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Long-term satellite-based global precipitation products within the Copernicus Climate Data Store

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Within the Copernicus Climate Change Service (C3S), the Climate Data Store (CDS, built by ECMWF) will provide open and free access to global and regional products of Essential Climate Variables (ECVs) based on satellite observations spanning several decades, amongst other things. One of the five atmospheric ECVs covered by the C3S project C3S_312b_lot1 is precipitation, as it is a main component of the climate system, the hydrological cycle and human life.

One long-term global precipitation Climate Data Record (CDR) will be developed within C3S, based on merging satellite passive microwave (MW) imager and sounder data records. In the transition period connected with development and quality assessment of the new product, estimates of precipitation by the Global Precipitation Climatology Project (GPCP) from the University of Maryland (UMD) are brokered to the CDS.

Here, we present the status of these two precipitation products: First results from the development of the MW product, which comprises the merging of precipitation estimates based on MW imagers and MW sounders, are evaluated for plausibility. As to the well-established GPCP product, we present our efforts in monitoring the product quality within C3S: this involves testing target requirements that have been formulated in this context via basic Key Performance Indicators (KPIs). To assess the brokered daily (v1.3) and monthly (v2.3) GPCP products, they are also compared more extensively to several gridded and in-situ datasets. Amongst others, the gridded products TMPA 3B42 and 3B43, as well as the ERA5 global reanalysis, were chosen for comparison.