Hawaii Tsunami Mapping Project

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State of Hawaii

National Tsunami Hazard Mitigation Program
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Participants

Sponsor

- Division of Civil Defense, State of Hawaii

Project Team

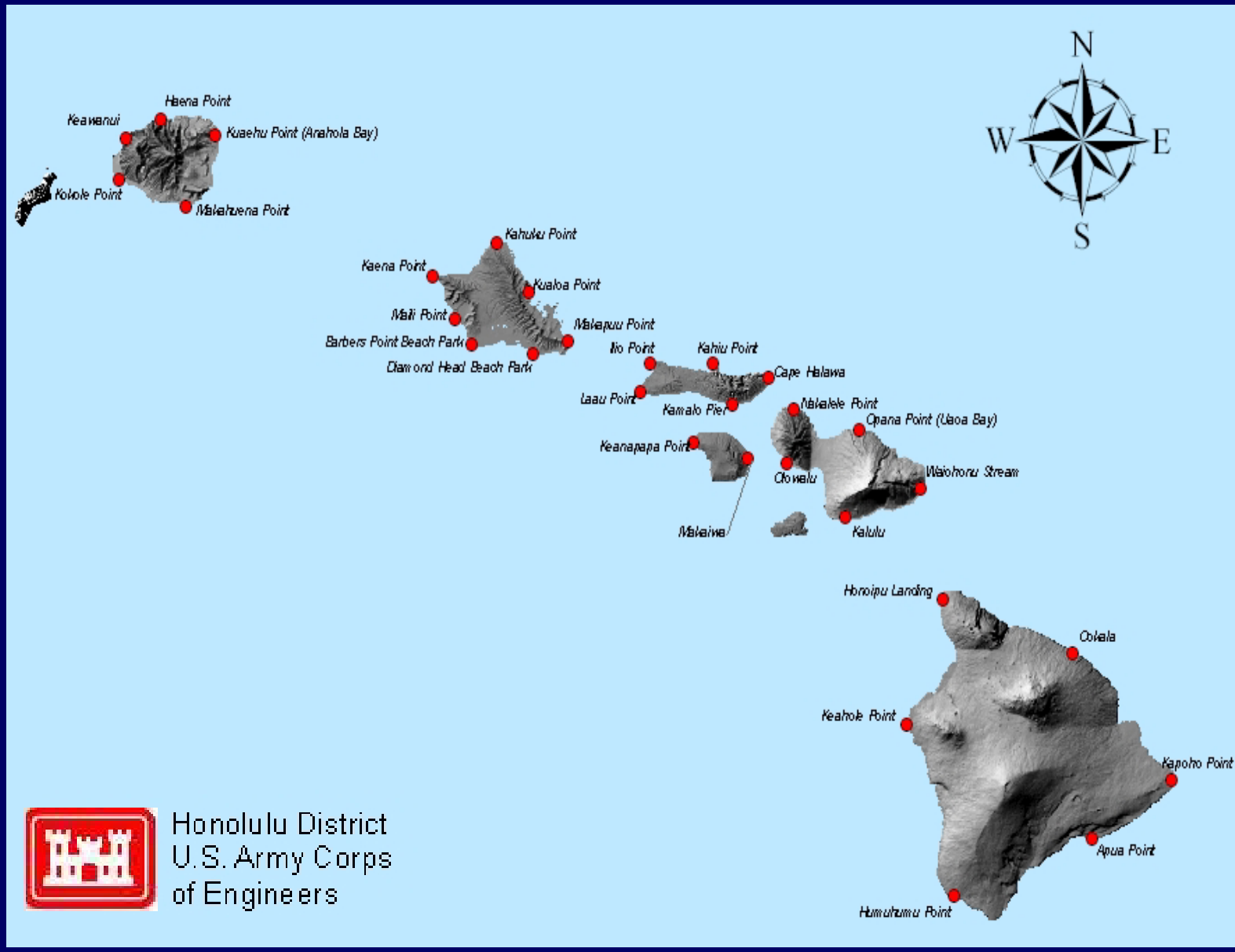
- Tsunami Research Group, Department of Ocean & Resources Engineering, University of Hawaii
- Department of Land and Natural Resources, State of Hawaii
- Pacific Disaster Center

Supporting Organizations

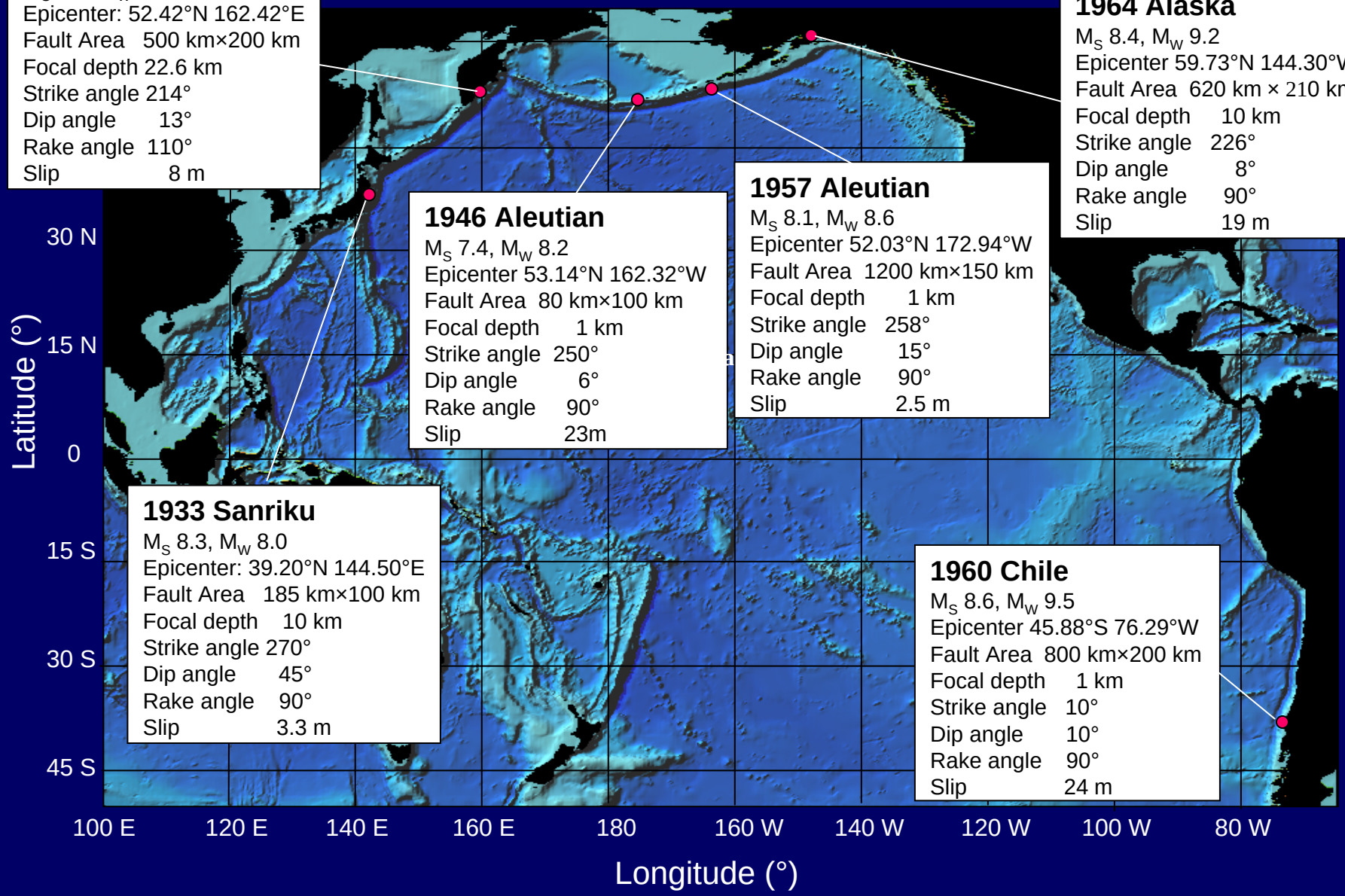
- Department of Geology & Geophysics, University of Hawaii
- Department of Economics, University of Hawaii
- University of Hawaii Sea Grant College Program
- NOAA Pacific Marine Environmental Laboratory

Coastal Segments and Modeling Efforts

- 1,200 km of coastlines for 6 major islands
- 28 segments of 40 to 50 km each
- Use Oahu North Shore for model & procedure calibration
- Determine priority with county civil defense input
- Compile demographics & economics databases in GIS format



Major Tsunamis affected Hawaii during the last century



1952 Kamchatka
M_S 8.3, M_W 9.0
Epicenter: 52.42°N 162.42°E
Fault Area 500 km×200 km
Focal depth 22.6 km
Strike angle 214°
Dip angle 13°
Rake angle 110°
Slip 8 m

1946 Aleutian
M_S 7.4, M_W 8.2
Epicenter 53.14°N 162.32°W
Fault Area 80 km×100 km
Focal depth 1 km
Strike angle 250°
Dip angle 6°
Rake angle 90°
Slip 23m

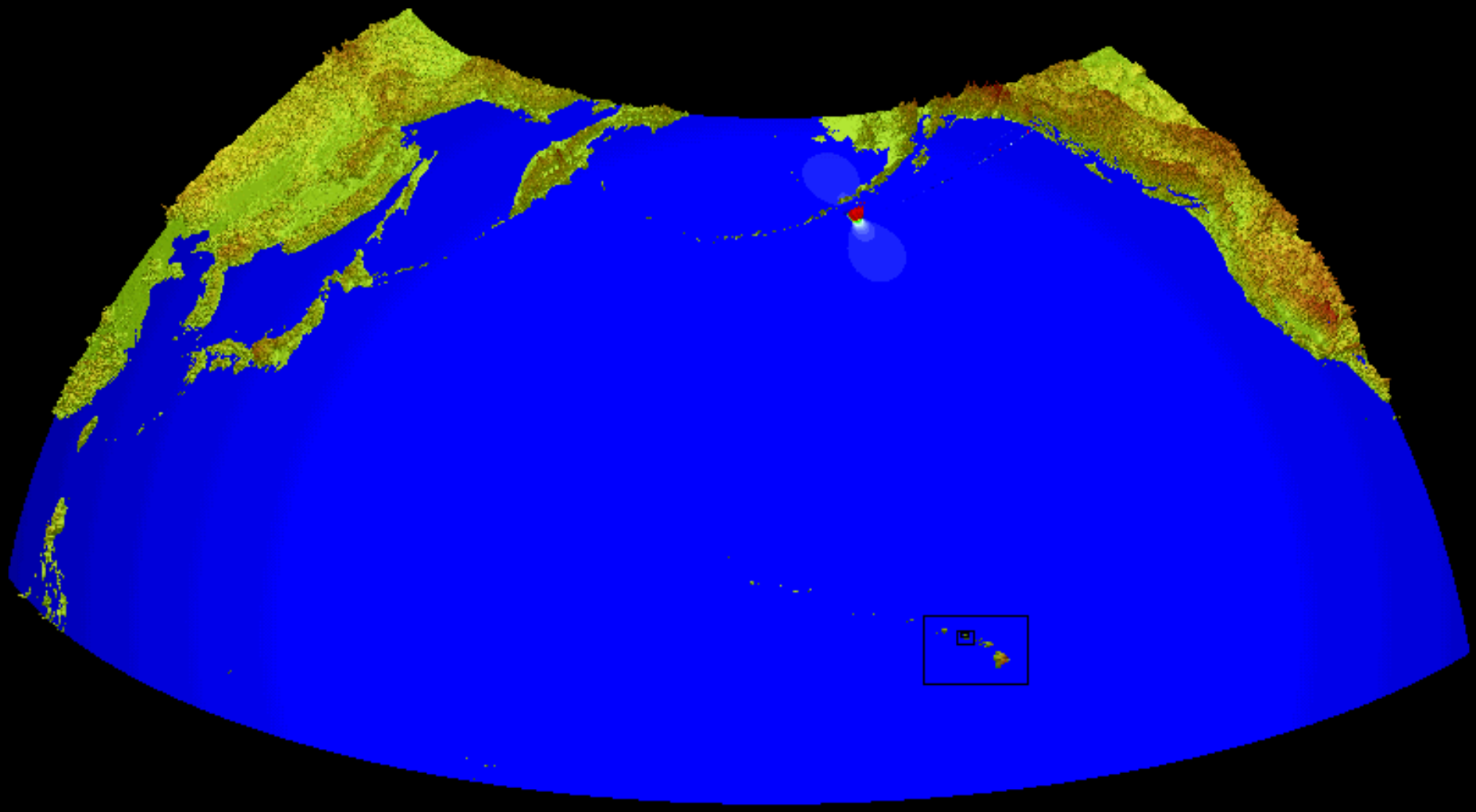
1957 Aleutian
M_S 8.1, M_W 8.6
Epicenter 52.03°N 172.94°W
Fault Area 1200 km×150 km
Focal depth 1 km
Strike angle 258°
Dip angle 15°
Rake angle 90°
Slip 2.5 m

1964 Alaska
M_S 8.4, M_W 9.2
Epicenter 59.73°N 144.30°W
Fault Area 620 km × 210 km
Focal depth 10 km
Strike angle 226°
Dip angle 8°
Rake angle 90°
Slip 19 m

1933 Sanriku
M_S 8.3, M_W 8.0
Epicenter: 39.20°N 144.50°E
Fault Area 185 km×100 km
Focal depth 10 km
Strike angle 270°
Dip angle 45°
Rake angle 90°
Slip 3.3 m

1960 Chile
M_S 8.6, M_W 9.5
Epicenter 45.88°S 76.29°W
Fault Area 800 km×200 km
Focal depth 1 km
Strike angle 10°
Dip angle 10°
Rake angle 90°
Slip 24 m

1946 Aleutian Tsunami



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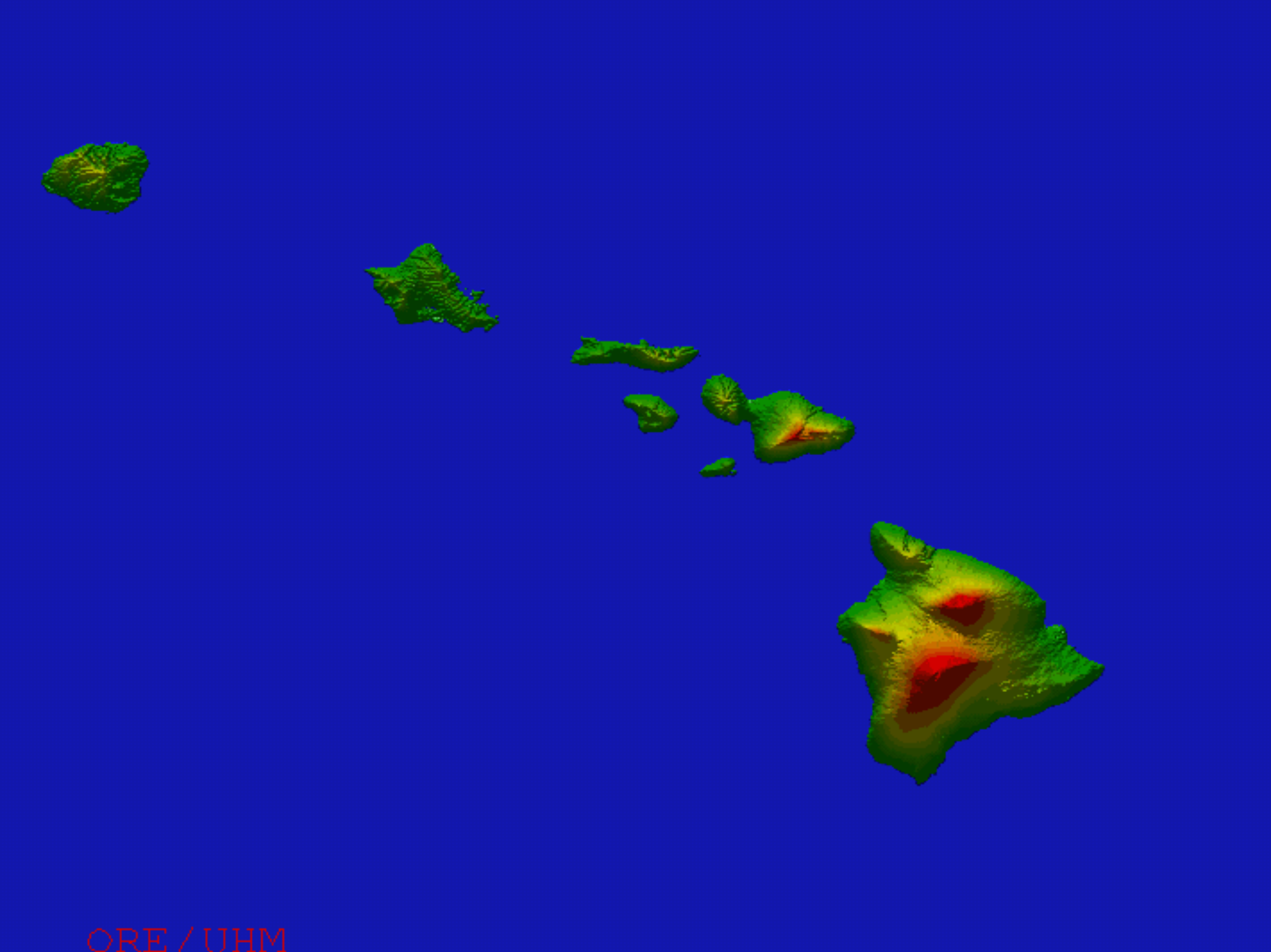
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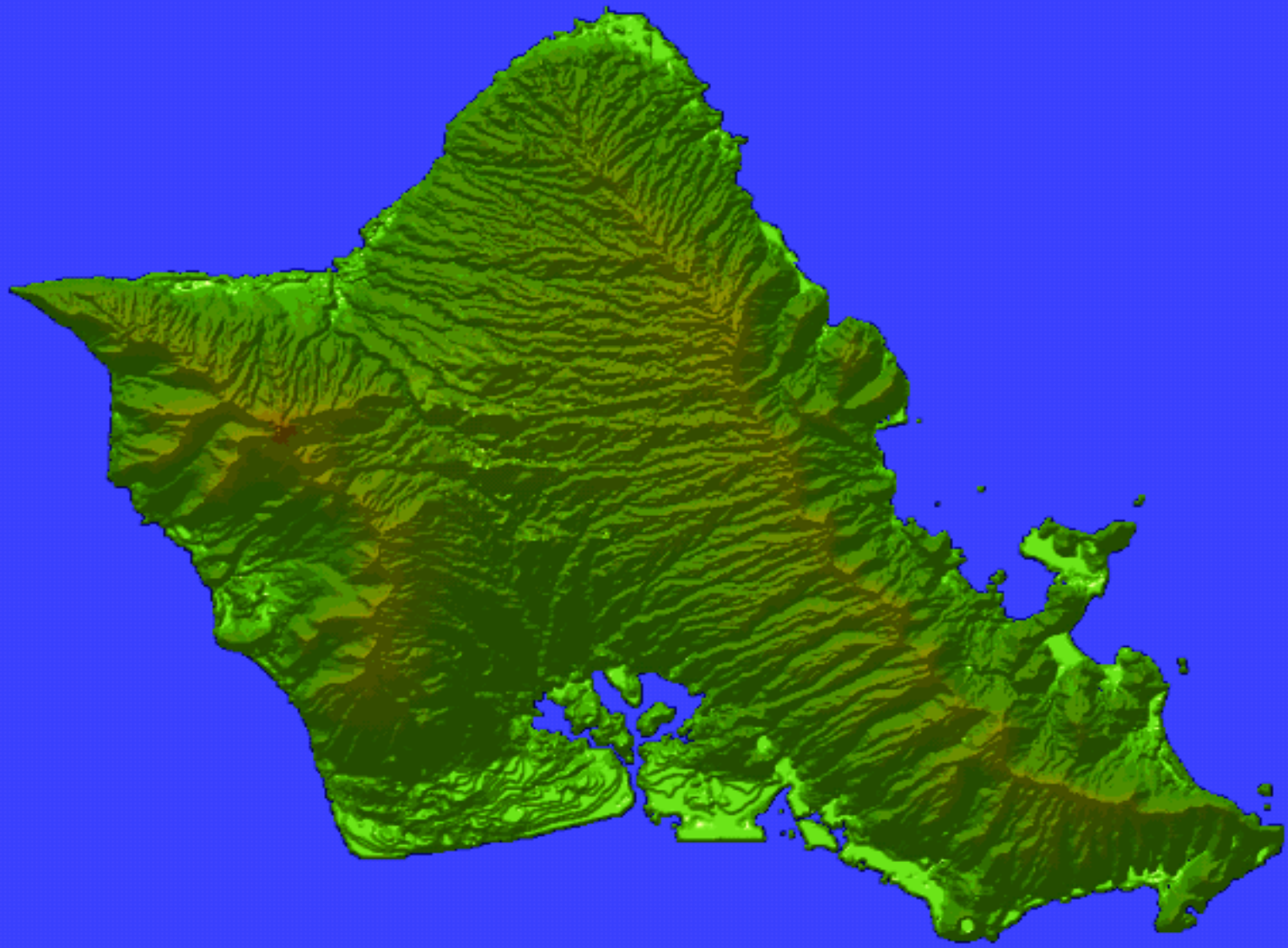

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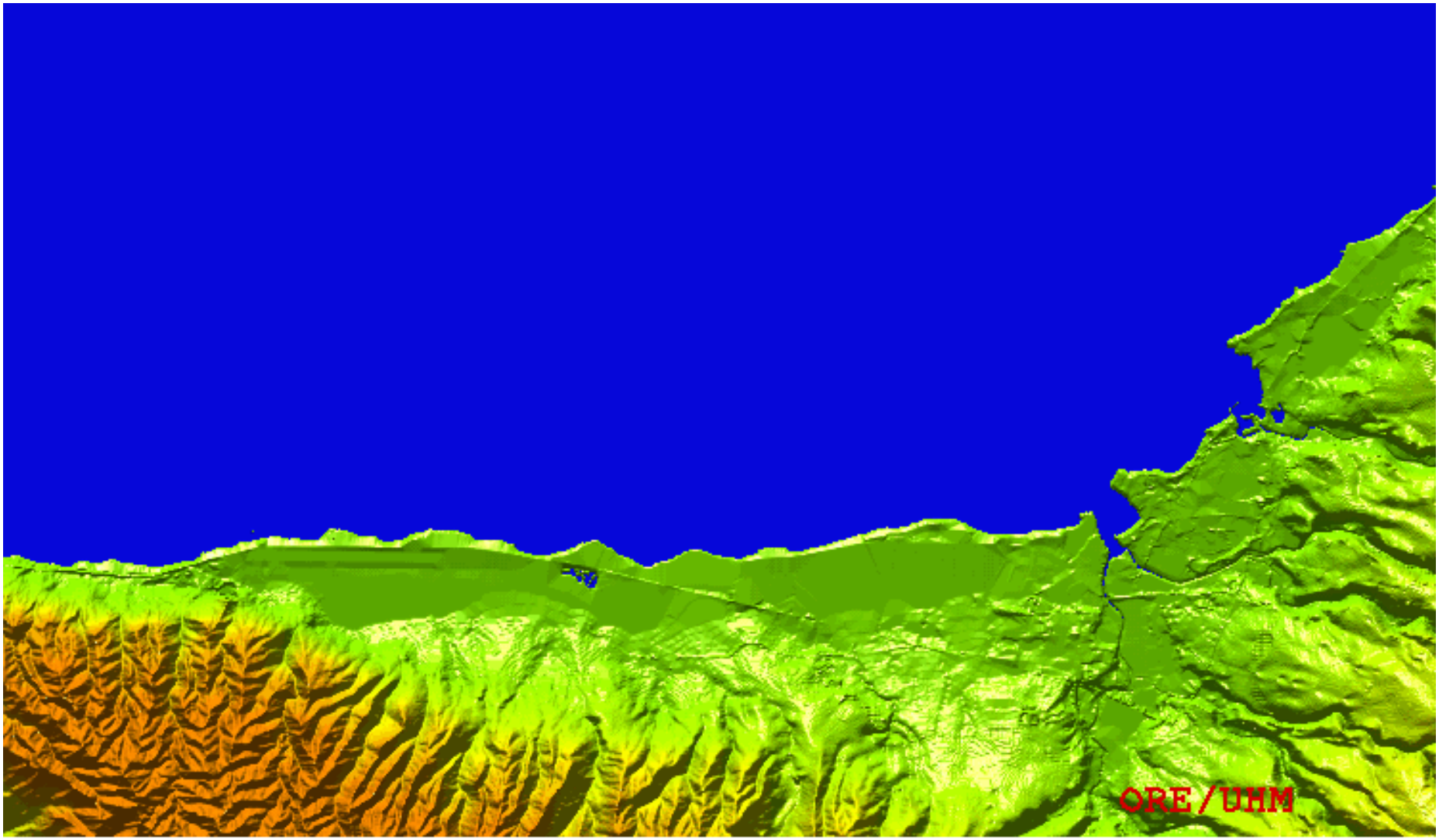
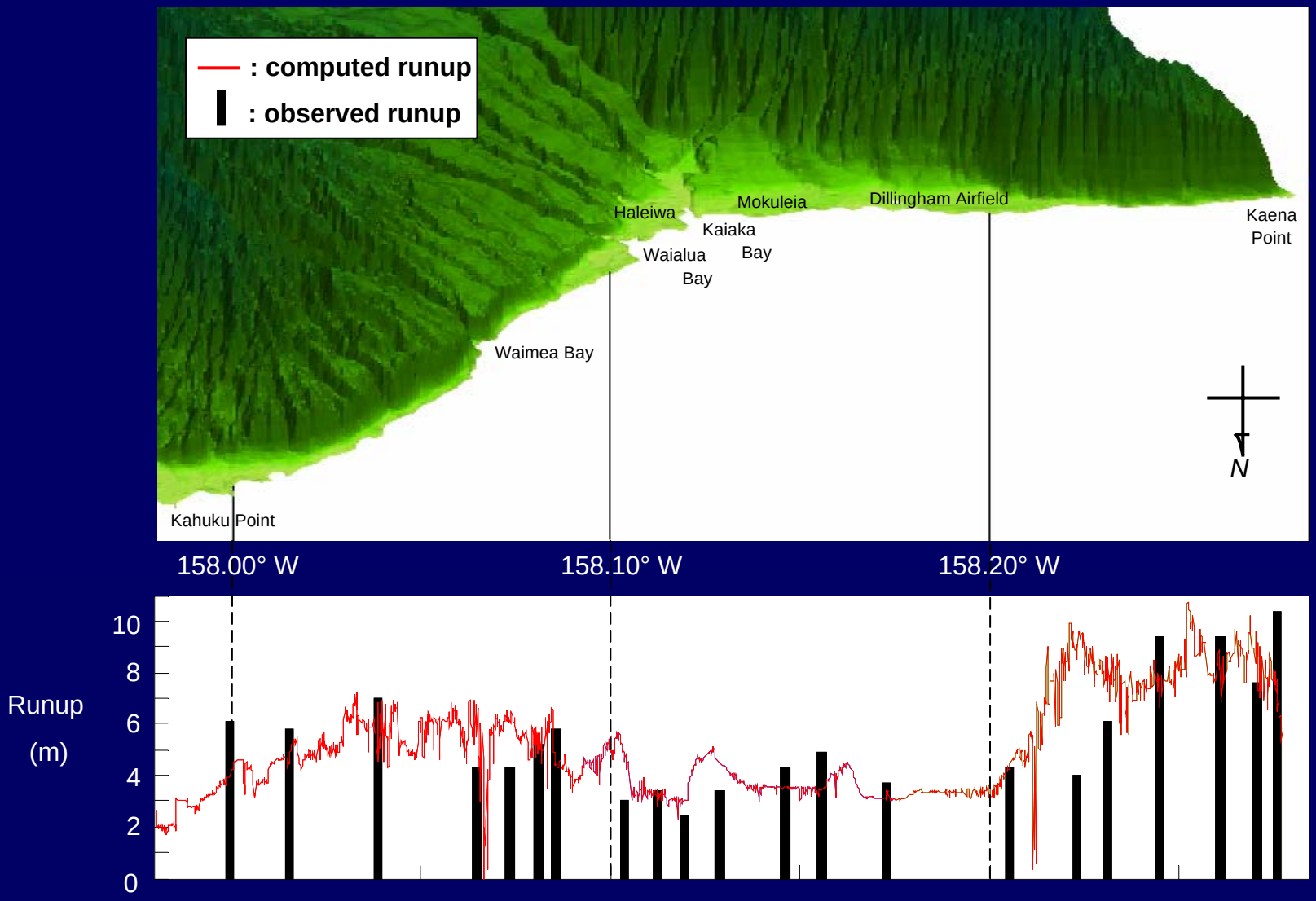
1946 Aleutian Tsunami

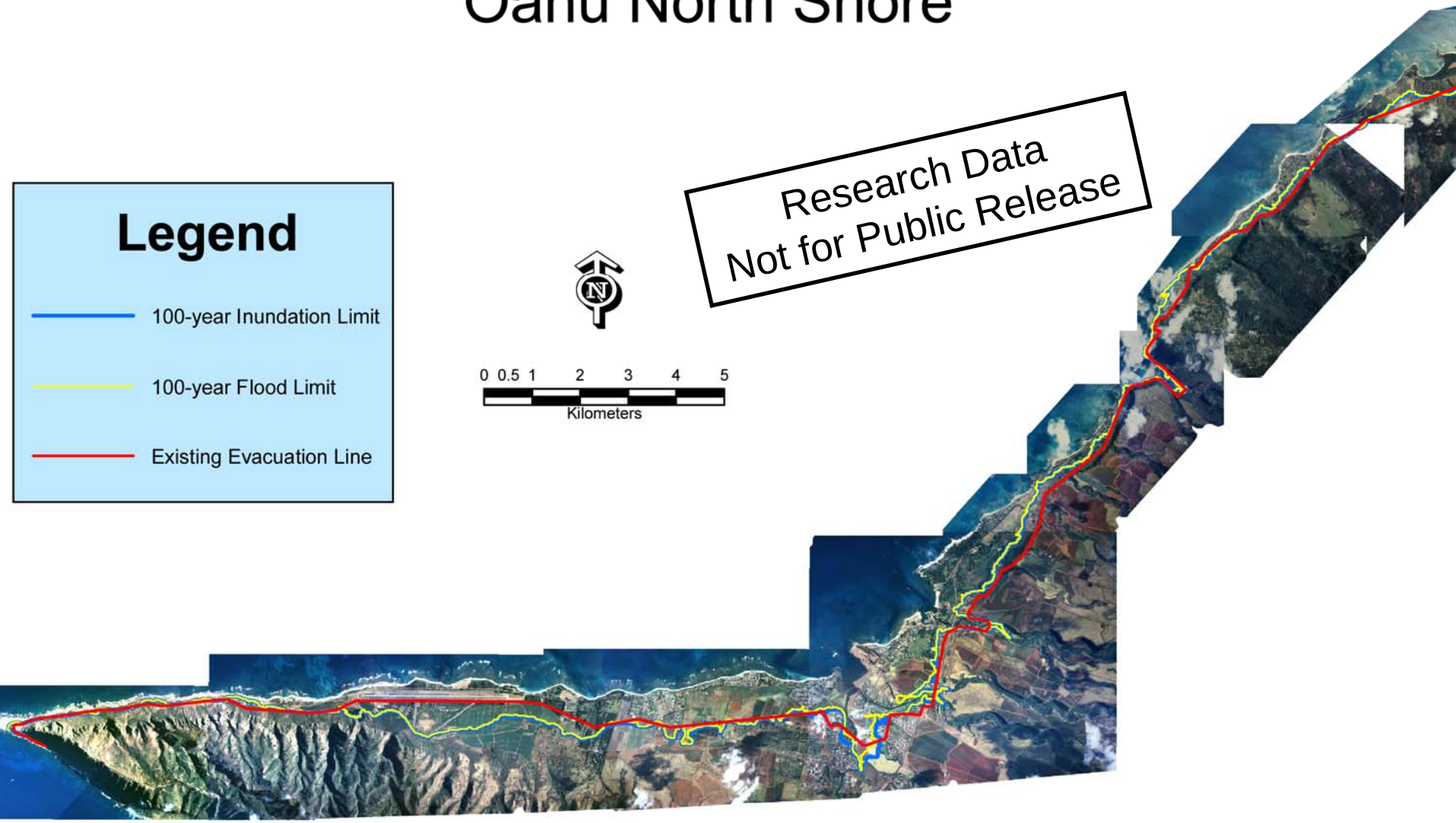
Oahu North Shore from Camp Erdman to Waialua Bay



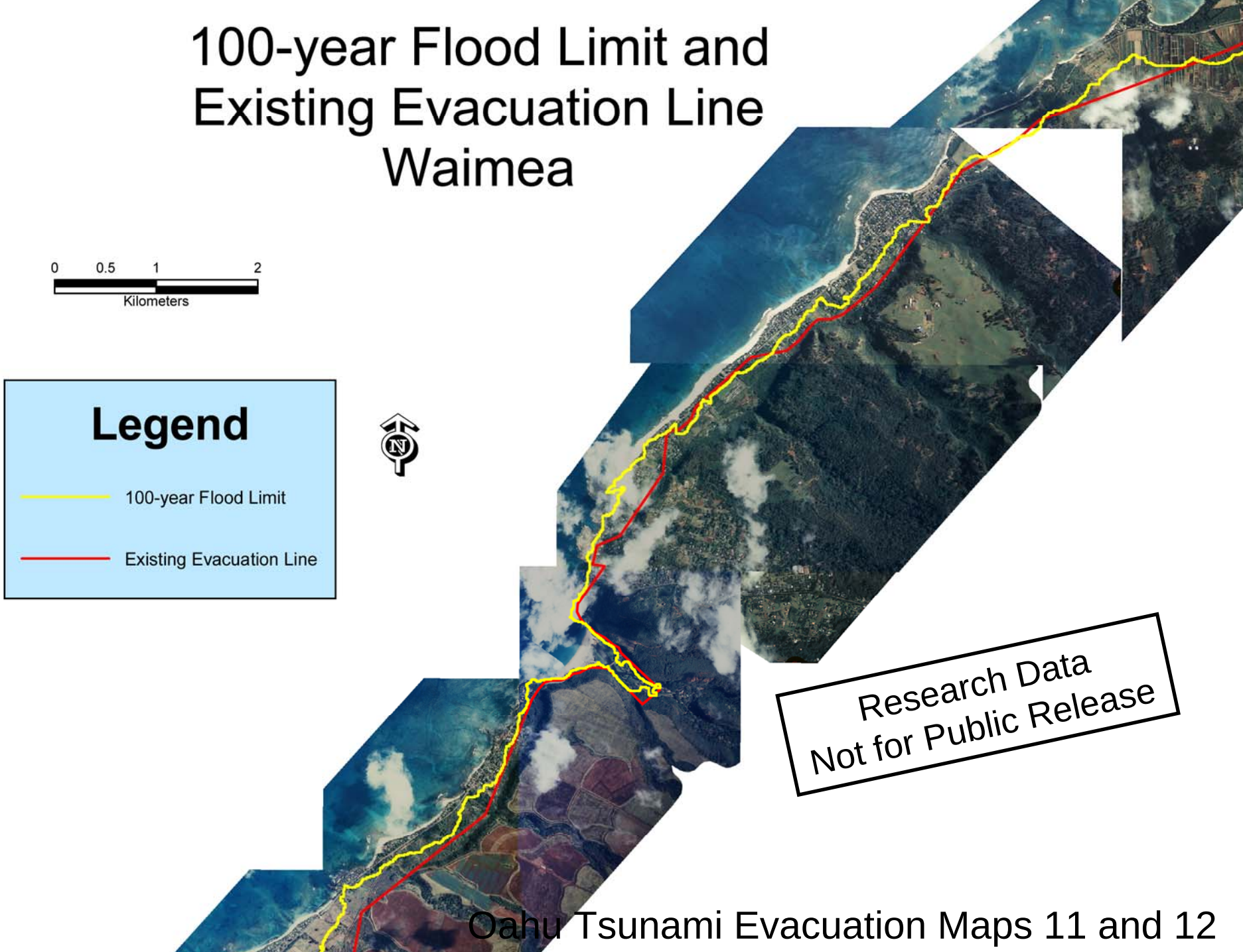
1946 Aleutian Tsunami



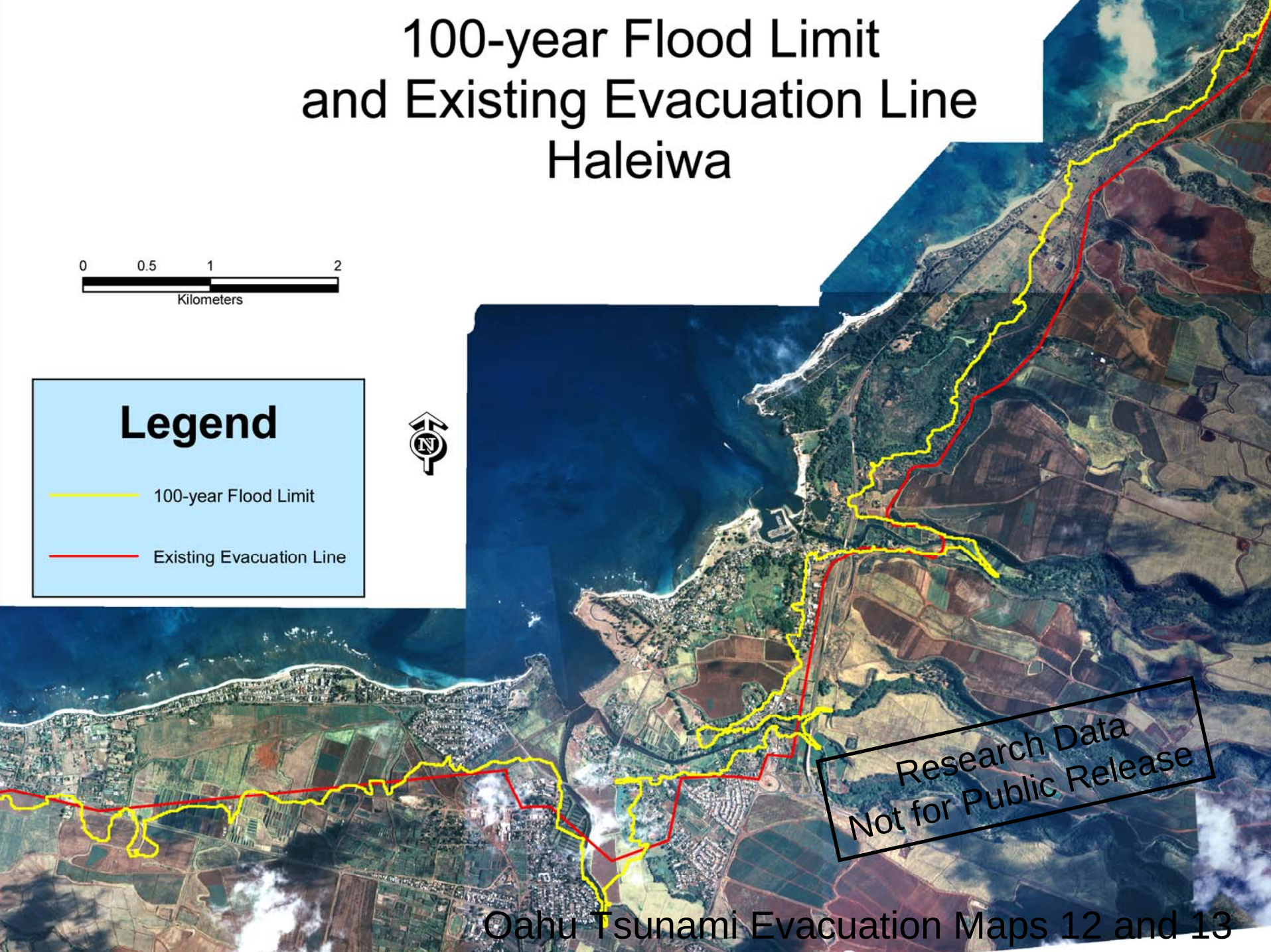
100-year Inundation and Flood Limits and Existing Evacuation Line Oahu North Shore



100-year Flood Limit and Existing Evacuation Line Waimea



100-year Flood Limit and Existing Evacuation Line Haleiwa



100-year Flood Limit and Existing Evacuation Line
Mokuleia

Legend

100-year Flood Limit

Existing Evacuation Line

0 0.5 1 2
Kilometers

Research Data
Not for Public Release

Schedule based on Current Level of Effort

Coastal Segment	2004				2005				2006			
	1	2	3	4	1	2	3	4	1	2	3	4
Database & model Development												
Oahu North Shore Inundation Map												
Oahu Evacuation Maps 11, 12, 13, 14												
East Honolulu Inundation Map												
Oahu Evacuation Maps 2, 3, 4												
3rd Segment Inundation Map												
3rd Segment Evacuation Map												
4th Segment Inundation Map												