

## April 28-30 2014

**What?** The Alaska-Yukon region is one of North America's most active regions tectonically. The regional terrain is the legacy of a billion-year history of plate tectonics and surficial processes, including one of the greatest mountain building events in the geologic history of North America. The 50<sup>th</sup> anniversary of the Great Alaskan Earthquake in 1964 is an opportunity to educate ourselves and others on Alaskan tectonics, hazards, and preparedness. The western margin of North America is geologically dynamic and demands attention to the scientific and societal implications of geological research in the Alaska-Yukon region. It is an exciting time for geologic research as EarthScope's Transportable Array (seismometers) are being installed in 2014 across the Alaska-Yukon region. They will supplement the already existing EarthScope GPS stations. The data from these stations will provide a look into Earth's interior in a way that has never been done before. (for more information about the EarthScope program visit [the observatories page on our website](#).)

The **EarthScope Program** ([www.earthscope.org](http://www.earthscope.org)) presents a three-day workshop that features presentations by prominent geoscientists and interpretive professionals to help convey the story of the magnificent landscapes, geology, and natural hazards of the Alaska-Yukon region. Participants will learn how to use basic geology, EarthScope data, and scientific results. Participants will develop and present actual interpretive programs and exhibits during the workshop. Access to digitally-archived and real-time, web-accessible geophysical data will provide a key source of information for such programs. The workshop begins at 8:00 am on Monday and ends Wednesday afternoon. It includes a field trip on Tuesday.

**Sponsors:** The workshop is sponsored by the [EarthScope National Office](#) (ESNO) at [Arizona State University](#) and funded by the [National Science Foundation](#). The host for the EarthScope Alaska-Yukon Regional Workshop for Interpretive Professionals is the Alaska Science Center in Anchorage.

**Who should attend?** The goal of the workshop is to help interpreters create opportunities for the public to form their own intellectual and emotional connections to the dynamic landscape of the Alaska-Yukon region. *Interpretive professionals* from the National Park Service, U. S. Forest Service, Bureau of Land Management, state and regional parks, state geological surveys, community museums, Pacific Geoscience Center and other individuals who engage the public on geological processes in the Alaska-Yukon region are encouraged to apply. We encourage applications from the state of Alaska, and from the provinces of British Columbia and Yukon. *Participants do not have to be geologists or geophysicists*, but they should have some knowledge of Earth science and experience incorporating geological information into interpretive programs or exhibits. We also welcome applications from K-12 Earth science teachers who interact with interpretive specialists in parks or museums, as well as from college faculty teaching geology field camps or informal education programs in the region.

**Funding:** Participants or their organizations are asked to provide travel costs to and from the workshop. There will be an opportunity for participants to apply for a travel scholarship. The NSF EarthScope science program, through ESNO, provides all food, lodging, materials, and field trip travel for all participants while at the workshop. DVDs, printed handouts, and other workshop materials will be provided by ESNO at no cost to participants.

**Lodging:** Workshop lodging will be provided at [Springhill Suites Anchorage University Lake](#), 4050 University Lake Drive, Anchorage, Alaska 99508. ESNO will pay double occupancy rates for participants. Single rooms are available for participants who wish to pay half of the single room cost (in which case, ESNO will pay the other half). Once accepted to the workshop, ESNO will submit your name to the hotel.

**Commitment:** Participants and instructors must commit to all three days of the workshop (from 8:00 AM on Monday 28 April to 4:00 PM Wednesday 30 April). Each participant—and his or her supervisor—must commit to providing follow-up training to their staff members on how EarthScope data, scientific results, and societal implications can be incorporated into interpretive programs and exhibits at their site.

# Facilitators

## *Steve Semken- EarthScope National Office*

Steve Semken is an Associate Professor and the Deputy Director for Education and Outreach, EarthScope National Office, both in the School of Earth and Space Exploration at Arizona State University. He is an ethnogeologist and geoscience education researcher interested in ways that place, culture, and affect influence inquiry, teaching, and learning in the Earth system sciences. He received his PhD from M.I.T. and was a faculty member at the tribal college of the Navajo Nation for 15 years before joining ASU. His work includes place-based science education and the function of sense of place; ethnogeology and Earth science education; K-12 teacher professional development; geoscience interpretation in National Parks; and diversity in the geoscience community.

## *Sarah Robinson- EarthScope National Office*

Sarah Robinson is the Education and Outreach Program Manager for the EarthScope National Office, currently on campus at Arizona State University. She runs the outreach program for EarthScope, including organizing workshops for interpretive professionals, organizing local and national outreach events, representing EarthScope at conferences, and planning higher-level outreach strategies for the EarthScope program. Sarah holds an MS and BS in Geological Sciences from ASU and has had a research focus throughout her professional career on applying new technologies (such as high resolution topography and LiDAR) to the study of active tectonics. This research has had a large focus on Earth Science curriculum development, education, and outreach.

## *Leah Pettis- EarthScope National Office*

Leah is a senior at Arizona State University studying Geological Science. She is the Multimedia Production Specialist for the EarthScope National Office and oversees all video production and web support. From 2011-2013 she was president of ASU's Geology Club and lead educational field trips around the southwest and Hawaii. Leah has been actively involved with formal and informal education. She was a teaching assistant for five upper division geology classes, led tours and organized K-12 activities in ASU's Museum of Geology, organized Lunar Reconnaissance Orbiter Camera (LROC) teacher workshops, assisted and taught K-12 teachers for NASA Triad teacher workshops, interned with NASA Space Grant, and assisted ASU's Virtual Fieldtrips and the EarthWatch Institute.

## *Patrick Schwab- EarthScope National Office*

Patrick received his baccalaureate in Chemical Engineering from the University of Arizona. From there he worked as a field engineer at PKS on the trans-American fiber optic installation. After this he worked for the DOD as a research and development engineer while attending the University of Arizona, doing graduate work in mechanical engineering. After leaving the DOD he became a high school teacher in Avondale Arizona, teaching upper division mathematics and engineering programs. Patrick received his PhD in Engineering Education at Arizona State University. Patrick's field of research includes engineering cross cutting concepts of the Next Generation Science Standards in the K-12 geosciences curriculum; he is also conducting research and evaluations on EarthScope programs and their effectiveness.

## *Patrick McQuillan - IRIS*

Patrick is the Education and Public Outreach Specialist for the Incorporated Research Institutions for Seismology. He manages the informal education programs including museum displays such as the Active Earth Monitor, creation of lesson plans for K-12, visualization creation, presenting professional development and outreach programs, and the Distinguished Lectureship Speaker Series. He has BS and MA degrees in Physics and Museum Education from the College of William and Mary. He has over twenty

five years experience managing and developing informal science education programs in museums and planetariums. Several of the planetarium programs he wrote and produced are used in museums around the world. As Education Manager for the Challenger Center for Space Science Education, he managed the production of the educational curriculum for the Next Generation Challenger Learning Center. He is currently working on Active Earth Monitor content modules for Earthscope, and the eastern United States. In his spare time he is a NASA Solar System Ambassador and is creates content for the 365 Days of Astronomy Podcasts project.

### ***Shelley Olds – UNAVCO***

Shelley Olds has been teaching about science and technology to interpretive professionals and educators for over 15 years. She has a Masters of Education in Instructional Systems Development and a B.S. in Earth Science / Geophysics. Over her education career, Shelley has developed online training modules such as Mountains to Monsoons and Gateway to Glaciation with a small instructional design firm, worked with NASA Education to coordinate education programs, develop digital library technology, and co-create a Earth science focused metadata cataloging framework and has lead the DLESE Teaching Box project to develop classroom-ready instructional units at the University Corporation for Atmospheric Research in Boulder, CO. Shelley is currently a Science Education Specialist for UNAVCO's Education and Community Engagement program, creating free educational materials and museum exhibits that use geodetic data and data products for undergraduate and secondary Earth science courses, developing improved data-access interface designs, and leading professional development programs for K-12, college faculty, and park interpreters.

### ***Robert de Groot - SCEC***

Robert de Groot is the Manager of the Office of Experiential Learning and Career Advancement at the Southern California Earthquake Center (SCEC), an NSF+USGS Center headquartered at the University of Southern California in Los Angeles. His responsibilities include managing SCEC's undergraduate internship programs and formal and free-choice education programs. He is the statewide coordinator for the Earthquake Education and Public Information Center (EPIcenter) Network, a collaboration of free-choice learning institutions devoted to enhancing earthquake and tsunami education programs and exhibits. Dr. de Groot has twelve years of classroom experience as a chemistry and Earth science educator at the secondary and university levels and has worked as an informal educator at the California Science Center in Los Angeles and Lowell Observatory in Flagstaff, Arizona. He holds an M.A. with an emphasis in chemistry and Earth science education from Northern Arizona University and a Ph.D. in science education from the University of Southern California. Dr. de Groot has been a member the SCEC Communication, Education, and Outreach team since 1999.

### ***Robert Witter - USGS***

### ***Emily Roland - USGS***

## **Special Guests**

- Perle Dorr – IRIS
- John Taber – IRIS
- Peter Haeussler – USGS

## **Workshop Topical Agenda**

All participants will receive a finalized agenda before the Workshop.

## **Monday, 28 April**

- Meet at the Alaska Science Center
- Welcome and introductions
- Overview of the workshop
- Overview of the EarthScope program
- Presenting EarthScope in parks and museums
- Sense of place, place-based education, and interpretation
- Overview of Alaska-Yukon regional geology and tectonics
- USArray seismology research and outreach in the Alaska-Yukon region
- Plate Boundary Observatory geodesy research in the Alaska-Yukon region
- Participants share interpretive resources and programs from their organizations
- Earthquake Safety and preparedness in the Alaska-Yukon region
- Introduction to Group Work
- Groups begin work on developing interpretive themes and programs based on the Alaska-Yukon region and involving EarthScope science

## **Tuesday, 29 April**

- Field trip to Anchorage in morning to look at earthquake damage from Great Alaskan Earthquake in 1964
- Group lunch in Anchorage
- Field trip near Girdwood, Alaska in afternoon to view ghost forest and other Great Alaskan earthquake damage
- Group dinner in Girdwood

## **Wednesday, 30 April**

- Meet at the Alaska Science Center
- UNAVCO and IRIS education and outreach programs and resources
- EarthScope education and outreach programs and resources
- Groups continue working on their interpretive programs
- Groups present their interpretive programs in the early afternoon