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Interactive comment on “Ice nucleation terminology” by G. Vali et al.

G. Vali et al.

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Partial response to Referee #1

We thank Referee #1 for the support to publish this paper and for the comments to improve it. Here we want to respond only to the reviewer's comment about the definition of "Site-specific nucleation" since that point is likely to be subject to further discussions.

The term "site-specific nucleation" is an umbrella phrase for a number of ways that have been used for describing nucleation where the characteristics of the sites of embryo development have a controlling influence on the overall probability and temperature-dependence of the process. The singular approximation is the time-independent version of site-specific nucleation; activity is determined by temperature independently of the time needed to reach, or spent at, that temperature. Site density is an alternative

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way to express the singular approximation. In a sense, site-specific nucleation is the counterpart of stochastic nucleation where the probability of nucleation is dependent only on time and the substrate is viewed as uniform. Clarifications of these definitions are included in the paper and will not be repeated here.

The way time-dependence is introduced in the site-specific description is definitely subject to further development. Both experimental and theoretical work is needed to arrive at a general and validated way of accomplishing that. For now, the intention was to indicate that time-dependence is an inherent feature of site-specific nucleation and that models exist for the time-dependent version of site-specific nucleation.

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