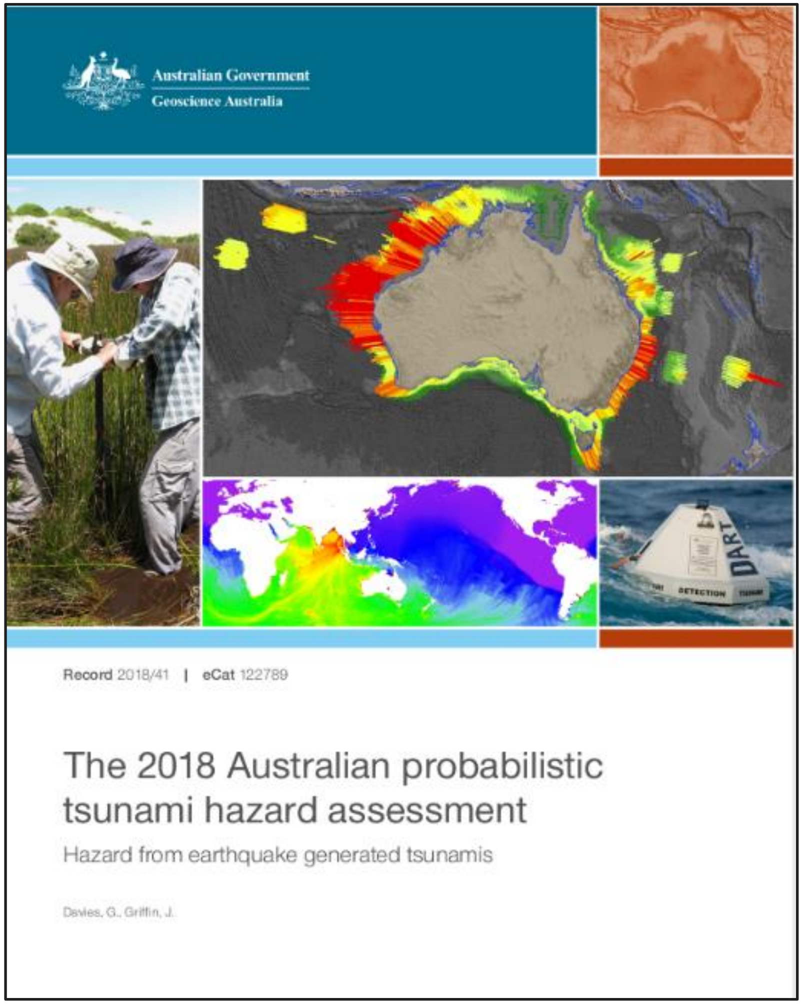
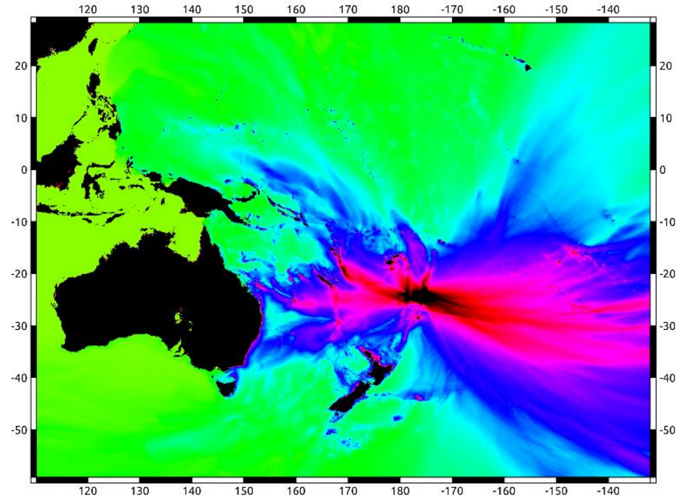
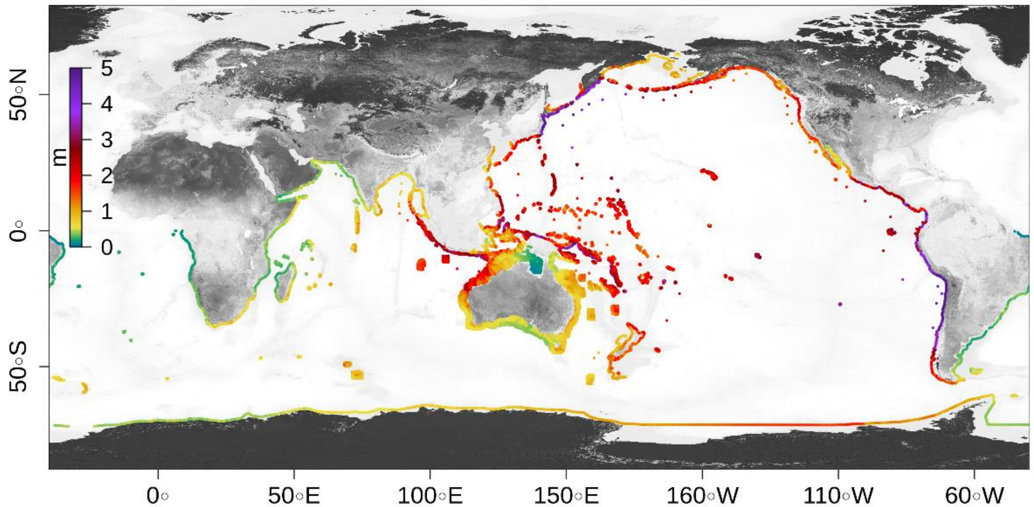
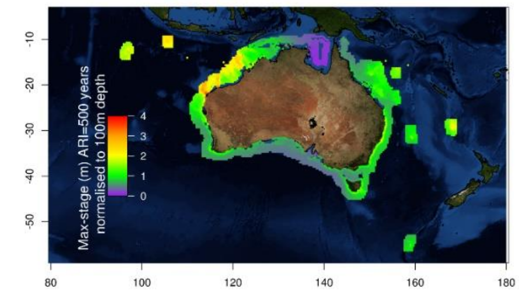
Background to the 2018 Australian Probabilistic Tsunami Hazard Assessment (PTHA18)



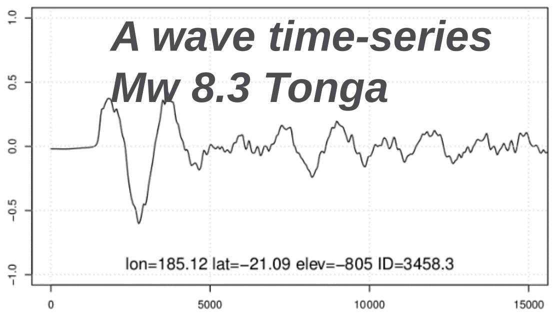




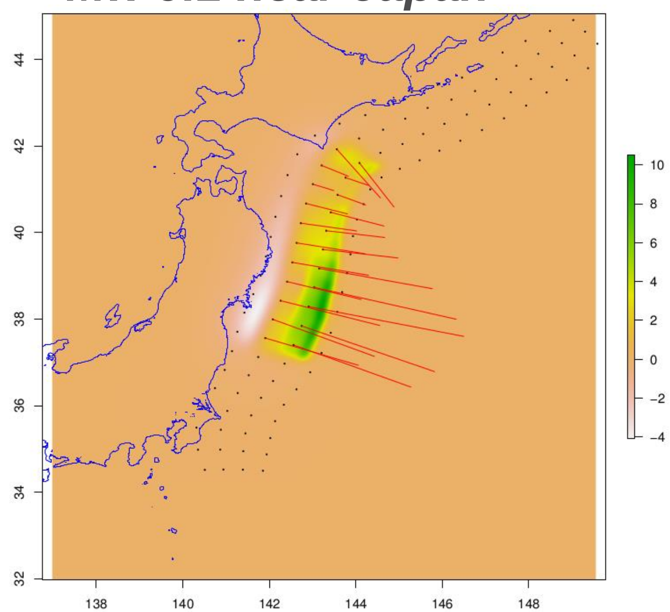
What the PTHA18 Provides



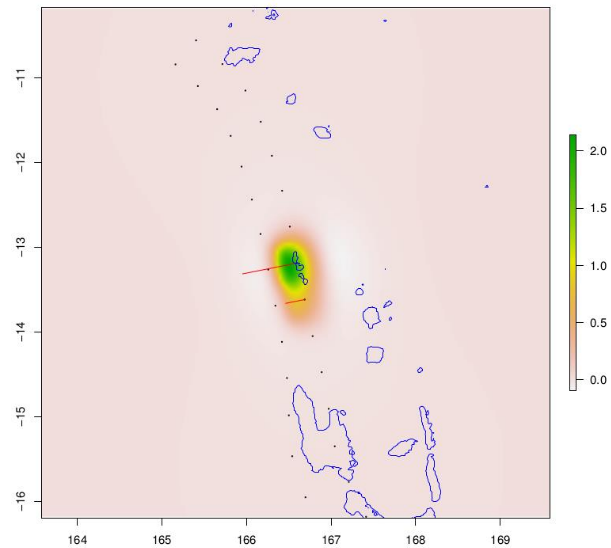
- **Hundreds-of-thousands of earthquake-tsunami scenarios modelled in deep-water**
  - *Purpose: Forcing inundation models*
    - *Offshore wave time-series (36 hr)*
      - *20,000 sites, most near Aust.*
    - *Initial water-surface deformation*



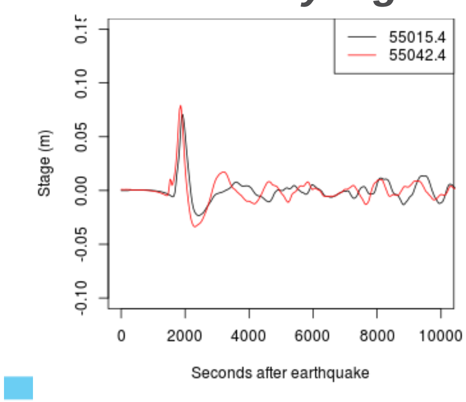
Mw 9.1 near Japan



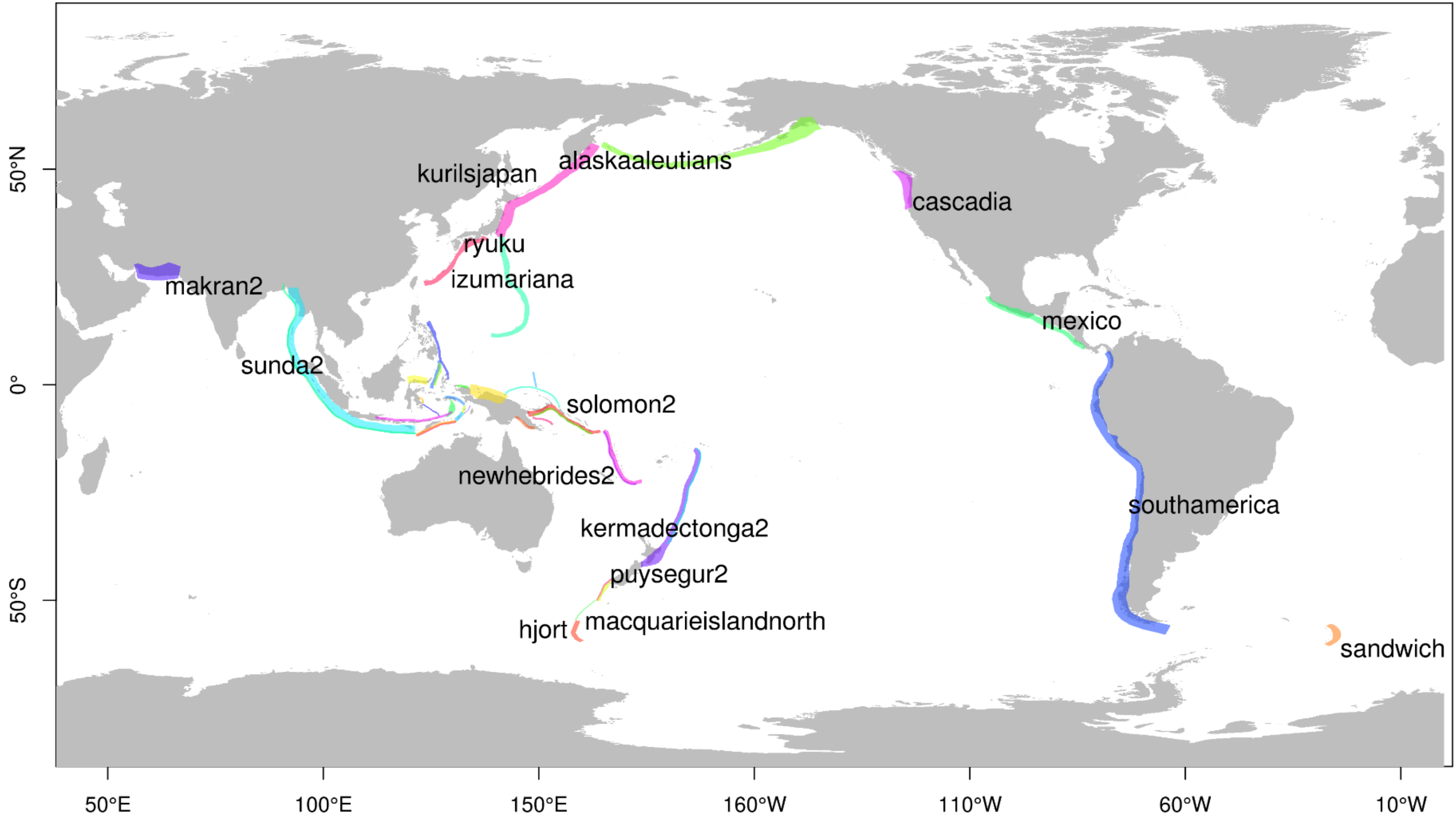
Mw 7.7 near Vanuatu



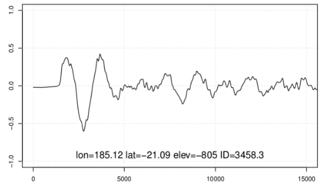
2 wave time-series
Mw 7.8 Puysegur

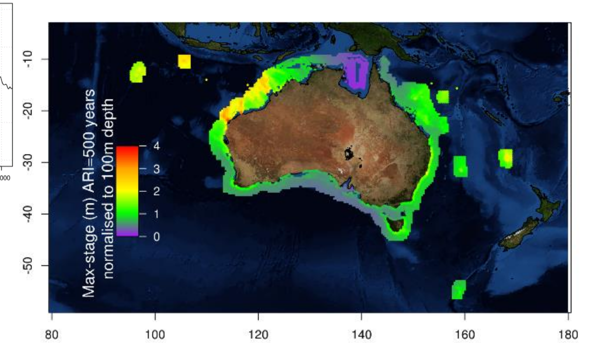


PTHA18 Earthquake Source Zones

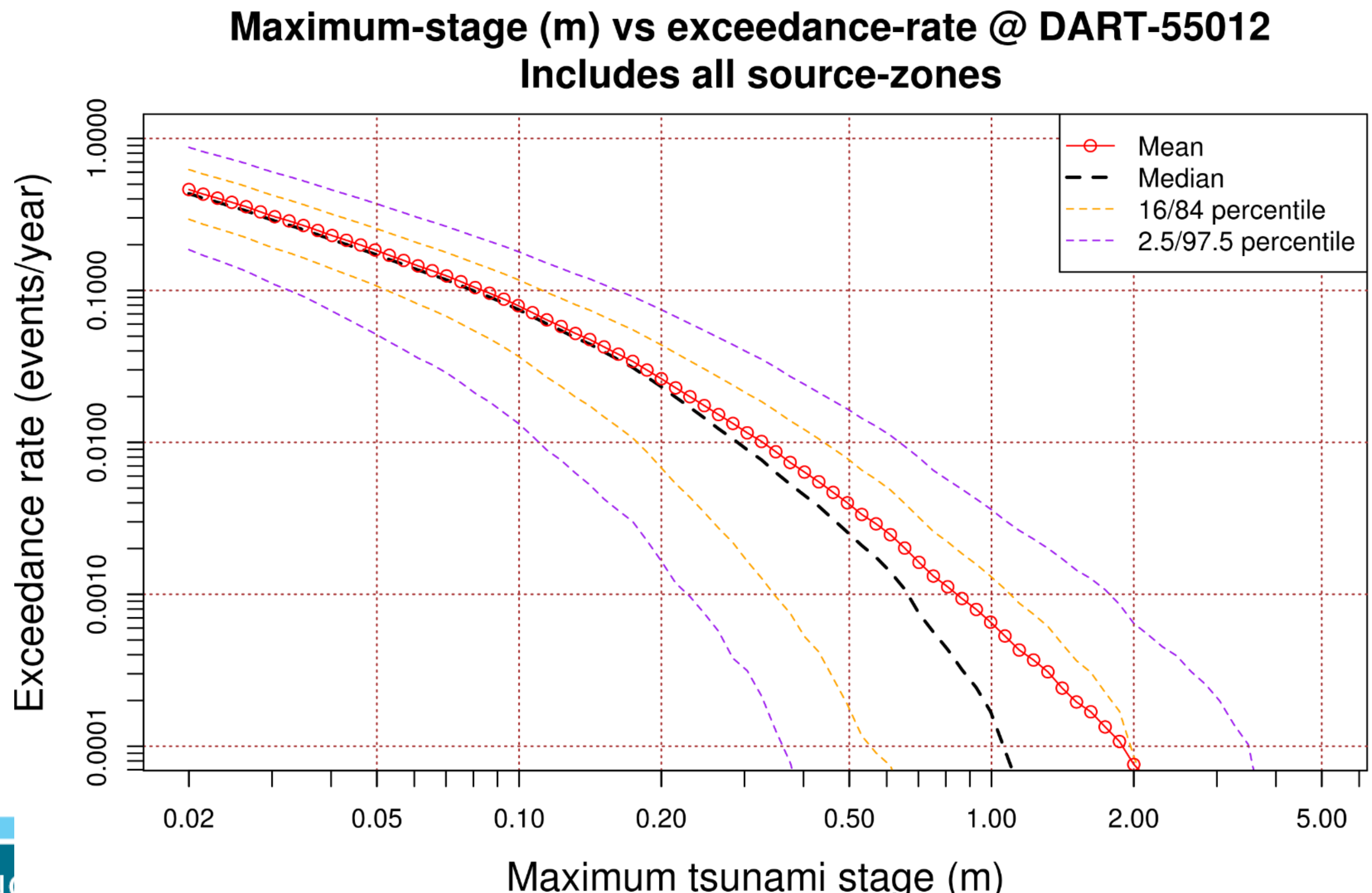


What the PTHA18 Provides

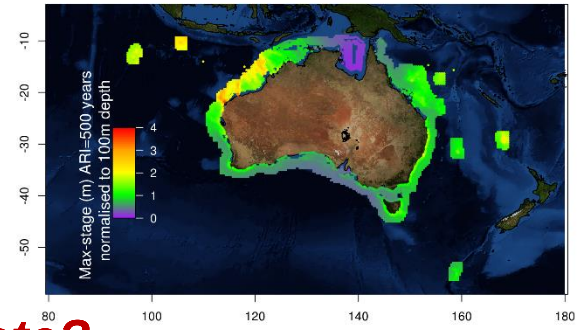




- ***Exceedance-rates at all offshore points***
  - With quantified uncertainties

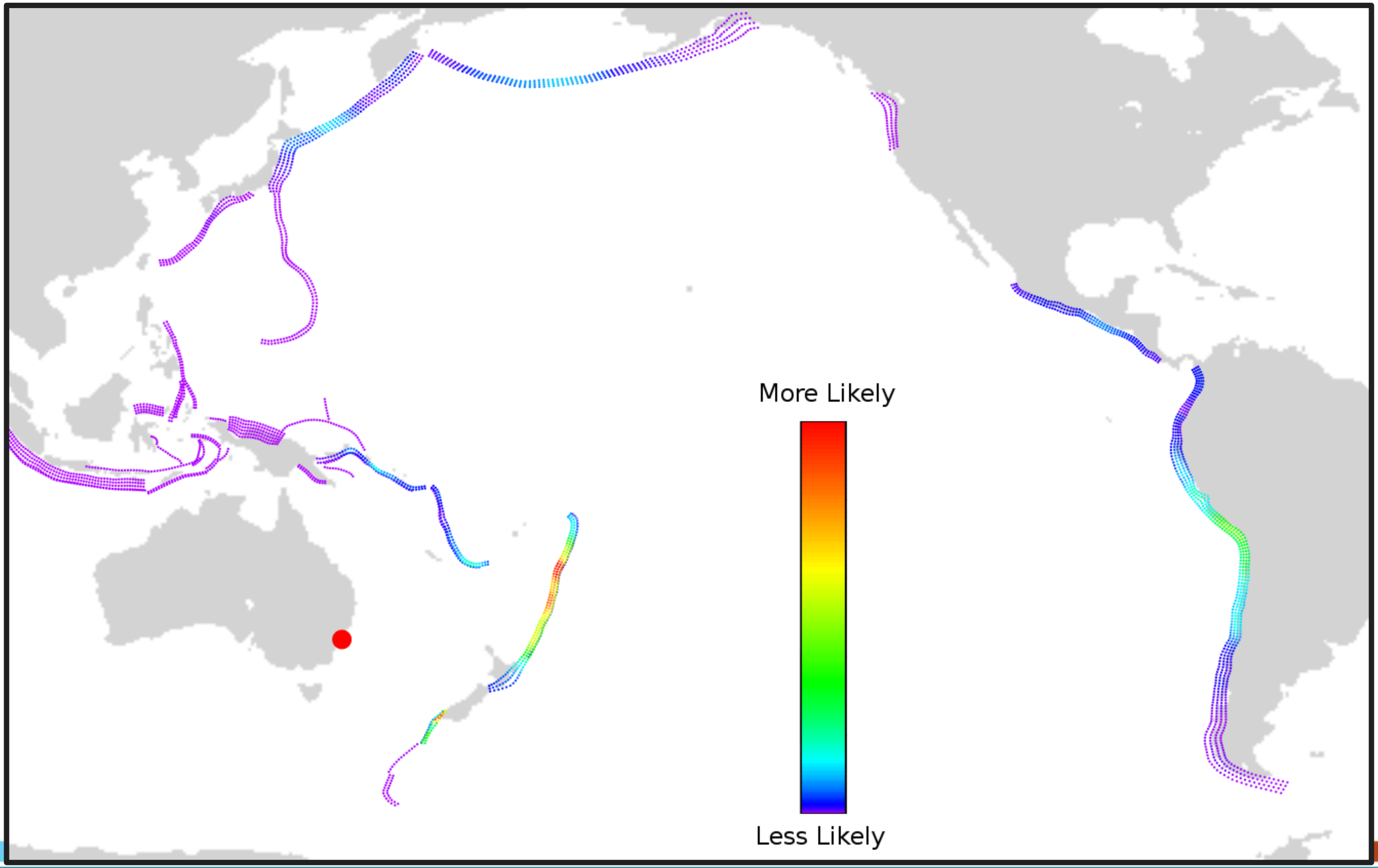


What the PTHA18 Provides

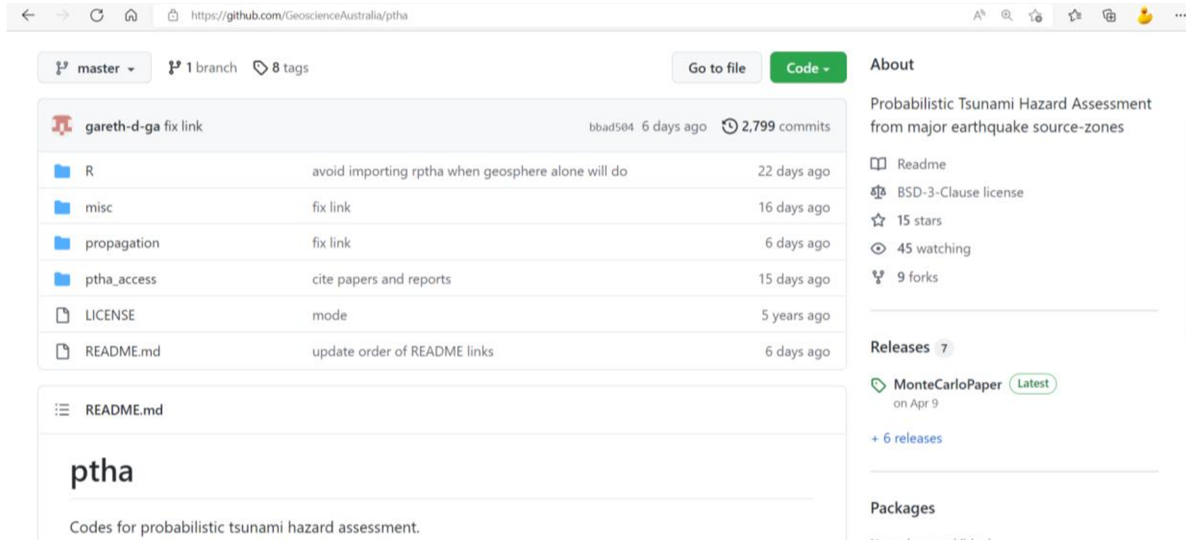


- *Source deaggregation information*

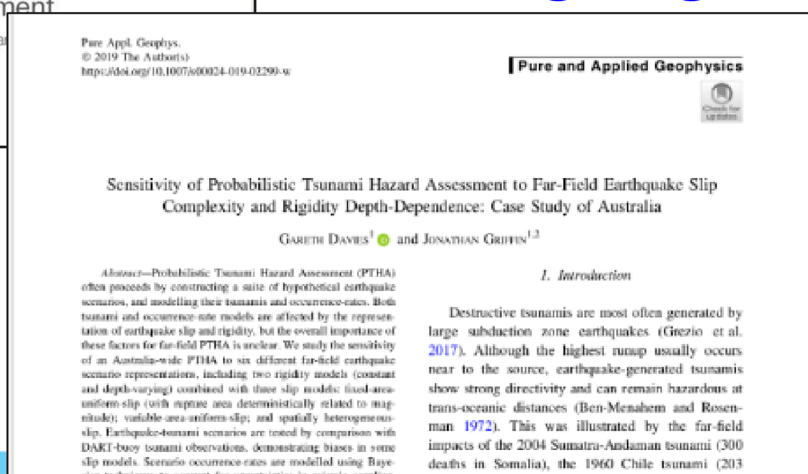
Where might an ARI=500 year tsunami originate?

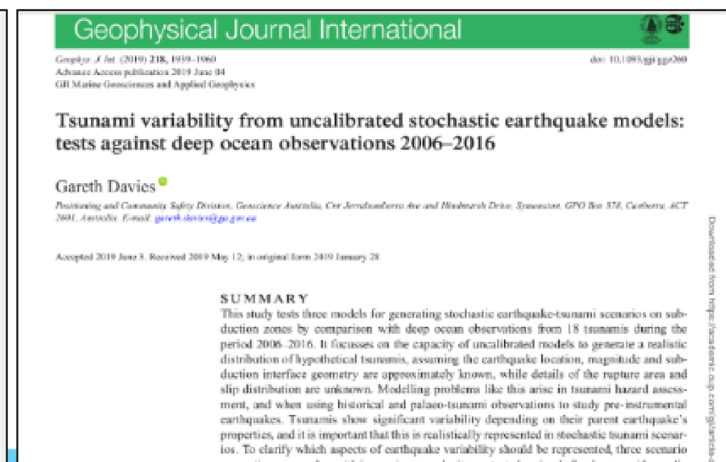


PTHA18: Open source database, code & journal papers



www.ga.gov.au/ptha

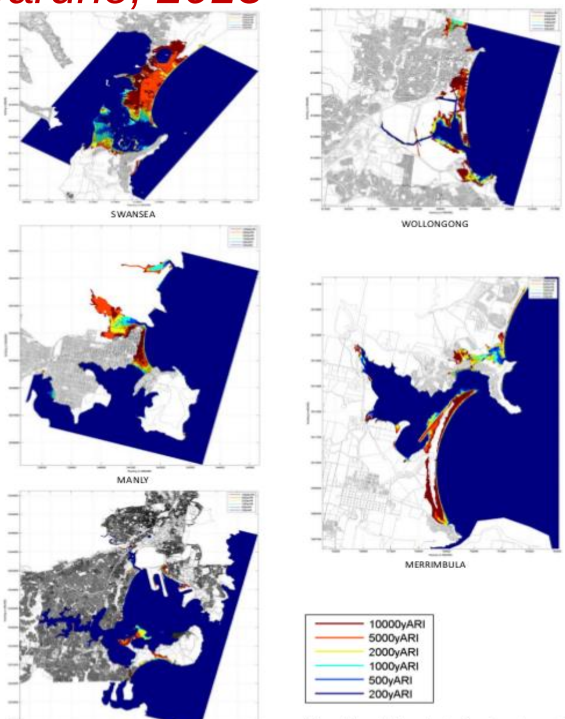




Why have an offshore PTHA ?

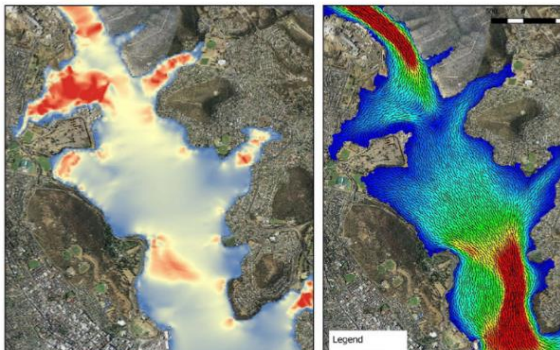
- **Demand for tsunami hazard information:**
  - Emergency Management Planning; Land-use planning ; Insurance
- **Estimated onshore / nearshore impacts**
  - How often will site-X be inundated?
- **Nearshore models + offshore scenarios**
  - **Problem:** Models of scenarios and return-periods are not standardized
    - Great variation of approaches & results
    - Hard to compare studies
  - **Solution:** *Standardized large-scale approach:* **PTHA provides this**

NSW Inundation Scenarios Cardno, 2013

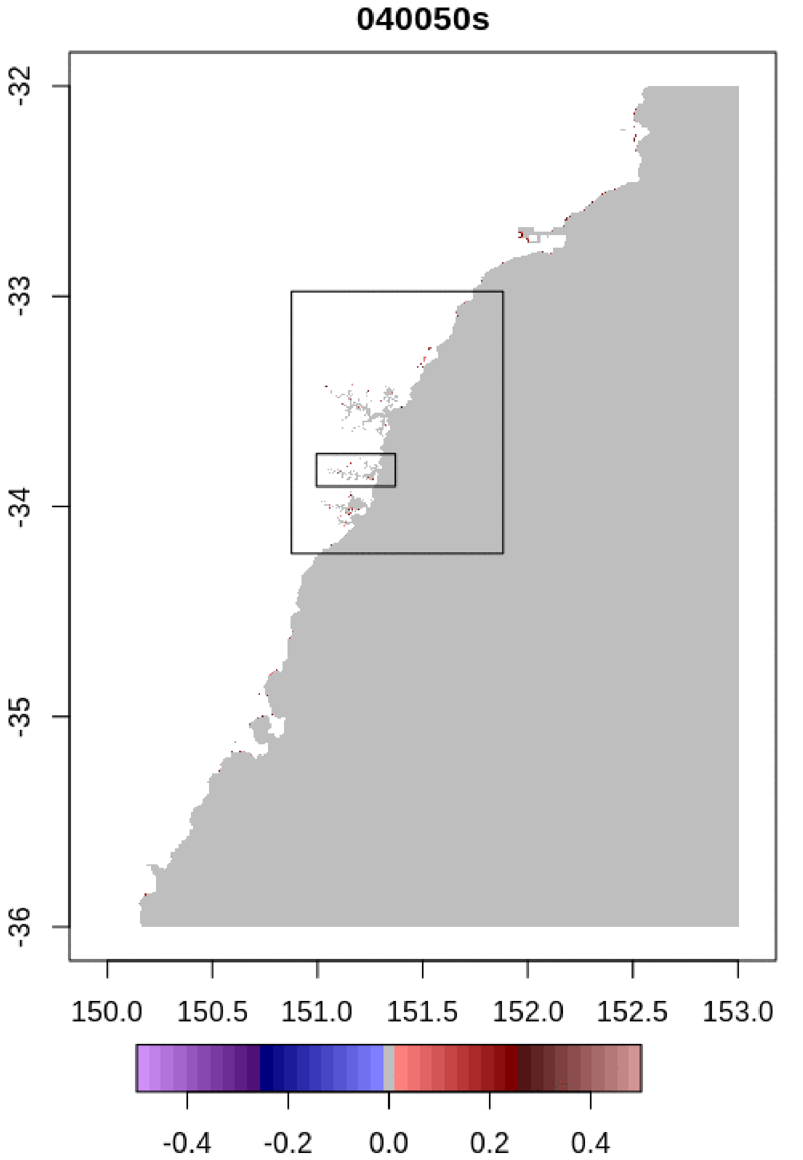


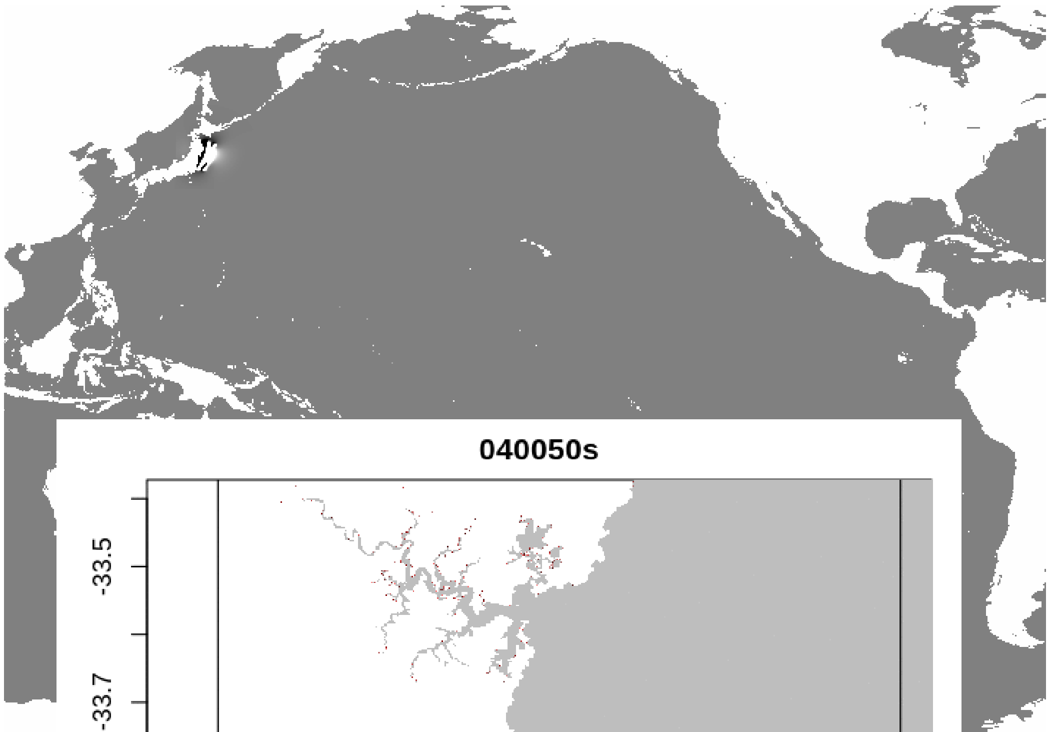
Mapped inundation extents for various tsunami scenarios for Swansea, Manly, Botany Bay, Wollongong and Merimbula.

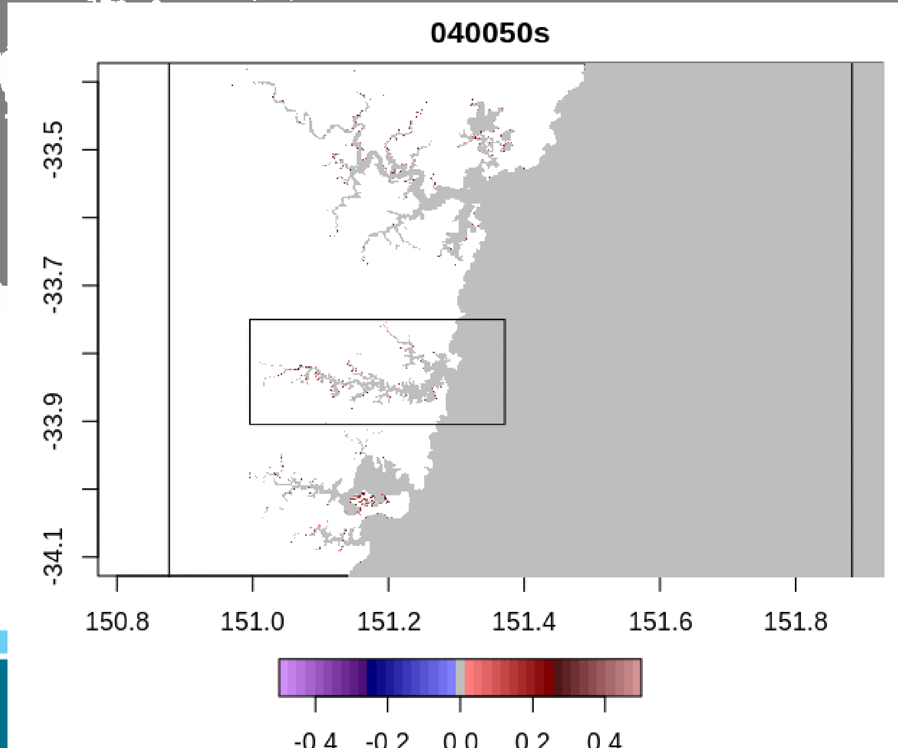
SE Tas. Tsunami Scenario, Kain et al., 2017



Summary: Database with EQ-tsunami scenarios and return periods for inundation hazard studies







Our new guidelines focus on how to use the offshore PTHA for inundation hazard assessment