Earth and Space Science - Closed

- **AccessData Workshops** —
  
  **Principal Investigator:** Tamara Shapiro Ledley and LuAnn Dahlman  
  **Funders:** National Science Foundation  
  **Website:** [http://serc.carleton.edu/usingdata/accessdata/index.html](http://serc.carleton.edu/usingdata/accessdata/index.html)

  TERC is expanding the work of the DLESE Data Services project through an annual workshop bringing together scientific and educational communities to develop educational modules using Earth science data and data analysis tools. More »

- **Amazing Earth CASIS Education** —
  
  **Principal Investigator:** Dan Barstow  
  **Funders:**  
  **Website:** [http://www.windowsonearth.org/](http://www.windowsonearth.org/)

  Through *Amazing Earth CASIS Education*, TERC will develop web-based educational activities that use images from the International Space Station. More »

- **Astrobiology Afterschool** —
  
  **Principal Investigator:** Dan Barstow  
  **Funders:** National Aeronautics and Space Administration and the National Science Foundation

  The Astrobiology Afterschool Instructor's Guide has been designed to meet the unique needs of afterschool students. Astrobiology Afterschool engages learners in the fascinating study of the possibilities of life elsewhere in the universe. More »

- **Astrobiology Institute Educator Resource Guide** —
  
  **Funders:** National Science Foundation

  In affiliation with NASA's Astrobiology Institute, TERC developed the Astrobiology Institute Educator Resource Guide, a series of five hands-on activities to introduce core ideas in Astrobiology. More »

- **Center for Ocean Science Education Excellence (COSEE)** —
  
  **Funders:** National Science Foundation

  The New England Aquarium, Woods Hole Oceanographic Institution, and University of Massachusetts are working to create a New England Regional Center for Ocean Science Education Excellence. More »

- **Climate Change Education and the Media** —
  
  **Funders:** National Science Foundation

  This project seeks to overcome the challenges of effectively communicating the facts of climate change by combining new and ongoing initiatives to create an approach to climate change education in which students gain an understanding of cutting edge science and new media tools. In this, TERC is working with UMass-Lowell More »

- **DataTools** —
  
  **Principal Investigator:** Nick Haddad and Tamara Shapiro Ledley  
  **Funders:** National Science Foundation  
  **Project Website:** [http://serc.carleton.edu/eet/msdatatools/](http://serc.carleton.edu/eet/msdatatools/)

  The DataTools project is facilitating middle and high school science teachers' and students’ use of Earth system science data and the IT tools needed to analyze and draw conclusions from the data. More »

- **Diversity and Innovation for Geosciences (DIG) Texas** —
  
  **Principal Investigator:** Tamara Shapiro Ledley  
  **Funders:** National Science Foundation and the University of Texas at Austin  
  **Website:** [http://cleanet.org/](http://cleanet.org/)

  DIG Texas aims to strengthen Earth science education in Texas by ensuring that the state’s Earth and Space Science capstone course is taught at the appropriate level by teachers who are aided by online, well-defined and standards-aligned course 'roadmaps' (blueprints) comprising recommended research-based learning activities and teacher resources. More »
• **DLESE Data Services - Earth System Science Data in Education —**

  **Principal Investigator:** Tamara Shapiro Ledley  
  **Funders:** National Science Foundation

  Through the Digital Library for Earth System Education (DLESE), this project is organizing workshops that bring together Earth science data providers, developers of data access and analysis/exploration tools, and developers of educational resources to guide the development of effective and usable data access and analysis tools and educational modules that access these tools and data.  

• **Earth Exploration Toolbook —**

  **Principal Investigator:** LuAnn Dahlman and Tamara Shapiro Ledley  
  **Funders:** National Science Foundation  
  **Website:** http://serc.carleton.edu/eet

  The Earth Exploration Toolbook (EET) project is creating a collection of step-by-step guides for educators at both the pre-college and college levels on how to use, in an educational context, various Earth system tools and data sets developed and archived by and for scientists.  

• **Earth Exploration Toolbook Workshops —**

  **Principal Investigator:** Carla McAuliffe and Tamara Shapiro Ledley  
  **Funders:** National Science Foundation  
  **Website:** http://serc.carleton.edu/eet/workshops.html

  Earth Exploration Toolbook (EET) Workshops is a professional development program in which teachers carry out data analysis techniques and learn to use the National Science Digital Library (NSDL) and the Digital Library for Earth System Education (DLESE).  

• **Earth Exploration Toolkit Workshops —**

  **Principal Investigator:** Carla McAuliffe  
  **Funders:** National Science Foundation  
  **Website:** http://serc.carleton.edu/eet

  EET (http://serc.carleton.edu/eet) is an online resource for teachers and students. It is a collection of computer-based learning activities within the National Science Digital Library (NSDL) and the Digital Library for Earth System Education (DLESE).

• **Earth Science by Design —**

  **Principal Investigator:** Harold McWilliams  
  **Funders:** National Science Foundation  
  **Website:** http://www.esbd.org/

  Earth Science by Design has developed and field-tested a year-long program of professional growth for middle and high school Earth science teachers.

• **Earth System Science: A Key to Climate Literacy —**

  **Principal Investigator:** Tamara Shapiro Ledley  
  **Funders:** National Aeronautics and Space Administration

  TERCl is developing an Earth Systems Climate EarthLabs module that will join four existing EarthLabs modules (focused on Hurricanes, Fisheries, Corals, and Drought).  

• **Earth to Orbit Engineering Design Challenges: Personal Satellite Assistant —**

  **Principal Investigator:**  
  **Funders:** NASA

  TERC and NASA are creating a challenge for grades 5–9 related to the Personal Satellite Assistant (PSA), an intelligent robot being developed by NASA to assist astronauts in orbit.

• **Earth-to-Orbit Engineering Design Challenges — Principal Investigator:**  
  **Funders:**  
  **Website:** http://eto.nasa.gov/
This program is designed to help students in grades 6-9 learn math and science through carrying out hands-on engineering activities in their classrooms. More »

- **EarthKAM** —

  **Principal Investigator:** Dan Barstow
  **Funders:** NASA

  EarthKAM is NASA's ground-breaking initiative that allows students to have direct access to, and control of, a digital camera mounted on the International Space Station. More »

- **Enhancing the Use of Data in Education** —

  **Principal Investigator:** Tamara Shapiro Ledley
  **Funders:** National Science Foundation

  This project facilitates the active integration of research and education by bringing together a professionally-diverse community that includes data providers, tools developers, scientists, curriculum developers, and educators for the purpose of 1) informing each other of their data use needs and capabilities, 2) contributing their expertise to the development of an educational module (a chapter in the *Earth Exploration Toolbook*) that features research quality Earth science datasets and data analysis tools, and 3) developing ongoing relationships with professionally diverse colleagues. More »

- **Expanding GeoFORCE Texas** —

  **Principal Investigator:** Harold McWilliams
  **Funders:** National Science Foundation

  *GeoFORCE Texas* is the Jackson School of Geosciences (JSG) at the University of Texas-Austin's outreach program geared towards attracting minority high school and undergraduate students to careers in the geosciences. More »

- **Expanding the Data Cycle** —

  **Principal Investigator:** Tamara Shapiro Ledley
  **Funders:** National Science Foundation

  The project provides middle school teachers with the ability to access and analyze Earth science data sets, use data analysis tools (IT), and adapt them in a way that addresses both the interests and curricular needs of their students. More »

- **Eyes in the Sky II: Facilitating Classroom Research Using NASA Resources and Geospatial Technology** —

  **Principal Investigator:** Carla McAuliffe and Erin Bardar
  **Funders:** National Aeronautics and Space Administration

  Expanding on TERC's existing professional development program to reach a national audience, *Eyes in the Sky II* offers high school science teachers a long term, multi-faceted program that provides them with the tools to integrate NASA data, visualizations, and other technologies vital to Earth Science research into their teaching practices. More »

- **Eyes in the Sky: Applied Information Technology** —

  **Principal Investigator:** LuAnn Dahlman, Jeff Lockwood, and Carla McAuliffe
  **Funders:** National Science Foundation

  Earth-orbiting satellites are producing an avalanche of scientific data about our planet. Information technology (IT) provides the tools necessary to explore, model, interact with, and analyze these data. More »

- **Facilitating a Deeper Understanding of Change in the Earth System on Multiple Time Scales** —

  **Principal Investigator:** Tamara Shapiro Ledley
  **Funders:** National Science Foundation

  The goals of this project are to: 1) build, mainly with existing resources, a sequence of scaffolded activities and investigations that will help students more fully understand how the cryosphere changes on multiple time scales and how it impacts and is impacted by the other components of the Earth system; and 2) investigate the effectiveness of the developed sequence of activities and investigations at helping students understand how and why a component of the Earth system varies over time to apply that knowledge to improve the unit of activities used in this study, and to make that knowledge and materials available to the broader educational community. More »

- **Interactive Earth** —

  **Principal Investigator:**
  **Funders:** National Science Foundation
TERC, in partnership with WorldLink, Inc. and with the cooperation of NASA Earth Observatory, is developing a DVD entitled "Interactive Earth 2.0." More »

- **Investigating Astronomy**
  
  **Principal Investigator:** Jodi Asbell-Clarke  
  **Funders:** National Science Foundation  
  **Website:** http://ia.terc.edu/  
  
  TERC, in partnership with the National Optical Astronomy Observatory and the Astronomical Society of the Pacific, has developed *Investigating Astronomy* - a set of instructional materials for high school students studying astronomy. More »

- **Revolutionizing Earth System Science Education for the 21st Century**
  
  **Principal Investigator:** Dan Barstow and Martos Hoffman  
  **Funders:** National Oceanic and Atmospheric Administration  
  **Website:** http://www.oesd.noaa.gov/  
  
  The National Oceanic and Atmospheric Administration (NOAA) commissioned TERC to complete a review of science education standards for all 50 states. The study analyzed K-12 Earth science standards to determine how well each state addresses key Earth-science content, concepts and skills. More »

- **Search for Extraterrestrial Life Museum Exhibit**
  
  **Principal Investigator:**  
  **Funders:**  
  
  TERC is working with the New York Hall of Science to create a permanent exhibit entitled "Extreme Life." More »

- **Seasons of Change**
  
  **Principal Investigator:** Erin Bardar  
  **Funders:** The Watson Institute for International Studies  
  **Website:** http://seasons.terc.edu  
  
  TERC is designing the citizen science component for *Seasons of Change*, an interactive traveling exhibition that will illustrate the impact of climate change on regional landscapes over the changing of the seasons. More »

- **Space Science Careers: Building Hinode XRT, A Space X-Ray Telescope**
  
  **Principal Investigator:** Nick Haddad  
  **Funders:** National Aeronautics and Space Administration  
  
  TERC and its partners are developing a resource for high school guidance counselors to introduce high school students to space science careers. More »

- **Transforming Instruction by Design in Earth Science (TIDES)**
  
  **Principal Investigator:** Harold McWilliams and Carla McAuliffe  
  **Funders:** US Department of Education  
  
  Funded by the Department of Education Institute of Education Sciences, this project is a partnership of SRI, TERC, the American Geological Institute, and Duval County Public Schools. The project evaluates how Earth system science teaching and learning can be improved by using different mixes of curriculum materials and teacher professional development strategies. More »

- **Using EarthScope Data in Secondary Classrooms**
  
  **Principal Investigator:** Tamara Shapiro Ledley  
  **Funders:** National Science Foundation and UNAVCO  
  
  TERC is improving the educational outreach for EarthScope, a partnership between NASA, the NSF, and the US Geological Survey using modern technology to investigate the geological processes shaping the North American continent. More »

- **Windows on Earth: CASIS**
  
  **Funders:** National Aeronautics and Space Administration and the Center for the Advancement of Science in Space (CASIS)  
  **Website:** http://www.windowsonearth.org/  
  
  Through a new project, *Amazing Earth CASIS Education*, TERC will develop web-based educational activities that use these images in STEM, geography and other domains. More »