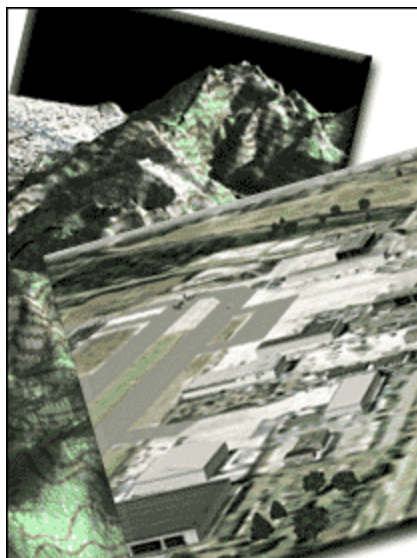


Data Applications

SIMULATION MODELING WITH 3D DEMS



**DEMs Bring New Dimension
 to GIS Modeling**

The world of GIS is moving rapidly from flat, geo-referenced images to powerful three-dimensional, motion simulations. Digital, realistic "fly-throughs" are no longer restricted to video game experiences. Military planners, transportation network developers, homeland security professionals, and civil engineers are increasingly employing motion simulations to support planning and training objectives. Several software applications now offer affordable platforms and extensions to enable novice users the capability to create custom fly-throughs. LAND INFO, a leading provider of international GIS datasets, is working with several clients on 3D simulation modeling.

A primary component of 3D

Himalaya mountains, Papua New Guinea, Athens, Hong Kong, and other regions on the DEMs for its popular Flight Simulator series. It then integrated a variety of additional datasets, including satellite imagery, aerial photos, airport data, hydrology files, and transportation datasets.

Microsoft is creating simulations so realistic that the U.S. Navy is now utilizing a custom version of its Flight Simulator game to help train its pilots. "Our goal is to deliver a visual experience that is as close to reality as technically possible," commented Jan Zukin-Neutz, GIS Data Manager for Microsoft's Entertainment Business Unit. "Now with modern geospatial data, such as LAND INFO's terrain models, the games are becoming very true-to-life."

Another frequent application of 3D simulation is right-of-way utility planning. Engineers, telecom developers, and utility managers are integrating base maps, property data, and proposed utility routes to visualize utility lines. Through digital applications, planners can make on-the-fly changes to evolve the models. This capability saves time and money. It also enables the planners to foresee and react to potential complications prior to beginning construction.

LAND INFO's DEM production process is designed to maximize

Coverage Spotlight

TANZANIA UTILIZING GIS TECHNOLOGIES

Tanzania is well known for its remote African landscapes, from peaks on Mt. Kilimanjaro to the desert plains of the Serengeti. The country has also received worldwide attention for primate research, including Jane Goodall's break-through chimpanzee research at the Gombe Game Reserve during the 1960s. However, the country is also making big strides in applying GIS technologies. GIS is helping to identify and guide action on a number of water management, biodiversity protection, energy development, health control, food security, and environmental planning initiatives.



Tanzania has over 800 km of tropical shoreline. Its coastal region is home for thriving tourism and natural gas industries, which account for a significant segment of the country's economy. However, the area's success threatens pristine coastal habitats and offshore coral reefs. Therefore, Tanzanian officials have implemented coastal management programs. GIS data collection, monitoring, and analysis is the basis for these programs. Several organizations, including EIS-Africa

simulations is digital elevation model (DEM) data. This is a three-dimensional interpretation of an area's ground terrain. LAND INFO specializes in producing DEMs for areas outside the United States. It creates DEMs by extracting contour elevation data from international topographic maps. Since DEMs retain their geo-referenced attributes, they can easily be integrated with other geospatial data, such as imagery, map feature data. Additionally, LAND INFO DEMs are output in standard industry formats that integrate well with leading simulation software, such as Terrex.

Microsoft is one of LAND INFO's clients utilizing DEMs to create 3D simulations. It based landscape animations of the

the ability to integrate its DEMs with feature data, such as roads, hydrology, and map landmarks. Since all these layers are produced from the same source topographic map, the seamless integration is extremely accurate. Additionally, LAND INFO DEMs undergo strict RMSE (root mean square error) calculations. This calculation validates the accuracy of the DEM's contour elevation values with the source topographic map. The end result is a high-resolution, accurate DEM.

LAND INFO DEMs are available in 10-meter, 30-meter, and 90-meter grid postings. The grid posting value will be dependent on the corresponding scale of the source topographic map. The DEMs are available for over 125 countries outside the United States.

and the United Nations Environment Programme's Division of Early Warning, have been active in implementing new GIS databases. In 2001, the country's eastern coastline was mapped as part of the broader Eastern African Action Plan.

This data, combined terrain models, ecological field surveys, and remote sensing data, is being used to analyze changes in available resources, land use patterns, and identify greatest risk areas. As a result, land use zoning, tourism development restrictions, land rehabilitation efforts, and conservation activities are underway in the region.

Another Tanzania project is utilizing GIS to identify the most effective lands to expand the Udzungwa Mountains National Park. The park represents the only section in East Africa where the natural forest cover

Education Outreach

LAND INFO DONATES TECHNOLOGY TO DISADVANTAGED STUDENTS

LAND INFO International, based in Denver, has made a donation to Technology For All-Colorado (TFAC), a non-profit initiative creating educational and economic opportunities for disadvantaged people through access to technology. The organization is part of The Jared Polis Foundation.

"As part of our Education Outreach Program, LAND INFO gave several computers, monitors, and accessories," explained **Kevin Kuluvar**, General Manager of LAND INFO.

"This is a relatively easy way companies can address the digital divide in the United States. We encourage other companies to participate in this beneficial program."

The Jared Polis Foundation was

corporations to donate used, working computer equipment. TFAC then erases hard drives, installs new software, and places the computers in community technology centers in low-income neighborhoods. These technology labs use the computers for adult job training, and after-school programs for elementary and middle-school students.

LAND INFO's outreach program also includes presentations to elementary schools in the Denver area. Currently, the company is finalizing plans for this year's GIS Day events on November 20, 2002. GIS Day is a national grassroots event to publicize and showcase the real-world applications of geo-technologies. The company hopes to expand on student workshops it coordinated last year.

is intact from lowlands at 1,000 foot elevations to higher mountainous vistas at 9,000 feet above sea level. This vast elevation range creates one of the most diverse vegetation coverages in the world. The area is home for a richly diverse amount of threatened primates and birds.

The Udzungwa research project is headed by Conservational International. Its goal is to provide recommendations to the World Wildlife Fund and Tanzania National Parks (TANAPA) on the most important habitat locations and forest blocks to include in the extended park boundaries. This required Conservation International to produce an accurate vegetation and land cover map. This base data is then used to support biodiversity surveys and monitoring of critical habitat areas. The project combines habitat data, vegetation & land cover data, contour elevations, and satellite imagery.

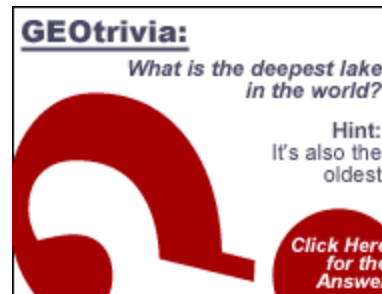
LAND INFO International offers high-resolution DEMs, contour elevations, topographic maps, and extracted map features (*i.e. roads, waterways*) for Tanzania and the

started by Jared Polis, a successful Internet entrepreneur that founded ProFlowers.com, BlueMountain.com, and other companies.

TFAC works closely with the Boys and Girls Clubs of Metro Denver, Youthbiz, Family Learning Center, I Have a Dream Foundation, Denver Rescue Mission, Rocky Mountain SER, and other groups around the state. The group asks

LAND INFO is actively searching for partners to jointly present the value of GIS to multiple schools in the Colorado. The company is looking for both GIS users and commercial vendors within the geospatial industry. If you would like to participate in LAND INFO's GIS Day presentations, please contact [Kevin Kuluvar](#).

entire African continent.



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LAND INFO International, LLC

LAND INFO International offers GIS data and services for the United States and over 125 other countries. The company markets digital data, including topographic maps, 3D terrain models, contour elevation data, satellite imagery, aerial photos, transportation data, hydrography data, , and custom datasets. LAND INFO provides geospatial solutions for civil engineers, government planners, project managers, and other international professionals.

Please visit www.LANDINFO.com to learn more about

these products and services. [Contact LAND INFO](#) today at 1-800-949-5080 (+1 303-369-6800) to discover how our data solutions can maximize the success of your team.

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