

Interactive comment on “Hoar crystal development and disappearance at Dome C, Antarctica: observation by near-infrared photography and passive microwave satellite” by N. Champollion et al.

Anonymous Referee #2

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Hoar crystal development and disappearance at Dome C, Antarctica: observation by near-infrared photography and passive microwave satellite by N. Champollion et al.

This very interesting paper examines *in situ* infrared photography and analysis of AMSR-E brightness temperature polarization ratios (and visual observations as well) in relation to hoar crystal development and disappearance at Dome C in Antarctica. Combining the hoar crystal time series with meteorological observations provides insight to how these crystals develop, metamorphose and disappear – at this particular site. The manuscript is well-written and the topic thoroughly investigated. In my opin-

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ion, it's acceptable for publication in The Cryosphere Discussions, but I would like to suggest the following changes:

A map showing Dome C's location would certainly be useful.

How far is the camera network from the actual station?

Larger hoar crystals and hoar crystal aggregates should at least theoretically be more effective scatterers of passive microwave radiation.

Page 178, line 9: Reference to A.T. Chang's work is needed here and perhaps elsewhere.

Since the 89 GHz channel on AMSR-E is more sensitive than lower frequency channels to surface snow conditions, why wasn't this channel considered?

Page 184, line 25: This is a lot to hope for. The 89 GHz channel's footprint is also smaller than the footprints of the 18.7 and 36.5 channels.

Page 188, line 1: Is diamond dust more frequent during the polar winter than the summer season?

Interactive comment on The Cryosphere Discuss., 7, 175, 2013.