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## Empirical Formulation for number of ice crystal fragments by sublimational breakup

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There is much uncertainty about high concentrations of ice observed in clouds and their origins. In the literature, there have been previous experimental studies reported about the sublimation process of an ice crystal causes emission of fragments by breakup. Such sublimational breakup is a type of secondary ice production, which in natural clouds can cause ice multiplication.

To represent this process of sublimation breakup in any cloud model, the present study proposes a numerical formulation of the number of ice fragments generated by sublimation of pristine ice crystal. This is done by amalgamating laboratory observations from previous published studies. The number of ice fragments determined by relative humidity (RH) and initial size of the ice particle were measured in the published experiments, and by simulating them we are able to infer parameters of a sublimation breakup scheme. At small initial sizes, the dependency on size prevails, whereas at larger sizes both dependencies are comparable. This formulation is compared with observations to see the behaviour of it.