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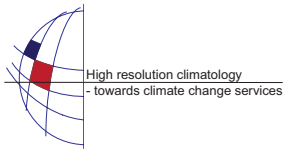

Interpolation technique and error estimation of APHRO_PR, a gauge-based high-resolution daily precipitation data

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Long-term and high-resolution grid precipitation data is useful for evaluation of high-resolution climate models, trend analysis of precipitation extremes caused by Global Warming, budget analysis of water circulation, and so on. Many precipitation data have already issued, though many of these are insufficient in temporal and spatial resolution or length of the period for such purposes. Therefore, we started a project named "Asian Precipitation - Highly-Resolved Observational Data Integration Towards Evaluation of the Water Resources (APHRODITE)" to develop historical daily precipitation data with high-resolution grids covering the whole of Asia, based on rain-gauge observation. We have collected a huge number of rain-gauge data in this project, most of which have not been available for public use.
In the last year, the latest version of our product APHRO_PR_V0902 was issued, whose period is 1961-2004 and horizontal is up to 0.25deg x 0.25deg. This product was gridded by the modified Angular Distance Weighted (ADW) interpolation scheme considering with local topographical features and precipitation climatology. Owing to many rain-gauge and this interpolation scheme, quality of APHRO_PR was improved.
We also estimated an interpolation error by the perfect model approach, which uses daily precipitation data simulated by 20-km-grid MRI-AGCM.
Interpolation is performed with the virtual rain-gauge which is made with simulated precipitation. Then gridded precipitation is compared with original model's precipitation. The result shows that annual precipitation of APHRO_PR has small error in many areas, however frequency of heavy/weak daily precipitation may be underestimated/overestimated.