



Climatology of essential water cycle components over global oceans from HOAPS-3

S. Bakan (2), A. Andersson (1), K. Fennig (3), H. Grassl (1,2), C. Klepp (1), D. Klocke (1) and J. Schulz (4)

(1) Meteorologisches Institut der Universität, Hamburg, Germany, (2) Max-Planck-Institut f. Meteorologie, Hamburg, Germany, (3) MetOffice, Exeter, UK, (4) Deutscher Wetterdienst, Offenbach, Germany

The Hamburg Ocean Atmosphere Parameters and Fluxes from Satellite Data set, HOAPS-3, contains global fields of precipitation and evaporation over the global ocean and all basic state variables needed for the derivation of the fluxes. Except for the NOAA Pathfinder SST data set, all variables are derived from SSM/I satellite data over the ice free global ocean between 1987 and 2005. Special emphasis has been put into quality control and inter-satellite calibration in order to derive as homogeneous data fields as possible. Pentade, monthly and climatological means are publicly available under www.hoaps.org with a spatial resolution of $\frac{1}{2}$ degree, which makes them ideally suited for studies of climate variability over the global oceans. On a global scale, HOAPS-3 shows, that the average evaporation since 1987 exceeds rain rate over the ocean systematically with almost negligible yearly cycle and small monthly variations. While the globally averaged precipitation time series does not exhibit any significant linear trend over the study period, evaporation shows a continuous increase during this time. Regionally, this increase concentrates in the subtropics and is due to increasing wind speed as well as surface to air humidity difference. Precipitation shows some reduction in the subtropics and a substantial increase over the southern mid latitude oceans, but no significant change over the northern oceans. While the explanation of the findings for the extratropics is not straight forward, the observed subtropical variability is consistent with a strengthening of the Hadley circulation during the observation period. The presentation will also contain comparison results with similar data fields of the same period from ERA40 and from control runs of the ECHAM5 climate model in order to clearly define similarities and differences

between the different information sources.