

... by the Global Precipitation Climatology Centre (GPCC) and its Quality Control

M. Ziese, U. Schneider, A. Meyer-Christoffer, A. Becker, P. Finger, B. Rudolf

Deutscher Wetterdienst, Global Precipitation Climatology Centre, Offenbach/M., Germany, (gpcc@dwd.de)

GPCC Background

The Global Precipitation Climatology Centre (GPCC) has been established in 1989 on request of the WMO. It is operated by the DWD (Deutscher Wetterdienst, National Met. Service

of Germany) as a German contribution to the World Climate Research Programme (WCRP). Mandate of the GPCC is the global analysis of monthly precipitation on the earth's land-surface

based on in-situ raingauge data. The data set has continuously grown in temporal coverage, as well as in extent and quality of the underlying data base (Fig. 2).

Data Base

The GPCC receives the SYNOP weather and the monthly CLIMAT messages in near real-time via the WMO global telecommunication system (GTS). Core data source of the GPCC analyses are the data from station networks operated by the National Meteorological/Hydrological Services (NMHS's) world-wide; data have been received from more than 190 countries (Figure 1).

The GPCC integrates also other global (i.e. FAO, CRU and GHCN), as well as regional data sets, yielding about 67,200 stations with climatological normals in GPCC's data base (comprising data of more than 85,000 stations in total).

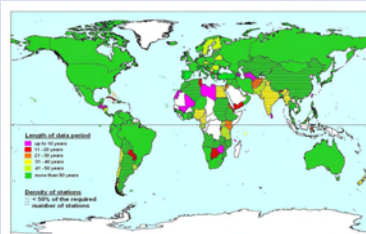


Figure 1: Length of period of the data delivered by National Meteorological / Hydrological Services (NMHS's).

Data Base and Quality-Control

The data from the different sources are stored separately in source specific slots. The data processing steps include QC of station meta information, as well as of the precipitation data and selection of a "best" value for each station

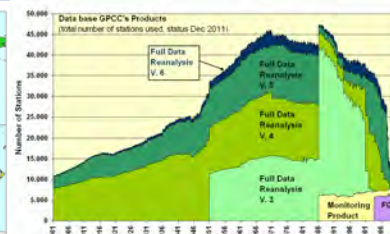


Figure 2: Number of precipitation data per month for the different GPCC analysis products (incl. different versions).

Quality-Control (QC)

and month/year according to statistically derived expectation values of the source specific data quality. Since 2009 the precipitation data to be imported into GPCC's data base is compared against a background statistic helping to screen out data errors in this early step of the data processing. In addition to that the data base has been intensively checked according to different statis-

tical criteria (i.e. temporal homogeneity, spatial consistency). The QC processing is semi-automatic in the way that data flagged as questionable in the automatic process are checked manually.

Near-Real-Time

Near-real-time analyses are the "First Guess" ("FG") (Fig. 3) and the "Monitoring Product" ("MP") (Fig. 4). While "FG" is based only on SYNOP reports, the data base is extended by CLIMAT reports for the "MP". The main difference between both products results from the enhanced quality-control for "MP" in comparison to "FG". The "Monitoring Product" and "First Guess" are available within 2 months or 3 to 5 days after the end of each month, respectively. Both products are offered with 1° spatial resolution, based on roughly 7,000 to 8,000 stations distributed globally.

All products are publicly available from:
<http://gpcc.dwd.de>

Gridded Data Products

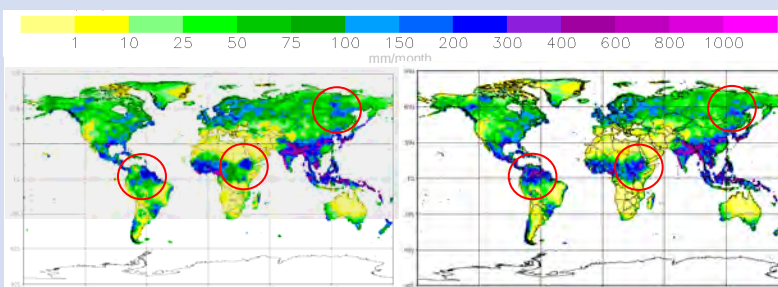


Figure 3: First Guess (July 2007)

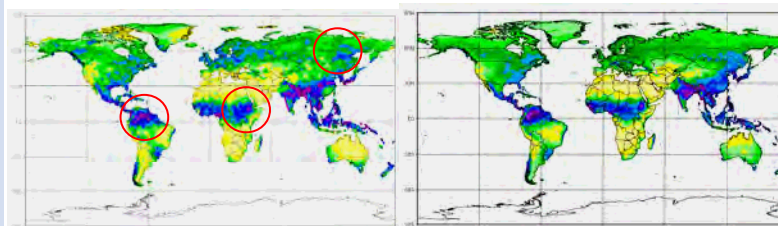


Figure 4: Monitoring Product (July 2007)

Figure 5: Full Data Reanalysis (V.6; July 2007)

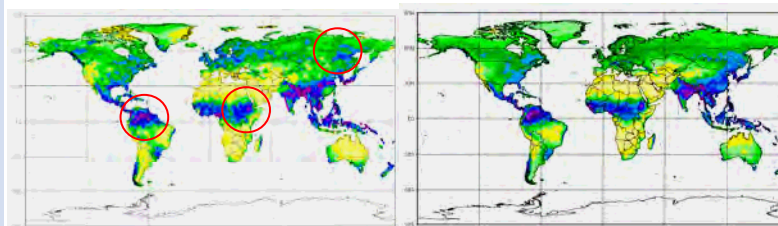


Figure 6: Precipitation Climatology (July)

Non-Real-Time

Non-real-time products are the "Full Data Reanalysis" (Fig. 5), "VASCLIMO" and "Climatology" (Fig. 6) data sets. These products are based on GTS data supplemented by additional station data, being provided offline by National Meteorological/Hydrological Services or other data collectors. A new release of the "Climatology" and "Full Data Reanalysis" was issued in Dec. 2011. Non-real-time products are available with spatial resolutions of 0.5°, 1.0° and 2.5°. The current "Full Data Reanalysis V.6" covers the period 1901 to 2010 and the climatology is focusing on the period 1951 to 2000, both based on data from roughly 67,200 stations.

First Guess Daily

The calculation of daily precipitation amounts based on SYNOP reports will restart in 2012. We plan to release a daily analysis together with the "First Guess" 3 to 5 days after the end of each month.

Scheduled New GPCC Product Releases

A new homogenized precipitation analysis ("HOMPRA") shall be released in early 2013. It will replace the "VASCLIMO" data set and cover the period 1951 to 2005.

HOMPRA

