

National Geospatial Technology Center of Excellence

Third Year GeoTech Center Project Plan and Task Assignments



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Funded by the National Science
Foundation DUE ATE #0801893

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Items in gray are planned for year four (2012)

Ongoing—these are projects currently under operation from years one and/or two:

1. GTCM—led by David DiBiase, this remains a top priority. Action items include:
 - a. Publication of GTCM in URISA Journal (Dec. 2010)
 - b. Presentations to URISA, UCGIS, and ASPRS national conferences (2010-2011)
 - c. Webinar on using GTCM assessment tool created by David DiBiase (Oct. 2010)
2. GTCM Implementation—led by Chris Semerjian, this ongoing project will see that the GTCM is carried out by partners and eventually all two year programs with certificate and associate degrees on a voluntary basis. Action items include:
 - a. Completion of GTCM assessment by all levels of partners (Dec 2010)
 - b. Meta-evaluation of GTCM assessment results (May 2011)
 - c. White paper on implementation plans, benefits, challenges, and results (Aug 2011)
 - d. Ongoing training to new partners GTCM implementation by C. Semerjian (year four)
3. Implementation of Meta-DACUM Common Core Competencies—led by Rodney Jackson, this ongoing project seeks to have our research adopted by leading professional accrediting agencies, such as the GISCI and ASPRS. Action items include:
 - a. Adoption of resolution by the GISCI Board of Directors for the addition of a competency-based exam component to the GISP certification, based on Common Core Competencies (Dec 2010)
 - b. Implementation of the competencies into the GISP exam (Aug 2011)
 - c. Webinar on efforts to incorporate the Meta-DACUM results into the GISP certification (Aug 2011)
 - d. White paper/presentation on efforts (Aug 2011)
 - e. Adoption of similar resolution by the ASPRS for remote sensing & imaging technician/analyst, based upon new DACUMs by John Johnson, by the ASPRS Board of Directors (May 2012)
 - f. Implementation of the competencies into the ASPRS certification (Aug 2012)
4. DACUM—led by John Johnson, this project is refunded through supplemental grant for an additional two year and includes two new DACUM workshops focused on remote sensing & imaging technicians. Action items include:
 - a. Workshop selection and agendas (Dec 2010)
 - b. First workshop conducted (Mar 2011)
 - c. Second workshop conducted, ASPRS ? (May 2011)
 - d. Vetting of both workshops (Aug 2011)
 - e. Meta-Analysis of two results (Dec 2011)
 - f. Publication of white paper (Mar 2012)
 - g. Incorporation into relevant DOL SOC job codes (Dec 2012)

5. Community college geospatial programs national geodatabase (Rudibaugh) and map (DiNoto)—led by Vince DiNoto and Mike Rudibaugh, this project will remain top-level priority project, with high public profile. Action items include:
 - a. Update of the geodatabase to accurately reflect current state of geospatial programs at the college and university, with montly.
 - b. National survey of all colleges and universities for awareness and data entry (Dec. 2010)
 - c. Update and QA/QC of geodatabase (Mar 2011)
 - d. HTML 5 coding of new mapping interface with additional layer functionality and query (July 2011)
 - e. White paper and two webinars on technology by V. DiNoto (July 2011)
 - f. White paper and two webinars on geodatbase by M. Rudibaugh (July 2011)
6. Synergy Project Scale-up of Remote Desktop Access and Virtualization (RDA/V)—led by Ann Johnson, with assistance by CoPIs DiNoto/Semerjian/Yanow and technicians Allen/Hundt, this is a continuation of the parallel Synergy Project to leverage the additional NSF/ATE funding to expand the impact of our RDA/V research beyond the members of the Center partners. Action items include:
 - a. Completion year two of the Synergy Project, in collaboration with the BATEC Center, by attending meetings/conferences/webinars and training of GeoTech Center partners in the techniques of Logic Modeling for scale-up of worthy projects (Aug 2011)
 - b. Deliver two webinars on Logic Model scale up methodologies (Dec 2010 and Aug 2011)
 - c. Complete RDA/V implementation to six Center partner locations: Southwestern, Del Mar, GSC, KCTCS, CPCC (Aug 2011)
 - d. Publish white paper on Logic Model for Scaling-Up Worthwhile Projects (Aug 2011)
 - e. Completing year three of the Synergy Project (Aug 2012)
 - f. Additional two webinars (Aug 2012)
 - g. Update existing white paper (Aug 2012)
 - h. Additional 10 colleges will adopt RDA/V (Aug 2012)
7. GeoTech Website and National Resource Clearinghouse—led by Phillip Davis, this ongoing saga/drama will come to a successful conclusion with the release of our third and final website and resource clearinghouse. All partners at all levels will assist in populating of the website content and clearinghouse resources. CoPIs will provide a minimum of one additional white paper annually, along with webinars and resources for the clearinghouse. Researchers will provide a minimum of one webinar annually, along with resources for the clearinghouse. Action items include:
 - a. Completion of first generation version 3.0 of the website in new content management system (CMS. Dec 2010)
 - b. Design and implementation of new resources clearinghouse, based on new CMS (May 2011)
 - c. Conversion of existing CWIS clearinghouse resources into new CMS clearinghouse (Aug 2011)
 - d. Training webinar on utilizing the new CMS for Center partners (Dec 2010)
 - e. Training webinar/video for utilizing new website for general public (May 2011)

- f. Training webinar for populating new clearinghouse for Center partners (May 2011)
 - g. Training webinar/video for using resource clearinghouse for public (Aug 2011)
 - h. Integration and expansion of Web 2.0 social media sites into the CMS (Dec 2011)
 - i. Search engine optimization ranking for website and clearinghouse (Aug 2012)
8. Participant Training and Education—the Center, due to its geographical diversity, provides training throughout the country throughout the year to best meet the needs of its teachers and students. The following are ongoing programs:
- a. GeoEd—led by Vince DiNoto, this annual four day summer conference and workshop provides both basic and advance geospatial technology training for teachers and technicians throughout the central Ohio River valley within 500 miles of Louisville. The conference hosts one introductory and one advanced workshop each on GIS, one introductory workshop on GPS, and one advanced workshop on remote sensing each year, over two full days. This is followed by a one day geospatial technology conference, featuring one of the Center CoPIs as keynote speaker each year. The conference provides a dozen or more presentations in a matrix of one hour morning and afternoon sessions.
 - i. GeoEd 2011 (June 2011)
 - ii. GeoEd 2012 (June 2012)
 - b. GSC Teacher Education Institute—led by Chris Semerjian, this annual event provides our major secondary school and two year college educator geospatial technology training throughout the Atlanta GA metropolitan area, with some participants from Alabama. This four day workshop provides introductory and advanced geospatial technology for educators. It has doubled in size from 2009 to 2010, based upon the quality of instruction and the success at expanding the adoption of GIS/GPS technology in the public schools throughout the Southeastern US.
 - i. GSC 2011 (July 2011)
 - ii. GSC 2012 (July 2012)
 - c. T3G² Institute—led by Ken Yanow and Ming-Hsiang Tsou, this annual event is co-hosted by SDSU Geography Department and Southwestern College in San Diego each July. The three day workshop is model on the highly-rated Esri Teachers Teaching Teachers GIS Institute held at the campus of Esri each June. Between July 2000 (first cohort) and June 2010 (second cohort), it was decided to offer spots in the second summer workshop to those from the first who has met their deliverables in order to extend their technical skills with GIS software, including imagery and remote sensing data. This technique allows the Center to focus on quality improvement of geospatial faculty vs. quantity of impact.
 - i. T3G² 2011 (July 2011)
 - ii. T3G² 2011 (July 2012)
 - d. Best Practices Webinar Series—led by PI Phillip Davis with participation by all CoPIs and partners, the best practices webinars are scheduled twice monthly to our national network of geospatial college faculty ($n=450$). These 50 minute webinars are offered to the participants freely using the Center’s Adobe Connect hosted-server and

telecommunications account. All webinars are recorded and offered thereafter via a link on the Center's general website.

- i. Third year webinars, twice monthly (Sep 2010—Aug 2011)
 - ii. Fourth year webinar, twice monthly (Sep 2011—Aug 2012)
- e. T3G Participant Support—led by CoPI Ann Johnson, this initiative provides stipends to the Esri T3G participants to continue their dissemination activities throughout the following year. Since the T3G institute uses such rigorous entrance selection processes, including a six page application from currently employed secondary and college geospatial educators, the Center is assured to have only the most exemplary practitioners in the field. The stipends allow the participants to disseminate their T3G experience to fellow faculty and students in their service areas around the country, thereby providing the widest possible dissemination. Continuing from the sixty 2009 and 2010 participants, we anticipate to support:

- i. T3G 2011 (Sep 2010—Aug 2011)
- ii. T3G 2012 (Sep 2011—Aug 2012)

Planned New Activities

In the lifecycle of any Center, new and unanticipated opportunities will present themselves. Changes in technology and partners and new collaboration opportunities may present themselves throughout the performance period of a Center's award. These new opportunities can be divided into two broad categories:

1. Productive and Sustaining—new opportunities that will broaden the impact of the Center on its field of expertise and should lead to new and sustaining funding to sustain the Center's operation.
2. Nonproductive and non-sustaining—activities and/or partnerships that do little to expand the impact of the Center and that only cost the Center funds with no return on investment of either time nor funds.

The ability to discriminate between these two categories is the mark of a competent Principle Investigator, who is able to seek counsel from his CoPIs, external evaluator, and NVC chair and then choose right from wrong ones to engage in. The following new initiatives fall into the Productive and Sustaining category:

1. Free & Open Source Software for GIS (FOSS4G)—led by PI Phillip Davis, with course development and assessment assistance by Amy Ballard and Kurt Meinke of CNM, with technical assistance by the Center's staff located at DMC, KCTCS and GSC. Rationale: the US higher education community has been monopolized by a single vendor, Esri, since their beginnings in the 1980s. This is the result of two policies implemented early on by Esri's owner, Jack Dangermond: a) aggressive marketing and b) excellent support. No one would argue that Esri isn't the best supported software in the field among all the major commercial vendors. No other vendor provides as many resources for their educational customers. That said, their near monopoly (90+%) has a stifling affect on GIS graduates, and in lower-level two year programs, can lead to the "buttonology" training of technicians, instead of the more desirable education of geospatial technologist, capable of implementing the GTCM competencies across of range of software products. The FOSS4G industry has reached a critical mass in the US and EU and now represents a substantial percentage of the governmental segments and a very high percentage of four year university undergraduate and graduate programs. The introduction of FOSS4G at the two year community college level will allow our graduates to serve this growing market as well as be prepared to transfer to four year universities where they are likely to encounter FOSS4G software.

This initiative provides broader impact for the Center by moving in the direction of the geospatial industry in the adoption of FOSS4G software. For our programs to remain relevant, they must adapt to the changing software industry, which is moving away from sole-source proprietary solution. It will provide the Center with sustainability through the marketing of the FOSS4G courseware we are developing, along with additional credit hours generated for our member partners. Action items include:

- a. Secure MOU with OpenGeo Foundation.
 - b. Creation of a FOSS4G introductory course, including learning units, instructional and lab material and sample spatial database (completed June 2010).
 - c. Beta test the FOSS4G introductory course and evaluate results (completed Aug 2010).
 - d. Incorporate FOSS4G into the curriculum of at least one partner college (completed Aug 2010).
 - e. Perform environmental scan of current FOSS4G products, through workshops and conferences, and prepare recommendations for appropriate FOSS4G software for use in two year programs (completed Sep 2010).
 - f. Program FOSS4G introductory course into standardized content management system (CMS) software, such as Blackboard, for use in online learning environments in preparation for distance learning offerings at partner colleges. Beta test CMS version in simulated environment for distribution (Dec 2010).
 - g. Provide webinar introduction to the FOSS4G course to stimulate interest from college educators nationwide (Mar 2011).
 - h. Develop and present FOSS4G workshop for college educators at the 2011 FOSS4G Conference scheduled for September 2011 in Denver Colorado. Note that this international conference is only offered in North America once every three years and has never been held in the US. Past conferences were always held in Canada, Europe, and Australia, where FOSS4G adoption is several years ahead of the US. Due to the rapid rise in US interest in FOSS4G, as demonstrated by numerous successful US FOSS4G startups, the FOSS4G conference organizer selected Denver where GITA will facilitate the conference (expected to exceed 1,000 attendees for the first time).
 - i. Continue adoption of the FOSS4G introductory course by member colleges across the US (through August 2012).
 - j. Expand the FOSS4G offerings into more advanced topics through new courseware material development (to be included in the Center's next round of funding beginning Sep 2012).
2. National Geospatial Technology Skills Competition—led by Amy Ballard with assistance by Ann Johnson and Christine Lewis. One of the missing elements from the Center's portfolio is a national student competition for community college learners. The Center attempted to assist the fledgling SkillsUSA Geospatial Competition in 2009 and 2010, but lack of support from industry and the SkillsUSA organization caused that competition to be cancelled. While there are several other national mapping competitions, focusing primarily on cartographic abilities (including the Center's own Bizarre Map Contest), none focus on the technical and professional skills outlined in the new GTCM. The PI believes that in order to: a) promote wider knowledge and acceptance of the GTCM by college programs, b) showcase two year college program graduate's technical prowess to both industry and universities, and c) provide a national forum for student competition, a new technical competition should be attempted.

In order for the competition to avoid the demise suffered by the SkillsUSA predecessor, the Center will seek to simplify a much wider adoption of the completion through virtual means, along with a face to face finale. One major flaw in the previous SkillsUSA competition was its prohibitively expensive requirement that ALL competitors attend the week-long SkillsUSA Conference held in Kansas City every June. The expense of fielding a team and sponsor, for that long and far from most of the country, restricted entry to no more than 2 or 3 colleges, with only 10 or so competitors total.

Goals for the competition to support and sustain the Center include:

- a) Wider adoption of the GTCM by colleges and universities.
- b) Promote awareness of the Center to industry and academia.
- c) Provide marquee event for sponsors as competition matures, and perhaps grows in size.
- d) Provide incentive for colleges to partner with the Center through membership requirement to enter competition in future years.
- e) Promote awareness of the GISP provisional certification among graduates and faculty to increased professionalism and engagement with professional societies.
- f) Increase two year college student's stature in the minds of industry and universities to gain greater access to both for our graduates.

The new competition will be staged as follows:

- a) Round one will have the competitors completing a skills-based project at their home campus for electronic submission and judging by an industry panel of GISP experts from the AAG/Esri GeoMentor program. The projects will be judged against a matrix created from the GTCM, with assistance from the GIS Certification Institute. The top five college contestants will be invited to attend the next round of face to face competition at the following annual Esri conference. Invitations will be extended down the ranked list of competitors until 5 confirm their commitment.
- b) Round two will have the competitors completing a proctored pre-GISP skills competency exam, based on the GTCM and the Center's own common core competencies as identified by John Johnson's MetaDACUM work. The competition will include a 5 minute Lightning-styled presentation on their project to judge their communication and professional skills. This component of the competition will be based upon audience voting, in real time, at the presentation. The scores will be tallied and announce immediately following the presentations, in the same session. The winner will be recognized at the conclusion of this 50 minute session. They will all be celebrated at the Community College SIG meeting on Sunday evening during the Esri Educator's Conference.

Action items for the Competition include:

- a) Design of the competition rules and regulations and procedures (Dec 2010).
 - b) Promotion of the July 2011 competition through national media (Fall 2010).
 - c) Submission of competitor's entries by March 15, 2011.
 - d) Judging of round one completed by April 15, 2011.
 - e) Invites to top five competitors April 16, 2011.
 - f) Announcement of round one winner(s) on Directions Media April 17, 2011.
 - g) Travel arrangements for competitors completed by May 15, 2011.
 - h) Judging of round two competitors at Sunday meeting of Esri Educators Conference.
 - i) Announcement and celebration of round two competitors during the Community College SIG meeting Sunday afternoon 4-7pm.
3. International Student Workshop—led by Phillip Davis, with assistance by Ann Johnson, Chris Semerjian and Amy Work. As a result of the Director and Associate Director's travels to the EU and attendance to numerous conferences, as well as the NSF ATE and OISE program solicitations for proposals for international undergraduate student research experience, now is the right time for the Center to organize and sponsor an international research event. This will support the Center's broader impact and sustainability by:
- a. Expanding the impact of the GTCM to international markets, such as the EU, which currently lack such industry or academic standard. This harmonization of our geospatial education systems could have profound and lasting impact on international student academic mobility into new markets as the world economies and technologies converge further and further in the 21st century. This may lead to EU and international funding of future Center activities to further harmonize our national systems between one another.
 - b. Provide greater mobility of our graduates, from both two year colleges and four year universities into international markets as the economies fluctuate between countries. This is readily evident already in the EU, where for example, the Dutch geospatial industry is experiencing a shortage of qualified workers, while Greece has an over-abundance of GIS graduates with little prospect of employment.
 - c. Broaden Center access to new funding directorates within the NSF, as well as to other federal agencies sponsoring international research, as well as other governments and NGOs.
 - d. Expand the Center's access to foundation dollars for international research, such as the recently awarded HP International Collaborative. By demonstrating the Center's well established international programs and partners, it will better position the Center to take advantage of funding from foundations and others sources.

Action items for the international program include:

- a. Establish funding history with foundations and other sources. This has been started with the recently announced HP Innovations award of \$150,000 (Sept 2010).
- b. Establish international relationships for possible collaborations. This has been accomplished through attendance at the FOSS4G and EUGISES conferences (Sept 2010).
- c. Develop project proposal under \$100,000 for pre-approval by NSF program officer (Oct 2010). If acceptable, the additional steps will be carried out, or the initiative terminated.
- d. Submit proposal for funding to the OISE program officer November 2011. If funded, they following steps will be carried out, or the initiative terminated.
- e. Submit Esri paper presentation for faculty and student two participants at 2011 Esri Educators Conference by December 31, 2010.
- f. Secure contract with international partner by Jan 31, 2011.
- g. Recruit ten participants from US partners, with two alternates, by March 31, 2011.
- h. Finalize travel and hosting plans for research experience by April 15, 2011.
- i. Complete travel arrangements by May 1, 2011.
- j. Conduct research experience between June 5—15, 2011.
- k. Present research experience paper at Esri July 2011.
- l. Propose for all ten student participants to attend and exhibit at the 2011 ATE PI Conference (Oct 2011).