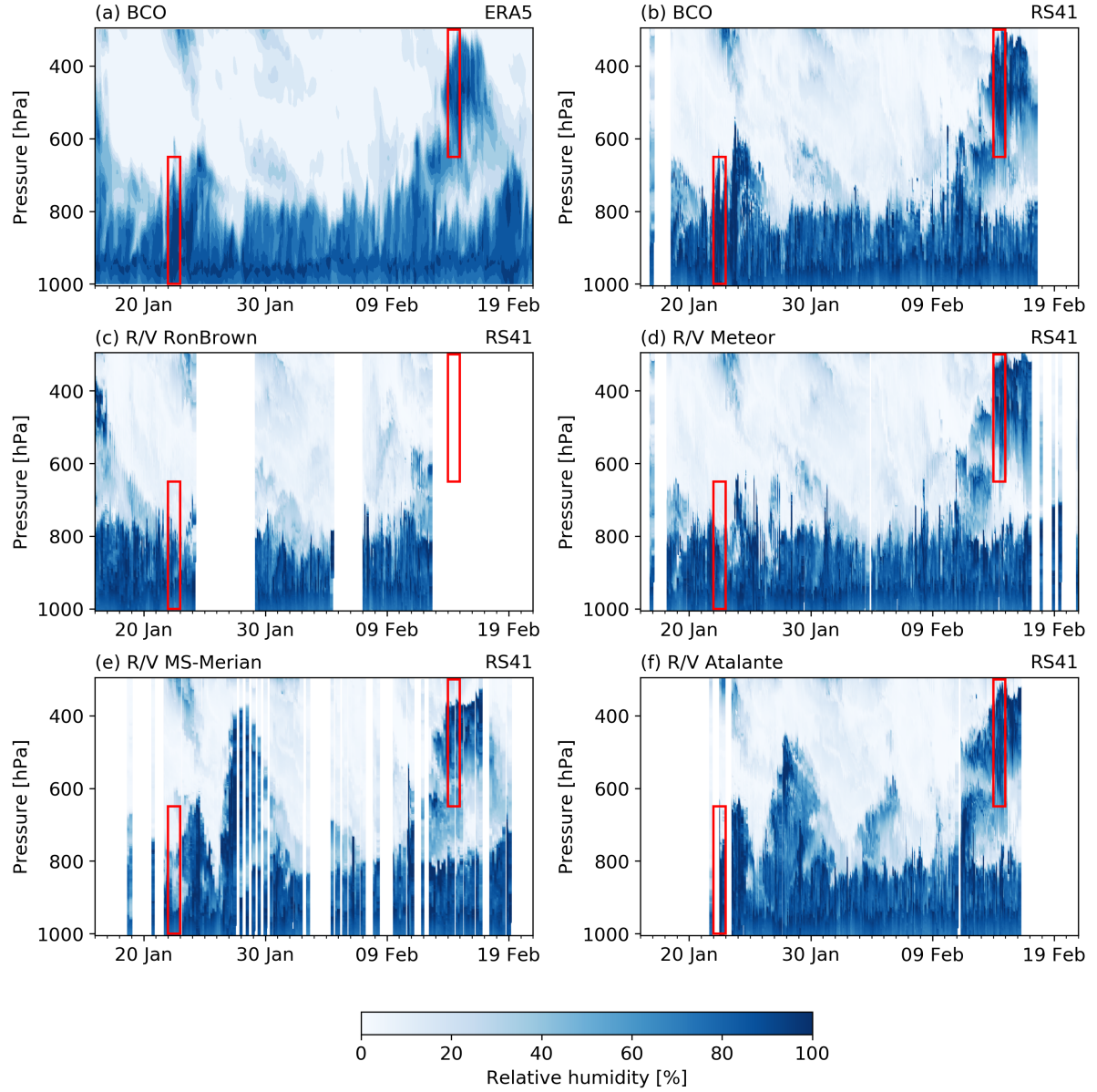


Figure S1.3: Comparison between (a) the ERA5 pseudo-soundings from the BCO and the measured atmospheric soundings launched from the (b) BCO, (c) R/V RonBrown, (d) R/V Meteor, (e) R/V MS-Merian, and (f) R/V Atalante from 16 January to 20 February 2020. The red boxes indicate the two case study days 22 January and 14 February 2020. Note that the R/V MS-Merian and R/V-Atalante spent much of the time south of the BCO.