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2010: The Year the Geospatial Technology Industry Came of Age

2010: The Year the Geospatial Technology Industry Came of Age—a momentous year indeed. This year is one for the record book in terms of moving the industry forward.

In March, the Center convened a national forum of our industry's thought-leaders in an effort to reach consensus on a new Geospatial Technology Competence Model (GTCM). Through the masterful leadership of David DiBiase, the Center was able to shepherd the long-stalled GTCM through the maze of public peer review, and gain Dept. of Labor acceptance in June 2010.

Shortly thereafter, the GTCM was published on the DOL Competency Model Clearinghouse. Our effort to disseminate the new model began at the 2010 Esri International User's Conference in July 2010 and continued nonstop with two URISA presentations, webinars and two keynote speeches at regional conferences by David DiBiase.

The GTCM made its first major impact on the industry in September 2010 when the GIS Certification Institute began investigating its use as the basis of a new competency-based examine for the GISP professional certification. The GISP currently lacks such an exam, and relies instead on a portfolio-based method of certifying a GIS Professional. Many in the industry believe such an exam is long overdue and will move the industry closer to professional status in a manner similar to professional surveyors. *(Continued, page 6)*



The 2010 GIS Day Activities Sponsored by the GeoTech Center and San Diego State University

There are several 2010 GIS day celebration events and activities in San Diego sponsored by the GeoTech Center and San Diego State University (SDSU). First, the Department of Geography at SDSU and Dr. Ming-Hsiang Tsou sponsored the Careers in Geography Panel Discussion by inviting several GIS professionals to

share their working experiences. We also organized the annual Photo Contest in celebration of Geography Awareness Week and a GIS poster design workshop organized by Diana Richardson, the undergraduate coordinator at SDSU Geography Department. *(Continued, page 2)*

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The Careers in Geography Panel Discussion on November 17, 2010 (the GIS day) at San Diego State University.

Rural College Convenes GIS Advisory Board to Explore Expansion of Internship Program.

Last week Lake Land College met with potential advisory board members and regional employers to discuss the college's GIS program. Specifically, this committee was convened to update local employers on the college's new GIS Certificate, which was modified based on GeoTech's sponsored DACUM held in 2008, and to discuss goals of expanding internships throughout region for GIS Technicians. One of the outcomes of the DACUM process related to the importance of tasks and duties connecting students to real world work experience. Lake Land College, which is located in Central-Illinois, represents a rural community college district with no city over 25,000 in population. Most offices or employers using geospatial technology in the region represent local government, utilities, or agricultural service organizations. Most, if not all, of the represented employers stated increasing needs and demands for geospatial data/services. Trends in rural downstate Illinois suggest most geospatial services, data, and responsibilities are being added to existing employees within each organization. These employees in government and utility sectors are adding GIS to their existing duties and clearly these employees state a feeling of being overwhelmed. This panel of employers suggested that community colleges need to proactively assist the developing geospatial economy in rural areas through hosting awareness and outreach events. This panel suggested the following recommendations and conclusions in developing a viable GIS Internship Program across the region:

1. Most of the employers from country (city) government, utilities, and agricultural stated real needs for GIS Technician interns in assisting each organization develop or implement viable new GIS data management systems.
2. The panel suggested the idea of a GIS Consortium of regional or

local government agencies sharing or buying GIS Technicians through the college's Center of Business and Industry. Simply put, the economic reality of these small rural agencies connects to the idea that they might not have enough budgets to employ a full-time GIS Technician. They suggested, however, that they could pull their resources together through a consortium hosted by the college to hire a 1-2 GIS Technicians.

3. Another recommendation was the idea of the college hosting or developing a GIS User Group for the region. The panel was very clear that the college's ability to host or convene regularly scheduled meetings to discuss geospatial technology was well received. The panel liked the idea of the college inviting key state or industry leaders to share best practices tips on geospatial technology relating to data access, analysis and editing. These outreach events, as suggested by the panel, would be critical in assisting them with their own professional development as many of them have limited budgets to travel to larger urban areas in Chicago or St. Louis to access ESRI regional offices.

In summary, results of this meeting suggested that Lake Land College will need to develop a proactive approach with local GIS employers in developing the geospatial workforce and economy. The Illinois State GIS Coordinator, Dan Wilcox, attended the meeting as the opening speaker of the event. Dan's talk to the advisory board related to data layers and access issues on how local or county users could use state wide data set through the Illinois Geospatial Clearinghouse. He discussed with them current and future datasets likely to be shared through the state's portal. A panel member found this information critical and important to his future project planning and directly relates to need for the development of rural GIS user groups. This author looks forward to reader feedback on the recommended proactive role rural community colleges need to play in developing the geospatial economy and workforce. From this author's perspective, I see the development of the geospatial workforce in rural regions directly in sync with growing role of community colleges in economic development. For more details on Lake Land's Geospatial Technology Program see the following: <http://www.lakeland.cc.il.us/geospatial-temp/index.cfm>

Mike Rudibaugh

2010 GIS Day Activities

Dr. Ming-Hsiang Tsou also visited a local high school, Helix High Charter School in San Diego, and gave two consecutive lecture sessions (titled "Mapping the Future: Geospatial Technology", one hour for each session) to 60 high school students total. Helix High School GIS teacher, Jennifer Stitt, organized a series of GIS day showcases, including speeches, map gallery, and exhibit booths using GeoTech sponsored materials (flyers, stickers, pens, etc.)

Dr. Ming-Hsiang Tsou



The GIS day celebration booth at Helix High Charter School.

iPad: More than a Toy. Think GIS Mobile Machine

For Father's Day last year, I received an iPad! It came in a beautiful box wrapped in vacuum sealed cellophane. I couldn't bring myself to tear off that cellophane, not because it was pretty (which it was), but because I knew if I did, I'd have to pay the 15% restocking fee when I returned it to the Apple Store. Don't get me wrong, I was happy to see an iPad; a great Father's Day gift... But could I really justify my family spending so much money for an electronic toy? Up to that point, my only experience with an iPad had been a quick swipe at one while walking through Best Buy. It was nice, but it seemed to be just a big iPod Touch. Just a toy.

So, for two days, the iPad sat there, untouched, protected in the cellophane. I wanted to return it. My wife and kids (of course) wanted me to keep it. We compromised. I would return this model for a cheaper one. My wife had purchased the 32 gig, 3G version. I was going to return it for the least expensive 16 gig, Wi-Fi only system (about \$300 less). 3G? What's the point? We'll just be using this thing around the house anyway.

But then it happened. On the way out the door to the Apple store, my wife quietly said the following: "Don't do it. 3G has GPS, Wi-Fi doesn't..."

Really?



I 'begrudgingly' unwrapped the cellophane. Now committed, I spent the next week (literally, every moment of free time), downloading apps and playing with my new electronic toy. I was hooked; another happy customer. Sure, there are games for the iPad (which, I have to say, I enjoy just as much as my 8 and 4 year old boys), but what was most exciting were the number of apps that utilized the GPS capability of the iPad (such as MotionX-GPS, by MotionX. Free.).

The iPad, I found, is more than a toy. Rather, it's an incredible geospatial tool. Navigation apps are populating the iTunes store on a daily basis. Many of these apps aren't just simple mapping tools, rather, they are GIS applications (such as the ESRI ArcGIS online app -- free -- or GISRoam, by Cogent3D -- also free). In addition, with a simple trick, one can even "run" ArcInfo on the iPad. Using an app such as WinAdmin, iPad Edition (by Carter Harrison LLC, cost \$8.99) or Desktop Access (by Anteccea, Inc. cost \$14.99),



one can remotely access a computer or server (via 3G or Wi-Fi) directly from an iPad and then run programs on those systems remotely. I have accessed both ArcInfo and ITT ENVI on the iPad without a hitch. For the academic and/or geospatial professional, the ability to run both professional grade GIS and remote sensing applications via an iPad opens up the geospatial technological world to a new, mobile paradigm.

Is the iPad a toy? Sure.

Is the iPad so much more, especially for us geospatial academics and professionals? Absolutely.

Ken Yanow

Upcoming Conferences & Workshops

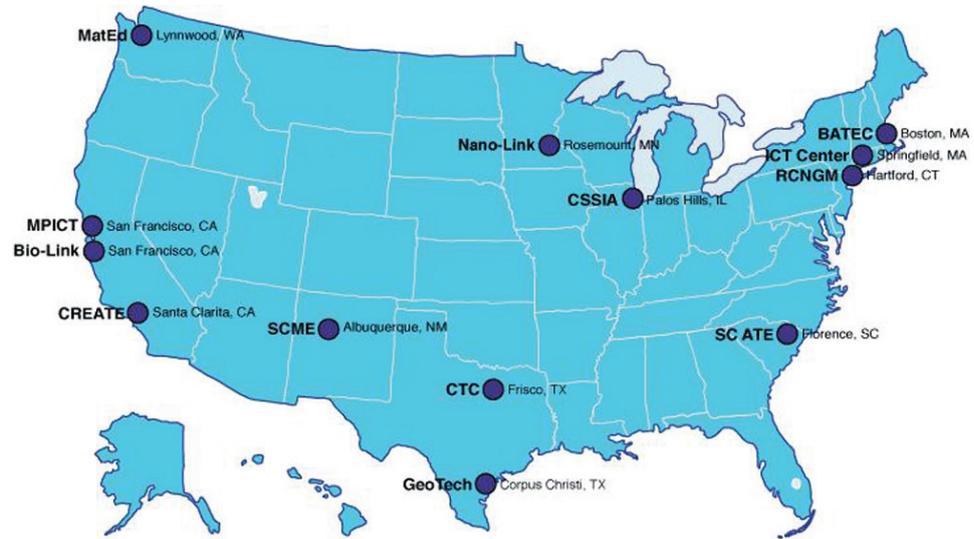
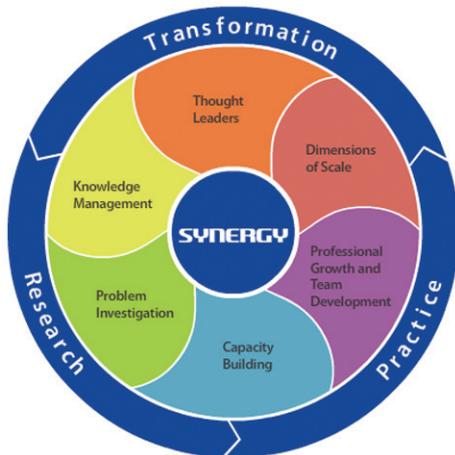
Our third year of activities officially began on September 1, 2010. Visit our website (www.geotechcenter.org) for the latest updates to our calendar of geospatial educator events. Here is a partial list of events we are scheduled to attend this year:

2/3-4/2011	UCGIS	Washington DC	www.ucgis.org
2/16-18/2011	North Carolina GIS Conference	Raleigh, NC	www.cgia.state.nc.us/ngcis2011
4/12-16/2011	AAG	Seattle, WA	www.aag.org/cs/
7/9-12/2011	ESRI ED UC	San Diego, CA	www.esri.com/events/educ
7/25-28/2011	HITEC	San Francisco, CA	www.highimpact-tec.org/

Learn New Techniques to Create, Manage and Scale-Up NSF Projects

The National Science Foundation Advanced Technology Education program has funded and supported hundreds of successful projects to improve workforce related education programs. Too often these successful projects remain successful in their local region and do not spread or scale up across the nation or do not continue once funding has ended. To help sustain project innovations and develop and learn techniques to help create, manage and scale up projects, the NSF has funded the SYNERGY Project (<http://synergypjt.org>). The GeoTech Center is participating in SYNERGY with 12 other ATE Centers of Excellence and large projects forming a collaboratory to learn successful practices from each other. GeoTech is focusing on one of its innovations, using remote desktop applications to support geospatial programs, for its part of the SYNERGY project. SYNERGY has helped GeoTech learn many techniques to organize and manage projects including how to create a Logic Model, best practices for building successful teams and methods to build professional learning communities focused on specific problems. GeoTech will present two Webinars to share what has been learned through SYNERGY on February 25 and August 12, 2011. Stay tuned for more details about these Webinars as the dates approach.

Ann Johnson



NSF ATE Centers Participating in Synergy Project

Webinar Schedule

DATE & TIME	PRESENTER	TOPIC
1/14/2011 2:00 - 3:00 CST	Adam Dastrup	ePortfolio Program
1/24/2011 1:00 - 2:00 CST	Mike Rudibaugh	Innovative Economic Development Approaches in Growing the Geospatial Economy Through Internships
2/25/2011 2:00 - 3:00 CST	Ann Johnson	Synergy - Team Building Techniques
3/25/2011 2:00 - 3:00 CST	Amy Work	GIS Aboard the JOIDES Resolution
8/5/2011 2:00 - 3:00 CST	Rodney Jackson	Integrating GIS Into Other Programs
8/12/2011 2:00 - 3:00 CST	Ann Johnson	Synergy - Team Building Techniques

First National Geospatial Technology Skills Competition

To celebrate and promote the new GTCM, the Center is offering the first annual competition based on the GTCM to two year college undergraduate students beginning in January 2011. Six finalists from regions around the country will receive a \$2000 travel allowance to compete for 1st, 2nd, and 3rd place at the 2011 Esri Educator's Users Conference in San Diego on July 10, 2011.

The event will utilize a three round competition to determine the nation's best GIS technician, based upon the GTCM competencies. The first round will consist of an objective exam competitors can take online beginning in February at the GeoTech Center website under the Maps/Competition tab. This exam will consist of 50 multiple choice questions developed from the GTCM competencies. All competitors scoring 70 or better will be given access to the round two project description.

In this round, competitors will have two months (Feb 15-Apr 15) to create a GIS solution to the project problem, using GIS software of their choice. The solution will be featured in a three minute (maximum) YouTube video they submit, along with a poster featuring their map solution for the project. The second round submissions will be judged by a panel of independent GIS professionals in each of the six regions of the US between April 15 and May 1, 2011.

First place winners from each region will be announced on May 5, 2011. For the final round, the six competitors will be present a five minute "Ignite-style" rapid presentation before conference attendees who will score their presentations in rank-order. The first, second, and third place winners will

Geospatial Summer Camp

Bismarck State College hosted a 2-day Geospatial Summer Camp July 27th and 28th for 7th and 8th grade students from the Standing Rock Sioux Reservation in south central North Dakota. The camp was designed to give students a hands-on opportunity to learn about GPS, Geographic Information Systems, and satellite imagery/technology. Students returned home after the camp with a Garmin eTrex GPS unit that they could keep, and maps that they had created using a GIS along with data that they downloaded from the North Dakota GIS



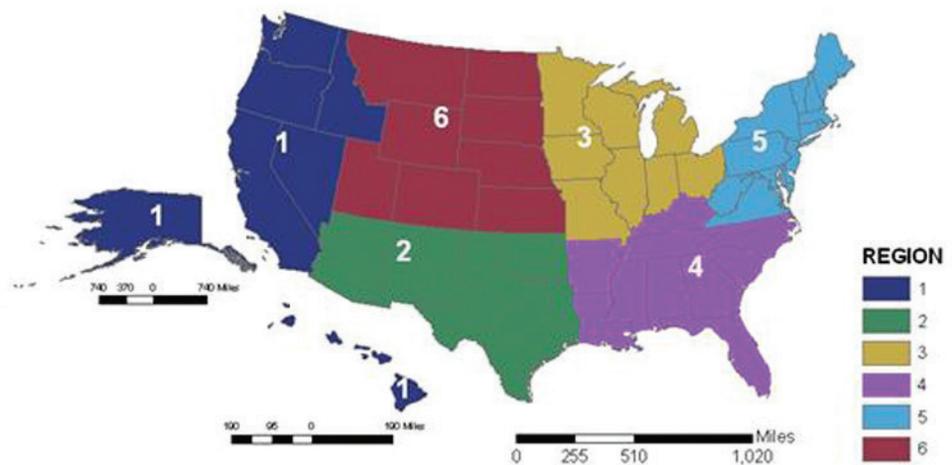
Hub (the ND State repository for geospatial data). Students learned about careers in geography and about different educational options for them once they graduate from high school in the fields of geography and technology. A guest speaker from Sitting Bull College in South Dakota talked to the students about the differences between traditional Sioux navigation and how we navigate with technology today. Nineteen students attended the camp along with an adult mentor whom they brought with them to the event.

Angie Milakovic

be announced immediately following the final presentation, and a reception will be held for all competitors at the Community College GIS SIG meeting shortly following the announcement. By utilizing three distinct rounds, competitors will be tested on their: a) technical skills, b) problem solving and critical thinking skills and c) interpersonal and communication skills highlighted in the GTCM. We need the enthusiastic support of our GIS educators nationwide to ensure the competition reaches the widest possible audience.

Amy Ballard

GeoTech Center Geospatial Technology Challenge Regions



Veteran from Gulf War Gets GIS Internship in Central Illinois

My name is Adam Rush. I was raised in Albion, a small town in western New York. When I turned 18, I joined the Navy and was stationed in Everett, Washington. I was an Engineman who maintained 4 diesel generator sets, and through hard work and dedication I made E-5 in just over 2 years. I moved to Mattoon upon discharge from naval service upon complete three tours in the Middle East. I then enrolled in Lake Land College to retool my skill set and work on my Associate of Science in Wildlife Conservation.

In my first semester at LLC I was introduced to GIS. My instructor, Dr. Mike Rudibaugh, began the class by demonstrating uses of GIS in many different fields, which immediately caught my attention. From that point forward, I was hooked. GIS wasn't just another class that I had to pass to get my degree. It was quickly becoming my field of study. With the newly acquired drive and vast amount of knowledge I was gaining from just one class, the GeoTech initiative helped me gain a paid internship at a local highway department.

The Edgar County Highway department is a small county highway department that was in the process of undertaking the huge task of converting old paper map data into a GIS. The need for an intern/technician quickly approached as they realized the time and effort



that would be needed for the project. When they realized that Lake Land College would be able to pay half of my wages, the financially stressed highway department found that a paid intern was definitely possible. ECHD hired me as a part-time intern. I am able to drive to the highway department one day per week, and work the rest of the time from LLC. As an employee of the highway department, I was quickly put to work inventorying roads and bridges, and numerous other tasks. I have been assigned to look at aerial photography over a 30 square mile area and outline every building footprint. This map will be used in a disaster

preparedness plan. Another initiative is to input every traffic crash report into a GIS, made possible by having all crash reports from the year of 2009. I have now completed my internship and feel I have been a huge asset to the Highway Department.

An internship would not have been possible without the thorough knowledge of what a technician usually does in the workplace. After only one class, Introduction to GIS, I have gained a solid set of core competencies that assist me in day to day tasks. Lake Land College is constantly honing the class exercises and topics to ensure all new technicians are ready to accomplish tasks on the first day at a new job. Editing tasks are frequently encountered, and I am certainly glad extra emphasis was put into that chapter. An additional assignment in the class was designed to create land parcel maps of a local subdivision. This exercise greatly improved my knowledge of coordinate geometry, modifying features, and creating new features.

The geospatial field seems like a huge opportunity for anyone who is ready for a challenging career with vast room for growth. Without help from the GeoTech Center and Lake Land College, I don't believe I would have ever found such an intriguing field of study with the opportunity for future employment.

2010: The Year the Geospatial Technology Industry Came of Age

In a separate effort, Esri announced in December, for the first time, they would be offering a complete range of vendor certification for their products. While Esri's certifications will recognize expertise in their proprietary product, a GTCM-based exam for the GISP will certify industry-wide expertise across all domains of the GTCM, from geography knowledge to technical abilities.

In a parallel effort, the GeoTech Center is currently researching a GTCM assessment instrument for use by educators to assess their courses and academic programs for alignment with the GTCM. The instrument, based on a comprehensive Excel spreadsheet of GTCM items, will allow educators to compare the specific items in the GTCM against their course contents. You can find a beta assessment tool on our website under Projects tab. A final version will be available for use by March 2011. We will be providing webinars on using the GTCM assessment instrument for educators beginning in early 2011.

Phillip Davis

Mike Rudibaugh

National Geospatial Advisory Committee Asked to Endorse GeoTech Center's Efforts to Help Align Geospatial Curricula With Workforce Needs

The National Geospatial Advisory Committee (NGAC) reports to the Chair of the Federal Geographic Data Committee. Its charge is to provide advice and recommendations related to management of Federal and national geospatial programs, the development of the National Spatial Data Infrastructure, and the implementation of Office of Management and Budget Circular A-16 and Executive Order 12906. The Committee reviews and comments upon geospatial policy and management issues and provides a forum to convey views representative of non-federal stakeholders in the geospatial community. (<http://www.fgdc.gov/ngac>)

I represented the GeoTech Center as an invited guest at NGAC's December 8th, 2010 meeting. My presentation was part of a "Geospatial Workforce Spotlight Session." In addition to my briefing on behalf of the GeoTech Center about the new Geospatial Technology Competency Model (GTCM), the session featured short presentations from GITA, USGIF, and National Research Council (NRC), and the Department of Interior (DOI).

- GITA Executive Director Bob Samborski reported on the Department of Labor (DOL)-funded project "Defining and Communicating Geospatial Industry Workforce Demand," which GITA and its partners completed in 2006. Bob reminded NGAC members that the project

contributed a consensus definition of the geospatial field, as well as recommendations for new DOL occupation descriptions that were subsequently established in late 2009.

- I followed with a lightning description of the GTCM, and concluded with the recommendations that NGAC (1) Endorse voluntary self-assessment of higher education curricula relative to workforce needs identified by DOL; (2) Ask GeoTech Center to develop scalable online self-assessment tool; and (3) urge DOL to support frequent revision and update of the GTCM. NGAC member Jack Dangermond immediately moved that NGAC support of the endorsement request, but chairperson Ann Milgarese good-naturedly tabled the topic for later discussion.



David DiBiase

- Lea Shanley of the National Security Agency reported on a planned NRC study meant to illuminate workforce needs for the geospatial intelligence (GeoIntel) field.
- Keith Masback, President, described USGIF's status and activities as an educational non-profit serving the GeoIntel segment of the geospatial industry.
- Finally, DOI's Deputy Assistant Secretary for Human Capital and Diversity described federal programs to help injured veterans and other disabled persons find employment, and encouraged members to consider these programs to help meet geospatial workforce needs.

A wide-ranging hour-long discussion followed. Chairperson Miglarese concluded the session by asking panelists to comment on what we considered the most formidable challenge confronting efforts to fulfill expected geospatial workforce demand. Several of us agreed that the persistent lack of a coherent public understanding of the geospatial field, combined with so-far inadequate efforts to foster understanding, remains the greatest obstacles. To this end, many agreed the the Geospatial Revolution project shows great promise.

Meanwhile, NGAC's Workforce Development Subcommittee will consider GeoTech's endorsement request, and will report back to the Committee at its March meeting.



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The GeoTech Center is a collaborative effort between colleges, universities and industry to expand the geospatial workforce. The Partners of the Center work together to provide professional development, teaching and curriculum resources, career pathways and model core competencies for geospatial technicians.

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