

Gridded Analysis Products provided by the Global Precipitation Climatology Centre (GPCC) and its Quality Control

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Since its start in 1988 the Global Precipitation Climatology Centre (GPCC) performs global analyses of monthly precipitation for the earth's land-surface on the basis of in-situ measurements. Meanwhile, the data set has continuously grown both in temporal coverage (original start of the evaluation period was 1986), as well as extent and quality of the underlying data base. The high spatio-temporal variability of precipitation requires a high density of measurement data.

Latest released GPCC products are 'Full Data Reanalysis' (version 6, time period 1901 - 2010) and 'Climatology' (version 2011) by the end of December 2011. Both products are part of the non-real-time product suite and available with 0.5°, 1.0° and 2.5° spatial resolution. Data base of this products are data collected from national meteorological and hydrological services and other organizations and collections as well as global precipitation collections (i.e. from CRU, GHCN or FAO), additionally supported by CLIMAT reports and SYNOP messages. Since the last release one year ago large data sets were added to the data base, which improves the analysis in China, Canada and Brazil, but also other regions benefit from additionally available data. For example the number of stations with climatological normals increased from ca. 64400 to ca. 67200 within the new release. A high quality control effort was undertaken to remove miscoded and temporal or spatial dislocated data before interpolation.

'VASCLIMO' is the third non-real-time product of the GPCC. It is the currently homogenized product, which covers the period from 1951 till 2000. It will be replaced by the new product 'HOMPRA', which will extend the period from 1951 to 2005 and number of applied stations. It is scheduled to be delivered in 2012.

Additionally the GPCC offers two near-real-time products. These are the 'First Guess Product' (created for early detection, e.g., drought monitoring, based on SYNOP messages) and 'Monitoring Product' (created on WCRP request and for merging to satellite data, based on CLIMAT reports, supported by SYNOP messages), both with a spatial resolution of 1°x1°. Only an automatic quality control runs during the generation of the 'First Guess Product', whereas a manual quality control is carried out for the 'Monitoring Product'. The 'First Guess Product' is released 3 to 5 days after the end of each month whereas the 'Monitoring Product' two month later.

Also in 2012 an analysis of daily precipitation is scheduled to start on basis of global SYNOP reports. This new 'First Guess Daily' will be released together with the 'First Guess Product' 3 to 5 days after the end of each month.

The acquired data sets are pre-checked and imported into a relational data base, thus allowing a cross-comparison of data from the different sources. Any time new data sets are loaded to the data base the metadata in the input data set are compared to those already available. Since the beginning of 2009 the precipitation data to be imported is compared against a background statistic. Exceptional values are checked and either confirmed, corrected or excluded from the analyses.

To protect the interests of the data suppliers the GPCC is not providing the station related data, but all gridded products mentioned above are available free of charge at the GPCC web site (gpcc.dwd.de).

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