MAAP #58: Link between Peru's Flooding and Warm Coastal Waters

In previous articles MAAP #56 and MAAP #57, we presented a series of striking satellite images of the recent deadly floods in northern Peru. Satellites provide additional types of data critical to better understanding events such as extreme flooding. Here, we present two more types of satellite data related to the flooding: ocean water temperature and precipitation.

Warming Coastal Waters

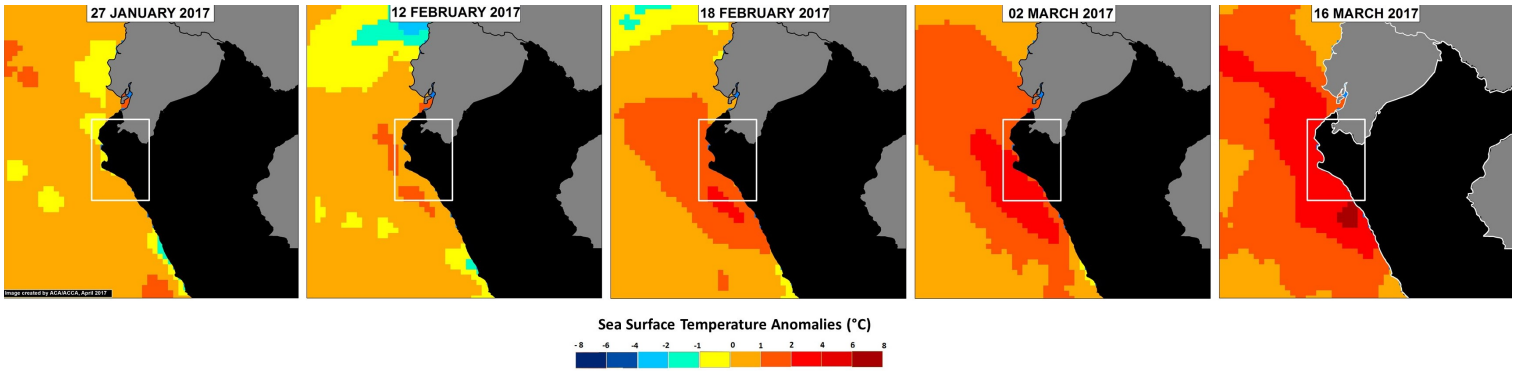

Image 58a. Data: NOAA

Satellite data from NOAA (the U.S. National Oceanic and Atmospheric Administration) clearly shows the warming of the northern Peruvian coastal waters immediately before and during the heavy rains and flooding (1, 2). Specifically, **Image 58a** shows the sudden warming in January, followed by intensifying warming in February and March (white inset box indicates primary flooding zone). Peruvian experts have referred to this phenomenon as "coastal El Niño".

Heavy Rains

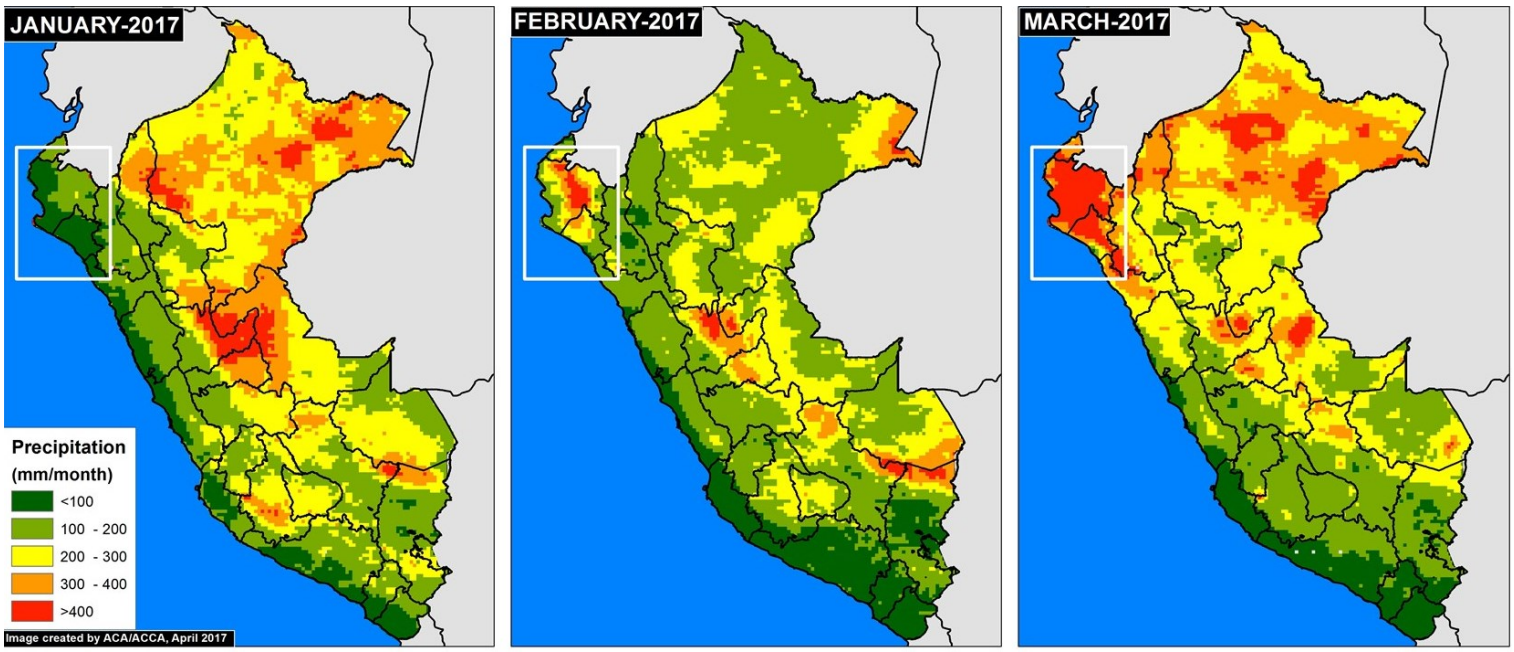

Image 58b. Data: Senamhi, GPM/NASA

Image 58b shows the resulting accumulated monthly precipitation totals (white inset box indicates primary flooding zone). In January, as expected, the dry northern coast had much lower precipitation than the Amazon region to the east. In February and March, however, the northern coast experienced abnormally intense rainfall, even more than many parts of the Amazon.

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Floods linked to Climate Change?

Questions have emerged regarding the link between the deadly Peruvian floods and climate change (3). As seen in the images above, the sudden appearance of warm coastal waters coincides with intense rains in the primary flooding zone. Additional analysis is needed to better understand the link between the Peruvian floods and climate change, but such events are consistent with predictions related to heavy rains fueled by ocean warming due to climate change (3). Climate change could also increase the frequency or intensity of El Niño events (4).

References

1. Villa, L. (27 de marzo 2017). Radar Sentinel-1: Evaluación Preliminar del Impacto del Niño Costero en Perú (Parte II). [Mensaje en un blog]. Recuperado de: http://luciovilla.blogspot.com/2017/03/radar-sentinel-1-evaluacion-preliminar_27.html
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3. Berwyn B (2017) Peru's Floods Follow Climate Change's Deadly Extreme Weather Trend. Inside Climate News. Link: https://insideclimatenews.org/news/24032017/peru-floods-extreme-weather-climate-global-warming-el-nino
4. Fraser B (2017) Coastal El Niño catches Peru by surprise. EcoAmericas March 2017.

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