

Precipitation

1. Products

Total precipitation and the anomaly percentage (relative to 1991-2020) at monthly, seasonal and annual scales.

2. Products specifications

Areal coverage: TPRCC-Network service domain (25°–50°N, 65°–105°E)

Spatial resolution: 0.1° × 0.1°

Temporal resolution: monthly, seasonal, annual

Projection: Regular latitude-longitude projection

Availability: January 1979 to present

Timeliness: Within one week after the end of each month, season, or year

Format: PNG

Units: Total precipitation (mm); Anomaly percentages (%)

3. Data sources

Daily precipitation data from CRA1.5 reanalysis from 1979 onwards.

4. Methodology

The monthly, seasonal and annual total precipitation products for each grid are the sum of daily precipitation over the corresponding period.

The precipitation anomaly percentage is derived from the following formula.

$$Pa = \frac{P - \bar{P}}{\bar{P}} \times 100\%$$

where:

Pa is the precipitation anomaly percentage (the result typically carries a positive or negative sign and is expressed as a percentage);

P is the observed precipitation amount for the period under consideration;

\bar{P} is the climatological normal, typically defined as the average precipitation for the same period over a 30-year reference period (e.g. the average July total precipitation during 1991–2020), following the recommendation of the World Meteorological Organization (WMO).



5. References

Zhang, T., Z. J. Zhou, Z. Q. Liu, et al., 2025: The CMA global atmospheric reanalysis version 1.5 (CRA1.5). *Journal of Meteorological Research*, 39(6), 1379–1398, <https://doi.org/10.1007/s13351-025-5112-3>.

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