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HOAPS-3 over ocean solid precipitation detection validated against LOFZY 2005 in-situ data and its comparison to other satellite products

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Measuring solid precipitation over the ocean for validation of satellite-derived products was the key interest in our contribution to the two-month wintertime Lofote-Cyclones 2005 experiment (LOFZY) offshore Norway. Aboard the RV “Celtic Explorer” data from an optical disdrometer, a rainfall detector, and detailed synoptic 24 hour observations were obtained. This extensive data set is compared to HOAPS-3 (Hamburg Ocean Atmosphere Parameters and Fluxes from Satellite Data) and GPCP (Global Precipitation Climatology Project). Case studies will be presented which show that HOAPS-3 is capable to detect wintertime high-latitude snowfall. In most of the solid precipitation cases cumulonimbus-like clouds prevailed, not exceeding 3 km cloud-top height. Precipitation amounts and patterns in high latitudes are often not well reproduced by NWP output and conservative IR satellite estimates. The added value of further active and passive microwave radiometers will be evaluated.