Fall 2013

MIUS News : Maps and Imagery User Services @ FIU Green Library: Vol. 5 Issue 1 Fall 2013

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Featured Aerial Photograph: Dinner Key Oblique (1923)

This historic oblique aerial photograph depicts the area now occupied by the City of Miami's City Hall, in Coconut Grove.

The image was taken 3 years before the devastating hurricane of 1926 and thus shows the early Silver Bluff shoreline in virtually pristine condition.

The reclaimed area in front of the bluff was used by the US Navy in WWI to train naval seaplane pilots, and was, after this photo was taken, occupied by Pan American Airways for their large Clipper seaplane fleet used in the 1930s.

Note the dredged (dark) holes in the bay bottom where the fill for the seaplane base was extracted. Early details of Bayshore Drive and the Grove are clearly evident.

This image is part of a series of prints taken of the Miami area, originally flown by Fairchild Aerial Surveys, an early maker of aerial photography cameras. Images were scanned with support from the Miami-Dade Urban Long Term Research Area Exploratory program at FIU under NSF Grant No. BCS-0948988. These and many, many other early Miami area photos are available from the GIS Center / MIUS in the Green Library, Modesto Maidique Campus.
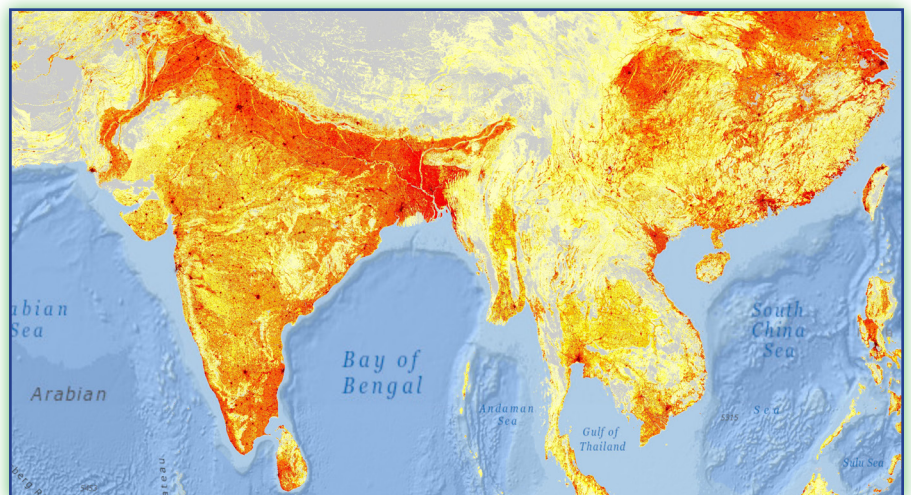
Featured Geospatial Dataset:
LandScan Global Population Distribution

LandScan data are available through MIUS!

But what is LandScan, anyway? It's the finest spatial resolution global population distribution dataset available, widely recognized as the "community standard for global population distribution".

A complex spatial modelling approach employing multiple input layers -- including land cover, roads, slope, urban areas, village locations, high resolution satellite imagery, etc., as well as a multitude of sub-national census counts -- is used to derive a continuous surface of the distribution of human beings across Earth. The spatial resolution of each cell is 1 arc second. The map above illustrates the population distribution of south and east Asia using the LandScan 2012 dataset overlaid upon the ESRI "Oceans" basemap.

The large (3.36 GB) final output raster is available from MIUS by request in both ESRI grid and ESRI binary raster formats. If you're an FIU student, faculty or staff member, just contact the MIUS coordinator, Matthew Toro (Matthew.Toro@fiu.edu) to get a copy of this valuable demographic dataset. And be sure to also check out one of the free workshops on the use of LandScan data (see "**Over a Dozen...**", page 2).

Over A Dozen Free Geospatial Sessions Offered to the FIU Community in Fall 2013

During this Fall 2013 semester, the FIU GIS Center / MIUS has coordinated, or is actively coordinating, more than twelve free geospatial workshops and instructional sessions at both Modesto Maidique Campus (MMC) and Bisycane Bay Campus (BBC). These sessions typically range from one to two hours and cover topics such as basic geospatial data literacy, utilizing GIS software applications, and exploiting some of the geospatial data holdings made available to the FIU student, faculty, and staff community through Maps & Imagery User Services. A description of each of the workshops offered this semester is listed below, along with a table of their schedules and locations.
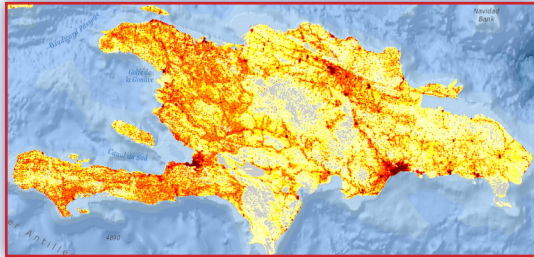
Missed one of the workshops this semester? Worry not! These hands-on workshops will be re-offered in Spring 2014, along with some new offerings. . . . Always be sure to RSVP to secure your spot. We look forward to seeing you there!

Introduction to GIS Technology & Data

Participants will gain exposure to the various components of a geographic information system, the two main ways of representing geographic phenomena with geospatial data models, the interface of a popular GIS software platform (ArcGIS for Desktop), some basic querying and processing methods, and the on-going free GIS education opportunities made available through the MIUS and the GIS Center.

Introduction to LandScan Global Population Distribution Data

Participants will learn about the LandScan™ global population distribution geospatial datasets, which the Maps & Imagery Services (MIUS) division of the FIU GIS Center hosts and shares with the FIU student and faculty community.
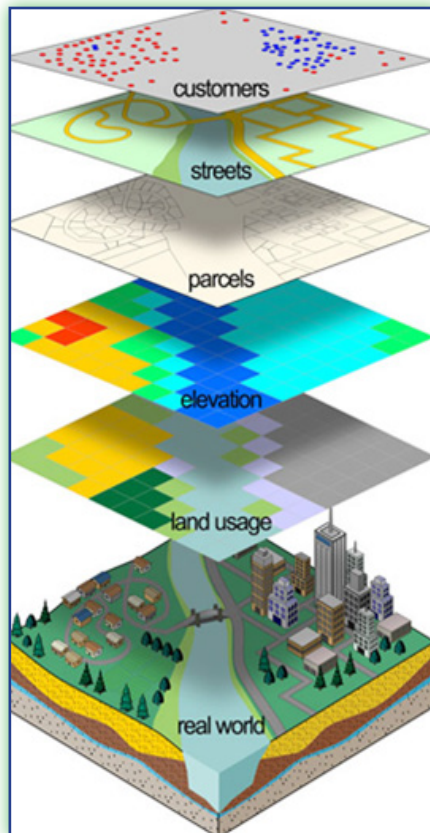
SESSION	LOCATION	DATE / TIME
Introduction to GIS Technology & Data	MMC Green Library 274	Oct. 21 2:00-4:00
		Nov. 1 2:00-4:00
		Nov. 4 2:00-4:00
	BBC Hubert Library 124	Nov. 12 1:00-3:00
		Nov. 14 1:00-3:00
		Nov. 20 1:00-3:00
		Nov. 26 1:00-3:00
Introduction to LandScan Global Population Distribution Data	MMC Green Library 274	Nov. 8 2:00-3:00
	BBC Hubert Library 124	Nov. 12 3:00-4:00
		Nov. 14 3:00-4:00
		Nov. 26 3:00-4:00
Mapping US Census Data	MMC Green Library 274	Nov. 18 12:00-2:00
SimplyMap Interactive Demonstration (Beginner)	MMC Green Library 274	Dec. 16 11:00-12:00
	BBC Hubert Library 124	Dec. 17 11:00-12:00
SimplyMap Interactive Demonstration (Intermediate)	MMC Green Library 274	Dec. 16 1:00-2:00
	BBC Hubert Library 124	Dec. 17 2:00-3:00

Mapping US Census Data

Participants will make three separate maps (each at a separate scale of anlaysis) visualizing US socio-demographic data from the US Census Bureau. This session will be taught by *Dr. Derrick Scott* of the FIU Department of Global & Sociocultural Studies.

SimplyMap Interactive Demonstrations

SimplyMap is a powerful, subscription-based tool made available to the FIU community through the GIS Center / MIUS. Users can navigate, summarize, map, and export more than 75,000 socio-economic, socio-demographic, and public health variables at various geographic units, ranging from states, countries, ZIP codes, tracts, and block groups. A SimplyMap representative will visit both of FIU's main campuses to deliver two one-hour interactive demonstrations on the use of this web-based platform.

Call for Presentations:
FIU GIS DAY 2014

That's right! FIU's next GIS Day, to be held in mid-Spring 2014, is right around the corner!

We're looking for proposals for presentations from all members of the FIU community, including from students (both undergraduate and graduate), faculty, and staff.

The FIU GIS Day 2014 program will include a series of lecture presentations showcasing some of the very best GIS, remote sensing, and other geospatial research and applications being undertaken by the FIU community.

We encourage proposals from any discipline across the social, physical, and applied sciences, and into the humanities and arts too!

Please send your FIU GIS Day 2014 presentation proposals to **gisrs@fiu.edu** by **February 14, 2014**.

New Service:
Ground-based LiDAR Scanning

A new, fee-based service is now being offered in the form of terrestrial (ground-based) LiDAR data collection and processing using Riegl VZ-1000 equipment.

The terrestrial laser scanner (TLS) system can be deployed for a number of research applications, including those involving architectural engineering, vegetation assessment, geomatic surveying, 3-D visualization, and near-range location mapping.

The image to the right depicts one of the GIS Center's preliminary, equipment-testing scans conducted in mid-August 2013.

The crew decided to scan one of Florida International Universtiy's most iconic landmarks: the fierce new **Panther Statue** greeting visitors in front of the FIU basketball arena.

An array of supplementary equipment available in the GIS Center can be used in conjunction with the TLS system, including:

- Trimble R8 Receivers
- Trimble TCS3 Handheld Controller
- Nikon D700 Digital SLR Camera
- Intuicom RTK Bridge-C3
- Reflectors (cylinder and disc)
- Tripods and Bipods

Depending on one's desired purpose or application, different equipment may or may not be required. For instance, if a scan needs location attributes, a high-accuracy GPS could be necessary (if a scan position is over an unknown location). Reflectors and tripods are necessary if multiple scan positions are desired. The Nikon D700 camera can generate RGB values that can be superimposed on the point cloud to produce more realistic visualizations.

The use of the Riegl VZ-1000 is dependent on the availability of the GIS Center's trained technicians.

The images below illustrate a couple of the potential processing stages from that Panther Statue scan this past summer. The image on the left depicts the 3-D point cloud, while the image on the right depicts those point cloud data superimposed with color (RGB) values derived from the digital camera image.

For any questions related to the use of this ground based laser scanning system, and to discuss project needs and the development of a price quote, please contact us at **gisrs@fiu.edu**.

Software Updates for GIS Center Teaching Labs & MIUS GeoCommons

Some important software updates have been made or are in process at the GIS Center's teaching laboratories at both **MMC** and **BBC** campuses located, respectively, in the **Green Library (GL)**, **Rooms 274** and **540**, and in the **Hubert Library (HL)**, **Room 124**. Updates were also executed for the computer workstations located in the **MIUS GeoCommons** area on MMC in **GL 273**.

ArcGIS for Desktop 10.2

The beginning of the Fall 2013 semester at FIU saw the full upgrade of ESRI's **ArcGIS for Desktop** suite to version **10.2**. This, the latest release of the popular, widely-adopted software platform, includes improvements in functionality, stability, and support, as well as enhanced desktop-to-web interoperability, among others. See ESRI's online document titled "*What's new in ArcGIS 10.2*" for full technical enhancements.

ENVI 5 & IDL 8

All GIS Center labs and the MIUS GeoCommons area are equipped with the **ENVI 5** digital image processing and analysis platform, including the powerful **IDL 8** scripting environment.

ERDAS Imagine

After a careful review by GIS Center staff and the FIU GIS Advisory Committee, it was determined that, beginning Fall 2014, the Center will be discontinuing its license subscription to **ERDAS Imagine**. Any FIU entity wishing to maintain its own ERDAS Imagine license is free to do so. Remote sensing and digital imagery processing is now supported primarily by ENVI and IDL.

SAGA GIS

The GIS Center also strongly encourages the use **SAGA**, the **System for Automated Geoscienfic Analyses**. SAGA is a free open source geospatial software platform. It is a light-weight, yet surprisingly powerful "hybrid" GIS, meaning that it integrates geospatial data maintenance and geoprocessing functionality for both (1) raster and (2) vector data models, although its raster-, especially DEM-, processing is particularly robust.

Contact MIUS or the GIS Center

web: gis.fiu.edu

Modesto Maidique Campus (MMC)

11200 S.W. 8th Street
Green Library, Rooms GL 275, 274, & 273
Miami, Florida 33199
Ph: (305) 348 6443 / Fax: (305) 348 6445

Biscayne Bay Campus (BBC)

3000 N.E. 151st Street
Hubert Library, Rooms HL 124 & 127
Miami, FL 33181
Ph: (305) 919 4294

email: gisrs@fiu.edu

New Researcher Joins the Center: Evan Cook

Earlier this Fall, the GIS Center welcomed Evan D. Cook to its research team. Evan earned his Bachelor of Science in Geography and Master of Science in GIS from Florida State University. He recently completed a second Master's degree in Environmental Studies from Florida International Unviersity.

While a student at FIU, Evan was a teaching assistant for GIS courses and environmental science labs. He also worked extensively at the International Hurricane Research Center (IHRC), developing workflows and applications for the recently acquired terrestrial laser scanner (see "**New Service...**", page 3).

During his time at FSU, Evan investigated storm impacts from Hurricane Dennis through the use of airborne LiDAR. Evan's thesis at FIU was titled "Barrier Island Response to Sea Level Rise in North Carolina"; the project utilized historic National Ocean Service topographic sheets to investigate how these islands have changed over the course of approximately 150 years.

His expertise includes GIS analysis and remote sensing. He specializes in terrestrial LiDAR, coastal geography, geomatics, and database management. Evan will contribute to the management and mapping of vegetation data at the USDA-ARS Subtropical Horticulture Research Station, as well as advancing ongoing projects associated with the terrestrial LiDAR system through the IHRC.

We're Now on Facebook!

The FIU GIS Center now has yet another way to communicate with the University and broader communities: Facebook.

In addition to the semester release of this *MIUS News* newsletter and the news feed on our webpage (**gis.fiu.edu**), we now have a presence on Facebook where one will find frequent updates on our initiatives, goings-on, and even some interesting news, reports, and commentary from the broader world of GIS and geospatial technology.

Be sure to 'like' us at **facebook.com/gis.fiu**! And remember: you need not have a Facebook account to view our page and updates; it's open to the public!