

## Variations in ice nucleating particle concentrations at four Arctic locations

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Filter samples collected at four Arctic measurement stations, Alert, Barrow, Ny-Ålesund and Villum were analyzed with respect to number concentrations of ice nucleating particles (N[INP]). Measurements were done following the method proposed by Conen et al. (2012), examining immersion freezing. The obtained temperature dependent freezing curves were used to derive N[INP].

For Ny Ålesund, samples from spring and summer months were examined, while a yearly coverage existed for the other stations. Differing values of N[INP] were observed during the year, and in general during summer and fall, particles were more ice active than during winter and early spring, indicating that different sources of ice nucleating particles contributed to the pan-arctic area, their influence varying with season and site. The highest values determined for the Arctic samples were comparable to N[INP] determined from precipitation samples collected in North America and Europe (Petters & Wright 2015), but the lowest values were more than two orders of magnitude lower.

Ice nucleating particles have an influence on Arctic cloud glaciation and hence influence Arctic warming. This study reveals open questions and suggests future pathways concerning the examination of Arctic ice nucleating particles.

### Literature:

Conen et al., 2012, Atmos. Meas. Tech., doi: 10.5194/amt-5-321-2012.  
Peters & Wright, 2015, Geophys. Res. Lett., doi: 10.1002/2015gl065733.