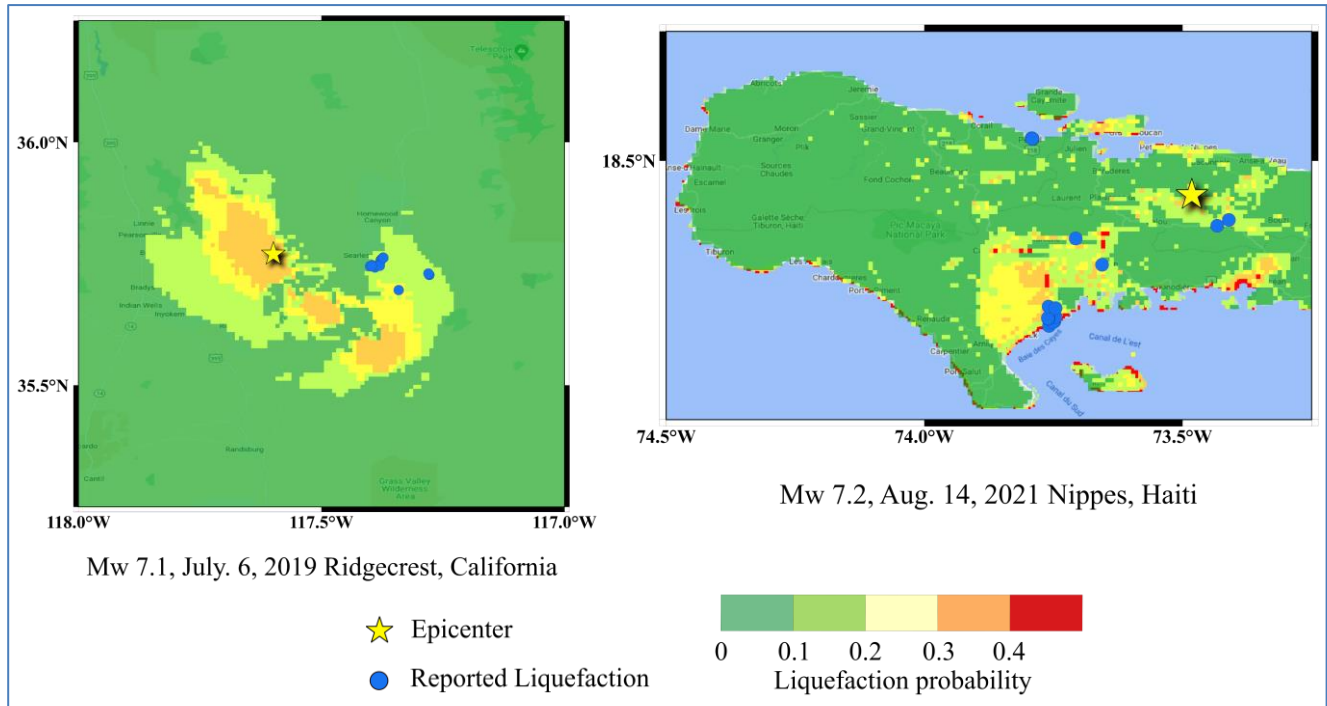


# Soil Moisture-based Global Liquefaction Model (SMGLM) using SMAP Satellite Data



**Problem:** Sand boils, surface settlements, and flow landslides are example features of liquefaction, capable of causing damage to buildings, infrastructure, and resulting in loss of life. The role of soil saturation conditions in liquefaction occurrences highlights the necessity for a tool to track the ground-truth soil moisture content associated with this seismic phenomenon.



## Findings:

(1) Improved liquefaction models through the incorporation of actual saturation conditions in seismic regions. (2) Strong correlations between SMAP-based parameters, such as surface and root zone soil moisture, and collected liquefaction database.

**Impact:** The results indicate that both developing SMGLM and a well calibrated parameter for identifying earthquake-induced soil moisture changes can assist earthquake community in rapid response, generating near-real time liquefaction maps, and facilitating recovery planning.