

APHRODITE: Constructing a Long-term Daily Gridded Precipitation Dataset for Asia Based on a Dense Network of Rain Gauges

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Abstract:

A daily gridded precipitation dataset covering a period of more than 57 years was created by collecting and analyzing rain-gauge observation data across Asia through the activities of the Asian Precipitation -- Highly Resolve Observational Data Integration Towards Evaluation of Water Resources (APHRODITE) project. APHRODITE's daily gridded precipitation is presently the only long-term continental-scale high-resolution daily product. The product is based on data collected at 5000 to 12,000 stations, which represents 2.3 to 4.5 times the data made available through the Global Telecommunication System network and used for most daily gridded precipitation products. Hence, the APHRODITE project has substantially improved the depiction of the areal distribution and variability of precipitation around the Himalayas, Southeast Asia and mountainous regions of the Middle East. The APHRODITE project now contributes to studies such as the determination of Asian monsoon precipitation change, evaluation of water resources, verification of high-resolution model simulations and satellite precipitation estimates, and improvement of precipitation forecasts. The APHRODITE project carries out outreach activities with Asian countries, and communicates with national institutions and world data centers. We have released APHRO_V1101 datasets for Monsoon Asia, the Middle East and Northern Eurasia (at $0.5^\circ \times 0.5^\circ$ and $0.25^\circ \times 0.25^\circ$ resolution) and the APHRO_JP_V1005 dataset for Japan (at $0.05^\circ \times 0.05^\circ$ resolution) on the website (<http://www.chikyu.ac.jp/precip/>) free of charge. We have just developed daily temperature grid dataset for the same domain. These database should be used for various kinds of environmental assessments in Asia.

Yatagai, A., K. Kamiguchi, O. Arakawa, A. Hamada, N. Yasutomi and A. Kitoh (2012): APHRODITE: Constructing a Long-term Daily Gridded Precipitation Dataset for Asia based on a Dense Network of Rain Gauges, Bulletin of American Meteorological Society (in press), doi:10.1175/BAMS-D-11-00122.1.

Keywords: precipitation, high-resolution database, climate changes, extreme weather, future prediction, Asian environment