Special Exhibition
“UNDERGROUND - Adventure in the Darkness Created by Imagination and Science”
Opens on Saturday, 22 September 2007


Underground. There extends a vast frontier as mysterious as the universe. This exhibition depicts the world of darkness that no one has ever seen, using as clues the recent research findings on the underground, the earth’s last frontier, and images of the underground that have been depicted in myths, novels and philosophy with exuberant fancy.

Many researchers have been trying to figure out under what conditions life was generated and how living beings have been affected by the earth’s environment in the process of evolution. As a clue to the mystery, the underground has been closely examined. The underground is not only a place where vestiges of the past remain but also a place where a vast amount of life forms surpassing those on the earth still exist.

What the underground has revealed to us is an astonishing fact: an environmental change stemming from the underground structure that can be repeated in future could bring about a mass extinction of life from time to time. If we look at the underground from the viewpoint of science and technology, we notice that our lives, existence and living itself depend on and stem from the unseen underground. Not only does the underground supply resources and contain such infrastructure as transportation networks and life lines, but the self-sustaining structure of the earth itself and the energy generated inside it are supporting life on the surface. When we look at the underground, i.e. the structure of the earth, we notice that a variety of elements are intertwined and that the structure itself indicates the earth’s 4.6 billion year history. We also notice that the structure is deeply connected with our “Now,” for example, in the depletion of natural resources or environmental issues.

Research into the underground world is a journey back to the origin of life or even the origin of the earth, leading our view on into the distant future of the earth.

While the exhibition is on, a “journey to the center of the earth” tour to inspect underground facilities, a talk event with experts, “Tell us about the underground,” and other related events are planned. For those who carry a Toei Subway commuter ticket, the admission charge will be reduced.

[Outline]
Duration: September 22 (Sat), 2007 - January 28 (Mon), 2008
Open: 10:00-17:00 (no entry after 16:30)
Venue: 1F Special Exhibition Zone a, the National Museum of Emerging Science and Innovation (Miraikan)
Closed: Every Tuesday (except National Holidays, spring, summer, and winter vacation periods) and December 28 - January 1
Admission Fees: Adults: 900 yen; 18 years old and under: 350 yen
Group of eight or more persons-- Adults: 800 yen; 18 years old and under: 310 yen
Organizers: The National Museum of Emerging Science and Innovation (Miraikan), The Asahi Shimbun
In association with: Ministry of Education, Culture, Sports, and Science and Technology, Ministry of Land, Infrastructure and Transport, Tokyo Metropolitan Government Board of Education
Special Sponsors: Nuclear Waste Management Organization of Japan (NUMO), Japanese Committee for the International Year of Planet Earth (IYPE), Rolex (Japan) Inc., Japan Expanded Polystyrene Recycling Association
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Chief Director: Dr. Asahiko Taira, Board Member of Japan Agency for Marine-Earth Science and Technology (JAMSTEC)

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“The Adventure Begins”/ “The Underground Starts Just Below our Feet” [Urban Uses for Underground Space]/ “Preparing to Go Underground”
This exhibit displays videos of underground facilities which are necessary for urban life, such as tunnels and subways, and creature living under the ground, letting you imagine an invisible underground.

“Time Capsule [Time Capsule EXPO ’70 Project]”/ Noah’s Ark [Svalbard Global Seed Vault]
This exhibit displays the project of the time capsule which was buried in EXPO ’70. It was buried to be opened in the future 5,000 years later. It also displays Norway’s project of preserving several million agricultural seeds in preparation for devastating disasters. You can understand how the underground connects the past with the future.

“Treasures beneath the Earth [Underground Resources]”/ “Committing to the Earth [Disposal of Radioactive Waste]”
This exhibit explores mysteries such as the cutting-edge technology of oil exploration and the reality of the Oil Shock and displays plans to bury at a safe depth of over 300 meters high-level nuclear waste created by the recycling of nuclear fuel. It reviews the relations between underground resources, which have taken millennia to be produced, and human activities above the ground.

“Excavating the Memory of Ice [Cores from the Ice Sheet]”/ “The Lake No One Has Ever Seen [Lake Vostok, at the South Pole]”
This exhibit explores the history of the global environment from the study of excavating ice-sheets in the South Pole. It also displays Lake Vostok, the world’s largest underground lake, at the South Pole.

“The Tree of Life [Universal Phylogenetic Tree, the Family Tree of All Living Things on the Earth]”/ “Branching out from the Common Ancestor [Commonote]”
Research is being made on the premise that all living things generated from a common ancestor (commonote) by the progress of molecular evolution. The fruit of such research will be expressed in this exhibit in an interactive form as the “Tree of Life.”

“A Portrait of Life Underground [Creatures that Live Underground]”
It is said that there are more species under the ground than above it, and their special mode of ecology is a focus of attention to apply to industry and as a key to solve the mystery of the origin of life. This exhibit will take up the mystery of underground species which live in an extreme environment without sunlight or oxygen.

This exhibit will introduce the “Theory of the Origin of Life Underground,” the theory which holds that mineral clay in the ground became intricately linked with materials on the primitive earth and produced the basis of life.

“History in the Darkness [Giant Meteorite Collision]”
It is said that 76% of all species were wiped out en masse 65 million years ago when a giant meteorite struck the earth. This exhibit will make an approach to this major event in the history of the earth by linking the results of earth science, such as a simulation of the meteorite collision, and that of biology through verifying fossils.

“The Day the Earth Froze [Snowball Earth]”
It is said that the “Snowball Earth,” in which the earth was covered entirely by ice, occurred three times in its 4.6 billion-year history. This exhibit will show the evidence for this phenomenon discovered from underground and solve the mystery by displaying a gigantic globe.

“From Underground to Our Planet’s Core [the Earth’s Internal Structure]”
This exhibit will show the dynamics inside the earth through recent simulation imagery, and visitors can actually feel the weight of the core, experience the speed of the mantle, and more.

“The Beginning and End of the Underground [The Origins of the Earth]”
The structure of the underground suggests the origin of the earth. This exhibit introduces the origin, evolution and the future of the earth by linking with discoveries in astronomy.

“4.6 Billion Year Clock” Earth System
Inside the earth, all elements are closely inter-related like wheels inside a clock, deeply connected with our life on the earth, such as the formation of resources and the climatic cycle. The timescale ticking underground is expressed as a “4.6 billion year clock,” and visitors can feel the heartbeat of the earth.

Related press releases and pictures can be downloaded from the Miraikan website. (http://www.miraikan.jst.go.jp/e/press/) Preparations for the exhibition up to its opening are shown on the special site. The column series on the “underground” can be also found in the mail magazine “Miraikan News.”