

# Satellite-Based Rainfall Estimation Technology Transfer Between The Mekong River Commission and The NOAA Climate Prediction Center

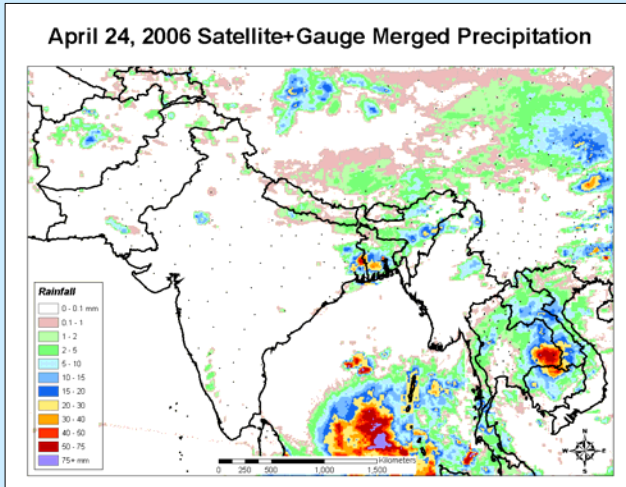
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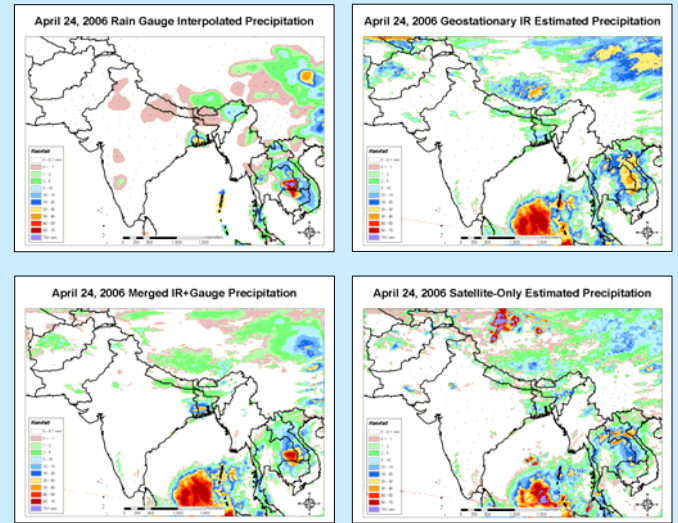
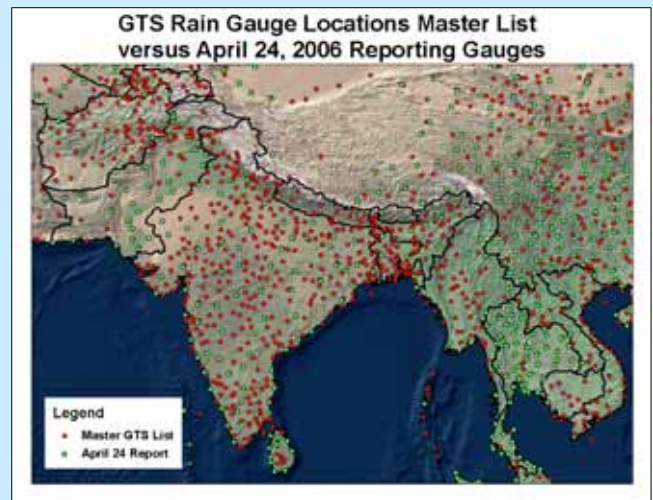
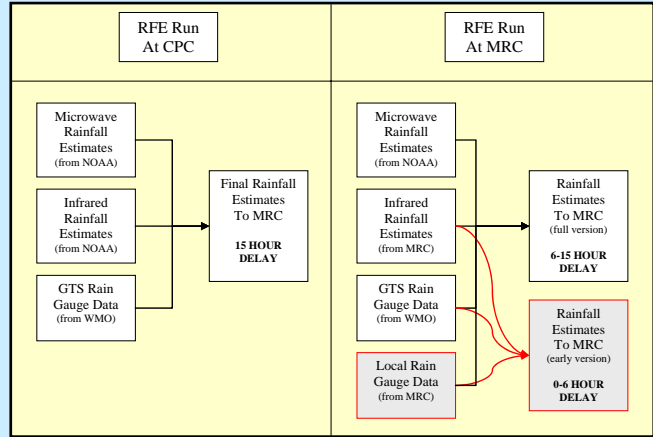
Precipitation estimates for the Mekong River Basin and Hindu Kush region of southern Asia have been produced daily at the NOAA Climate Prediction Center, in association with the USAID's Asia Flood Network since early 2001. In 2005, a project was initiated to transfer this technology to the Mekong River Commission through a series of workshops, training sessions, and group discussions. The goal of this project is to run the associated rainfall estimation software locally at the MRC, thus reducing delay of data output, increasing accuracy via the input of local rainfall information, and encouraging the growth of the interagency relationship.

One of the primary goals of the project is to reduce latency of data production. By using locally-available Infrared satellite and surface-based rain gauge information, the delay between actual rainfall and the first guess estimate is greatly reduced. The images below compare data inputs and product latency for the software run at CPC vs MRC, and an example of the lack of rain gauge information available to NOAA via the GTS network.

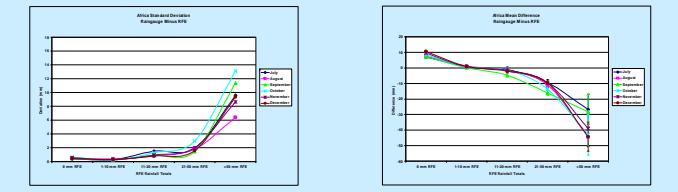
The precipitation estimation algorithm used in this project is derived from the NOAA CPC RFE2.0 methodology, originally developed for hydrometeorological monitoring over Africa. The method combines satellite-based infrared and microwave rainfall estimation data with ground-based rain gauge inputs to produce daily rainfall grids at a resolution of around 8 Km. The datasets shown below, while not portraying precipitation accurately on an individual basis, present a complete picture of rainfall when merged into the final product.



The image above represents a final daily precipitation estimate after merging ground-based rain gauge and satellite-based sensor information.



The charts below represent validated mean difference and standard deviation for a 6-month period over the Africa domain.



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