

Dynamic FIM Factsheet – Puerto Rico & U.S. Virgin Islands [Public Domain]

This document complements FIM Partner Training and Outreach efforts provided by local offices. It serves as a reference, specifically for partners in Puerto Rico and the U.S. Virgin Islands, to understand the strengths and limitations of available FIM services and how to access additional resources and assistance.

Dynamic FIM Services

Currently, there are two Dynamic FIM services available for Puerto Rico and the U.S. Virgin Island, which represent an analysis or forecast for inundation extent. These include:

01. National Water Model [NWM] Latest Analysis FIM
02. National Water Model [NWM] 48-Hour Maximum Inundation Extent Forecast FIM

The NWM Latest Analysis FIM reflects an analysis of observed conditions, while the NWM 48-Hour Maximum Inundation Extent Forecast FIM provides forecast information.



National Water Model [NWM]

Latest Analysis FIM

The National Water Model [NWM] Latest Analysis FIM service depicts the inundation extent of the NWM streamflow analysis where the NWM is signaling “High Water.” “High Water” is a term used by the Office of Water Prediction [OWP] as an indicator of elevated flows for a given NWM reach or stream. Its name refers to how this service uses observed data and assimilates it into modeled streamflow conditions which are then presented as the most recent FIM in delayed real-time. The NWM Latest Analysis FIM uses observed rainfall data as a base for modeling runoff. Using real-time gage data, FIM is created to reflect and approximate what is currently occurring.

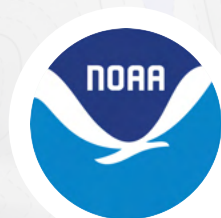
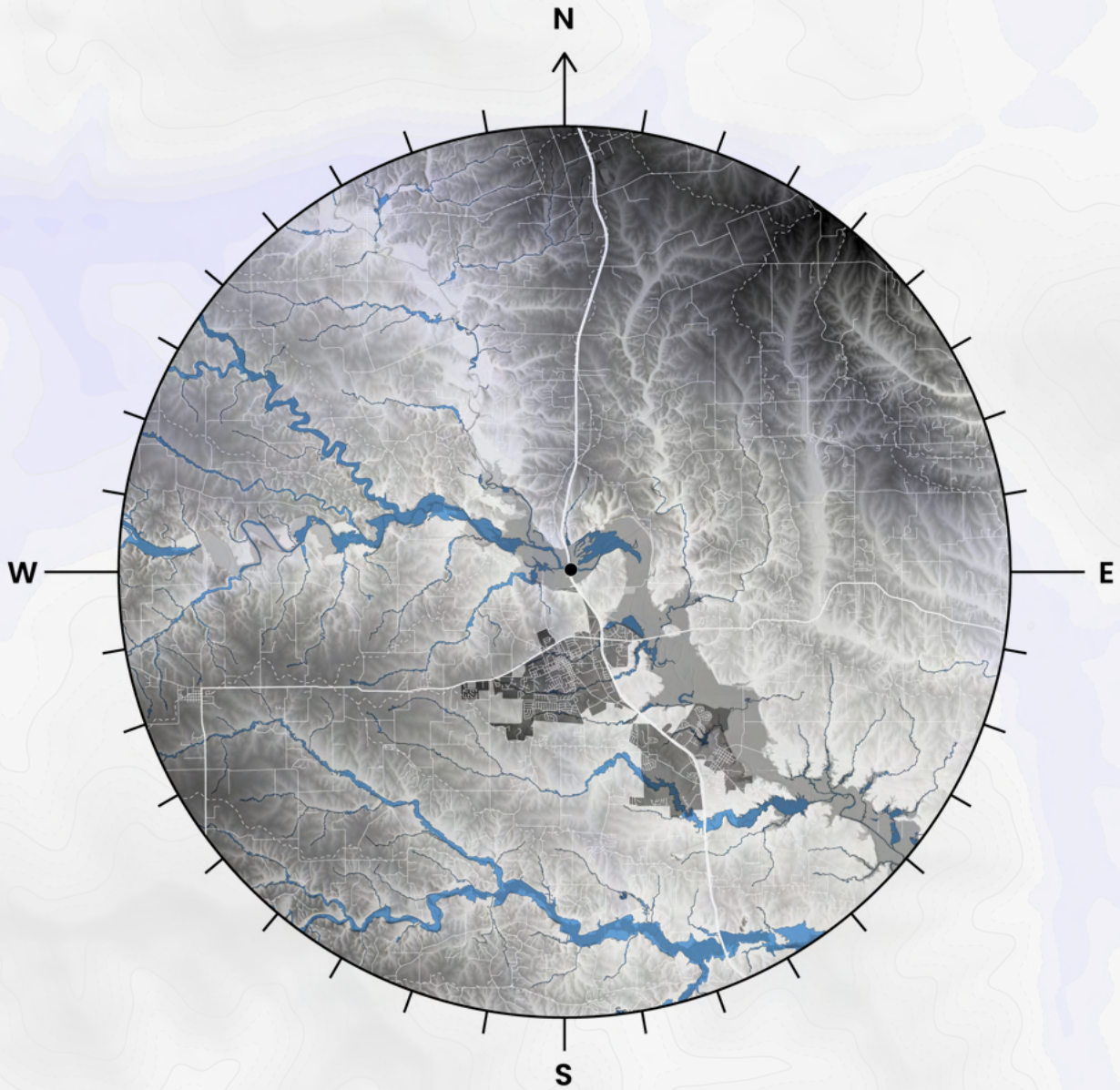
The NWM Latest Analysis FIM is not a forecast service and is therefore limited by the precision of its observed source data [Multi-Radar/Multi-Sensor System [MRMS] and the river gage network]. The NWM Latest Analysis will be more reliable where there are more gages and less reliable farther away from river gages and where rainfall data [gage, radar, and satellite] are less accurate. It should be used when forecast information is not desired.



NWM
Latest
Analysis



NWM
48-hour Max
Inundation Extent

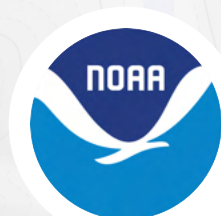


National Water Model 48-Hour Maximum Inundation Extent Forecast FIM

The National Water Model [NWM] 48-Hour Maximum Inundation Extent Forecast FIM for Puerto Rico and the U.S. Virgin Islands is a 48-Hour forecast depicting the maximum inundation extent based on the NWM streamflow forecasts. This FIM is only generated where and when the NWM is forecasting flows that meet or exceed the high-water threshold, which is established at the one and half year annual recurrence interval of streamflow derived from the forty-four year retrospective run of the NWM.

The NWM 48-Hour Maximum Inundation Extent Forecast FIM uses the NWM Latest Analysis FIM configuration as its initial condition. The NWM configuration for Puerto Rico and the U.S. Virgin Islands uses a mixture of forcings from the North American Model Nest over the region [NAMNest] and the Advanced Research [ARW] dynamical core of the Weather Research and Forecasting Model [WRF] - referred to as the WRF-ARW. The QPF forcings are provided by the WRF-ARW and are run through a rainfall-runoff simulation to generate NWM forecasts which are then translated into a 48-Hour forecast of maximum inundation extent.

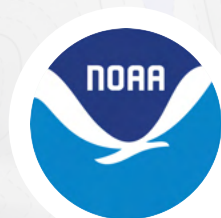
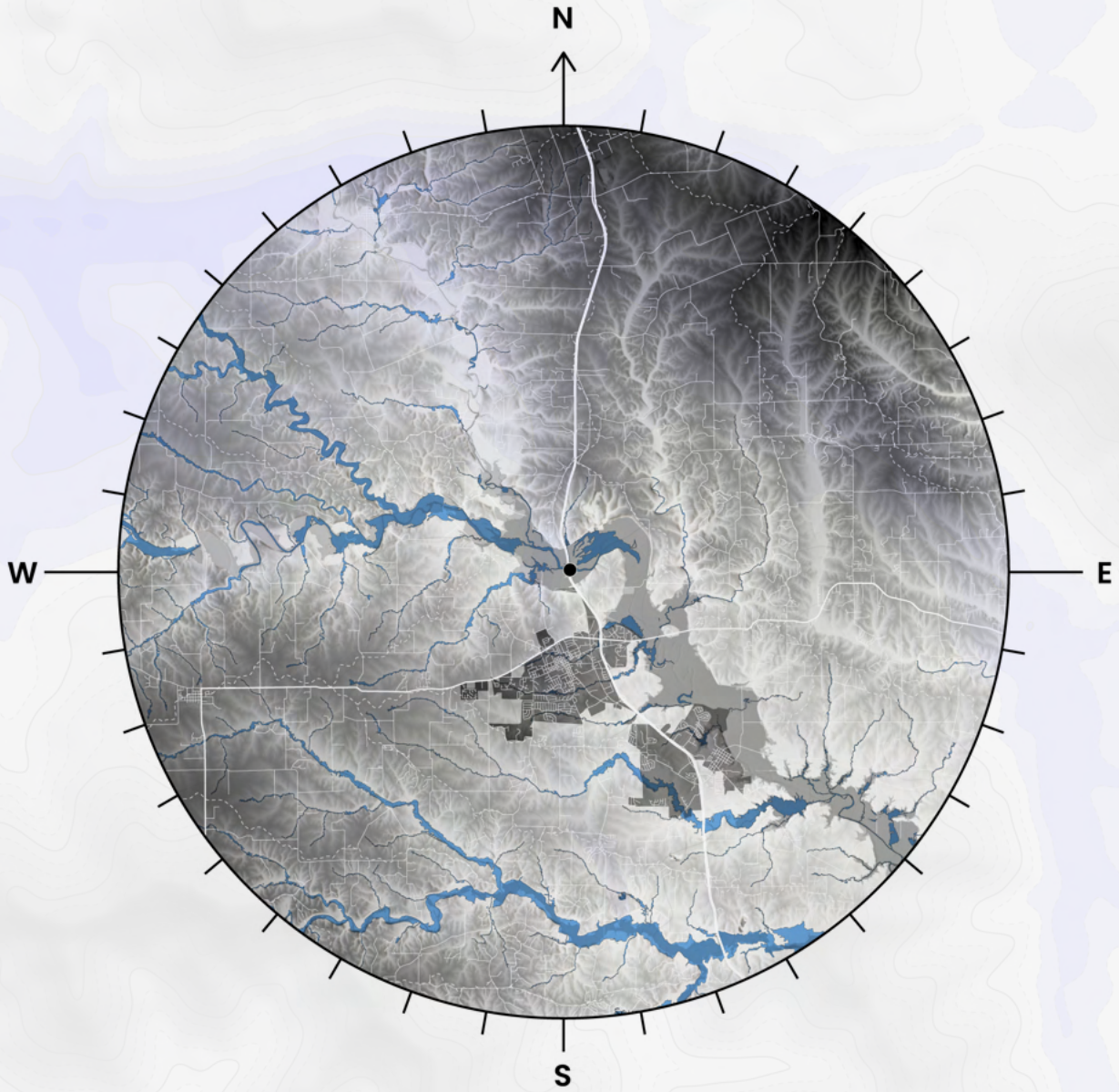
NWM 48-Hour Maximum Inundation Extent Forecast FIM services are generated twice daily: 06 UTC and 18 UTC as defined by the NAMNest/WRF-ARW configuration.



NWM
Latest
Analysis



NWM
48-hour Max
Inundation Extent



Dynamic FIM Services Comparison Table – Puerto Rico & U.S. Virgin Islands [Public Domain]

FIM Service	NWM Latest Analysis FIM	NWM 48-Hour Maximum Forecast FIM
Data Type	Observation-Based Simulations [precipitation estimate and USGS gage observations]	Forecast [48-hour WRF-ARW QPF]
Total Latency	30 Minutes	3 Hours
Update Frequency	Hourly	Every 12 Hours [06 UTC & 18 UTC]
FIM Domain	NWM [Puerto Rico & U.S. Virgin Islands]	NWM [Puerto Rico & U.S. Virgin Islands]
When to Use	Use as a snapshot of the most recent modeled inundation	Use for rivers and streams not covered by RFC forecast

