

## ***Interactive comment on “Cirrus cloud-temperature interactions in the tropical tropopause layer: a case study” by J. R. Taylor et al.***

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Taylor et al. discuss a very interesting case of cirrus formation and evolution near the Tropical Tropopause Layer (TTL). The authors suggest (amongst others) the hypothesis that a number of localized nucleation events may produce enough small ice crystals with low sedimentation rates to maintain the cloud in a state of dynamic flux. A similar conclusion has already been formulated and studied in depth by Barahona and Nenes (2011) using an statistical cloud scheme. They concluded that at conditions typical of the TTL, homogeneous freezing forced by a background spectrum of gravity waves would produce multiple nucleation events and maintain the cloud layer in dynamical equilibrium for extended periods of time. We suggest that the authors mention the work of Barahona and Nenes in a revised introduction, and perhaps use it to help

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explain the characteristics of the observed cirrus.

### **References**

Barahona, D., and Nenes, A.: Dynamical states of low temperature cirrus, *Atm. Chem. Phys.* 11, 3757-3771; doi:3710.5194/acp-3711-3757-2011, 2011.

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