

1

Introduction

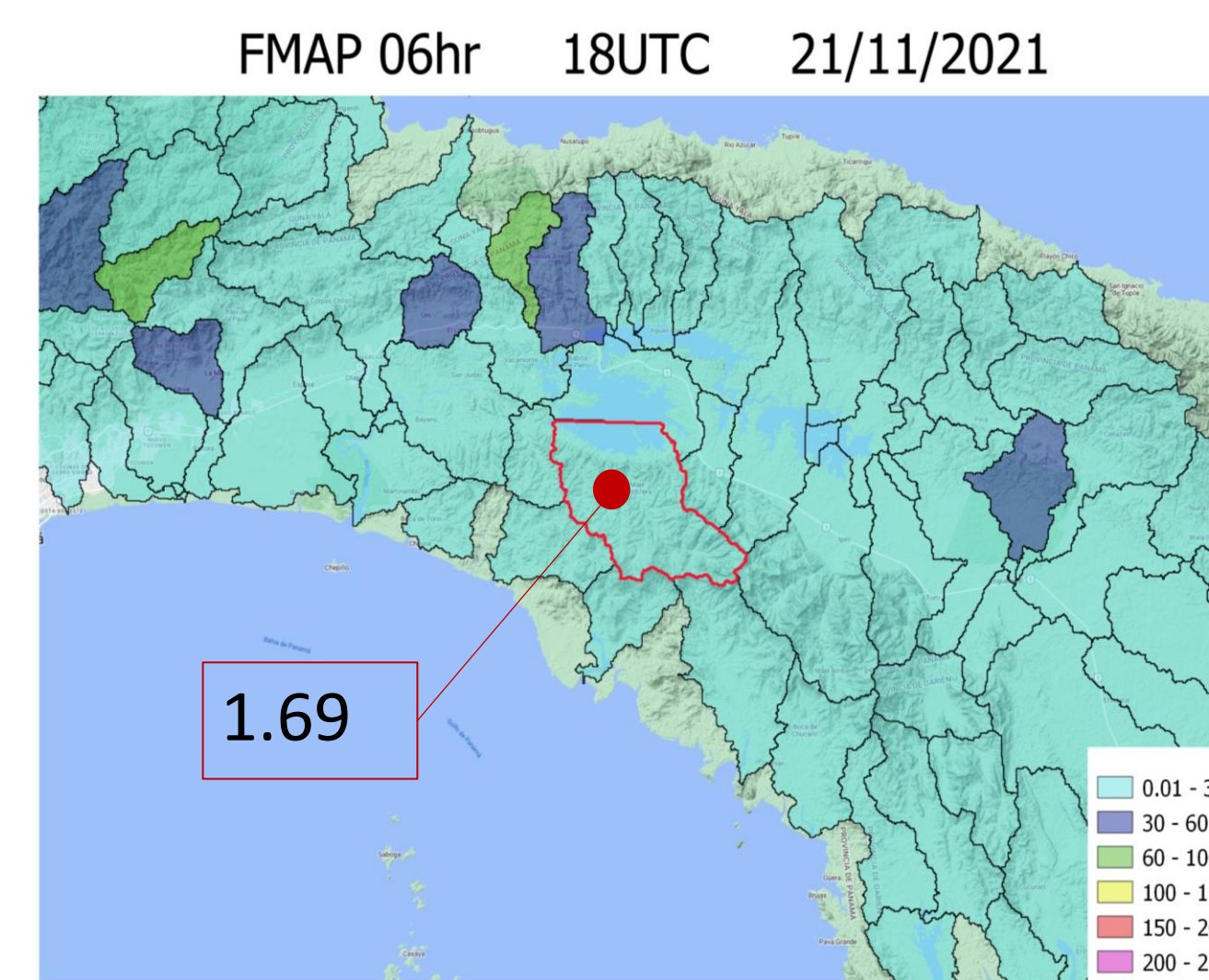
On November 21st, 2021, two tourists and the tour guide lost their lives because of a flash flood in the eastern part of the country, in the tourist area known as the Bayano Caves. **Between 1 pm (18 UTC) and 3 pm (20 UTC)**



Panama America news paper

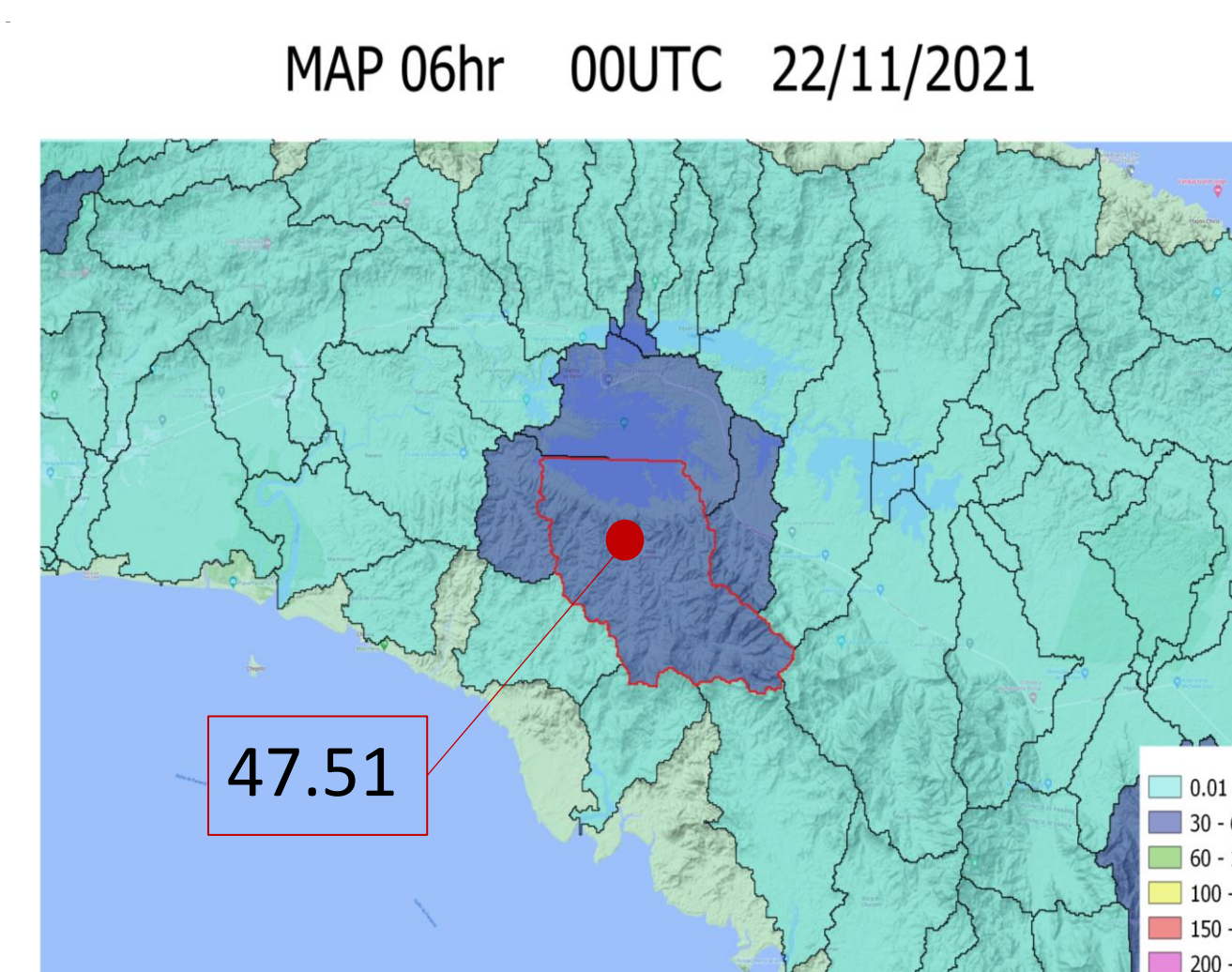
3

FMAP and MAP Verification



Forecast MAP (FMAP)

FMAP 18 UTC did not show significant values over the study area for the following 6 hours.

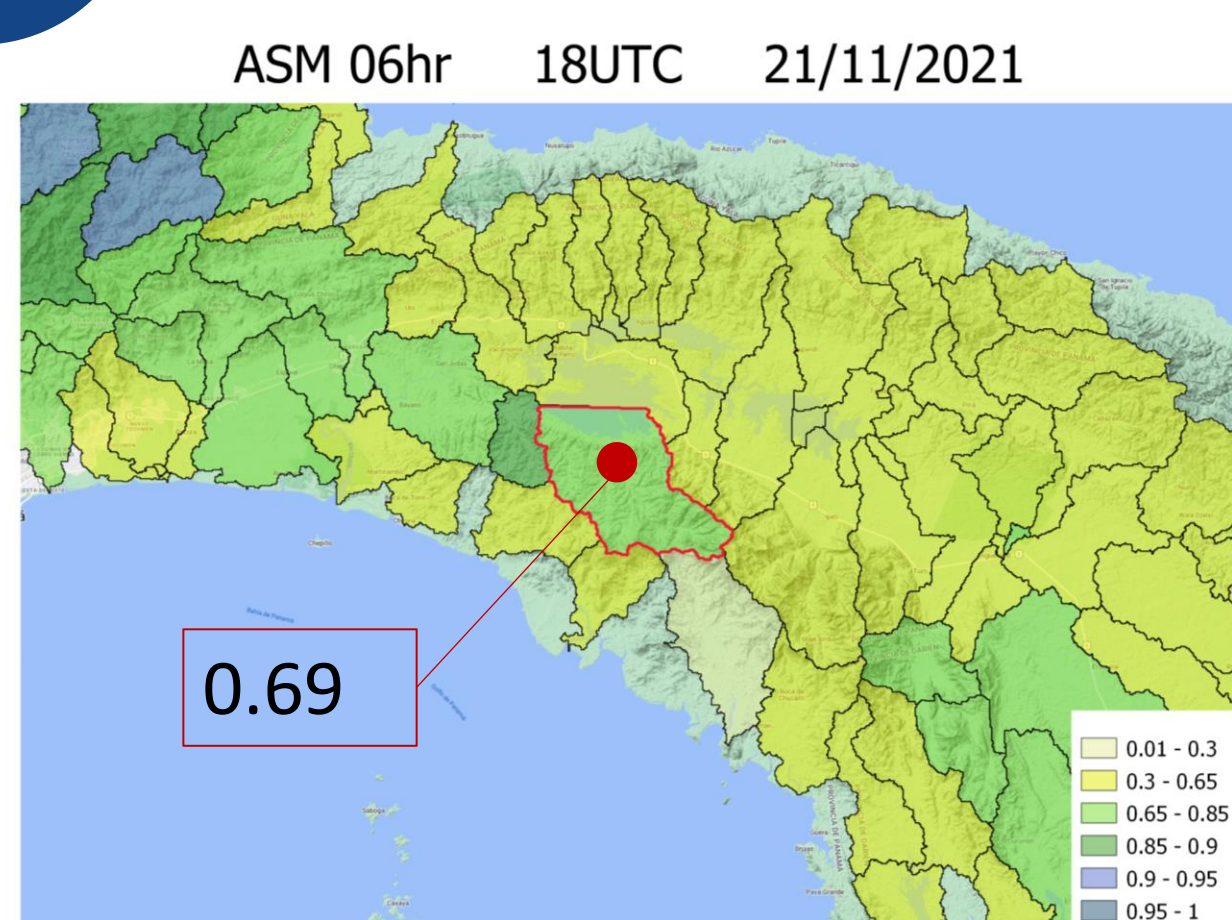


Merge MAP (MAP)

MAP 06 hr 00 UTC Nov 22, 2021, showed considerable values over the study area and exceeded the value of FFG 06 hr 18 UTC Nov 21, 2021.

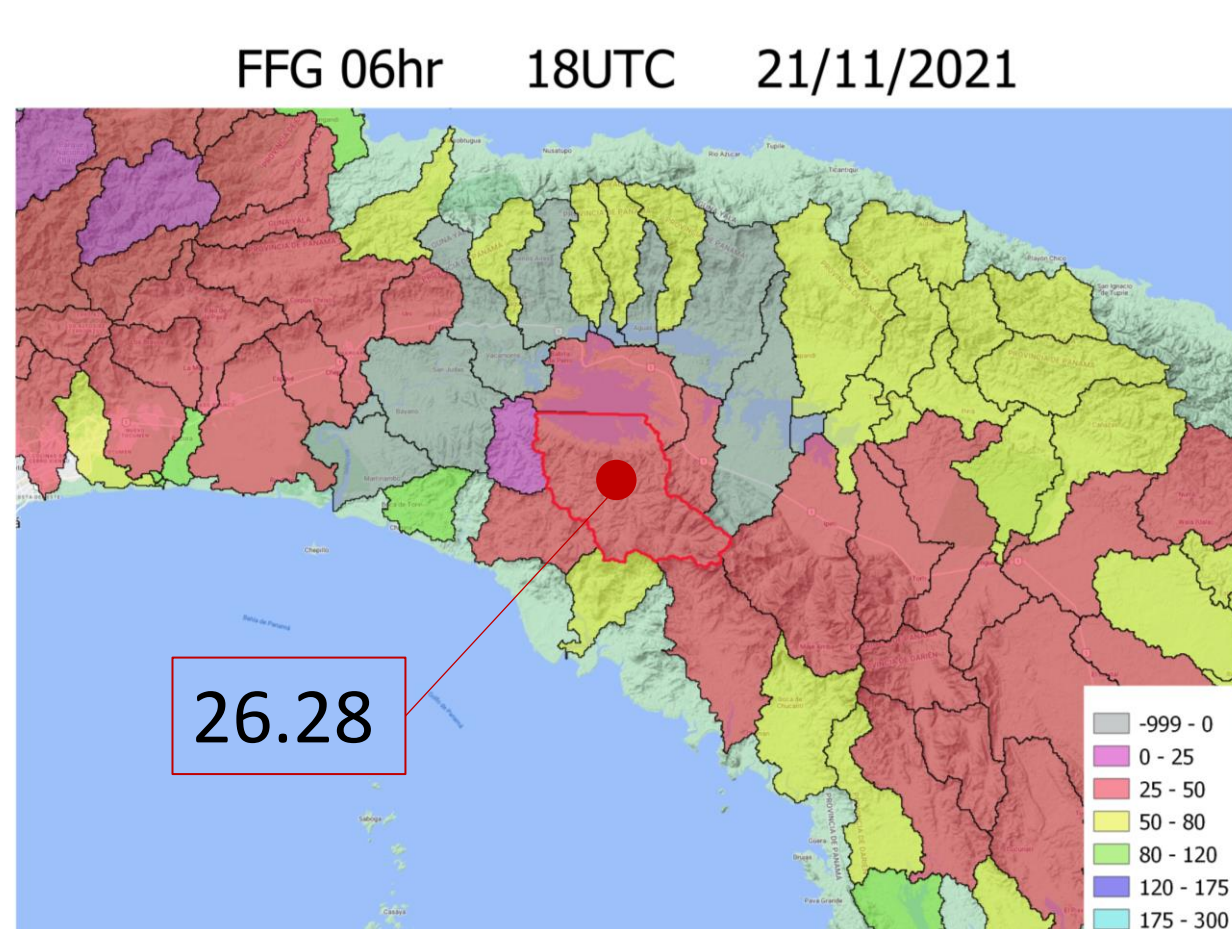
2

ASM and FFG Products



Average Soil Moisture (ASM)

The average soil moisture product showed a value above 50%

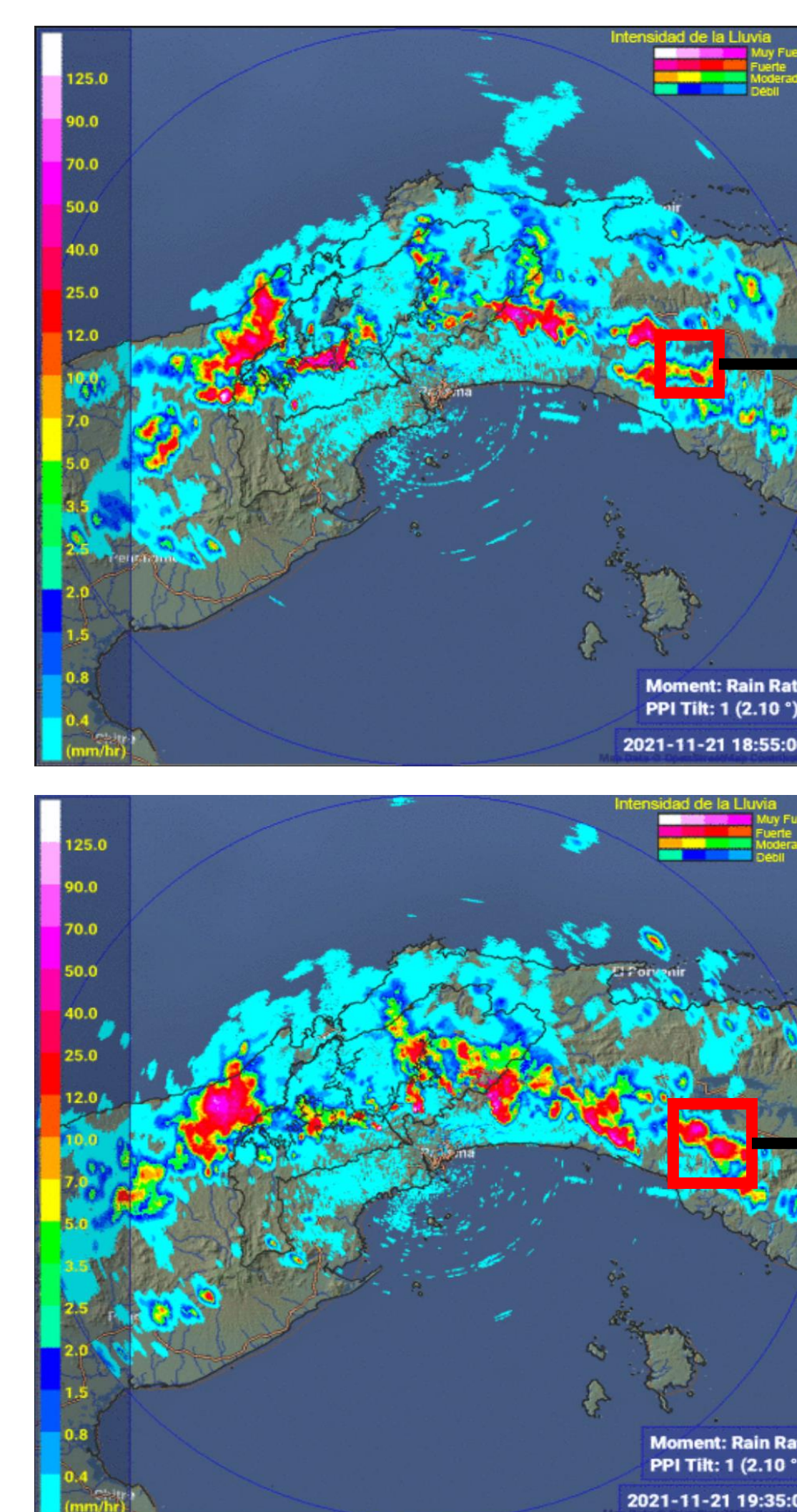


Flash Flood Guidance (FFG)

The flash flood guidance value was low enough for a rain event to cause flash flooding in the basin in the next hours.

4

Weather Radar Images



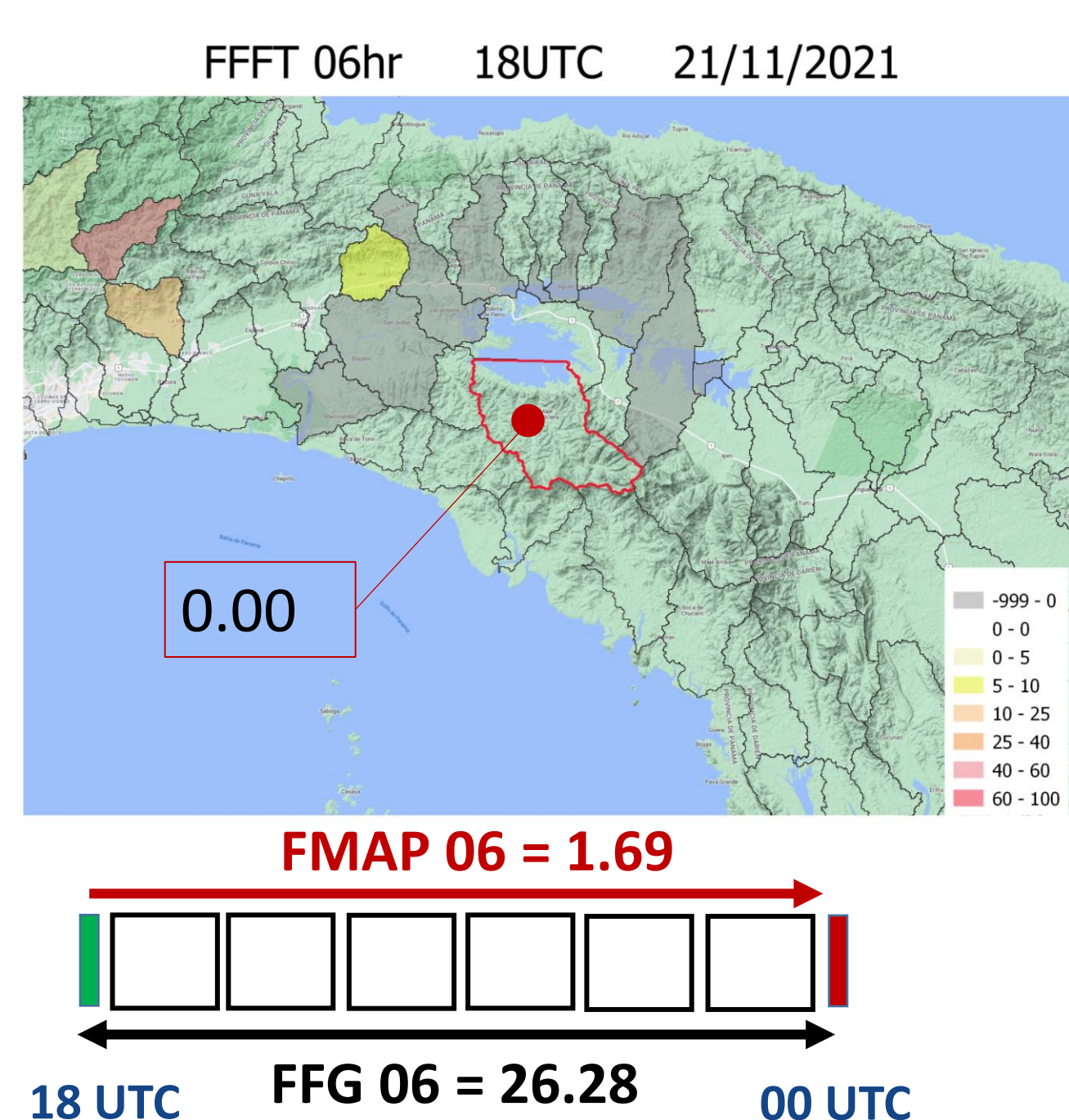
18:55 UTC Nov 21, 2021

19:35 UTC Nov 21, 2021

Panama Canal Authority (ACP) Weather Radar Images

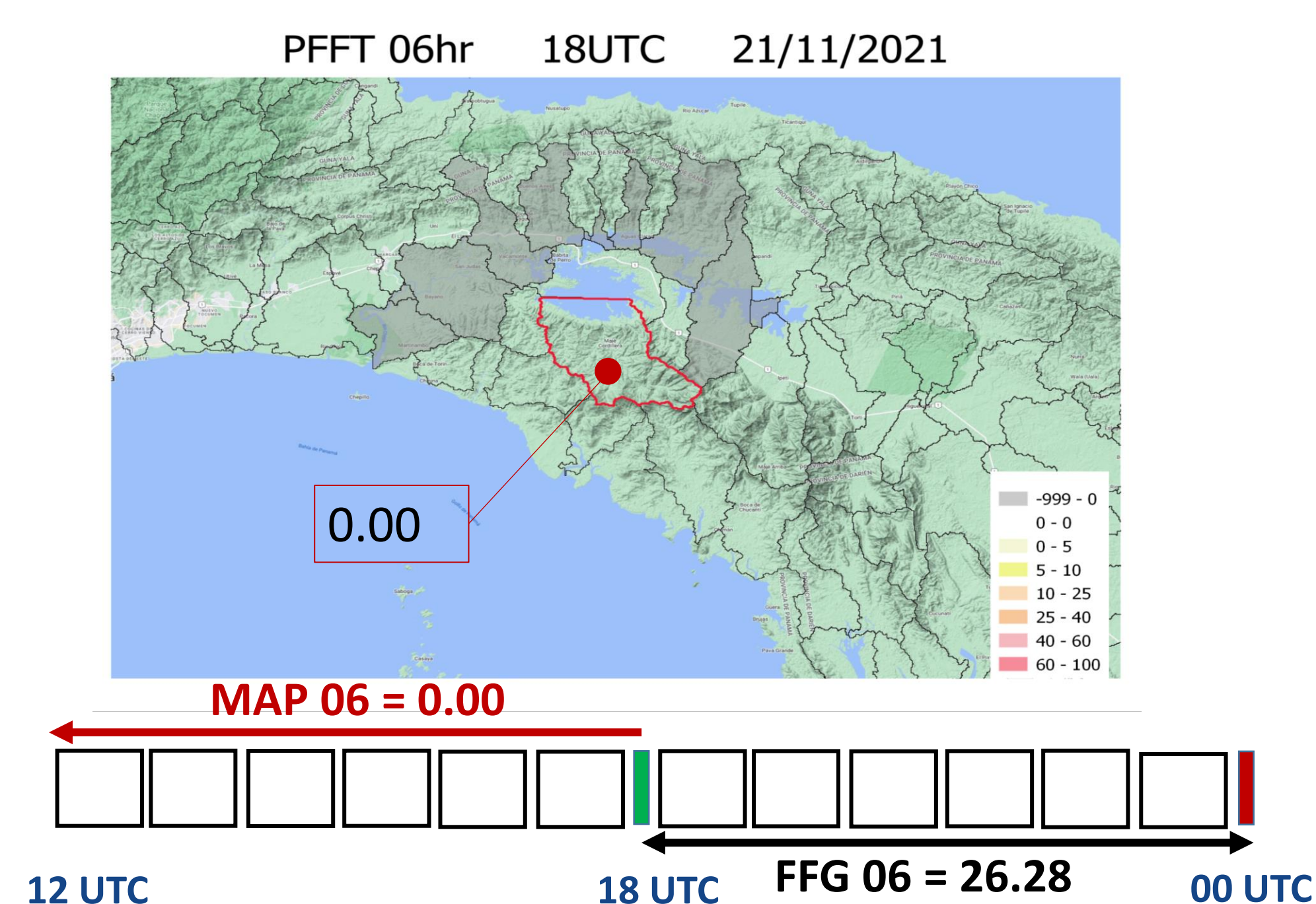
5.

FFFT, PFFT and IFFT Verification



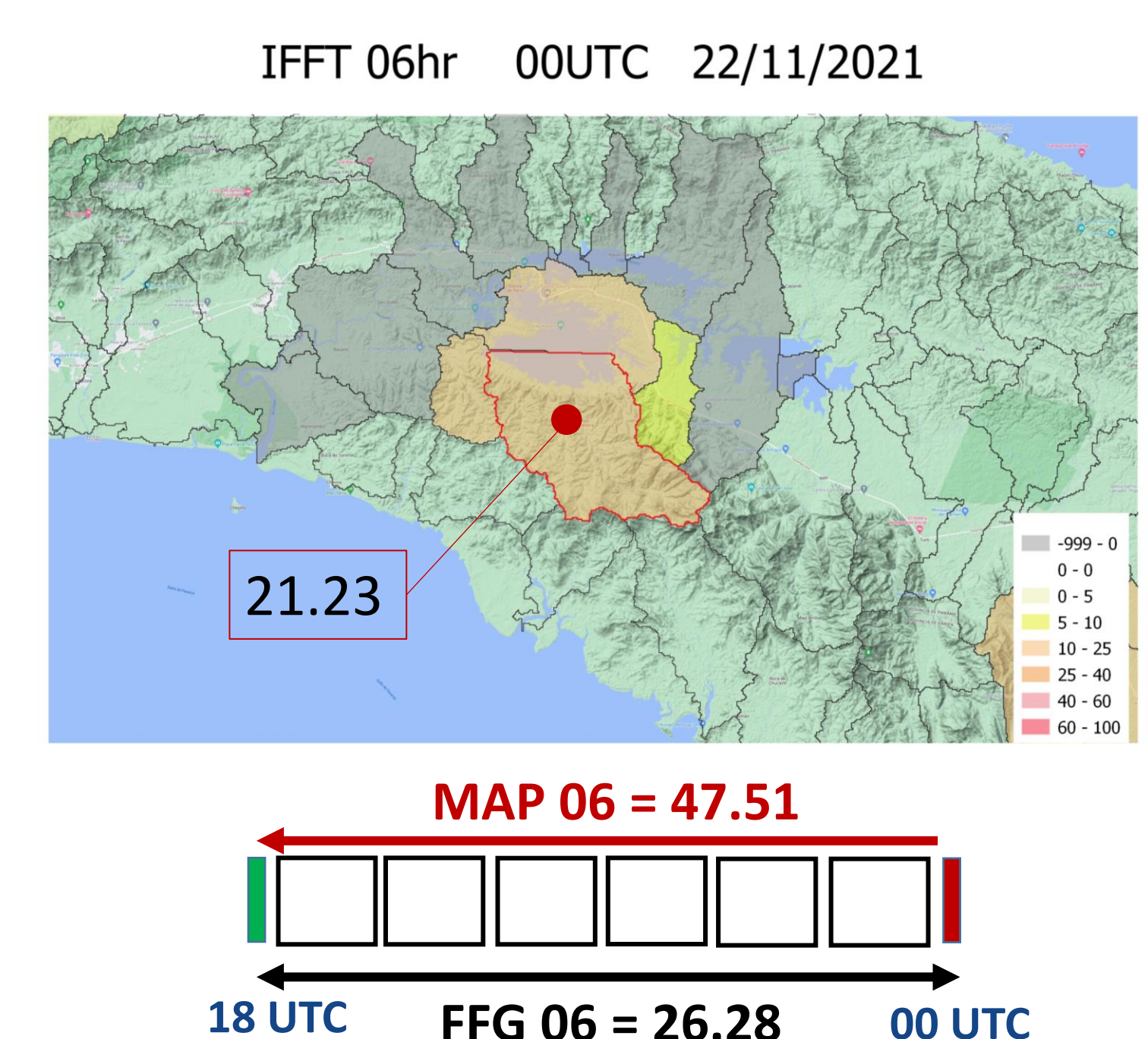
Forecast Flash Flood Threat (FFFT)

The system did not show threat because the FMAP did not show significant values.



Persistent Flash Flood Threat (PFFT)

The system did not show a threat because the MAP did not show values above the FFG value



Imminent Flash Flood Threat (IFFT)

The observed MAP exceeded the FFG value, which indicated that a flash flood was occurring.