

Satellite-based short-term thunderstorm forecasting toward flash flood predictions: Recent developments for Mesoamerica in the context of SERVIR
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Abstract

This presentation highlights the recent improvements in the 0-1 h forecasting (“nowcasting”) of the initiation of thunderstorms and lightning events. The goals for accurate high-temporal convective initiation (CI) forecasting has resulted in improvements to the Mecikalski and Bedka (2006) GOES-based CI nowcasting methodology, which has subsequently broadened our understanding of how GOES senses growing cumulus clouds. Convective initiation is defined here as a transition from below to above 35 dBZ echoes as observed by NEXRAD systems. For lightning initiation (LI), new work has shown an ability of GOES infrared trend analysis (for growing cumulus clouds) to provide 0-1.5 h forecasts of first lightning and lightning activity in the future thunderstorms.

An overview of the recent developments of this effort in support of Mesoamerica weather and flood forecasting will be provided. Currently, this forecasting product is being developed for dissemination within SERVIR, a Regional Monitoring and Visualization System for Mesoamerica that intensively utilizes satellite imagery and other data sources for environmental management and disaster support. Discussion will be provided on the potential for the CAFFG (and its products) to both utilize SERVIR for input data, as well as for product dissemination.