DAY 3 MORNING:  TWC-5.2

Dailin Wang, Charles McCreery
Pacific Tsunami Warning Center

Laura Kong
UNESCO/IOC – NOAA International Tsunami Information Center
Limitations of Tsunami Forecasting

- Estimated Arrival Time Forecast
  - Based on initial seismic analysis
  - Point source or assumed finite fault

- Initial Threat Level Forecast
  - Based only on initial seismic analysis and general geophysical/oceanographic constraints
  - Least accurate

- Sea Level Constrained Forecast
  - Too late for local tsunami
  - Deep ocean measurements best constraint
  - More accurate
Tsunami Travel Times from Small Source
Tsunami Travel Times from Large Source
Real-time forecasting is of limited use for local warning. Self-evacuation might be the only way to avoid the loss of lives.

Real-time forecast is only as good as the EQ parameters. Initial EQ mag can be easily off by 0.2 or more, resulting in a factor of two difference in wave amplitude.

Green’s law amplitude can underestimate harbor resonances and overestimate for small islands. The extent of inundation/flooding cannot be determined from the RIFT forecast.
Limitations and Challenges (2)

- How to make accurate forecast for coastal regions with a wide continental shelf (Thailand, Australia, etc.). Ultra fine resolution might not be feasible in real time. Couple with inundation models or using nested grids to refine coastal forecast?

- Real-time DART inversion is not yet available for RIFT but it is desirable.

- Landslide model (currently simply slump model)

- Asteroid Tsunami

- Meteorological tsunamis
Limitations of Tsunami Forecasting

- **Historical Comparisons**
  - Historical record is very short and incomplete in most areas
  - No repeat events
  - May be okay to identify coastal sensitivities
Limitations of Messages / Dissemination

- **Message Content**
  - Should be simple and to the point
  - Should contain key information
    - Situation Evaluation and Summary
    - Seismic Parameters
    - Predicted Threat Level
    - Estimated Tsunami Wave Arrival Times
    - Key Tsunami Wave Measurements
    - Recommended Actions
  - Tied to SOPs and trigger SOP actions
What You Can Count On from a TWC

- Rapid Notification of a Potential Tsunami Threat
- Conservative Evaluation of Tsunami Threat
- Reasonably Rapid Stand-Down if No Tsunami Threat
What You Should Be Prepared For

- Over-Warning due to Conservative Criteria
- General Forecast of Threat with Few Specifics
- Potential for Error in ETAs
Thank You

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