OPEN HOUSE
SATURDAY, OCTOBER 4, 2008, 10:00 AM to 4:00 PM
Located on a 157-acre campus on the Hudson River, the Lamont-Doherty Earth Observatory (LDEO) is one of the world’s leading research centers seeking fundamental knowledge about the origin, evolution and future of the natural world. More than 300 research scientists study the planet from its deepest interior to the outer reaches of its atmosphere, on every continent and in every ocean. From global climate change to earthquakes, volcanoes, non-renewable resources, environmental hazards and beyond, Observatory scientists provide a rational basis for the difficult choices facing humankind in the planet’s stewardship.
New York Region Paleovegetation-Paleoclimate

What was the climate like at the end of the Ice Age in the New York area? What kinds of plants and animals were here? How do we find out what living here? Microscopes, botanical samples and glacial clay will be used to help understand methods and ancient fossils in the region. Tree puzzle for kids.

Marshes as Archives of Change

Hudson marshes as archives of paleoenvironmental change give us information about climate change, invasive species, human impacts and pollution history. Marshes such as Piermont indicate shifts in charcoal, organic matter, and elements such as Zn, Ti and K, which are related to changes in climate and human impact.

Marine Operations: The Next Generation of Excellence in Research at Sea

In 2008 LDEO completed the conversion and began operation of the global class research vessel R/V Marcus G. Langseth. The R/V Marcus G. Langseth is operated as an academic research vessel and a member of the University-National Oceanographic Laboratory System (UNOLS) fleet of research vessels.

The R/V Marcus G. Langseth, a general purpose research vessel, possesses the highly specialized capability to carry out 2D and 3D multi-channel seismic programs for deep imaging of the earth's structure. The ship is also outfitted with a state-of-the-art multi-beam system for mapping the ocean's bottom.

Visit www.ldeo.columbia.edu/res/div/sgt/

Disaster Preparedness Around the World

Lamont scientists advise many countries and institutions around the world on disaster risk reduction and management. We also partner with aid agencies and nonprofit organizations to help deliver the best available technical information to people most at risk. This exhibit, developed together with one of our nonprofit partners, displays some of the materials that are distributed to communities facing the specter of natural hazards.

Memory of Great Earthquakes Deep Within the Earth

Great earthquakes disturb the earth’s mantle, the viscous layer at depths of 100-200 kilometers. We still observe by GPS the anomalous movement on the surface caused by the 1964 Alaska earthquake and the 1960 Chile earthquake. Columbia University now monitors the 2006 Kuril earthquake.

Global Research Projects—A Slide Show

Come see a recurring slide show of the exotic, remote and unique locations where our scientists conduct their research.

Seafloor Vibrations: Ocean-Bottom Seismometers at Lamont

Lamont is home to the Ocean-Bottom Seismometer Instrument Facility, which operates a fleet of 30 broadband seismometers under the sponsorship of the National Science Foundation. These complex instruments must be able to drop to the seafloor, record earthquakes for a year, and then return to the surface on command. An instrument will be on display to illustrate how the design tackles each of these challenges, and show how recorded data are used to study structures and processes deep in Earth’s crust and mantle.

Bamboo Bike Project

Bicycles are the primary mode of mobility for millions in poorer parts of the world. Bamboo is grown in Africa, and bamboo bicycles have the potential to be a sustainable business, providing local employment in areas away from power and other facilities. Objectives of this project are to: 1) build a better bike for poor Africans in rural areas; and 2) stimulate a local bicycle building industry in Africa.

LECTURES AND DEMONSTRATIONS BY SCIENTISTS

Seismology Building, Seminar Room, 2nd Floor

11:00 a.m. Adventures in Siberia: A Trip to the Largest Impact Event of the 20th Century (Tunguska) with Dallas Abbott

1:00 p.m. Earthquake Prediction in the Shadow of Chaos with Bruce Shaw

2:30 p.m. Sounds of Seismology: Listening to the Earth with Giant Ears 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 United States and view the LCSN Web page (www.LDEO.columbia.edu/LCSN) for images of recent earthquake activity. (Group size is limited.)

The Earthquake Ring

If you were standing on the surface of Earth during an earthquake, you would hear a low rumble at the bottom of your ears’ limits of perception; the rest you would feel. Now imagine you are deep inside Earth, listening to the earthquakes popping and ringing around the surface. Come step inside this 24-foot diameter global simulator and experience the astounding sound of Earth!

Room 214: Rock Touching Room

Touch and examine rocks and minerals from around the world.

CIESIN is a research and data center that studies human interactions with the environment and in turn, how environmental change affects society. We produce, collect and distribute data, often transforming it into maps and interactive graphics. We develop mapping tools that combine different kinds of data in new ways, increasing possibilities for understanding by other scientists, policymakers and the general public. Exhibits touch on a range of sustainability issues. Learn about climate change impacts; take a virtual tour of the Hudson River Watershed with our new mapping tool; discover how researchers assess disaster vulnerability; see what a biodiversity map looks like—and why it can aid conservation efforts; find out the ways recent environmental changes may affect human health.

FOOD TENT


The Gary C. Comer Geochemistry Building is Lamont's new state-of-the-art laboratory building. This crown jewel of the Lamont campus was made possible by a generous gift from the late Gary Comer as well as through the support of Columbia Trustee Gerry Lenfest, the Ambrose Monell Foundation and an anonymous donor. Please visit the first floor and learn more about Lamont today!
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.

Climate Change: Carbon Cycle-Carbon Sequestration
Climate change is damaging our planet at an alarming pace. Come see how scientists from the Geochemistry Division present their research about Earth’s past and present climate, and how we can tackle the global warming problem. Innovative solutions are demonstrated.

Stump the Geologist
Bring your rocks and minerals to Mr. Wizard to be identified and described.

Children and Pollutants
Learn about the development of miniaturized air monitors that help monitor children’s location, activity levels and exposure to air pollutants and their uses in public health studies.

The New York Ice Age and the Cosmogenic Nuclide Lab at Lamont
See former ice extents in New York State and cosmogenic nuclide dates of glacial features from locations such as Long Island, Staten Island, Central Park, Harriman State Park, Black Rock Forest and the Lamont Campus. Come see when your area became ice-free.

Dates and Rates in the Earth Sciences: Lamont’s Ar Geochronology Lab
An important aspect of earth sciences is placing time constraints on strata and events. Constraining the ages of events recorded in Earth’s history is an essential part of understanding the significance of the events. Application of multiple minerals with multiple isotope systems can yield important constraints on the erosion history of mountains. Ongoing projects in Lamont’s Ar Geochronology Lab include applications to both development of the Geologic Time Scale and to Thermochronology—the uplift and denudation history of a region.

LECTURES AND DEMONSTRATIONS BY SCIENTISTS

GARY C. COMER BUILDING, Seminar Room, 1st Floor
11:00 a.m. Science to Sustain the Planet
See some of Lamont’s star scientists on the big screen.

1:00 p.m. The Gamburtsev Mountains: Terra Incognita with Robin Bell

3:00 p.m. Science to Sustain the Planet
See some of Lamont’s star scientists on the big screen.

EARTHQUAKE INSTRUMENT MUSEUM
Visit www.ldeo.columbia.edu/research/seismology-geology-tectonophysics

Earthquake Monitoring Instruments
It is known as the “swimming pool vault,” because it was the swimming pool of the Thomas Lamont family until the late 1940s. Walk underneath the Lamont cafeteria and see old and new earthquake monitoring seismographs. You can see your footsteps being detected and recorded by sensitive seismometers.

OPEN HOUSE PROGRAM 2008
Lamont-Doherty Earth Observatory The Earth Institute at Columbia University
for undergrads as well as intern programs for undergrads. High school
students who would like advice about how to best take advantage of
Open House should come here. Visit www.eesc.columbia.edu/

Barnard College
Learn about Barnard College’s undergraduate major in Environmental
Science, Environmental Biology and Environmental Policy. Young
women in high school interested in environmental sciences who are
thinking about colleges should stop by our table and see what Bar-
nard has to offer. Visit www.barnard.edu/envsci

The Earth Institute’s Office of Academic and Research Programs
Find out about the University’s many degree and non-degree
programs in earth systems, environmental policy and sustainable
development. Learn about research opportunities and other ways
for students to get involved with the Earth Institute at Columbia
University. Visit www.earth.columbia.edu/articles/view/50

INTERNATIONAL RESEARCH INSTITUTE
FOR CLIMATE AND SOCIETY (IRI)
TROPICAL AGRICULTURE AND RURAL
ENVIRONMENT PROGRAM

Visit www.iri.columbia.edu
Visit www.earth.columbia.edu/tropag/index.php
IRI scientists work to find new ways of using climate information and
forecasts to help people cope with the risks of climate vari-
ability and change. See how climate information can be used to
improve practices in areas such as public health, agriculture, food
security, water resources and fire management. View exhibits also
from IRI partners: the Center for Research on Environmental Deci-
sions (CRED) and the Tropical Agriculture and Rural Environment
Program.

Climate Information Stations
See demonstrations of new ways of mapping, displaying and shar-
ing climate and environmental information.

To Pollute or Not To Pollute
Join a “commons dilemma” game created by the Center on Research
for Environmental Decisions (CRED) and learn about group decision
making and environmental impacts. Games start at 10:30 a.m., 11:30
a.m., 12:00 p.m., 12:30 p.m., 1:30 p.m., 2:00 p.m. and 2:30 p.m.

Apprentice Meteorologist
Become an “Apprentice Meteorologist” and test your skills drawing
your own weather map.

It’s Called a Polyhedra
Cut, fold and tape your very own paper globe that shows land sur-
faces and sea surface temperatures.

Talks in the IRI Tent
11:00 a.m. Recent Climate Events and Impacts
with Michael Bell
1:00 p.m. The Decade After Tomorrow: Near-term
Climate Change
with Arthur Greene
3:00 p.m. IRI Multi-Model Probability Forecasts for
Precipitation and Temperature: October-
November-December 2008 and January-
February-March 2009
with Tony Barston

MARINE GEOLOGY AND GEOPHYSICS
Visit www.ldeo.columbia.edu/res/div/mgg/

Honey, We Shrunk the Ice!
Find out why sea ice in the Arctic is decreasing, and what impact
these changes will have on polar bear and walrus habitats.

GeoMapApp: Mapping the Ocean Floor
GeoMapApp is a free data exploration and visualization tool devel-
oped at Lamont. See how this tool helps us visualize and explore
the seafloor. Visit www.geomapapp.org

Lamont-Doherty Geocache
Use the Global Positioning System (GPS) and your knowledge of
geography to navigate to Geocache sites around campus where you
can learn about the science, history and natural history of Lamont.

Seeing with Sound: Earthquakes in an Expanding Ocean
Find out how we used sound waves beneath the Marmara Sea to
unravel the history of earthquakes in this geologically active area.

You Mean the Solid Earth Actually Flows?
Come see our corn syrup physical models to learn about mantle
plumes, lava flows and glacial rebound.

Beneath the Ice: The Planet’s Last Unexplored Mountain Ranges
In 2008 an international team of scientists will complete the first
major study of the Gamburtsev Mountains, hidden beneath the ice
sheet in East Antarctica!

Mid-Ocean Ridges: Exploring the Deep
Sounds and sites from the deep seafloor with demonstrations on how
we explore mid-ocean ridges. Dive in Alvin and shrink your own cup.

BIOLOGY AND PALEO ENVIRONMENT DIVISION
Tree-ring scientists will demonstrate how they use tree rings to learn
about past climates and better understand the climate of today.
For the past four years, scientists have been collecting tree-ring
samples from around Asia (China, Mongolia, Southeast Asia, Philip-
pines, Nepal, Taiwan, Indonesia, etc.) to better understand rains of
the Asian Monsoon. These rains, or lack thereof, can affect billions
of people’s lives.

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

BOREHOLE RESEARCH GROUP
Visit www.ldeo.columbia.edu/BRG

MARINE GEOLOGY AND GEOPHYSICS DIVISION
Like detectives in a mystery novel searching for clues, scien-
tists in the Borehole Research Group deploy an assortment of
geoophysical tools in holes drilled deep into Earth’s crust. The
information they gather allows them to reconstruct the tectonic,
climatic and biological history of the planet—and may provide
insights to its future.
**EARTH SCIENCE LECTURES—MONELL BUILDING AUDITORIUM**

11:15 a.m. – 11:45 a.m. **A New Energy Strategy for the U.S.**
Jeffrey D. Sachs, Director
The Earth Institute at Columbia University

12:00 p.m. – 12:30 p.m. **North American Drought**
Benjamin I. Cook, Postdoctoral Research Scientist, Division of Ocean and Climate Physics
Lamont-Doherty Earth Observatory

12:45 p.m. – 1:15 p.m. **Hotspots of Emerging Diseases—Where Are the Risks Highest and What Should We Do?**
Marc A. Levy, Senior Staff Associate
Center for International Earth Information Network (CIESIN)

1:30 p.m. – 2:00 p.m. **Melting Arctic Ice**
Stephanie Pfirmann, Chair
Department of Earth and Environmental Sciences
Barnard College

2:15 p.m. – 3:15 p.m. **Science Opportunities at Columbia University**
Join faculty and current students for a discussion about undergraduate opportunities in the sciences at Columbia and learn how these connect with the variety of graduate and professional work in the sciences at the University.
For more information on corporate sponsorships, please contact Stacey Vassallo at 845-365-8634 or staceyv@LDEO.columbia.edu.
IN THE EVENT OF AN EMERGENCY GO TO ANY LAMONT PHONE AND DIAL 555. STATE YOUR EMERGENCY AND YOUR LOCATION.