

Impact of the NAME Simple Rain gauge Network Data on the Quality of the CPC Precipitation Analysis

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ABSTRACT

- Raingauge data collected from the CPPA funded project *Enhancement of the Daily Raingauge Network in Mexico in Support of NAME* has been incorporated into CPC's existing US_Mexico raingauge database for the period 2004-present. The daily precipitation analysis based on this new database is compared to CPC's existing real-time analyses for the same period to investigate the impact of the new data. Intercomparisons of daily, monthly, and seasonal precipitation statistics, and comparisons of each analysis to a suite of satellite and GCM estimates of precipitation provide an assessment of the range of uncertainty in our precipitation analysis products.

DATA

- ***Gauge***

(1) Raingauge data from the '*simple raingauge network*' project (July 2004-present).

(2) Original raingauge data from the SMN

- ***Gridded Analyses***

(3) CPC merged US_Mexico 0.25°-resolution daily precipitation analyses, based on (1) and (2).

DATA (cont.)

- *IR & MW*

- CPC Morphing Technique (“CMORPH”)

- Naval Research Laboratory/GEO

- UC-Irvine/PERSIANN

- NASA/GSFC/3B42RT

Blended IR & PMW

- NESDIS/Merged AMSU-B Estimates

Merged PMW only

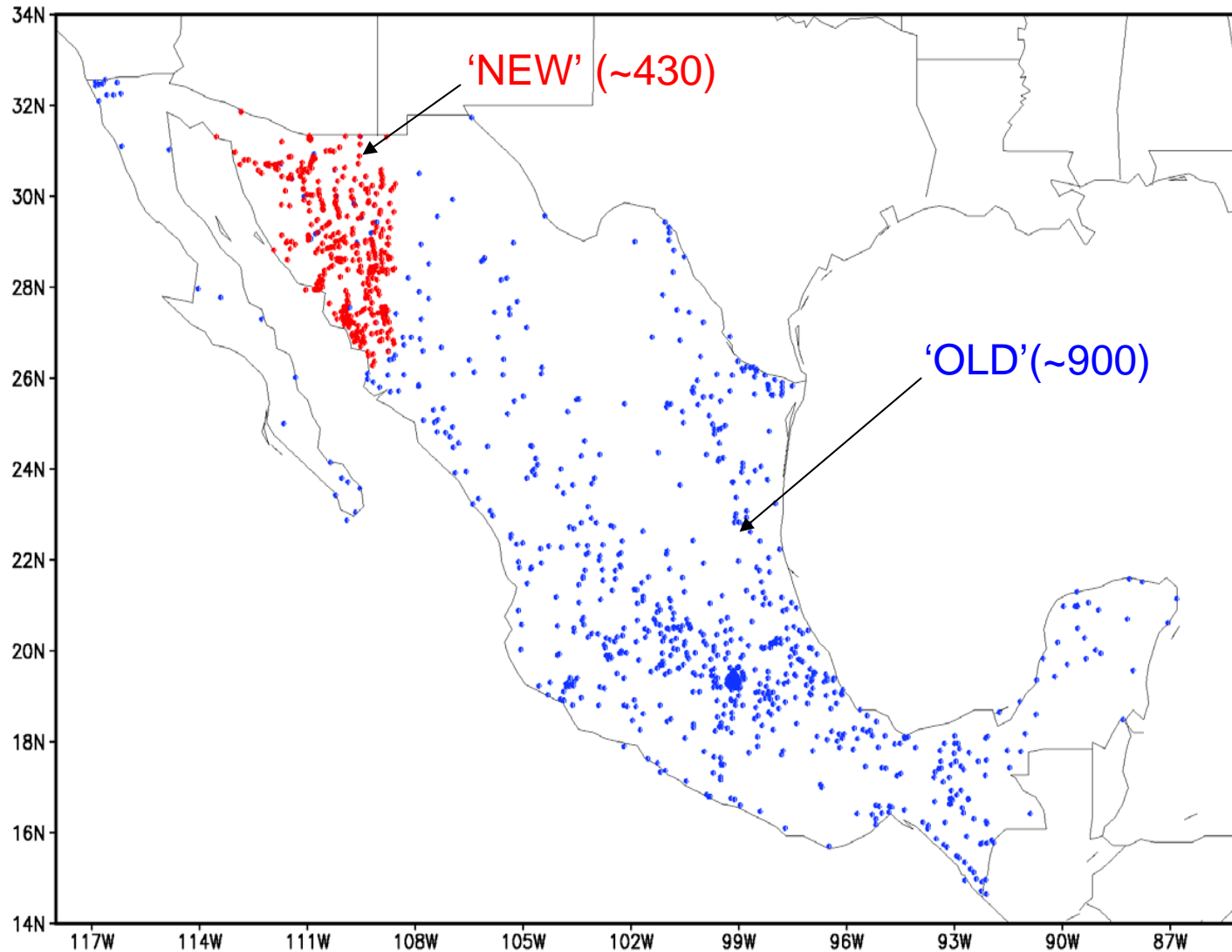
- NESDIS/”Hydro-Estimator” Estimates

IR only

- *MODEL FORECAST*

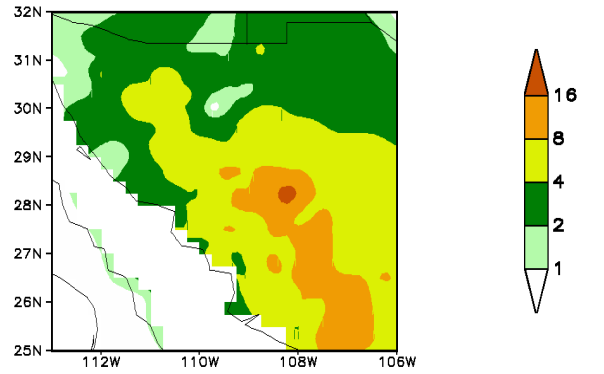
- NCEP/Global Forecast System model (“GFS”)

Typical Daily Station Distribution

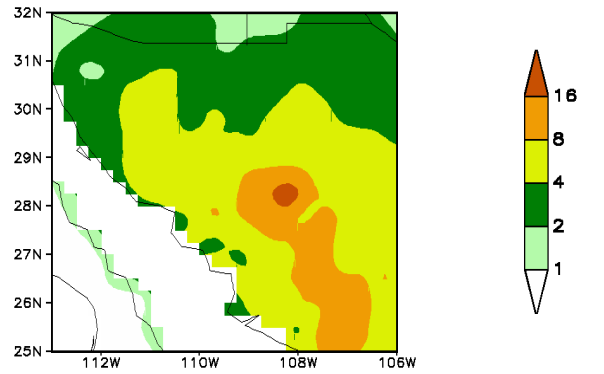


Mean Precipitation (mm/day) for July 2005

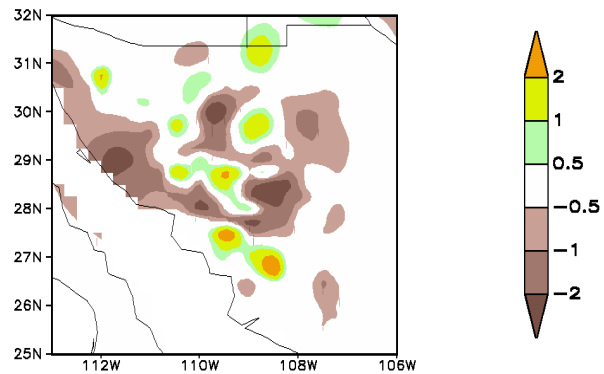
(a) NEW



(b) OLD

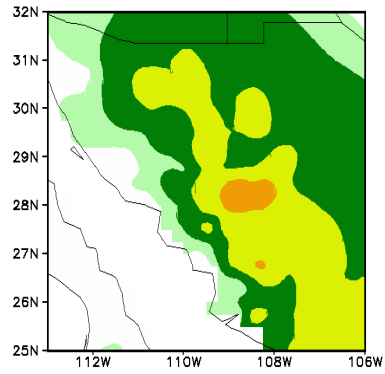


(c) Difference (a-b)

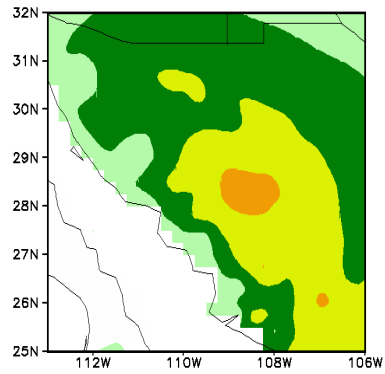


Mean Precipitation (mm/day) for August 2005

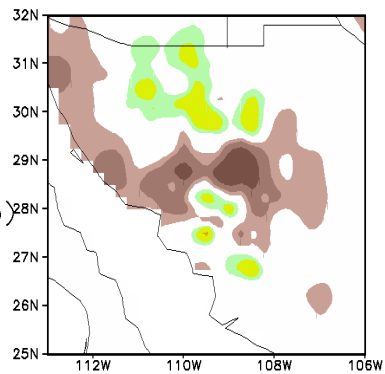
(a) NEW



(b) OLD

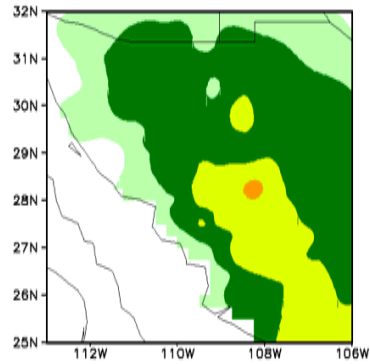


(c) Difference (a-b)

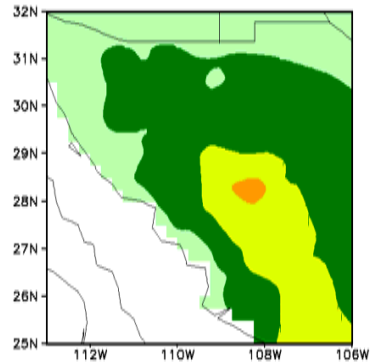


Mean Precipitation (mm/day) for JAS 2005

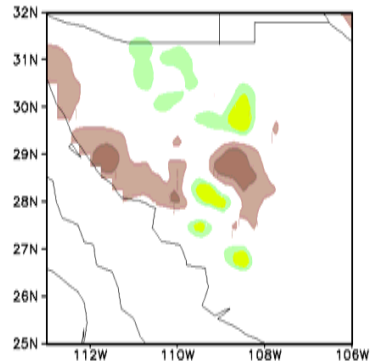
(a) NEW



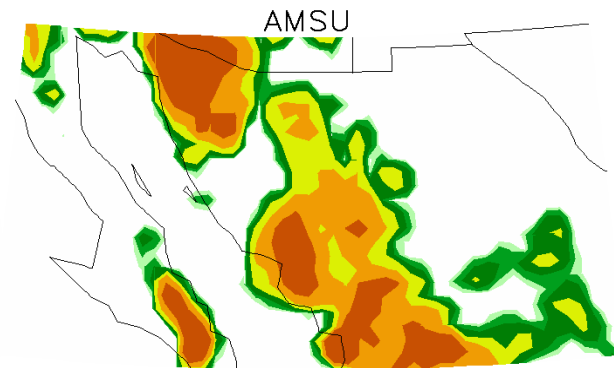
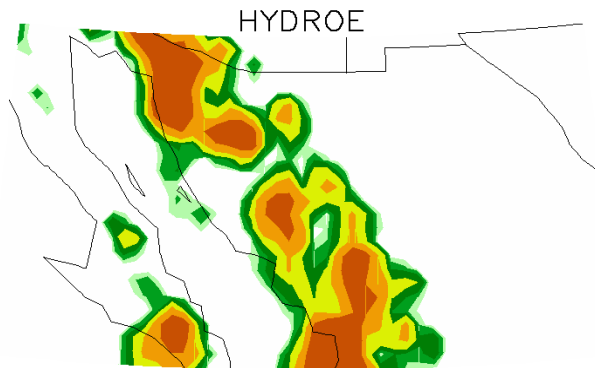
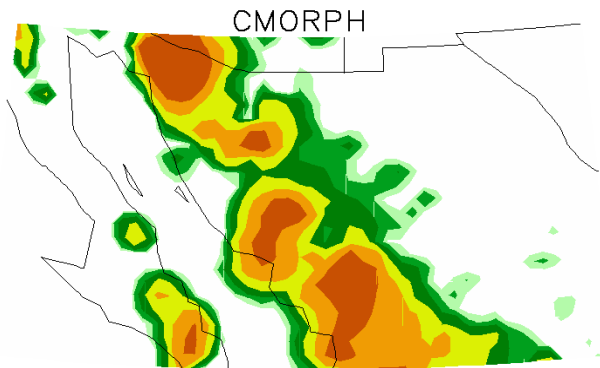
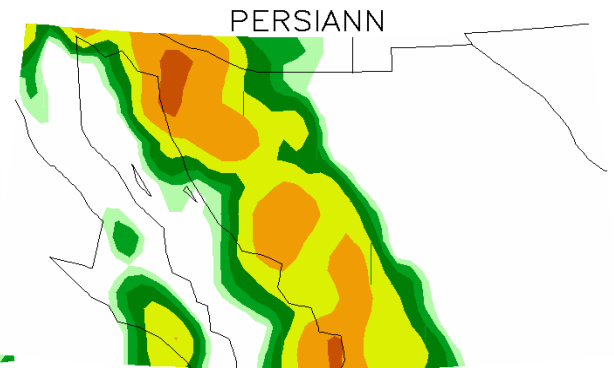
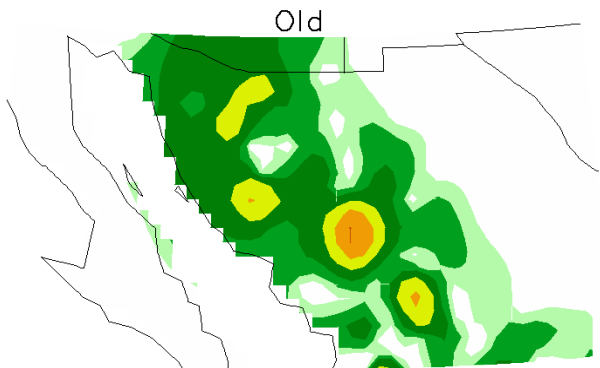
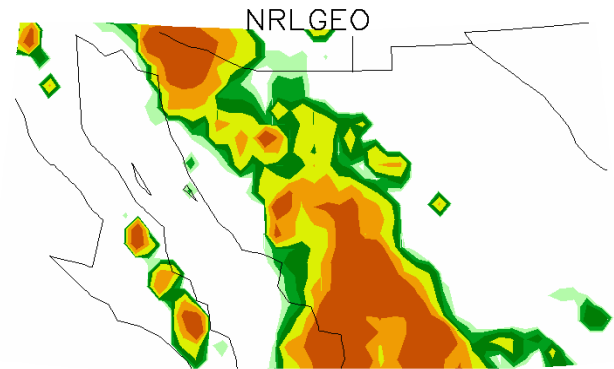
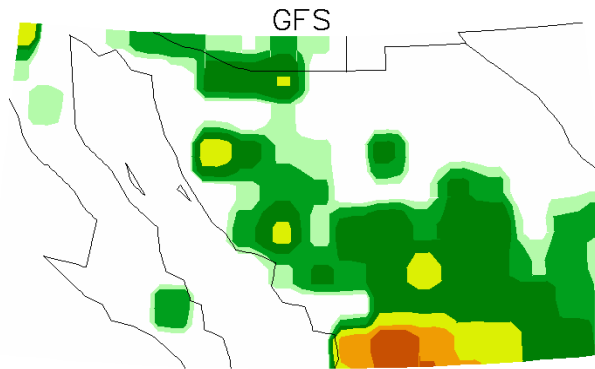
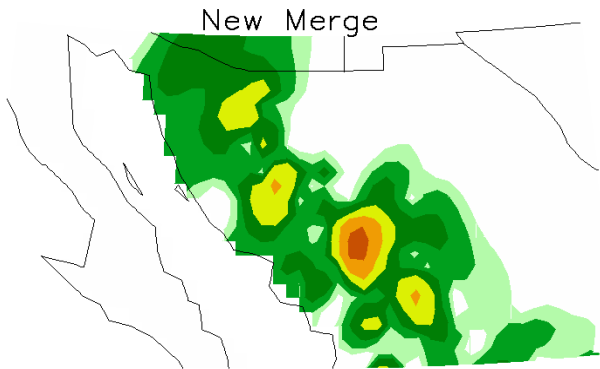
(b) OLD



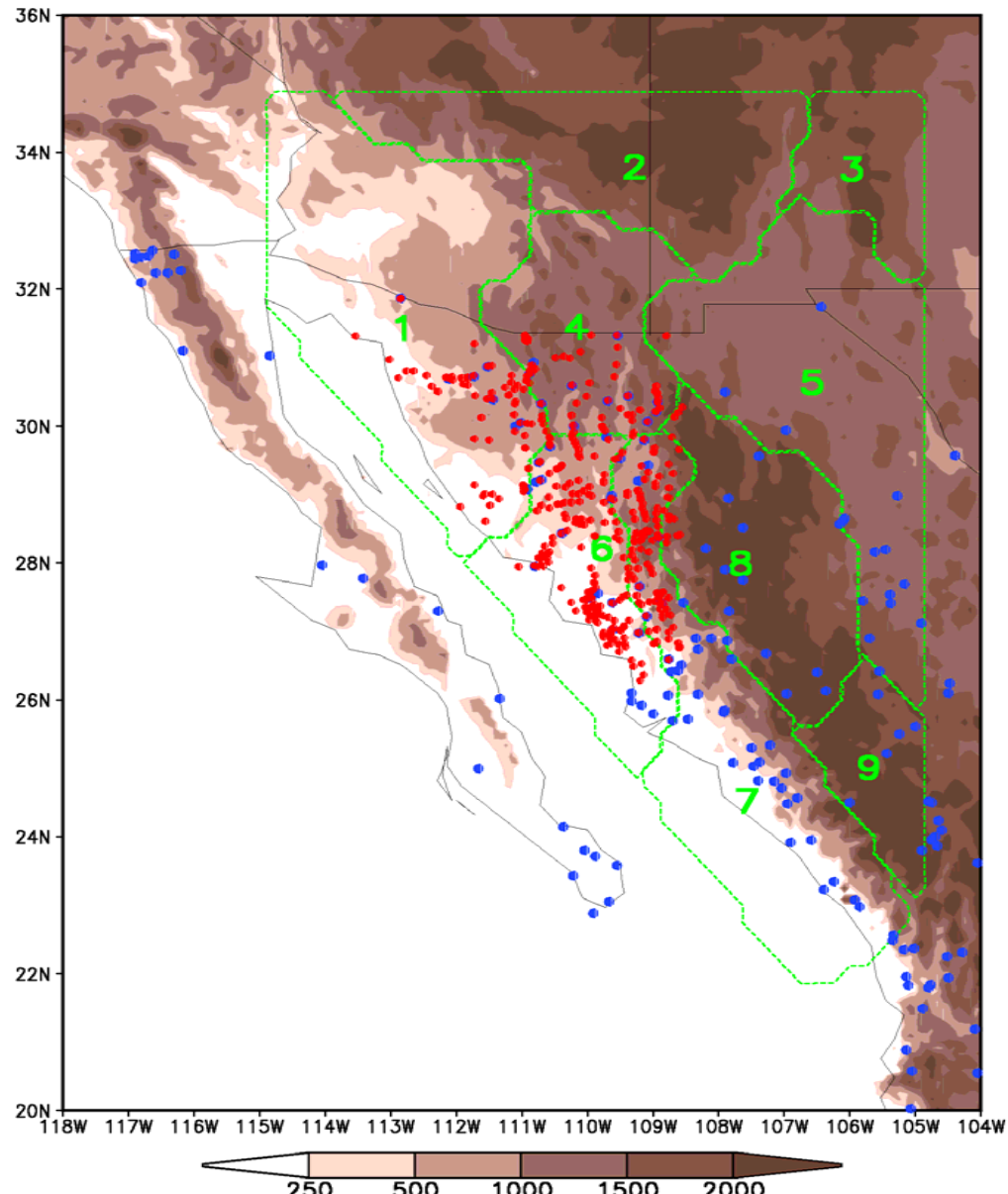
(c) Difference (a-b)



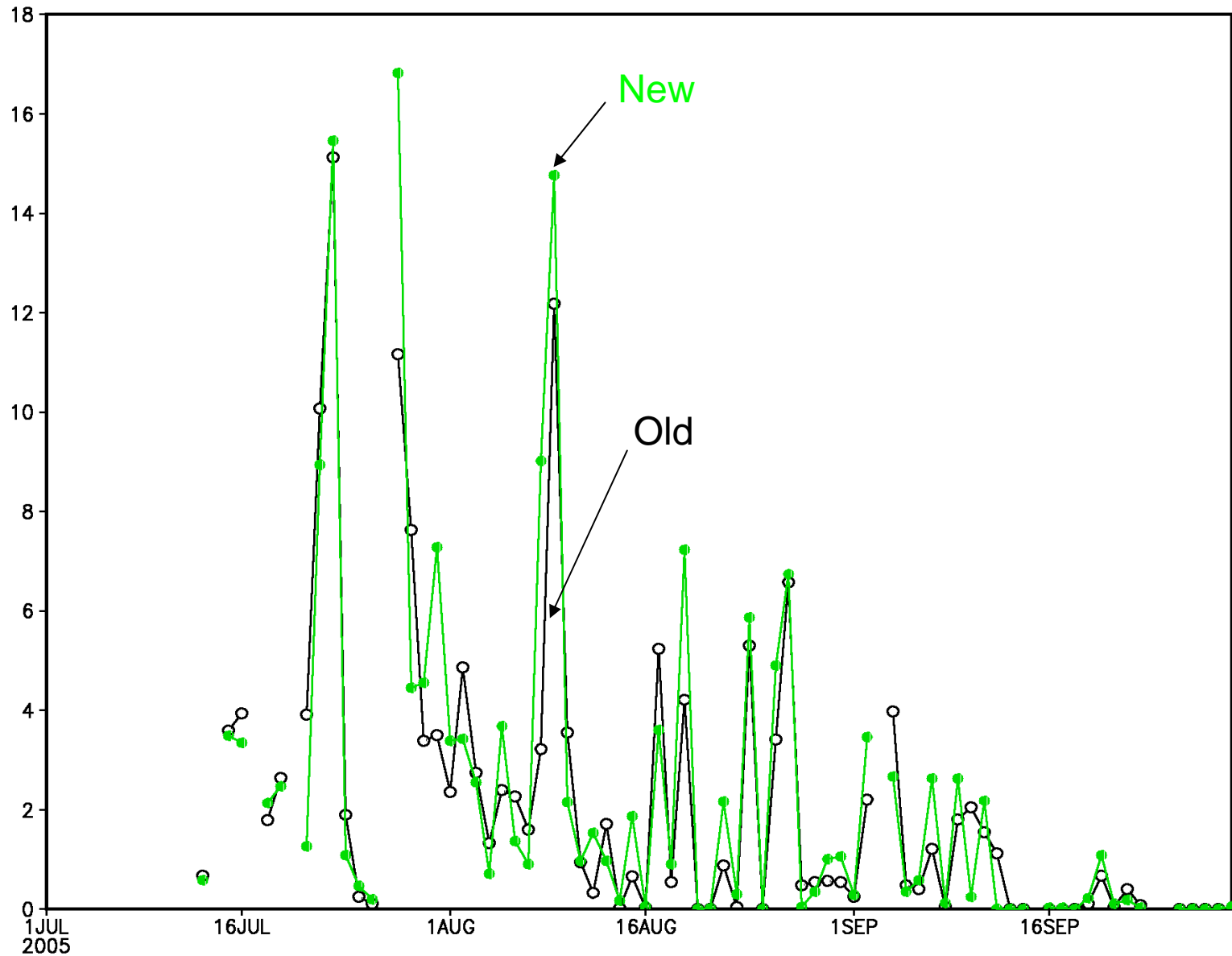
Daily Precipitation (mm) for August 02, 2005



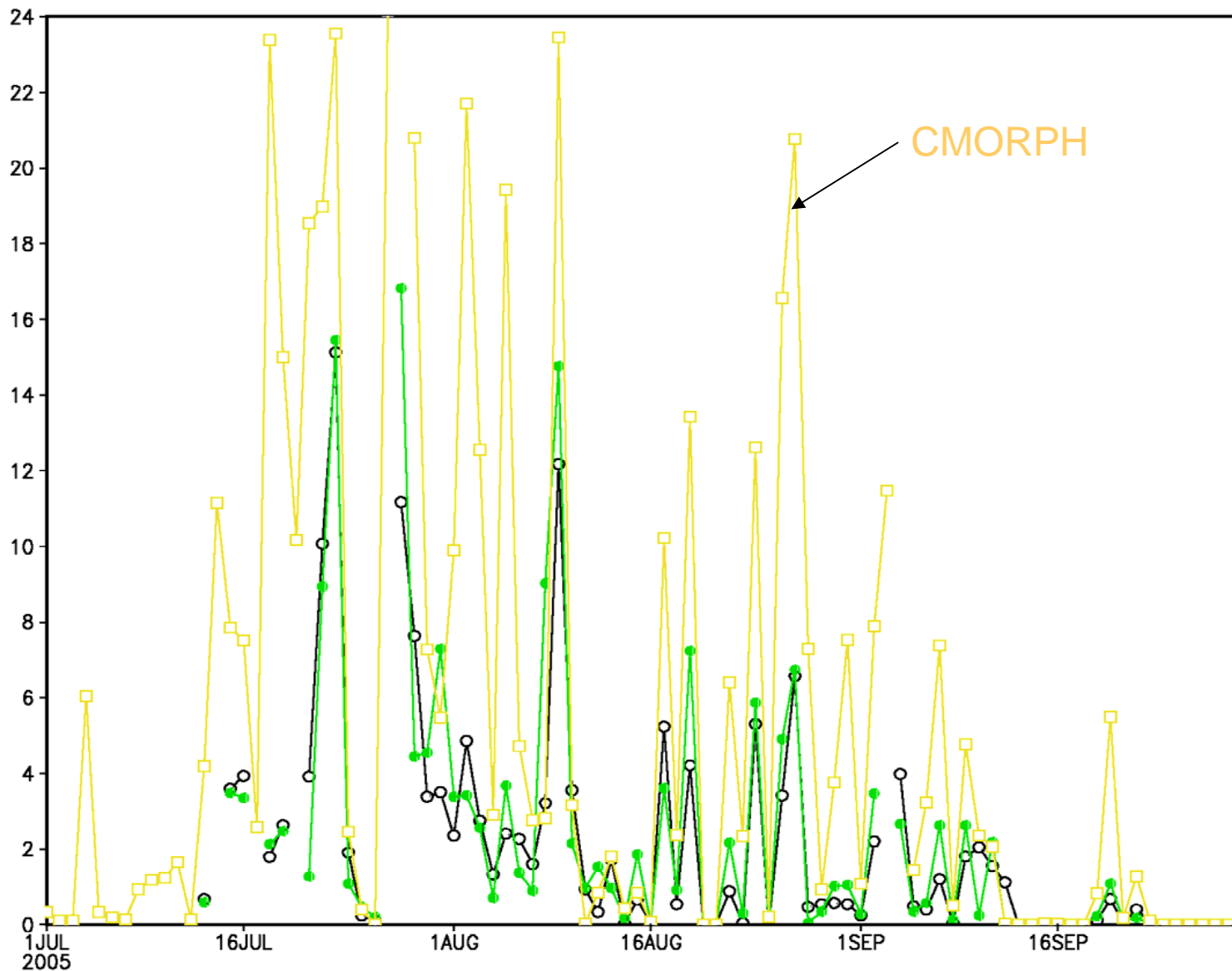
Typical Daily Station Distribution and the 9 NAME Zones



Time series of area-averaged daily precipitation (mm) over Zone 6



Time series of area-averaged daily precipitation (mm) over Zone 6



Summary

- About 430 raingauges have been installed during the *Simple Raingauge Network Project* and daily data have been collected since July 2004.
- These data have been quality controlled and merged into CPC's existing raingauge database (from SMN). A gridded analysis based on the merged dataset has been generated accordingly at CPC.
- The monthly differences between the CPC's current gauge database with and without the new data are appreciable, ranging up to 180 mm for the seasonal total, which are on the order of the interannual variability of precipitation in this region.

Summary (cont.)

- The differences are localized to particular regions along the Sierra Madre Occidental, where the spatial coverage of CPC's current database is poor.
- The differences are relatively small when daily rainfall is averaged over large areas (e.g. the NAME Zone-6).
- These results emphasize the need for enhanced observations in this region.