

Supplementary Information for

**A 700-year Rupture Sequence of Great Eastern Aleutian Earthquakes from
Tsunami Modeling of Stratigraphic Records**

Yoshiki Yamazaki¹, Kwok Fai Cheung^{1,✉}, Thorne Lay², SeanPaul M. La Selle³,
Robert C. Witter⁴, and Bruce E. Jaffe³

¹Department of Ocean and Resources Engineering, University of Hawai'i at Manoa, Honolulu, Hawai'i, 96822, USA. ²Department of Earth and Planetary Sciences, University of California Santa Cruz, Santa Cruz, California, 95064, USA. ³U.S. Geological Survey, Pacific Coastal and Marine Science Center, Santa Cruz, California, 95060, USA. ⁴U.S. Geological Survey, Alaska Science Center, Anchorage, Alaska, 99508, USA.

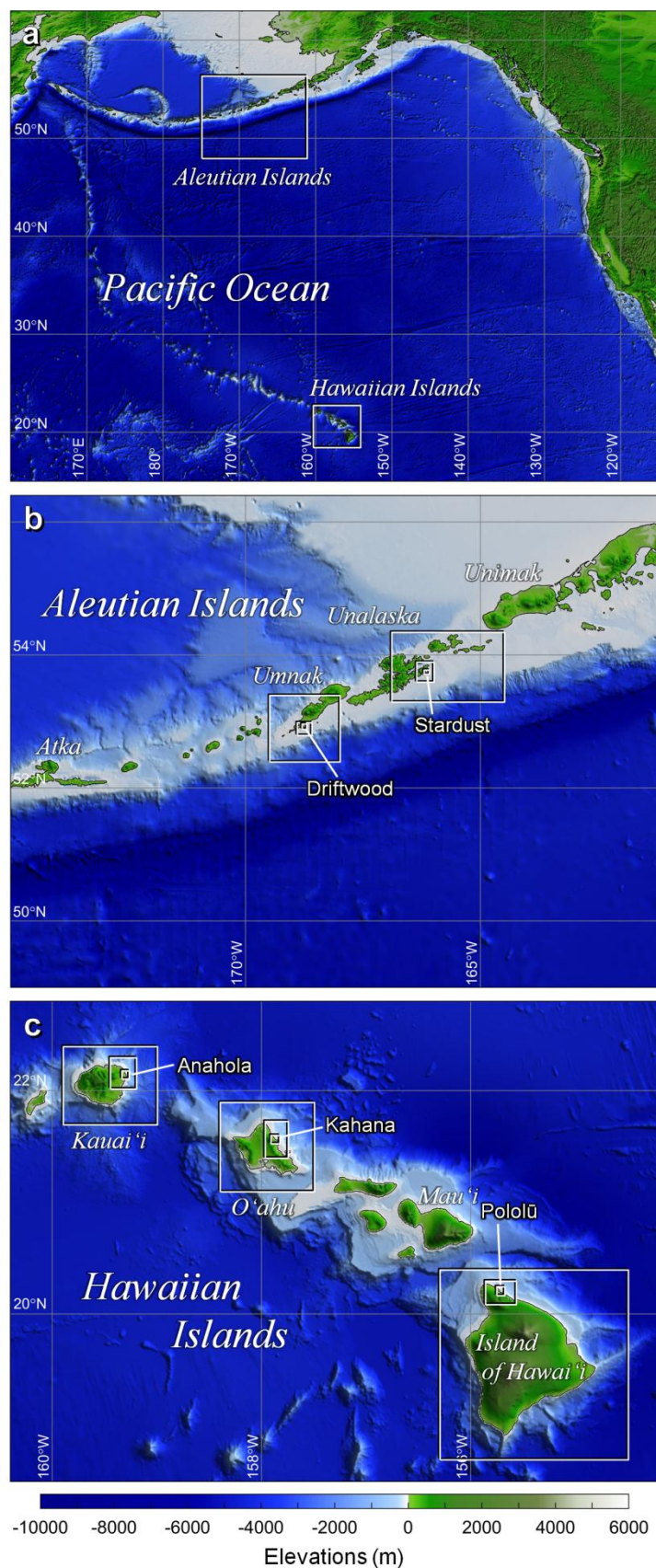
This PDF file includes:

Supplementary Figure 1
Supplementary Movies 1 to 3 (captions and snapshots)

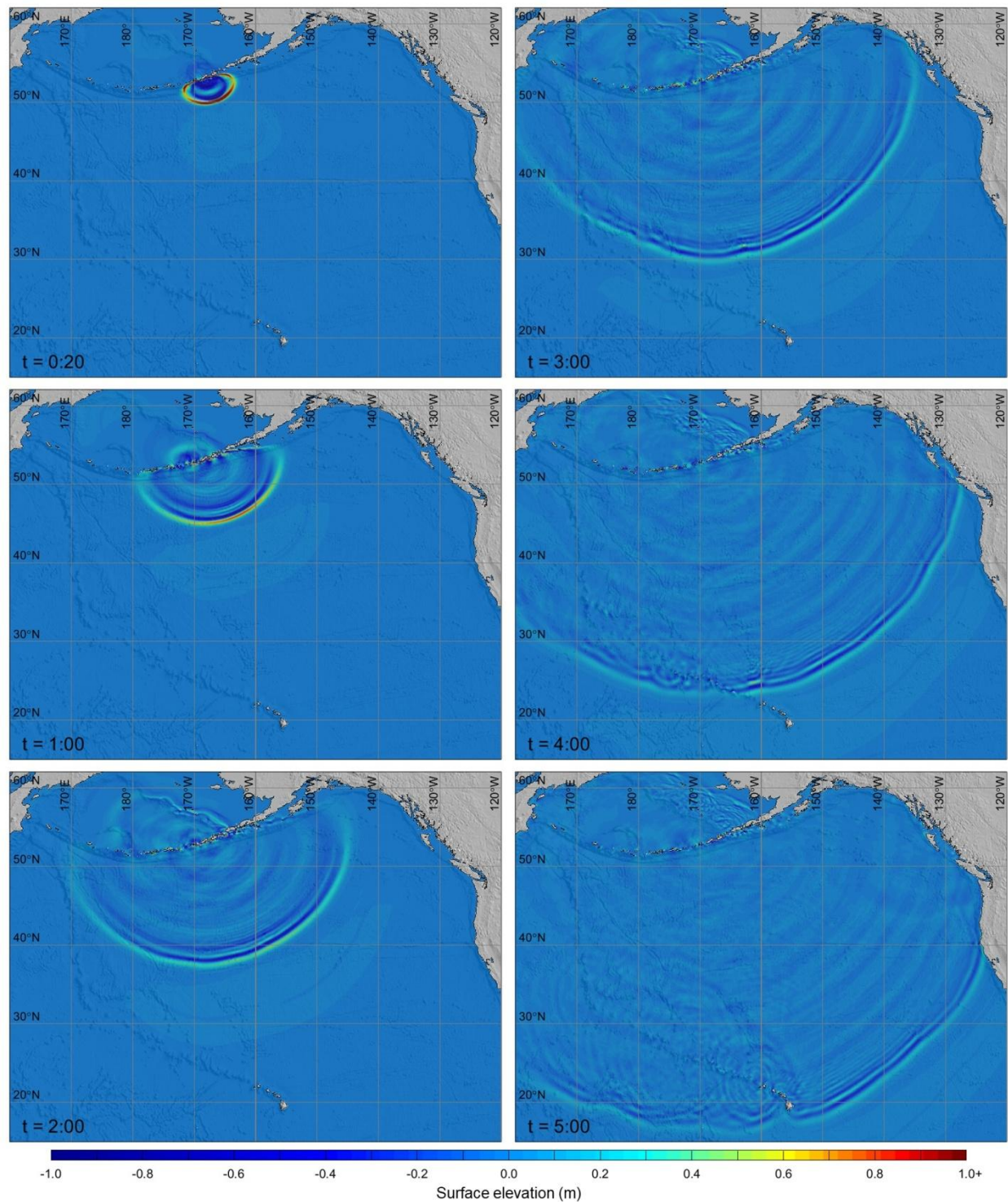
Other Supplementary Information for this manuscript includes the following:

Supplementary Movies 1 to 3 (video files)

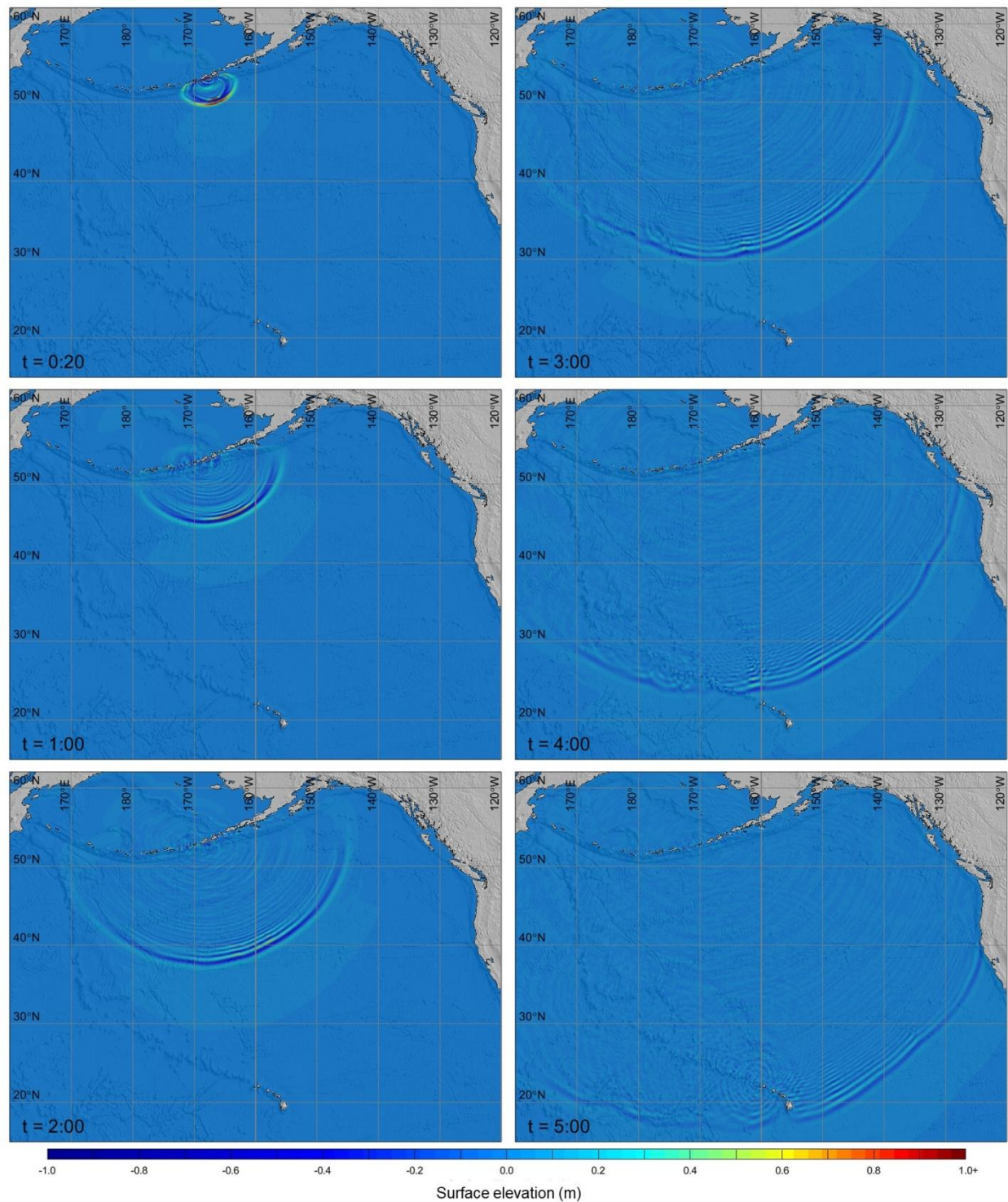
✉ email: cheung@hawaii.edu



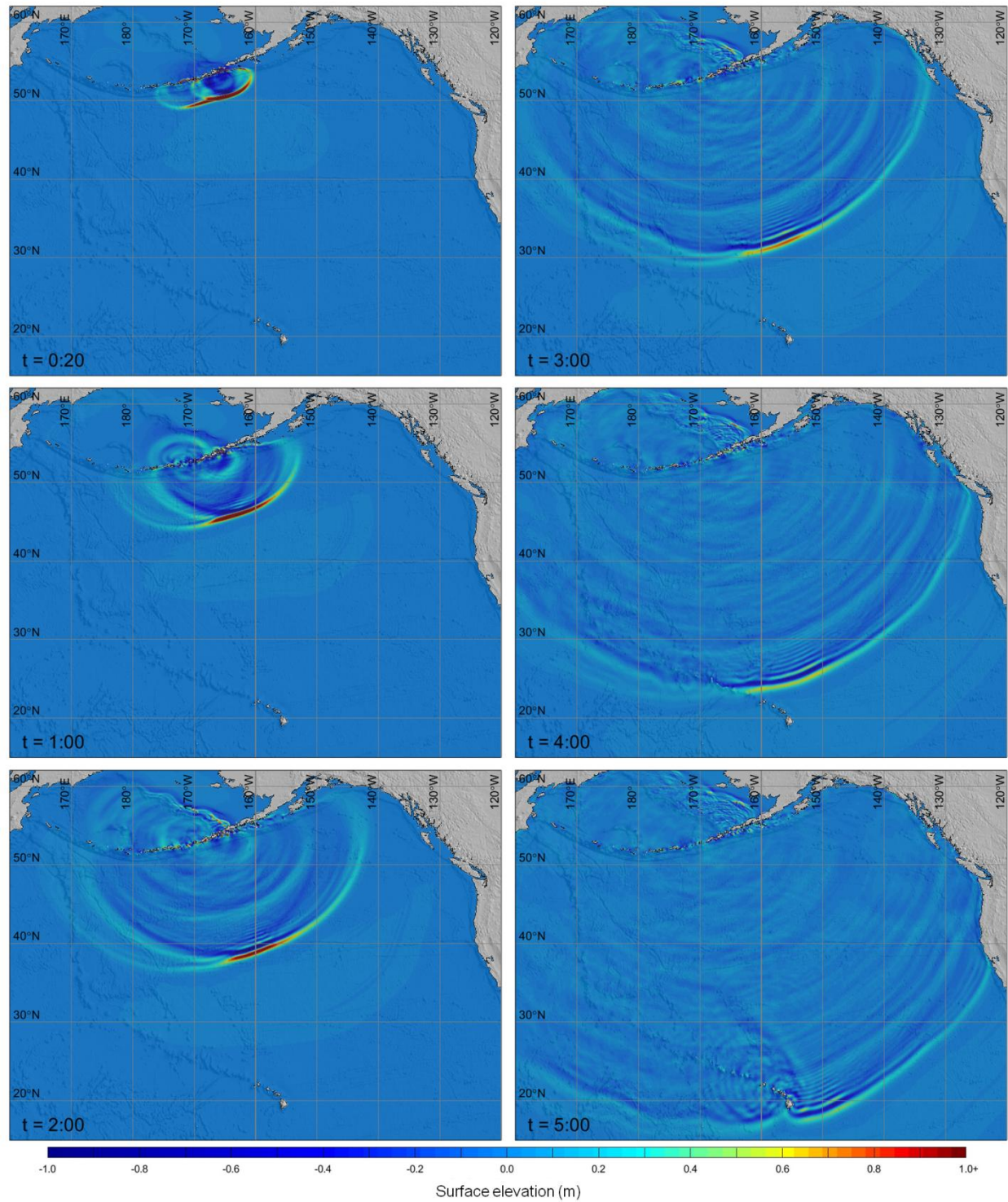
Supplementary Fig. 1 | Layout of nested computational grids and locations of Stratigraphic records. **a** Level-1 grid with level-2 eastern Aleutian and Hawaiian Islands grids denoted by rectangles. **b** Level-2 eastern Aleutian Islands grid with level-3 to 5 grids telescoping to the Driftwood and Stardust sites. **c** Level-2 Hawaiian Islands grid with level-3 to 5 grids telescoping to the Anahola, Kahana, and Pololū sites. Source data available from https://www.gebco.net/data_and_products/gridded_bathymetry_data/ and <https://www.ncei.noaa.gov/maps/bathymetry/>.



Supplementary Movie 1 | Trans-Pacific tsunami propagation for the 18th century event. Time t in Hr:Min after earthquake initiation and transparent water surface revealing bathymetric features. Base map generated from https://www.gebco.net/data_and_products/gridded_bathymetry_data/.



Supplementary Movie 2 | Trans-Pacific tsunami propagation for the 15th century event. Time t in Hr:Min after earthquake initiation and transparent water surface revealing bathymetric features. Base map generated from https://www.gebco.net/data_and_products/gridded_bathymetry_data/.



Supplementary Movie 3 | Trans-Pacific tsunami propagation for the 14th century event. Time t in Hr:Min after earthquake initiation and transparent water surface revealing bathymetric features. Base map generated from https://www.gebco.net/data_and_products/gridded_bathymetry_data/.