

## ***Interactive comment on “Why did the storm ex-Gaston (2010) fail to redevelop during the PREDICT experiment?” by T. M. Freismuth et al.***

### **Anonymous Referee #3**

Received and published: 16 February 2016

Why did the storm ex-Gaston (2010) fail to redevelop during the PREDICT experiment?

Freismuth et al. (2016)

Recommendation: Minor revisions

General Comments

Overall, this paper is well written and provides insight into the failed re-development of Tropical Storm Gaston. Although this idea has been examined in several recent studies, the current manuscript provides more insight into the compromise of the protective wave pouch and subsequent intrusion of dry environmental air. The Lagrangian and trajectory analysis illustrate clearly that dry air entered the compromised wave pouch and led to the failed redevelopment of the storm. The authors also provide insight

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into the potential role of a trade wind inversion near the wave pouch into the storm evolution.

### Specific Comments

P5, Line 24-26: What is the significance/importance of the deep shear changing direction from NE-SW-E over a short period on 2 Sep?

P8, Line 6: There is no analysis of the kinematic structure of the wave pouch at 400 hPa, but particle trajectories are examined in Fig. 7. A simple statement describing its structure should be added.

P17, Table 1: It would be nice to somehow indicate what dropsondes are within the three degree box you use for analysis and which are outside.

P23, Fig. 6: Is the unstable manifold represented by the cyan line a feature of the Gaston wave pouch, or some larger scale feature?

### Technical Corrections

P2, Line 9: Omit comma after vertical

P6, Line 9: “referred to as pouch scales” should be used on the previous page to explain why you chose the three-degree box for your analysis domain.

P7, Line 3: First mention of RM12, needs to be defined. It would be nice to distinguish in the beginning the differences between the present study and the work of RM12.

P9, Line 1: Degree symbol after 0.

P10, Line 7: Are the listed RH & CAPE values equal to or less than?

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