Continuous vertical observation of aerosol and cloud properties during the Polarstern cruises PS 106.1 and PS106.2 using a CLOUDNET station

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WP1: Ground-based component for SLCFs

Task 1.3 Interactions with planned intensive observations in the polar regions,

D 1.3.2 Integrated data collection of Arctic parameters received via ground-based remote sensing and airborne platforms for submission to WP5

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During the Expedition PS106.1 and PS106.2, (Bremerhaven – Longyearbyen – Tromsö) a Cloudnet station has been operated on board RV Polarstern. The research area of PS106.1 was mostly stationary on ice floe north of Svalbard while data from PS106.2 was mostly obtained during an ice-cruise northeast of Svalbard. The main instruments included were a vertically stabilized cloud radar MIRA-35, a multiwavelength aerosol Raman polarization lidar PollyXT, and a microwave radiometer HATPRO, accompanied by a total-sky-imager, solar and terrestrial broadband radiation sensors.
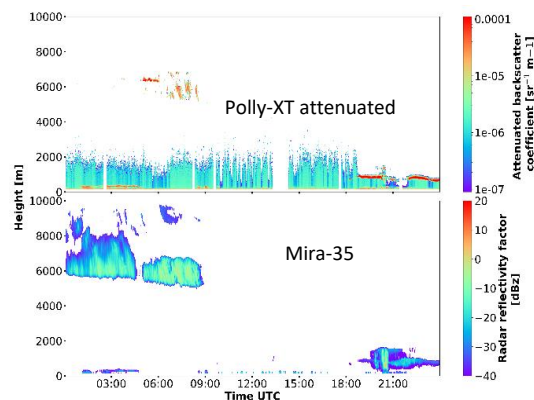

Figure 1. Observations from lidar Polly-XT (top) and cloud radar Mira-35 (bottom) on 8 June 2018 during Polarstern cruise PS106.

The datasets focus on the classification of Arctic aerosols and clouds, their microphysical properties, vertical distribution, and radiative effects.
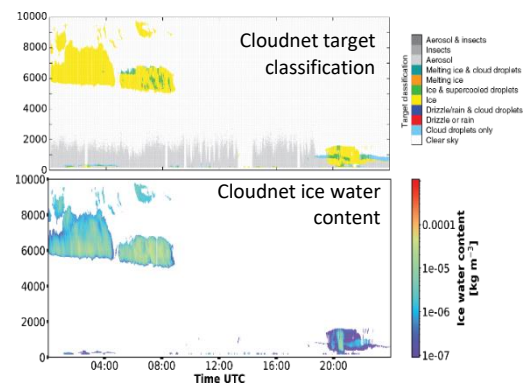

Figure 2. Cloudnet target classification (top) and ice water content derived from remote sensing observations on 8 June 2018.

Reference

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