

## Global Evaluation of Satellite Based Quantitative Precipitation Estimates (QPEs) from the Reference Environmental Data Records (REDRs)

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Four satellite based precipitation Reference Environmental Data Records (REDRs: previously Climate Data Records) are or will be transitioned to the REDR program (PERSIANN-CDR; GPCP; CMORPH; AMSU-A,B, Hydrologic bundle). PERSIANN-CDR is a 30-year record of daily-adjusted global precipitation. GPCP is an approximately 30-year record of monthly and pentad adjusted global precipitation and 17-year record of daily-adjusted global precipitation. CMORPH is a 17-year record of daily and sub-daily adjusted global precipitation. AMSU-A,B, Hydro-bundle is an 11-year record of a bundle of perceptible water, cloud water, and ice water among others.

In this work we conduct an assessment of the different Quantitative Precipitation Estimates (QPEs) of the aforementioned satellite products over the concurrent period of record. The products inter-comparisons are performed at various temporal (annual, seasonal, daily or sub-daily when possible) and spatial scales (global, overland and over ocean, tropics or higher latitudes, high elevation). The evaluation of the different products will include trend analysis and comparison with in-situ data sets from the Global Historical Climatology Network (GHCN-Daily). In addition, we will compare the datasets ability to capture global precipitation patterns and local extreme precipitation events in order to derive a detailed picture of each product strengths and weaknesses. In that regard, we will provide a first look at what could be an ensemble long-term precipitation data record.