HOAPS-II: 15 Years of Twice Daily Global Ocean Precipitation and its Application on High Impact Weather

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The scan based part of the Hamburg Ocean Atmosphere Parameters and Fluxes from Satellite Version II (HOAPS-II) dataset called HOAPS-S can be used for twice daily individual case studies in original SSM/I resolution over the global oceans for the entire 15 year time period. The high quality precipitation product of HOAPS-II based on the algorithm developed by Bauer and Schlüssel in 1993 is well validated using voluntary observing ship data, especially in the mid-latitudes. Comparisons with commonly used SSM/I based precipitation algorithms and NWP models show that only the HOAPS II rainfall estimates are sensitive to all observed rainfall events. One major uncertainty for quantitative precipitation forecasts in Europe is due to (mesoscale) high impact weather (HIW) events with substantial damage by heavy rain, hail and gale wind force. These form over the North Atlantic and are transported and sometimes strengthened over the European continent. These events are often not or not timely enough predicted by numerical weather prediction models (e.g. storm "Lothar" in December 1999) as they escape the routine surface and satellite based observation systems. In contrast, HOAPS-II exhibits an early warning potential by recognizing and tracking such HIW systems from their source region over the ocean to the coastlines of Europe. We will present the potential of HOAPS-S for scientific use and show several applications of the data base in respect to HIW.