



Explore Central Great Plains Geology and Geophysics through the EarthScope Program

June 12 – 13, 2008

University of Nebraska - Lincoln

Agenda

Objective(s): Through an exploration of EarthScope learning activities as they relate to the Central Great Plains geology and geophysics, participants will

- be able to describe why EarthScope is investigating the geophysics of the Great Plains, how understanding the past can help us understand the present and future & how present day geologic phenomena can help us understand the past,
- improve their foundation in geophysics, and
- be able to implement selected EarthScope activities in their classrooms.

This is a fun filled, action packed workshop – PLEASE ask questions as you think of them!

Thursday, June 12, 2008	Welcome	<i>David Gosselin</i>
8:00 – 8:20 AM	Introduction: Sponsors & Instructors, Agenda Overview, Ice Breaker	<i>John Taber</i>
8:20 – 9:05 AM	An Overview of EarthScope / How GPS & Seismic Data Provide Evidence for Plate Tectonics Outcome: To increase participants' understanding of EarthScope, the physical processes being investigated and the improvement in our ability to assess hazards and understand our environment. Teachers will be able to describe evidence for and summarize plate tectonics. Questions & Answers	<i>John Taber / Charlotte Goddard</i>
9:05 – 10:15 AM	Exploring Earth Structure With Occam's Razor / Layers of the Earth Outcome: To use a simple model of Earth and seismic data to increase participants' understanding of Earth structure and seismic tomography. Teaching Tips and Learning Challenges	<i>John Taber</i> <i>Teacher Participants/ Shelley Olds facilitating</i>
10:15 – 10:30	Break	
10:30 – 11:25 AM	Exploring Earthquake, Volcano, and Plate Motion Relationships Outcome: Describe how the locations of earthquakes, volcanoes, and GPS velocity vectors provide evidence for plate tectonics Teaching Tips and Learning Challenges	<i>Celia Schiffman</i> <i>Teacher Participants/ Shelley Olds facilitating</i>



11:25 - 12:00 PM	Seismic Waves Basics <u>Outcome:</u> To increase participants understanding of Earthquake waves and their propagation across USArray.	<i>John Taber</i>
12:00 – 1:00 PM	Lunch	
1:00 – 2:00 PM	Structure of the Great Plains & Why is EarthScope Interested <u>Outcome:</u> Teachers will be able to describe how EarthScope's investigation in the Great Plains will improve our knowledge about the midcontinent rift and mantle transition from the western U.S. orogenic zone to the stable North American craton. Questions & Answers	<i>John Taber: Introduction</i> <i>Matt Joeckel</i>
2:00 – 2:55 PM	Build Your Own Seismograph <u>Outcome:</u> Teachers will be able to explain how each part of a seismograph contributes to the recording of seismic waves and conduct the activity with their students. Teaching Tips and Learning Challenges	<i>Kelly Reeves</i> <i>Teacher Participants/ Shelley Olds facilitating</i>
2:55– 3:10	Break	
3:15 – 4:05 PM	Locating an Earthquake Epicenter? <u>Outcome:</u> Teachers will be able to locate the epicenter of an earthquake by triangulation and calculate the time of origin of an earthquake based on seismic data and conduct the activity with their students.	<i>John Taber</i>
4:05 – 4:40 PM	Reading GPS Time Series Plots / Where are these Plates moving? <u>Outcome:</u> Teachers will be able to calculate plate velocity vectors to determine regional plate motion. Teaching Tips and Learning Challenges	<i>Shelley Olds</i> <i>Teacher Participants/ Shelley Olds facilitating</i>
4:40 – 5:00 PM	Reflection on Today's Learning / Linkages to the Big Picture	<i>John Taber</i>
5:15 PM	Take Shuttle to Museum on City Campus	
5:30 – 9:00 PM	Reception/Visit/Dinner at the Nebraska State Museum of Natural History	
FRIDAY JUNE 13, 2008		
8:00 – 8:15AM	Summary of Day 1: Using today to look into the past, Overview for Day 2: What's the future looking like	<i>John Taber</i>



8:15 – 9:00 AM	Investigating Plate Motion and Deformation in California using GPS Time Series Data <u>Outcome:</u> Teachers will calculate plate velocity vectors to determine plate motions and describe plate rebound after an earthquake.	<i>Shelley Olds</i>
9:00 – 10:00 AM	Seismic Eruption – predicting future earthquakes <u>Outcome:</u> Teachers will determine the occurrence rates of various magnitude earthquakes within a participant selected region of the Earth and the identify the relationship between regional tectonics and the seismic hazard. Teaching Tips and Learning Challenges	<i>John Taber</i> <i>Teacher Participants/ Charlotte Goddard facilitating</i>
10:00 – 10:20 AM	Break	
10:20 – 11:30 AM	Episodic Tremor and Slip in the Pacific Northwest: When is the next big earthquake? <u>Outcome:</u> Teachers will analyze GPS & seismic data to study plate motion and crustal deformation of the Pacific Northwest. Demo: Using the Earthquake Machine	<i>Shelley Olds</i>
11:30 – 11:40 AM	Further Integrating Activities into Your Teaching	
11:40 – 11:45 AM	Summary & Final Linkages	<i>John Taber Shelley Olds</i>
11:45 – 12:00 PM	Complete Evaluation & Pick up give-aways	<i>Shelley Olds</i>

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