Accomplishments

* What are the major goals of the project?

Our goal is to develop contacts and improve coordination among organizations that have a relationship to EarthScope education, public outreach, or science to promote effective development, dissemination, sharing, and usage of the resources of the EarthScope project and of the participating organizations.

* What was accomplished under these goals (you must provide information for at least one of the 4 categories below)?

Major Activities:  
ESNO received funding from NSF (EAR 1216301) to organize and host a two-day **Earth Science Education and Outreach (E&O) Provider Summit** at Tempe on 20-21 February 2012. Eleven organizations:

- *American Geosciences Institute* [AGI];
- *Consortium of Universities for the Advancement of Hydrologic Science, Inc.* [CUAHSI];
- *Critical Zone Observatories* [CZO];
- *Drilling, Observation, and Sampling of the Earth’s Continental Crust* [DOSECC];
- *Geodynamic Processes at Rifting and Subducting Margins* [GeoPRISMS];
- *Incorporated Research Institutions for Seismology* [IRIS];
- *National Center for Earth-surface Dynamics* [NCED] with *Geoscience Alliance* [GA];
Specific Objectives:

Significant Results:

Key outcomes or Other achievements:
Following the Provider Summit, EarthScope E&O personnel have given invited presentations on the EarthScope Program and EarthScope science to Earth and Space Sciences teachers participating in several AGI-sponsored Teacher Leadership Academies (professional development workshops): at Houston, TX in summer 2011; at Tempe, AZ in summer 2011 and 2012; and at Pasadena, CA in summer 2013. EarthScope will also participate in a workshop planned for Salisbury, MD in summer 2014. Further, Provider Summit funding was used to bring Dr. Ian MacGregor, an AGI representative who also attended the Provider Summit, to participate in the 2013 EarthScope National Meeting in Raleigh, NC.

GeoPRISMS and EarthScope

The participation by GeoPRISMS in the Provider Summit led directly to regular invited participation by a GeoPRISMS researcher, Dr. Peter van Keken, as a facilitator in the ongoing series of EarthScope Interpretive Workshops, including the Northeastern workshop in fall 2013 and the upcoming Alaska/Yukon workshop in spring 2014.

Geoscience Alliance (NCED) and EarthScope

Provider Summit funding was used to bring Dr. Diana Dalbotten, director of the Geoscience Alliance, to participate in the 2013 EarthScope National Meeting in Raleigh, NC. Dr. Dalbotten is a regular collaborator with EarthScope on E&O, including a planned series of Native American Science Educator Workshops, in the same vein as the Interpretive Workshops but aimed at formal educators in Native American communities, beginning in 2015.

Southern California Earthquake Center and EarthScope

The participation by SCEC in the Provider Summit led directly to regular invited participation by a GeoPRISMS researcher, Dr. Robert deGroot, as a facilitator in the ongoing series of EarthScope Interpretive Workshops, including the Southeastern workshop in spring 2013, the Northeastern workshop in fall 2013, and the upcoming Alaska/Yukon workshop in spring 2014.

Past and current EarthScope National Offices

Dr. Bob Lillie, the E&O Director for the previous ESNO at Oregon State University, participated in the Provider Summit and shared his experience and expertise with all participants. Further, Provider Summit funding was used to bring Dr. Lillie to participate in the 2013 EarthScope National Meeting in Raleigh, NC. Thus, the Provider Summit enhanced continuity of knowledge transfer between the two sequential ESNO programs.

Geoscience Alliance and CUAHSI

Dr. Diana Dalbotten of the Geoscience Alliance and Dr. Rick Hooper, director of CUAHSI, were both participants at the Provider Summit, and met there to discuss common interests regarding water-resources and other hydrological issues relevant to Native American nations. As a result, Dr. Dalbotten and the GA are now actively collaborating with CUAHSI.

* What opportunities for training and professional development has the project provided? 

The Provider Summit provided opportunities for Earth science E&O professionals to share expertise and experiences, first in
an informal workshop, and subsequently by telecommunication and by informal gatherings at EarthScope exhibits at national Earth science conferences such as AGU and GSA.

* How have the results been disseminated to communities of interest?

ESNO has disseminated the details and outcomes of the Provider Summit project through its multiple outlets, which include the EarthScope website (and the Provider Summit pages on the SERC website), EarthScope social media (including a blog and Facebook page), the publication "InSights," and professional presentations at national conferences in 2012 and 2013 (the abstracts for which are appended to this Report).

Products

Books

Book Chapters

Conference Papers and Presentations


Inventions

Journals

Licenses

Other Products

Other Publications

Patents

Technologies or Techniques

Thesis/Dissertations

Websites

*EarthScope Earth Science Education and Outreach Provider Summit*

http://serc.carleton.edu/earthscope-eno/index.html
The website hosted by SERC was initially used as workspace for participants during the Provider Summit. It now provides a permanent link to the websites of all participating organizations, a summary of the project and its goals, and an archive of the materials produced by the Provider Summit working groups.

*Provider Summit on the EarthScope Workshops Page*

This page on the main EarthScope website provides information on the Provider Summit and a link to the SERC Provider Summit webpages.

### Supporting Files

<table>
<thead>
<tr>
<th>Filename</th>
<th>Description</th>
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<th>Uploaded On</th>
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<td>ESN0_PS_Abstracts.pdf</td>
<td>Published abstracts.</td>
<td>Steven Semken</td>
<td>04/08/2014</td>
</tr>
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### Participants/Organizations

**What individuals have worked on the project?**

<table>
<thead>
<tr>
<th>Name</th>
<th>Most Senior Project Role</th>
<th>Nearest Person Month Worked</th>
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</thead>
<tbody>
<tr>
<td>Semken, Steven</td>
<td>PD/PI</td>
<td>2</td>
</tr>
<tr>
<td>Arrowsmith, J Ramón</td>
<td>Co PD/PI</td>
<td>1</td>
</tr>
<tr>
<td>Dick, Cynthia</td>
<td>Other Professional</td>
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</tr>
<tr>
<td>Taylor, Wendy</td>
<td>Other Professional</td>
<td>1</td>
</tr>
</tbody>
</table>

**Full details of individuals who have worked on the project:**

**Steven C Semken**

*Email:* semken@asu.edu  
*Most Senior Project Role:* PD/PI  
*Nearest Person Month Worked:* 2

**Contribution to the Project:** Principal investigator; led planning and organization of and presided over the Provider Summit; was primary contact with SERC; led post-Summit communications and reporting.

**Funding Support:** NSF EAR-1101100

**International Collaboration:** No

**International Travel:** No

**J Ramón Arrowsmith**

*Email:* ramon.arrowsmith@asu.edu  
*Most Senior Project Role:* Co PD/PI  
*Nearest Person Month Worked:* 1

**Contribution to the Project:** Co-principal investigator; collaborated in planning and organization of the Provider Summit; was co-presider; collaborated with PI on post-Summit communications and reporting.
Cynthia Dick
Email: cindy.dick@asu.edu
Most Senior Project Role: Other Professional
Nearest Person Month Worked: 1

Contribution to the Project: ESNO Project Manager: Provided logistical support including participant travel and lodging arrangements; meeting arrangements; and grant management.

Funding Support: NSF EAR-1101100
International Collaboration: No
International Travel: No

Wendy Taylor
Email: wendy.taylor@asu.edu
Most Senior Project Role: Other Professional
Nearest Person Month Worked: 1

Contribution to the Project: ESNO Education and Outreach Manager: assisted PI in planning and organization of summit; worked with Project Manager on logistical details; co-presided over Provider Summit.

Funding Support: NSF EAR-1101100
International Collaboration: No
International Travel: No

What other organizations have been involved as partners?

<table>
<thead>
<tr>
<th>Name</th>
<th>Type of Partner Organization</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Geosciences Institute</td>
<td>Other Nonprofits</td>
<td>Alexandria, VA</td>
</tr>
<tr>
<td>CUAHSI</td>
<td>Other Nonprofits</td>
<td>Washington, DC</td>
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<tr>
<td>UNAVCO</td>
<td>Other Nonprofits</td>
<td>Boulder, CO</td>
</tr>
<tr>
<td>Critical Zone Observatories</td>
<td>Other Nonprofits</td>
<td>State College, PA</td>
</tr>
<tr>
<td>DOSECC</td>
<td>Other Nonprofits</td>
<td>Salt Lake City, UT</td>
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<tr>
<td>GeoPRISMS</td>
<td>Other Nonprofits</td>
<td>Houston, TX</td>
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<td>Incorporated Research Institutions for Seismology</td>
<td>Other Nonprofits</td>
<td>Washington, DC</td>
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<tr>
<td>National Center for Earth-surface Dynamics</td>
<td>Other Nonprofits</td>
<td>Minneapolis, MN</td>
</tr>
<tr>
<td>Organization Name</td>
<td>Type</td>
<td>Location</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>--------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Network for Earthquake Engineering Simulation</td>
<td>Other Nonprofits</td>
<td>West Lafayette, IN</td>
</tr>
<tr>
<td>Southern California Earthquake Center</td>
<td>Other Nonprofits</td>
<td>Los Angeles, CA</td>
</tr>
<tr>
<td>U.S. Geological Survey</td>
<td>Other Organizations (foreign or domestic)</td>
<td>Reston, VA</td>
</tr>
</tbody>
</table>

**Full details of organizations that have been involved as partners:**

**American Geosciences Institute**

**Organization Type:** Other Nonprofits  
**Organization Location:** Alexandria, VA

**Partner's Contribution to the Project:**  
In-Kind Support  
Collaborative Research

**More Detail on Partner and Contribution:**

**CUAHSI**

**Organization Type:** Other Nonprofits  
**Organization Location:** Washington, DC

**Partner's Contribution to the Project:**  
Collaborative Research

**More Detail on Partner and Contribution:**

**Critical Zone Observatories**

**Organization Type:** Other Nonprofits  
**Organization Location:** State College, PA

**Partner's Contribution to the Project:**  
Collaborative Research

**More Detail on Partner and Contribution:**

**DOSECC**

**Organization Type:** Other Nonprofits  
**Organization Location:** Salt Lake City, UT

**Partner's Contribution to the Project:**  
Collaborative Research

**More Detail on Partner and Contribution:**

**GeoPRISMS**

**Organization Type:** Other Nonprofits
Organization Location: Houston, TX
Partner's Contribution to the Project: Collaborative Research

More Detail on Partner and Contribution:

Incorporated Research Institutions for Seismology

Organization Type: Other Nonprofits
Organization Location: Washington, DC

Partner's Contribution to the Project: In-Kind Support
Collaborative Research

More Detail on Partner and Contribution:

National Center for Earth-surface Dynamics

Organization Type: Other Nonprofits
Organization Location: Minneapolis, MN

Partner's Contribution to the Project: Collaborative Research

More Detail on Partner and Contribution:

Network for Earthquake Engineering Simulation

Organization Type: Other Nonprofits
Organization Location: West Lafayette, IN

Partner's Contribution to the Project: Collaborative Research

More Detail on Partner and Contribution:

Southern California Earthquake Center

Organization Type: Other Nonprofits
Organization Location: Los Angeles, CA

Partner's Contribution to the Project: Collaborative Research

More Detail on Partner and Contribution:

U.S. Geological Survey

Organization Type: Other Organizations (foreign or domestic)
Organization Location: Reston, VA
**Partner's Contribution to the Project:**
Collaborative Research

**More Detail on Partner and Contribution:**

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**UNAVCO**

**Organization Type:** Other Nonprofits  
**Organization Location:** Boulder, CO

**Partner's Contribution to the Project:**
In-Kind Support  
Collaborative Research

**More Detail on Partner and Contribution:**

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**Have other collaborators or contacts been involved?** No

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**Impacts**

**What is the impact on the development of the principal discipline(s) of the project?**

The Provider Summit brought the key education and outreach personnel of eleven leading Earth science organizations together—some for the very first time. The Provider Summit facilitated communication and interaction and has already enhanced the E&O program of EarthScope through direct participation by some of these providers. We anticipate that these collaborations will continue and enhance Earth science education and public outreach through the specific missions of the participating organizations.

**What is the impact on other disciplines?**

Although the participating organizations were invited to the Provider Summit on the merits of their work in Earth science education and public outreach, all of them have interdisciplinary interests (e.g., CUAHSI, DOSECC, and NEES: engineering; IRIS and UNAVCO: physics; and so on). These organizations contribute to formal education and public literacy in these disciplines as well, so Provider Summit outcomes are more broadly shared.

**What is the impact on the development of human resources?**

Nothing to report.

**What is the impact on physical resources that form infrastructure?**

Nothing to report.

**What is the impact on institutional resources that form infrastructure?**

Nothing to report.

**What is the impact on information resources that form infrastructure?**

Participating organizations have contributed their links (and hence access to their resources and products) to the broader community through the SERC and EarthScope websites.

**What is the impact on technology transfer?**

Nothing to report.
What is the impact on society beyond science and technology?
Nothing to report.

Changes/Problems

Changes in approach and reason for change
Nothing to report.

Actual or Anticipated problems or delays and actions or plans to resolve them
Nothing to report.

Changes that have a significant impact on expenditures
Because not all funds designated for participant costs were expended during the Provider Summit itself, the PI requested and received permission from NSF to use these funds to bring representatives of the participating organizations to the EarthScope National Meeting in Raleigh, NC, in spring 2013. The funds were used to cover travel, lodging, and subsistence. Representatives of AGI, Geoscience Alliance, and the prior ESNO thus had an unforeseen opportunity to attend and participate actively in the National Meeting.

Significant changes in use or care of human subjects
Nothing to report.

Significant changes in use or care of vertebrate animals
Nothing to report.

Significant changes in use or care of biohazards
Nothing to report.