

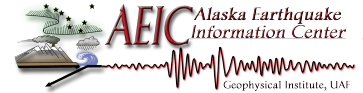
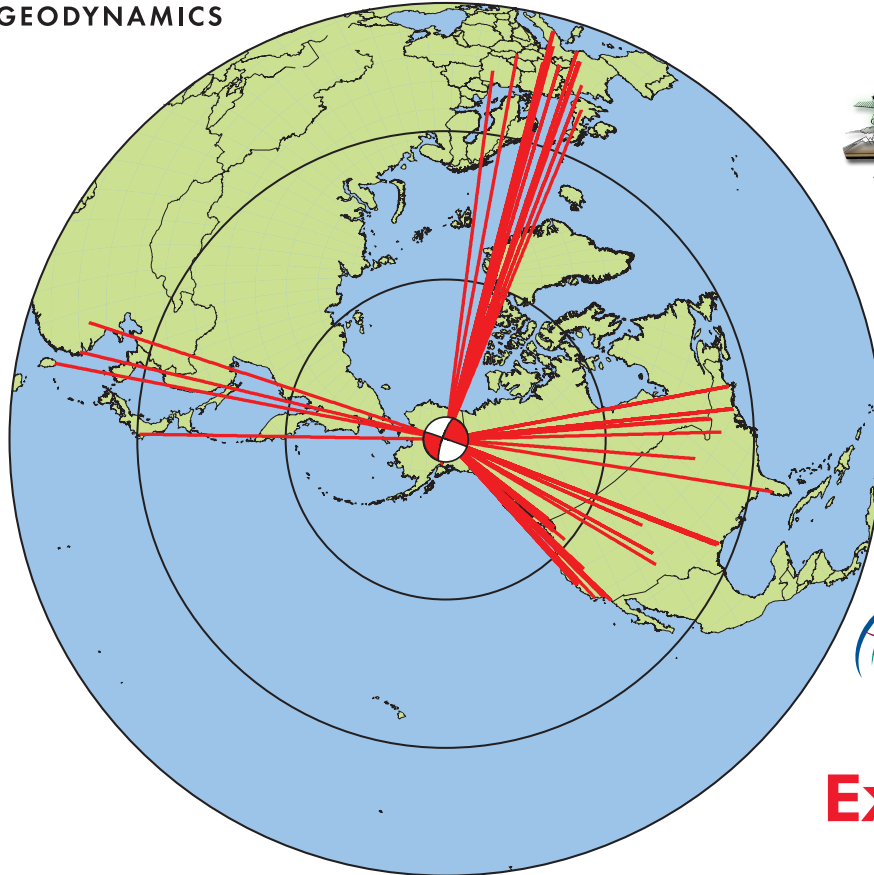
2013 CIG-QUEST-IRIS Workshop: *Seismic Imaging of Structure and Source*

July 14-17, 2013

University of Alaska Fairbanks



COMPUTATIONAL
INFRASTRUCTURE
for GEODYNAMICS



SCIENTIFIC PROGRAM

ALL TIME SLOTS FOR TALKS ARE 45 MINUTES: 30 MINUTES FOR TALK (INCLUDING ~10 MINUTES FOR METHODS) AND 15 MINUTES FOR DISCUSSION

Posters will be displayed all four days of the workshop and featured in two official sessions.

The scientific program is held in a single building complex at UAF:

- **Food and drinks** will be in the Globe Room of Geophysical Institute (Elvey)
- **Talks** will be in the auditorium of Geophysical Institute (Elvey)
- **Discussions** will be in the auditorium of Geophysical Institute (Elvey)
- **Posters** will be in the IARC (Akasofu) lobby, which is connected to Geophysical Institute
- **Computing tutorials** will be in WRRB 009, which is connected to Geophysical Institute

Saturday, July 13, 2013

Throughout day	Room check-in at UAF Office of Residence Life
19:00 to 22:00	Welcome BBQ at Carl Tape's house; food provided

Sunday, July 14, 2013

Throughout day	Room check-in at UAF Office of Residence Life
12:00 – 16:40	<p>Permafrost Tunnel Tour (~1 hour + driving; ~15 people per tour) <i>Sponsored by Alaska Earthquake Information Center</i></p> <p>Departure location: scenic overlook at Reichardt building</p> <p>Departures from UAF to Permafrost Tunnel: Group 1 at 12:00 Group 2 at 13:00 Group 3 at 14:00 Group 4 at 15:00</p> <p>Return trip from Permafrost Tunnel to UAF: Group 1 at 13:40 Group 2 at 14:40 Group 3 at 15:40 Group 4 at 16:40</p>
17:00	<p>Bus departs UAF for group dinner at Alaska Salmon Bake</p> <p>Departure location: scenic overlook at Reichardt building</p> <p>Explore Pioneer Park if time permits</p>
18:45	Bus departs Salmon Bake for UAF apartments
19:00	<p>Registration at UAF at GI front entrance</p> <p>Poster setup on IARC ground floor</p>
19:30	Workshop welcome; Intro to CIG (Tape and Hwang)
19:45	Intro to QUEST (Igel)
20:00	Freymueller: Active tectonics of Alaska (Introduce EarthScope and GeoPRISMS)
20:30	Poster session

Monday Morning, July 15, 2013

07:30	Breakfast
08:15	Formal welcome from GI director (McCoy)

THE FORWARD PROBLEM: MODEL CONSTRUCTION, MESHING, AND WAVEFIELD SIMULATIONS

08:30	Aagaard: USGS Bay Area Seismic Velocity Model: Construction and Earthquake Simulations
09:15	Maechling: SCEC Unified Community Velocity Model: Development Goals and Current Status
10:00	Break
10:15	Casarotti: Hexahedral meshing 101: seismic wave propagation and complex geological volumes (GEOCUBIT)
11:00	Pelties: Rapid CAD and tetrahedral mesh generation for dynamic rupture problems
11:45	Brief discussion and announcements
12:00	Lunch

Monday Afternoon, July 15, 2013

13:30	Nissen-Meyer: AXISEM: High-frequency global wavefields for forward and inverse modeling				
14:15	Poster session (3.5 hours) Snacks				
14:15	Alaska Earthquake Information Center tours Start point: Geophysical Institute Room 301 <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">14:30 Tour 1: last names A-D</td> <td style="width: 50%;">15:00 Tour 2: last names E-K</td> </tr> <tr> <td>15:30 Tour 3: last names L-P</td> <td>16:00 Tour 4: last names Q-Z</td> </tr> </table>	14:30 Tour 1: last names A-D	15:00 Tour 2: last names E-K	15:30 Tour 3: last names L-P	16:00 Tour 4: last names Q-Z
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18:00	Dinner				
19:00	Discussion in Globe Room: Tomographic model validation and uncertainty estimation				
19:45	Discussion in Globe Room: Source modeling				
20:30	Tutorial I in computing lab: AXISEM: M. van Driel, S. Staehler, T. Nissen-Meyer ObsPy: L. Krischer, K. Hosseini				

Tuesday, July 16, 2013

07:30	Breakfast
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STRUCTURE INVERSION

08:30	Tromp: Imaging Earth's interior based on spectral-element and adjoint methods
09:15	Ahern: IRIS services, products, quality assurance efforts, and potential links to high performance computing in the era of BIG DATA
10:00	Break
10:15	Virieux: Full waveform inversion: challenges
11:00	Routh: Full wavefield inversion's impact on the upstream business
11:45	Brief discussion and announcements
12:00	Lunch

SOURCE MODELING

13:30	Ishii: Rupture properties of intermediate-depth earthquakes using back-projection technique
14:15	Bostock: Low frequency earthquakes: A new seismic source for imaging subduction zone structure
15:00	Break
15:15	Ji: Recent advances and limitations in earthquake source studies
16:00	Discussion
16:30	Break (Posters) or optional soccer match
18:00	Dinner
19:00	Discussion in Globe Room: Workflows, big data, and exascale seismology
20:30	Tutorial II in computing lab: GEOCUBIT: E. Casarotti SPECFEM (including GPU): Q. Liu and E. Sales de Andrade

Wednesday, July 17, 2013

Throughout day: Take down all posters

07:30 Breakfast

SESSION: CHALLENGES AND FRONTIERS FOR SEISMOLOGY

08:30 **Ben-Zion:** Multi-scale 4D Imaging of fault zone environments

09:15 **Fichtner:** Towards a comprehensive multi-scale model of Europe and western Asia

10:00 Break

10:15 **Rondenay:** Imaging with the Generalized Radon Transform: a review of the theory and applications

11:00 **Liu:** High-resolution array imaging based on numerical simulations

11:45 Brief discussion and announcements

12:00 Lunch

13:30 **Romanowicz:** Low velocities in the oceanic upper mantle and their relation to plumes: insights from SEM-based waveform tomography

14:15 **Campillo:** Ambient noise imaging

15:00 Break

15:15 **Vilotte:** The Virtual Earthquake and Seismology Research e-science community in Europe: lessons learned and some identified challenges

16:00 **Igel:** Challenges in computational seismology

16:45 Final discussion

Buses depart for Riverboat Discovery dinner cruise
Sponsored by ExxonMobil

Departure location: in front of Geophysical Institute

Bus #1 departs UAF 17:45 with 30 passengers, then back to UAF

Bus #1 departs UAF 18:30 with 30 passengers

Bus #2 departs UAF 18:30 with 20 passengers

Bus #1 departs Riverboat 21:00 with 30 passengers

Bus #2 departs Riverboat 21:00 with 20 passengers

Bus #1 departs Riverboat 21:30 with 30 passengers

Return location: scenic overlook at Reichardt building

21:00 – 21:30 Buses return to campus

Thursday, July 18, 2013

Participants depart