In Touch with the Earth

2013 Featured Theme

Beginning April 19, Ars Electronica Center Linz

(Linz, April 19, 2013) Climate and vegetation zones, ice masses, mountain ranges and deep-sea trenches, bush and forest fires, the routes of migratory birds. Or how about metropolitan areas, networks of streets and railway lines, light pollution, production and consumption of energy, the internet and Big Data. The Ars Electronica Center's high-definition examination of the multifarious interrelationships between the micro- and macrocosm, among local and global facts & circumstances is entitled "In Touch with the Earth." A key role in this close-up encounter is played by new technologies and imaging procedures that deliver sensational impressions of the processes at work within our planet's ecosystem as well as the spaces and networks that have been erected by humankind. The featured theme "In Touch with the Earth" debuts on April 19, 2013. To kick things off, we're presenting the new GeoPulse exhibition area as well as "Overview," a collection of breathtaking 2-D and 3-D visualizations in Deep Space. The "In Touch with the Earth" featured theme is produced with the support of the National Museum of Emerging Science and Innovation Miraikan in Tokyo, DORIS, the Province of Upper Austria's digital spatial information system, and TERRA MATER – Factual Studios.

Overview

From an Astronaut's Point of View

Ever since the first human missions in outer space, astronauts have been taking photos of the Blue Planet. Probably the most famous one was snapped during what remains the last manned flight to the Moon in December 1972. The crew of Apollo 17 succeeded in taking a spectacular shot of the fully illuminated Earth, an image that quickly attained iconic status in the environmental protection movement and was present at the birth of global awareness of humankind's responsibility for dealing sustainably with our planet and its resources. The astronauts of the International Space Station have been photographing Earth since 1998. Orbiting at an average altitude of about 350 kilometers and a speed of 28,000 km/h, the ISS offers its crew a fantastic vantage point. The photos they take are published by NASA and

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made available to the general public for free. Knate Myers (US) took advantage of this offer and assembled hundreds of these images into an impressive time-lapse video that's now being showcased on Deep Space's 16x9-meter screen. Viewing it is just like sitting inside the ISS with your nose pressed to the window and staring down at Earth—beholding the sea of lights of our megalopolises, spectacular cloud formations and storms, the almost mystical Aurora Borealis.

Virtual Globe

Global processes occupy the focal point of the Tsunagari project. The word tsunagari means "relationship" and refers to the theme of an artistic-scientific initiative launched by Tokyo's National Museum of Emerging Science and Innovation Miraikan. Installed in the middle of Japan's largest science center, Geo-Cosmos is a freely-swinging globe that's six meters in diameter and studded with 10 million organic LEDs. This one-of-a-kind, spherical screen features animated content—the change of the seasons worldwide, the distribution and density of this planet's forests, seismic activities, snow & ice masses at the poles, forest & bush fires, the Earth by night, and much, much more. You can experience the virtual 3-D version of Geo-Cosmos right now in Deep Space at the Ars Electronica Center.

Low-altitude Flight above the Earth

NASA's World Wind brings you back down to earth, almost. It lets you take a low-altitude cruise over snow-capped mountain ranges, blue lakes and green forests, or though the skyscraper-lined canyons of big cities. High-definition images in 16x9-meter format, informative graphics and fascinating stories guarantee an extraordinary journey of discovery clear across the planet. NASA World Wind came out in autumn 2004. This open-source software makes it possible to superimpose satellite & aerial imagery onto a virtual globe and to add accompanying altitude data. The results are highly detailed, three-dimensional graphics of every region on the surface of the Earth. NASA's World Wind now includes many different models (or Worlds) and incredibly extensive pictorial material of the Earth, the Moon, and other planets of our Solar System. The total quantity of data NASA makes available is approximately 4.6 terabytes. World Wind now also features an open interface, so that anyone can develop his/her own add-ons to expand World Wind with new models, additional images and/or new functions. Typical examples are points of interest and trip itineraries, place names, and aerial & satellite images of particular regions.

TERRA MATER: You, Planet – An Exploration in 3D

Discovering and comprehending the world are the watchwords of TERRA MATER – Factual Studios. In conjunction with this year's featured theme "In Touch with the Earth," all future episodes of TERRA MATER will be simulcast free of charge in the Ars Electronica Center's Deep Space (16x9-meter, 4x high-definition screen) at the same time they're broadcast on Servus TV (every Wednesday at 8:15 PM). Leading off this lineup is an incredible 3-D documentary that shows the human body in ways you've never seen it before. Extreme slow-motion footage, shots by remote-controlled miniature cameras, and imaging performed by

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state-of-the-art electron microscopes provide astounding insights into our body and our habitat. This will be followed by an episode in the "Miracle of Life" series: The Nature of Energy (Wednesday, April 24, 2013, 8:15 PM), Sense and Sensors (Wednesday, May 1, 2013, 8:15 PM) and Oasis in Space (Wednesday, May 8, 2013, 8:15 PM).

GeoPulse

"GeoPulse" is a walk-through infographic that was developed by AE Solutions, the newest division of Ars Electronica Linz. The city as habitat is the centerpiece of this interactive databank. Interactive maps, high-definition panoramas and intuitive simulation tools offer user-friendly opportunities to explore all sorts of cities: a small-fry like Linz, megalopolises such as New York, Beijing and Lagos, as well as future cities that exist only on drawing boards at the moment. The information available here is stored to memory and accessed by means of Anoto technology. Here's how it works: First, a grid of 0.1-millimeter dots spaced 0.3 millimeters apart is printed out onto a piece of paper, whereby the arrangement of the dots varies slightly on each printout. Each 6x6 set of dots yields unique coordinates that can now be assigned to particular content—a text, an image or a video. These links are now stored in a digital pen, the tip of which is equipped with a tiny camera. When the pen moves across the printed piece of paper, the camera reads the coordinates, sends them via Bluetooth to a computer processor that, in turn, displays the corresponding content.

A Foray through Linz

Whatever you're interested in—demographic developments, infrastructure for transportation, energy and communication, social welfare facilities, the art & culture scene, educational institutions or housing projects—the possibilities of discovering Linz in all its many facets are virtually unlimited here. An interactive city map and three jumbo projection screens provide a convenient way to explore the city's past, present and future.

DORIS – Upper Austria's Digital Spatial Information System

Like every city, there's a multilayered interrelationship linking Linz with its surrounding suburbs. You can take a closer look at Linz's metro area on an interactive map of the region. All the available data is provided by DORIS, Upper Austria's digital spatial information system. Since 2000, DORIS has collected and interlinked a wealth of information related to geography provided by various agencies of the provincial government. Plus, DORIS offers data resulting from laser & infrared scans of the entire region, which make it possible, for example, to hide vegetation and buildings and display only the topography.

Megacities of the Present and Cities of the Future

At World Café, there's seating for guests at three tables. What's served up there is all about New York, Beijing and Lagos. The "silverware" is an Anoto pen you can use to access

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information, pictures and videos on a wide array of subjects. Here, you can get complete details about the development of the respective city's population, the names of all the neighborhoods as well as where they're located and how big they are, the layout of the main traffic arteries, where the most popular movies, theaters, museums, recreational facilities and parks are situated, where the VIPs live, and lots more.

A fourth table spotlights cities of the future—actual construction projects and drawing-board renderings. They include Konza Techno City, a high-tech metropolis 60 kilometers from Kenya's capital; Masdar City, an ecological development in Abu Dhabi; and the Khazar Islands, 40 artificial islands off the coast of Azerbaijan that will one day be the home of over a million people. There's also an installation presenting the Venus Project that Jacque Fresco launched in the 1970s. The key concepts are a resource-based economy and vertical cities in which entire neighborhoods are clustered together in huge skyscrapers and horizontal urban sprawl becomes a thing of the past.

Skyscrapers – The Icons of Our Metropolises

They grow taller and taller, impress us with their increasingly extravagant forms and structures, help to economize on resources and avoid CO2 emissions, epitomize the picture postcard motif, and are tourist attractions in their own right—the subject here is, of course, skyscrapers, the icons of our cities. GeoPulse highlights the 18 biggest and most imposing specimens—those already completed, buildings currently under construction, and projects still in the planning phase. They include the Burj Khalifa in Dubai, at 828 meters the world's tallest building, as well as the Mecca Royal Clock Tower Hotel, TAIPEI 101, the Shanghai World Financial Center, the International Commerce Center in Hong Kong, New York's ONE WORLD TRADE CENTER that's been under construction since 2006, and, last but not least, Vienna's DC Tower, a 220-meter high-rise that's the tallest building in Austria.

World Statistics

These are country comparisons that vividly depict the effects of climate change, the rapid growth of megalopolises, average life expectancy, income disparities, urban traffic flows and much more.

NASA Worldwind: http://worldwind.arc.nasa.gov/java/
View from the ISS at Night: http://vimeo.com/channels/staffpicks/45878034
Tsunagari Project: http://www.miraikan.jst.go.jp/en/sp/tsunagari/index.html
Geo-Cosmos – Scientific Content: http://www.miraikan.jst.go.jp/en/sp/tsunagari/geocosmos.html
Making of Geo-Cosmos: http://www.youtube.com/watch?feature=player_embedded&v=l_vPHal1lTI#!
TERRA MATER / You, Planet – An Exploration in 3D: http://www.terramater.at/productions/you-planet/
DORIS (in German): http://doris.ooe.gv.at/
Ars Electronica Center: http://www.aec.at/news/en/

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