



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

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A daily gridded precipitation dataset for the period 1951–2007 was created by collecting and analyzing rain-gauge observation data across Asia through the activities of the Asian Precipitation – Highly Resolved Observational Data Integration Towards Evaluation of Water Resources (APHRODITE's water resources) project. APHRODITE's daily gridded precipitation is presently the only long-term continental-scale high-resolution daily product. Our product is based on data collected at 5000 to 12,000 stations, which represents 2.3 to 4.5 times the data available through the Global Telecommunication System (GTS) network that are 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 forecasts.

We released APHRO_V1101 datasets for Monsoon Asia, the Middle East and Russia (on 0.5×0.5 degree and 0.25×0.25 degree grids) and the APHRO_JP_V1005 dataset for Japan (on a 0.05×0.05 degree grid) on the website (<http://www.chikyu.ac.jp/precip/> and <http://aphrodite.suiri.tsukuba.ac.jp/>). The major differences of APHRO_V1101 to that of the previous version (APHRO_V1003R1) are 1) improved quality control (QC) scheme and more input data (Belarus, Bhutan, South Korea, Saudi Arabia, Thailand, Taiwan and E-Obs).

We are developing a daily gridded temperature dataset for Asia and a flag to discriminate between rain and snow will be added to the APHRODITE daily precipitation product. The combination of daily mean temperature, precipitation and rain/snow information in this high-resolution gridded format would be useful as input to river-flow models, crop models and many other situations where water resources must be estimated.