

PERSIANN CCS

Precipitation Estimation from Remotely Sensed Information using Artificial Neural Networks – Cloud Classification System

Fine Resolution Precipitation Estimates Using The PERSIANN--Cloud Classification System.

The PERSIANN-CCS uses computer image processing and pattern recognition techniques to develop a patch-based cloud classification and rainfall estimation system based on co-registered passive microwave and infrared images from Low Earth-orbiting and geostationary satellites.

Spectral Intervals & applicable satellites:

Global IR data:

- METEOSAT
- GOES
- GMS

Global Microwave data:

- SSM/I
- TRMM
- AMSU-B
- MSE-R

Spatial Scale:

IR-pixel scale

Temporal Scale:

IR-sampling scale

Ancillary Data (e.g., soundings):

None

Additional Comments:

The PERSIANN-CCS enables the categorization of cloud-patch features based on texture, geometric properties, dynamic evolution, and cloud top height estimated from infrared imagery. Precipitation intensity and distribution of classified cloud patch is initially trained using ground radar and TRMM observations. The computational strength of Neural Network enables us to build up a database of cloud type-rainfall mapping curves, which are undergoing recursive (in space and time) data assimilation and system training, allowing for flexibility in the adjustment of the cloud-precipitation mapping relationships as new ground or space-based microwave/radar measurements become available.

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