



Precipitation in Arctic Mesocyclones: On Remote Sensing, Model Intercomparison and In-situ Validation

C. Klepp (1), A. Andersson (1) and B. Krul (1)

(1) Meteorologisches Institut der Universität Hamburg, Hamburg, Germany,

christian.klepp@zmaw.de / Fax: +49 40 41173 391 / Phone : +49 40 41173 353

High impact weather along with intense precipitation is often associated with Arctic Mesocyclones. About 750 individual cases between 1988 and 2005 build up a climatology of North Atlantic Arctic Mesocyclones. Voluntary observing ship (VOS) data reveals intense convective precipitation within these systems. Most often a mix of rain, snow and graupel is observed including thunderstorm. North of 60° the cold season precipitation mostly contains snow and graupel.

The satellite derived precipitation estimates from HOAPS (Hamburg Ocean Atmosphere Parameters and Fluxes from Satellite Data) agree well with the VOS data, in contrast to the GPCP (Global Precipitation Climatology Project) and NWP data investigated.

To further validate these findings, in-situ measurements of solid cold season precipitation over the Norwegian Sea were carried out during the Lofoten-Cyclones 2005 experiment (LOFZY).

Onboard the RV "Celtic Explorer" data from an optical disdrometer, a rainfall detector, and detailed synoptic 24 hour observations were gathered. This extensive campaign data set is compared to HOAPS and GPCP on a pixel-level basis.

Results show that HOAPS is a capable tool to detect wintertime high-latitude snowfall over the ocean.