EMS Annual Meeting Abstracts
Vol. 16, EMS2019-652, 2019

The HOAPS-4.0 dataset: Features and Applications

Schröder Marc (1), Fennig Karsten (1), Graw Kathrin (2), Liman Julian (), Andersson Axel (3), Dietzsch Felix (1), and Hollmann Rainer (1)

(1) Deutscher Wetterdienst, Offenbach, Germany, (2) Deutscher Wetterdienst, Freiburg, Germany, (3) Deutscher Wetterdienst, Hamburg, Germany

The EUMETSAT Satellite Application Facility on Climate Monitoring (CM SAF) generates satellite-based, high-quality climate data records, with a focus on the energy balance and water cycle. In this context, the Hamburg Ocean Atmosphere Parameters and Fluxes from Satellite Data Records (HOAPS) dataset has been released in its latest version 4.0.

HOAPS is a completely satellite-based climatological dataset containing information about precipitation, evaporation, freshwater budget, that is evaporation minus precipitation, latent heat flux, total column water vapour, near surface specific humidity, and near surface wind speed. The data record includes multi-satellite averages from recalibrated and intercalibrated SSM/I and SSMIS passive microwave radiometer data, and an efficient sea ice detection procedure. The version 4.0 is based on an updated SSM/I and SSMIS fundamental climate data record and a newly implemented 1D-Var retrieval scheme for total column water vapour and near surface wind speed, and includes uncertainty estimates for latent heat flux, evaporation, near surface humidity, and near surface wind speed. All HOAPS variables are defined as 6-hourly composites and monthly means over the global ice-free ocean within $\pm 80^\circ$ latitude and with a resolution of 0.5°. In this new version, the time coverage has been prolonged and now covers the period of July 1987 to December 2014.

The HOAPS dataset can be used for climate sciences and the evaluation of climate models. Here, HOAPS is introduced and results from various validation activities will be summarised. HOAPS is used in a wide variety of applications including climate change analysis and climate model evaluation. Exemplary results from these applications will be shown as well.