#AGU22 tip sheet: Alaska, the nation’s most seismic state

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Here are some key seismology presentations at this year's American Geophysical Union meeting, Dec. 12-16 in Chicago, by researchers of the Geophysical Institute at the University of Alaska Fairbanks, “America’s Arctic university.”

• EARLY WARNING FOR ALASKA — Alaska's highly active tectonic environment creates a pervasive seismic hazard, which leaves Alaskans vulnerable to damage and loss of life. Strong ground motions from large earthquakes can be experienced throughout Alaska due to the Alaska-Aleutian subduction zone, distributed crustal faults, and the Queen Charlotte-Fairweather transform fault system. Implementation of an earthquake early warning system in Alaska is a natural step forward following continued progress on such systems along the United States' West Coast. This presentation presents estimates of maximum possible warning times in Alaska for sets of deterministic earthquake scenarios.

Call for interview with graduate student researcher Alexander Fozkos.

• SEISMICITY AND SEDIMENTARY BASINS — The seismic response of sedimentary basins has important implications for both tectonics and society. This is mainly because the geometry and low-velocity state of a sedimentary basin can trap seismic waves, leading to long shaking duration and high displacement amplification. Three-dimensional seismic modeling tools and high-performance computing clusters allow exploration of the complex seismic wavefield propagation in the basins, wiggle by wiggle in synthetic seismograms and frame by frame of wavefield snapshots. The Nenana basin in central Alaska is a useful region for studying basin wave propagation because of its detailed basin basement geometry and the previous deployment of 13 broadband seismic stations in the region.

Call for interview with postdoctoral fellow Yuan Tian.

• COMMUNITY TSUNAMI RESPONSE — Because tsunami hazards and their societal impacts vary dramatically from place to place, Alaska requires an equity-focused approach at the community level to build community resilience. No single method of outreach can overcome the large disparities. For this reason, for more than two decades the Alaska Earthquake Center has partnered with local, state and federal agencies to continually develop multifaceted approaches to community-specific tsunami hazard assessment and public education. The center draws upon community-level oral and written histories of earthquake and tsunami experiences and community-identified needs, combining them with the best available science to produce relevant products. The center then works directly with local emergency managers to develop evacuation plans and education programs tailored to the individual community.

Call for interview with Beth Grassi of the Alaska Earthquake Center.