

Integration of GOES-R/ABI data in Flood Mapping Software for Flood Monitoring and Forecasting

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Abstract

With the support from JPSS/PGRR Program Office since 2012, flood mapping software has been successfully developed and routinely applied in near real-time flood detection using SNPP/VIIRS imagery for NWS-River Forecast Centers in the USA. Flooding is a short-term disaster, so clear-sky coverage is crucial for flood detection based on optical satellite imagery. GOES-R/ABI scans the Earth surface every 5 minutes in CONUS, which provides many more chances for clear-sky coverage than the one SNPP/VIIRS overpass in mid-low latitudes during daytime, and helps partially solve the cloud obstacle issue for flood mapping. To improve the quality of flood product, we propose integrating GOES-R/ABI data in flood mapping software and deliver GOES-R/ABI near real-time flood products - including 1-km flood product and blended 30-m 3-D flood products from GOES-R/ABI and SNPP/VIIRS - to the user community. These products will be available in AWIPS-2. Additionally, a website will be developed together with the support from JPSS Program to publish near real-time GOES-R/ABI and SNPP/VIIRS flood products for user groups including NOAA-NWS River Forecast Centers, National Water Center, and other agencies such as FEMA and USACE.

To make the best use of the current VIIRS flood activities, we propose incorporating the GOES-R flood capabilities into the current JPSS Flood Initiative with a new name “the Satellite Enterprise Flood Mapping Initiative” with members including our NWS stakeholders and Cooperative Institute team members listed as collaborators in the proposal. JPSS Program Science Office will continue to provide the overall coordination and will coordinate closely with the GOES-R science program. GMU develops the science algorithms and CIMSS will eventually incorporate the algorithms into CSPP-GEO after the initial demonstration.