GPM precipitation data as input for a real time extreme rainfall detection system

Geophysical Research Abstracts
Vol. 20, EGU2018-872-1, 2018
EGU General Assembly 2018

GPM precipitation data as input for a real time extreme rainfall detection system

Paola Mazzoglio (1), Francesco Laio (2), Franca Disabato (3), and Irene Angeluccetti (3)

(1) ITHACA, Torino, Italy (paola.mazzoglio@ithaca.polito.it), (2) Politecnico di Torino, Torino, Italy, (3) ITHACA, Torino, Italy

The GPM (Global Precipitation Measurement) mission provides - since March 2014 - different IMERG (Integrated Multi-satellite Retrievals for GPM) products with a spatial coverage of 60°N – 60°S.
IMERG products are available in three different versions: early run (with a delay of 6 hours), late run (with a delay of 18 hours) and final run (with a delay of 4 months).
Considering the short delay in their availability, IMERG early and late half-hourly data can be used for real-time flood risk monitoring applications. In this study, IMERG early and late data are compared at the global scale with rain gauge precipitation data in order to evaluate their relative accuracy.
The results demonstrate that a 24-hours aggregation interval ensures a probability of detection (evaluable as the number of hits events divided by the total number of observed events) greater than 80% and a bias of -0,1 mm/h. With an aggregation interval of 72 hours we reach a probability of detection greater than 90%.
The outcomes of this analysis will support the development of the updated version of the ITHACA Extreme Rainfall Detection System (ERDS). This system is able to provide hourly real-time alerts about extreme rainfall events.