Lamont-Doherty Earth Observatory Located on a 157-acre campus on the Hudson River, the Lamont-Doherty Earth Observatory (LDEO) is the only research center in the world examining the planet from its core to its outermost atmosphere, across every continent and every ocean. From global climate change to earthquakes, volcanoes, shrinking natural resources, environmental hazards and beyond, LDEO scientists continue to provide the basic knowledge of Earth systems that must inform the wise stewardship of our planet. LDEO’s annual open house is an exciting opportunity for adults and children of every age to learn about the Earth in fun and engaging ways.
Hudson River Research

Hudson Marsh
Use microscopes to look at seeds and pollen, complete a plant puzzle, and see glacial clay.

Coral skeletons
Come and see how tropical corals can tell us about droughts and river floods in the past.

TENT 3: SEISMOLOGY, GEOLOGY & TECTONOPHYSICS DIVISIONS
Visit http://www.ldeo.columbia.edu/res/div/sgt/

Build an Earthquake-Resistant House!
Junior Engineers: Can you build a house strong enough to survive an earthquake? You will be given materials to build an "earthquake-resistant" house and the one that survives an "earthquake" wins!

The Verrazano Bridge Project
Learn about what happens to the Verrazano Narrows Bridge before, during and after the 2004 NY Marathon from GPS and accelerometer monitoring.

LDEO Seismology in the Field
This display presents results from CANOE (Canadian Northwest Experiment), the deployment of nearly 60 seismometers spanning 1,200 miles of northwestern Canada that records distant earthquakes.

Hudson River History
Learn how the Hudson River has changed and how climate has been changing in New York City for the last 7,000 years.

Rockland County Rainfall and Drought
An analysis of the historical rainfall record reveals that drought emergencies in Rockland County relate as much to increasing population and demand for water as they do to deficient rainfall.

Make Your Own Earthquake
With the use of a portable seismograph, visitors can see ground movements generated by their motion.

SEISMOLOGY BUILDING
LECTURES AND DEMONSTRATIONS BY SCIENTISTS
Seminar Room, 2nd floor:
11:00 a.m.  Earthquakes in the Stable Continental Regions: Earthquakes in Eastern North America with Won-Yung Kim
1:00 p.m.  World Disaster Hotspots with Arthur Lerner-Lam
2:30 p.m.  Geodynamics for All: The Conversation Between the Inside and the Outside of the Earth with Ben Holtzman

Room 201: Lamont-Doherty Cooperative Seismographic Network
See a demonstration of the modern, real-time seismographic network for the East Coast. Learn about earthquakes in the Northeastern U.S. and view the LCSN web page (http://www.LDEO.columbia.edu/LCSN) for images of recent earthquake activity. (Group size is limited.)

Room 214: Rock Touching Room
Touch and examine rocks and minerals from around the world.

TENT 4: MARINE BIOLOGY

BIOLOGY AND PALEO ENVIRONMENT DIVISION

The Aquatic Food Web
Learn about the connections between aquatic organisms and the importance of plankton. See aquatic organisms under the microscope. Build your own plankton net.

TENT 5: FOOD TENT

TENT 6: GEOCHEMISTRY

Groundwater Flow and Transport
LDEO scientists study how water and pollutants move in the ground. Visitors may explore the interactive sand tanks, developed in collaboration with NYC teachers. For more information, visit http://research.radlab.columbia.edu/ems/edout.

The Solid Earth Cycle
In the last half-century earth scientists have related dynamic processes, such as volcanic eruptions and earthquakes, to the motions of large tectonic plates on Earth's surface. Rocks bear witness to this cycle, recording the birth of new ocean floor, volcanoes and mountain ranges, as well as their destruction. Come see and touch these rocks for yourself.

Carbon Cycle Research
Learn about changes in the global carbon cycle in the past, the present and the future. Investigate the effects of human activities on the carbon cycle. See how much CO2 (carbon dioxide) you contribute by breathing, how plants affect CO2, and how CO2 sequestration can help reduce global warming in the future.

Make Your Own Earthquake

GEOCHEMISTRY BUILDING

Tour the clean lab where trace elements are separated from rock samples under ultra-clean conditions, and then onto the mass spectrometer lab, where isotope ratios are measured on samples as small as a billionth of a gram. LDEO staff will demonstrate the uses of mass spectrometry in the earth sciences to determine ages of samples, to trace geological processes, and to investigate the history of our planet. (Group size is limited.)

Room 6: Clean Chemistry Lab
Room 18: Mass Spectrometer Lab

TENT 7: OCEAN AND CLIMATE PHYSICS

Climate Phenomena
Investigate the physics of climate phenomena in the atmosphere and oceans, and how changes affect the environment. View tank experiments modeling some of the amazing processes found in oceans and the atmosphere.
**Tent 10: Marine Operations/Marine Geology & Geophysics Division**

**Marine Operations**

**Marine Geology and Geophysics**

**Lake Vostok, Antarctica**
Buried under 2.5 miles of ice in the heart of the Antarctic continent lies Lake Vostok, one of the world’s largest freshwater lakes. LDEO is using radar data and GPS measurements to understand the dynamics of the water exchange system of the lake. Visit [http://www.earth2class.org/k12/w8_s2005/index.php](http://www.earth2class.org/k12/w8_s2005/index.php)

**GeoMapApp/Looking at Maps from the Ocean Floor**
GeoMapApp is a data exploration and visualization tool—an integrated mapping application developed at Lamont. See how this tool provides unique visualization opportunities. Visit [www.geomapapp.org](http://www.geomapapp.org)

Join Lamont scientists, Girl Scouts of America, and the Lower East Side Girls Club as they explore ways to find their way around campus, including using a GPS. Collect a campus map from the girls at the welcome tent to participate as you visit all the Open House events.

**Tent 11: Academic Resources**

**Department of Earth and Environmental Sciences**
Talk with representatives from the Department of Earth and Environmental Sciences to learn about pursuing a degree or an internship program in the earth sciences at Columbia University. High school students who would like advice about how to best take advantage of Open House should come here. Visit [http://eesc.columbia.edu/](http://eesc.columbia.edu/)

**Earth2Class**
“E2C” is a unique professional development program designed to improve the knowledge, teaching and technology skills of middle and high school science educators. The E2C Team provides theme-related content information, curriculum activities, technology integration and educational resources. Visit [http://www.earth2class.org/k12/w8_s2005/index.php](http://www.earth2class.org/k12/w8_s2005/index.php)

**Digital Library for Earth Science Education (DLESE)**

**Barnard College**
Learn about Barnard College’s undergraduate major in Environmental Sciences. Visit [http://www.barnard.edu/envsci/](http://www.barnard.edu/envsci/)

**E3B/Center for Environmental Research and Conservation (CERC)**
Speak with representatives of the Department of Ecology, Environment and Evolutionary Biology and the Center for Environmental Research and Conservation (CERC) about the environmental biology major and the CERC undergraduate program.

**Earth Institute’s Office of Educational Programs**
Find out about the University’s Environmental Science and Policy master’s degree program integrating environmental science with policy analysis and management principles.
**TREE RING LABORATORY**

**BIOLOGY AND PALEO ENVIRONMENT DIVISION**

Dendrochronology is the science of analyzing annual growth rings of old trees to learn about past environmental changes. There are many applications of tree-ring analysis that assist scientists in myriad disciplines, including climatology (e.g., El Niño, droughts, and global warming), earthquake history, archaeology, forestry, fire, history, art history and even law. View tree core collections from around the world and discover the many ways in which tree ring scientists gather, interpret and use tree ring information to unfold history.


---

**TENT 12: BATHTUB SCIENCE**

Feel how a bathtub full of cornstarch and water can be used to understand the dynamics of the solid Earth.

---

**TENT 13: BOREHOLE RESEARCH GROUP**

**MARINE GEOLOGY AND GEOPHYSICS DIVISION**

Discover the world of downhole logging, where scientists unlock the mysteries of our planet by deploying an assortment of geophysical tools in holes drilled deep into Earth’s crust.


---

**TENT 14: DINOSAURS**

**BIOLOGY AND PALEO ENVIRONMENT DIVISION**

Dinosaurs once ruled the very ground that LDEO occupies today. Examine the beginning of the age of dinosaurs in New York, New Jersey and Pennsylvania through the research of a LDEO paleobiologist. Visitors will see local fossils from 200 million years ago, including those of dinosaurs and their contemporaries, and exhibits describing the unique geological setting and history of our region.

---

**TENT 15: LDEO CHILD DEVELOPMENT CENTER**

Hands-on activities for young children and information about on-site childcare in Bright Horizons daycare center.

---

**MONELL BUILDING, MONELL AUDITORIUM**

**EARTH SCIENCE LECTURES**

**Monell Building, Monell Auditorium**

**11:00 – 11:30 a.m.**  
*Earth Science and Disasters: The Indian Ocean Tsunami and Hurricane Katrina: What Have We learned?*  
Dr. Klaus Jacob  
Senior Research Scientist  
Lamont-Doherty Earth Observatory

**11:45 a.m. – 12:15 p.m.**  
*The Earth Institute and Climate Change*  
Dr. Jeffrey D. Sachs  
Director  
The Earth Institute at Columbia University

**12:30 – 1:00 p.m.**  
*Understanding the Global Warming Forecast: Our Past and Future Climate*  
Dr. Peter deMenocal  
Associate Professor  
Lamont-Doherty Earth Observatory

**1:15 – 1:45 p.m.**  
*Verrazano Narrows Bridge Before, During and After the 2004 NY Marathon from GPS and Accelerometer Monitoring*  
Dr. Mikhail G. Kogan  
Doherty Research Scientist  
Lamont-Doherty Earth Observatory

**2:00 – 3:00 p.m.**  
*Columbia University Undergraduate Admissions Information Session for High School Students*  
Jessica Marinaccio  
Director of Undergraduate Admissions  
Columbia University

**3:15 – 3:45 p.m.**  
*Illuminating the Floor of the Hudson River*  
Dr. William Ryan  
Doherty Senior Scholar  
Lamont-Doherty Earth Observatory

---

**Underwritten in part by our generous sponsors:**

- Kongsberg
- Sun Microsystems
- The Ergonomic Group
- Dell