Effects of increase of observation data input on terrestrial climatological   mean temperature data over Asia

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We created a daily mean gridded temperature dataset of monsoon Asia (15S-55N, 60E-150E) for the period of 1961-2007, with a 0.50 x 0.50 degree grid.

We analyzed this dataset based on station observations collected and a quality control and interpolation system developed through the activities of the Asian Precipitation – Highly Resolved Observational Data Integration Towards Evaluation of Water Resources (APHRODITE) project. The number of stations is up to 2 times the number of stations based on the Global Telecommunication System (GTS), which have been used to obtain other gridded temperature products. Especially, we obtained daily surface observation of Nepal in collabollation with local agency.

Comparison between monthly mean temperature datasets, CRU_TS3.0 and Univ. of Delaware, and APHRODITE daily mean temperature dataset (AphroTemp V1204R1) is made to estimate the effect of the increase of surface observation input.Significant difference is not shown over coastal and plain region over Monsoon Asia. However, differences of 5-6 degC are shown in mountainous region of Tibetan Plateau and Central Asia.

Another product (AphroTemp_V1204R1g), using on-line available surface observaion data and adapting same interpolation algorithm, is derived to estimate the difference attributed to the increase of input data. Significant difference is shown around Nepal. Similar difference is found in comparison with other monthly datasets (CRU_TS3.0 and Univ. of Delaware).

In and around Nepal, it is found out to be warmer than preceding estimates. On the other hand, significant differences are not found in other places such as China, Mongolia and Taiwan, where we also obtained original inputs.

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