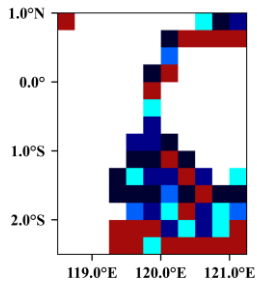


Application of Soil Moisture Active Passive (SMAP) Satellite Data in Seismic Response Assessment

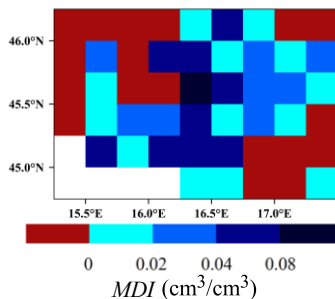


Problem: The extent of the damage induced by earthquakes is influenced by many factors including soil moisture. SMAP data can be used to improve our understanding of the interaction between soil moisture and earthquakes, characterize earthquake-induced moisture changes, and assist in damage assessment, rapid response, and societal preparedness.

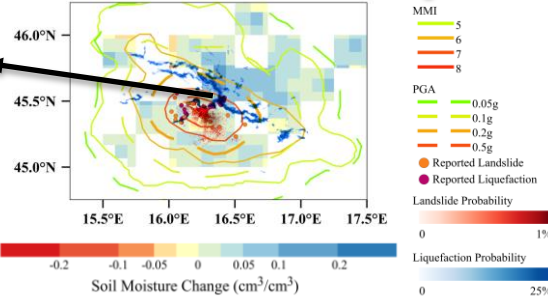
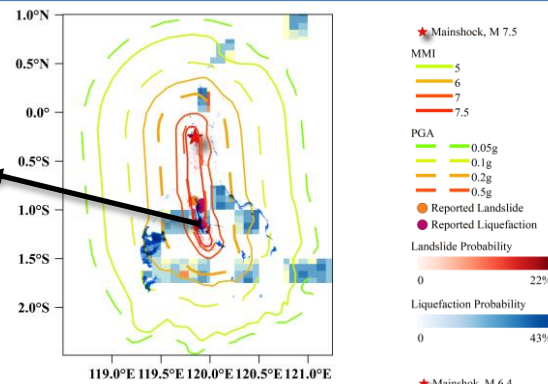


Palu, Indonesia 2018

$$MDI = \Delta SM_{SMAP} - \Delta SM_{GLDAS}$$



Petrinja, Croatia 2020



Findings: (1) soil moisture variation data from SMAP has been analyzed in the context of ground hydrology and climatic effects to isolate the earthquake impacts and (2) promising evidence supports the relationships between seismic records and SMAP-based soil moisture data.

Impact: The research outcome will advance the state of the knowledge to capture the impact of soil moisture on earthquake response. When the soil moisture data is integrated with seismic records, it can provide a valuable tool for rapid damage assessment in disaster recovery.