Geophysical Research Abstracts
Vol. 14, EGU2012-7866, 2012
EGU General Assembly 2012

Precipitation Ground Validation over the Oceans

C. Klepp (1) and S. Bakan (2)

(1) KlimaCampus, University Hamburg, Germany (christian.klepp@zmaw.de), (2) Max-Planck-Institute for Meteorology, Hamburg, Germany (stephan.bakan@zmaw.de)

State-of-the-art satellite derived and reanalysis based precipitation climatologies show remarkably large differences in detection, amount, variability and temporal behavior of precipitation over the oceans. The uncertainties are largest for light precipitation within the ITCZ and for cold season high-latitude precipitation including snowfall. Our HOAPS (Hamburg Ocean Atmosphere Parameters and Fluxes from Satellite data, www.hoaps.org) precipitation retrieval exhibits fairly high accuracy in such regions compared to our ground validation data. However, the statistical basis for a conclusive validation has to be significantly improved with comprehensive ground validation efforts. However, existing in-situ instruments are not designed for precipitation measurements under high wind speeds on moving ships.

To largely improve the ground validation data basis of precipitation over the oceans, especially for snow, the systematic data collection effort of the Initiative Pro Klima funded project at the KlimaCampus Hamburg uses automated shipboard optical disdrometers, called ODM470 that are capable of measuring liquid and solid precipitation on moving ships with high accuracy. The main goal of this project is to constrain the precipitation retrievals for HOAPS and the new Global Precipitation Measurement (GPM) satellite constellation.

Currently, three instruments are long-term mounted on the German research icebreaker R/V Polarstern (Alfred Wegner Institut) since June 2010, on R/V Akademik Ioffe (P.P.Shirshov Institute of Oceanology, RAS, Moscow, Russia) since September 2010 and on R/V Maria S. Merian (Brise Research, University of Hamburg) since December 2011. Three more instruments will follow shortly on further ships. The core regions for these long-term precipitation measurements comprise the Arctic Ocean, the Nordic Seas, the Labrador Sea, the subtropical Atlantic trade wind regions, the Caribbean, the ITCZ, and the Southern Oceans as far south to Antarctica.

This paper outlines results of the long-term measurements and gives an overview on the current status of the project.