

# EarthScope Education & Outreach

## Current Activity and Broader Impacts

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## EarthScope National Office



thanks to Greg Anderson, NSF EarthScope Program, for the use of some of these slides



## Scientific Targets

Active deformation of the crust

Evolution of North America through geologic time

Deep Earth structure and dynamics

Earthquakes, faults, and rheology

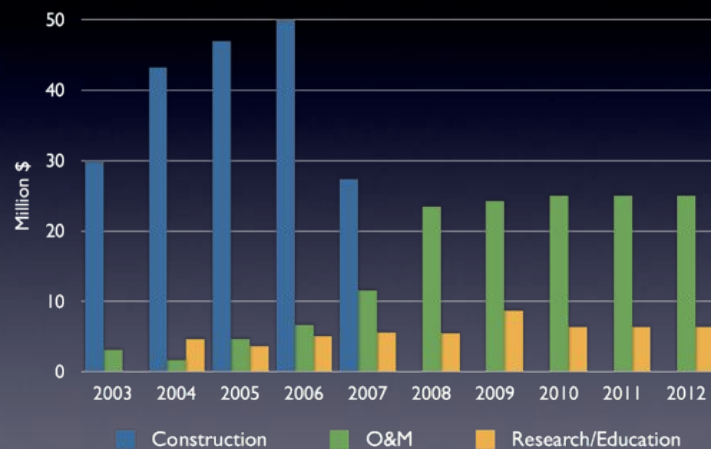
Crustal/mantle fluids and volatiles

Topography & tectonics

Hydro-, cryo-, and atmospheres



## EarthScope Program Budget



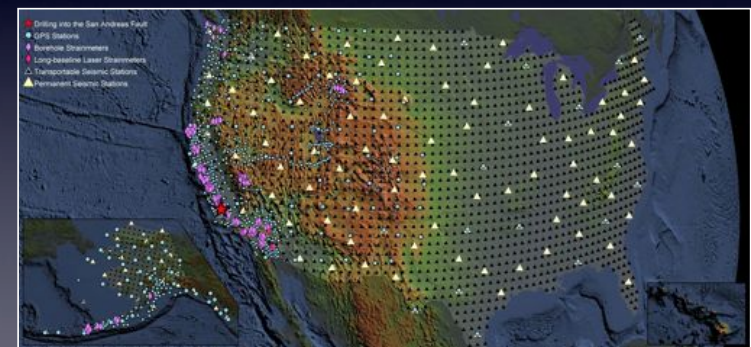
## The EarthScope Facility

**PBO**  
Geodetic  
Seismic

**SAFOD**  
Samples  
Seismic/EM

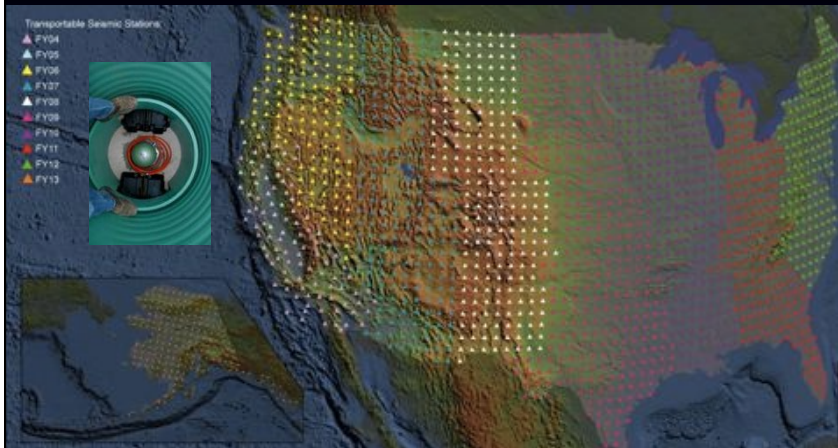
**USArray**  
Seismic  
MT

**GeoES**  
Imagery  
Geochron

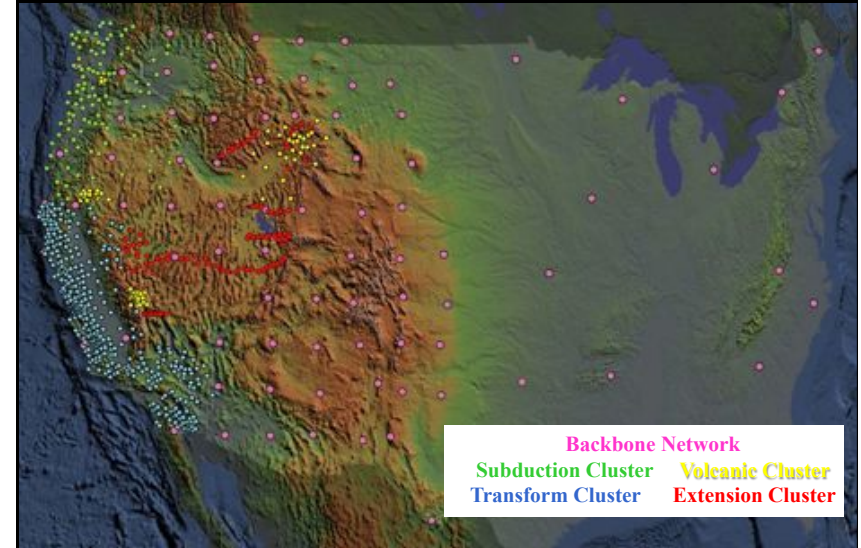


### 1. U S Array: SEISMIC NETWORK

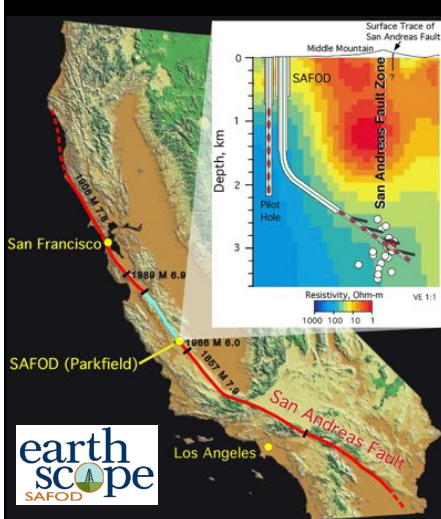
Includes 400 Transportable Array (TA) Seismometers  
Each station occupies a site for 1½ to 2 years  
10 years to leap-frog across the country



### 2. Plate Boundary Observatory (PBO): GPS GEODETIC NETWORK



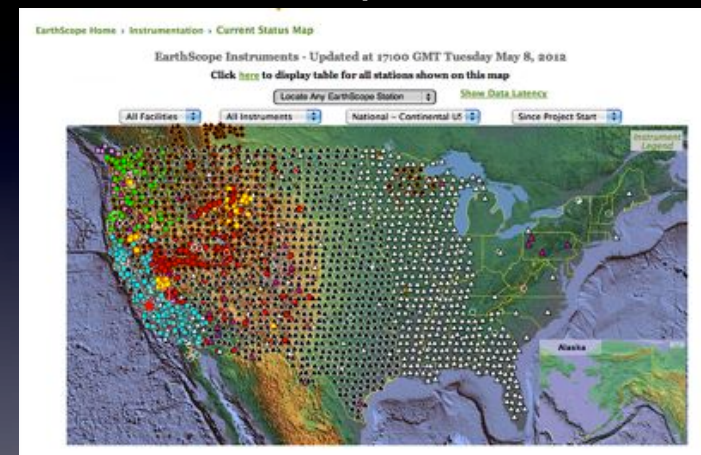
### 3. San Andreas Fault Observatory at Depth (SAFOD): SCIENTIFIC DRILLING



- 4 kilometer (2½ mile) deep hole
- Core samples
- Geophysical monitoring



### EarthScope Status



[http://www.earthscope.org/current\\_status](http://www.earthscope.org/current_status)

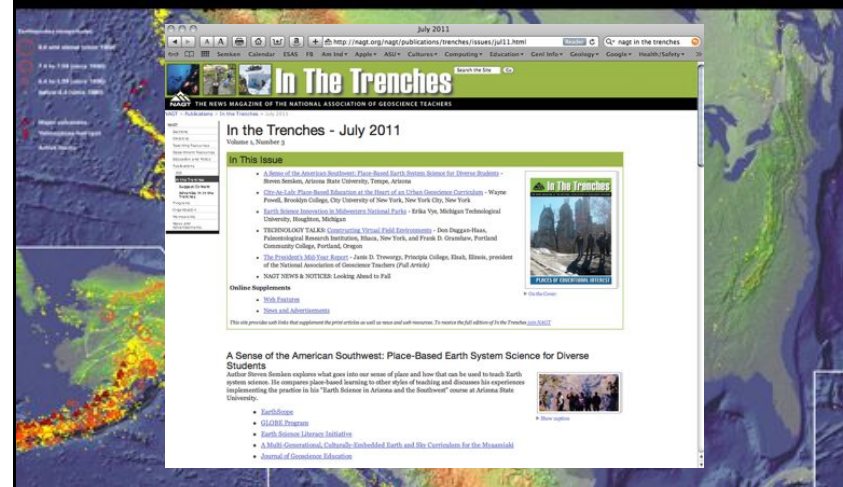


## EarthScope Interpretive Workshops

- Mix **interpretive Rangers** and **other informal educators** with EarthScope scientists to learn about current findings and design more effective Earth science interpretive programs.
- **Evaluation** shows they are highly effective and provide significant national E&O return (to Parks, etc.) on EarthScope investment.
- Most recent workshop: **Central Appalachians**, March 2012, at James Madison University, VA (Central VA Earthquake!)
- 2012-13 workshops in the **Southeast** and **New England**.



## EarthScope E&O for Place-Based Geoscience Teaching



## Community Outreach

Short courses & workshops  
Assistance to STEM teacher PD

Newsletter

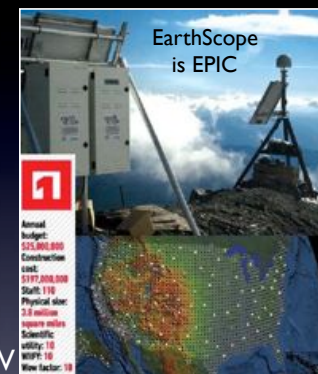
Speaker Series



## Public Outreach

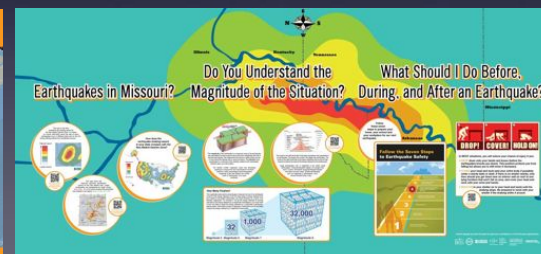
Hands-on Events

Print & TV



Web and Social Media

## YouTube Video



## A woman in a black hoodie and jeans stands in a field of tall grass, looking at a laptop. A man in a blue jacket is kneeling nearby, working on equipment connected to the laptop by a cable. A black bag and a wooden stake are also in the field.



Figures courtesy IRIS

## 83

156

96%

**>700**

# >2600

# >200

## Students



# What's Next for EarthScope?

## TA in the Eastern US

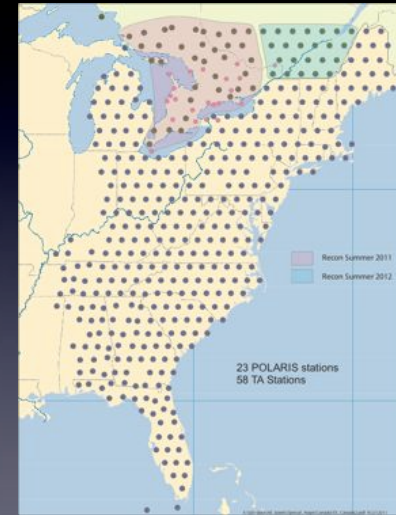


Figure courtesy IRIS

## Alaska 2014-2018



291 stations, 85 km grid

Courtesy IRIS

## EARTHSOPE NATIONAL OFFICE

@ASU

ASU SCHOOL OF EARTH  
& SPACE EXPLORATION  
ARIZONA STATE UNIVERSITY

<http://www.earthscope.org>

**Thank You!**

EarthScope is funded by the National Science Foundation

Exploring the Structure and Evolution of the North American Continent

The EarthScope scientific community conducts multidisciplinary research across the Earth sciences utilizing freely available data from instruments that measure motions of the Earth's surface, record seismic waves, and recover rock samples from depths at which earthquakes originate.

EarthScope Blog  
Science Plan for 2010-2020  
SAFOD Observatory Report  
EarthScope Institutes  
Network Station Map

EarthScope - Geophysics Science Workshop for Eastern North America outcomes report ready for review

Comment on the EarthScope Cyberscience Plan!

28 Feb 2012 - Preliminary Plan for EarthScope Cyberscience Plan for comment until April 30, 2012 PDF version

09 Feb 2012 - Attend the Integrative Workshop in Herndon, Virginia March 28-29, 2012 Application deadline is March 28th, 2012! Meeting and Application Page

12 March 2012 Update - Science Workshop for Eastern North America 28-29 October, 2011! Meeting outcomes - READ and COMMENT

EarthScope - Geophysics Science Workshop for the Central Appalachia Region

EarthScope - Geophysics Science Workshop for Cascadia

05 Nov2011 - Science workshop for Cascadia Application deadline is January 28, 2012! Meeting page