



Assessment of North Atlantic Precipitation and Freshwater Flux from the HOAPS-3 satellite climatology

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To attain a better understanding and modeling of climate processes attaining a proper knowledge of global water cycle components is essential. For the assessment of the freshwater flux at the ocean surface on global scale, exchange processes at the air-sea interface play a key-role. With the ability to derive ocean latent heat flux and precipitation from satellite data with acceptable accuracy, and frequent global coverage, a climatological assessment of the crucial processes has become possible.

The HOAPS-3 climatology (Hamburg Ocean Atmosphere Parameters and Fluxes from Satellite Data) contains fields of precipitation, surface fluxes and atmospheric parameters over the global ice-free ocean between 1987 and 2005. Except for the NOAA Pathfinder SST, all basic state variables needed for the derivation of the fluxes are calculated from SSM/I passive microwave radiometer measurements. Multi-satellite averages, inter-sensor calibration, and an efficient sea ice detection procedure make HOAPS a suitable data set for climatological applications as well as for case studies. Gridded 0.5 degree monthly, pentad and twice daily data products are freely available from www.hoaps.org.

For the precipitation parameter, quasi-global coverage is achieved by complementing HOAPS-3 over land areas using the rain gauge based “Full Data Reanalysis Product Version 4”, which is provided by the Global Precipitation Climatology Centre (GPCC).

North Atlantic intra-decadal precipitation variability is investigated using this combined data set. The mutual response of the two independent precipitation data sources to the North Atlantic Oscillation (NAO) reveals coherent patterns and a detailed view on the structural changes in precipitation during the high and low states of the NAO. A second focus will be put on the evaluation of HOAPS-3 ocean surface freshwater fluxes and their interaction with the NAO.