



Comparative statistical evaluation of the global daily precipitation data set DAPACLIP at GPCC

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The global Daily Precipitation Analysis for the validation of medium-range Climate Predictions, DAPACLIP, was funded by the German ministry for research (BMBF) and represents a global gridded daily precipitation data set with a grid resolution of $1.0^\circ \times 1.0^\circ$ and a time period covering the years 1988 until 2008. It is constructed through combination of the analysis of daily in-situ measurements from rain gauges from the Global Precipitation Climatology Centre (GPCC, <http://gpcc.dwd.de>) with the satellite-based precipitation product HOAPS (Andersson et al., 2010) from the Satellite Application Facility on Climate Monitoring (CM-SAF). Given its daily resolution the data set allows for calculation of the 9 out of 27 core ETCCDI/CRD Climate Change Indices (Klein-Tank et al., 2009) that consider precipitation as demonstrated on the global data set by Becker et al. (2014).

This paper presents an in depth analysis, that focusses on the over-land data set and studies also precipitation intensity-frequency distributions especially over the tropics and for extreme precipitation events. Relative distributions of the number of days with certain precipitation amount seem to follow a power law. On the other side, cumulative counts plotted against the magnitude of intensity, which represents its logarithm to the base 10, are more difficult to analyze. Certainly they do not equate to an exponential distribution. With regard to their fitting behavior, the GPCC-DAPACLIP analysis delivers similar results across tropical regions and all land-surface areas.

We will calculate the ETCCDIs also for the global DAPACLIP data set (land and ocean) as well as for the latest update of CMORPH (Joyce et al., 2004), which is based on satellite as well as bias corrected and gauge-satellite blended data, projected to the GPCC grid topology.

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