



Integrated Geospatial Education and Technology Training (iGETT)

Enabling Community and Tribal College Faculty to Meet Geospatial Workforce Needs. 2007-2010



National Science Foundation, Advanced Technological Education Program Grant No. 0703185

<http://igettdelmar.edu>

Purpose: To enable faculty to integrate federal land remote sensing data and Global Positioning Systems with existing Geographic Information Systems programs, developing model programs and courses to serve specific workforce needs in agriculture, disaster management, and environmental sciences

People

► Participants and Staff



► Staff

Back row: Ann Johnson, ESRI, and Phillip Davis, Del Mar College
Middle row: Jeannie Allen, SSAI at NASA, and Osa Brand, National Council for Geographic Education (PI).
Front row: Rachel Headley, USGS, and Laura Rocchio, SSAI at NASA



Rich learning experiences; different areas of expertise among participants; and time away from other responsibilities lead to important interactions.



Participants 40 faculty who already teach Geographic Information Systems at community and Tribal colleges participate in iGETT. Marguerite Madden, President of ASPRS, commented, "After being there for only a few hours last year, I clearly recognized the high level of motivation, enthusiasm and intellectual curiosity of this group."



iGETT participants come from Arizona, California, Illinois, Iowa, Maine, Michigan, Minnesota, Mississippi, Montana, New Mexico, New York, North Carolina, North Dakota, Oregon, Texas, Utah, Virginia, Washington, and Wisconsin.

► Sustainability iGETT project resources are publicly available for the benefit of all educators interested in enhancing their geospatial education programs. These resources will be available on the iGETT Web site for at least five years after the end of the project: 1) training files used during the Summer Institutes; 2) Learning Units developed by each participant; and 3) outreach and marketing strategies implemented by participating colleges. Perhaps most importantly for participants, the relationships formed over years of work together will enhance the professional lives of faculty and their students for years to come. Evaluators from SCATE, Inc. reported in 2007, "Project activities are creating and nurturing a mutually supportive learning community that holds promise for sustainability long beyond the life of this project."

Process

► Summer Institutes ► Activities During Academic Years ► Dissemination ► Sustainability ► Evaluation

► Summer Institutes

iGETT provides three weeks of Institutes over two years for each cohort of 20 participants. The first year, participants focus on the fundamentals of remote sensing; ways of using geospatial technology in a wide variety of workforce domains; how to identify and download remote sensing data; using data analysis software (ENVI; ArcGIS with Image Analyst); and formats and procedures for developing their Learning Units. The second year, participants share and finalize plans for the Learning Units; and develop strategic plans for effective program marketing.



Training in the fundamentals of remote sensing and on analyzing moderate resolution land remote sensing data



Field Work to enable participants to link satellite data with their own ground-based observations of land cover



Development of Learning Units and Program Marketing Plans with abundant time for interacting with mentors

► Activities During Academic Years.

During the first academic year, iGETT participants take an on-line remote sensing course and develop their Learning Units. They also participate in monthly Web-based seminars to share information about their concerns and achievements; participate in tutorials; and engage in conversations with scientists. During the next year, they field test their Learning Units and develop program marketing plans.

► Dissemination

Important components of iGETT training are on-campus geospatial program marketing, student recruiting at high schools, outreach to four-year colleges that can support further geospatial training, and dissemination of information about the programs at regional meetings and conferences. Several of the participants who have developed exceptionally strong instructional units or courses will also receive support for presentations at national conferences.

► A New Community

"You're giving us a community we didn't have before." Mike Rudibaugh, Lake Land Community College, Mattoon, IL Many of the participants are communicating independently about their work, collaborating on projects, and meeting at conferences.



Products

► Learning Units ► Training Materials ► A New Community

► Learning Units

Each participant develops a Learning Unit (LU) that covers at least two weeks of class time. In the course of the LU, students obtain land remote sensing data (Landsat, MODIS, or ASTER) and integrate it with Geographic Information Systems and Global Positioning Systems technologies to address an issue of concern to the local workforce. LU topics come from the three broad areas: agriculture, disaster management, and environmental sciences. Each LU consists of three documents: a Curriculum Support Document, an Instructor Guide, and a Student Guide. Sample LU titles:

- "Delineation of Mountain Sheep (*Ovis canadensis*) Habitat, Bear's Paw Mountains, Rocky Boy Reservation (Douglas Crebs, Stone Child College)
- "Growing Season Analysis of NDVI Values for Agricultural Land Uses in East-Central Illinois" (Mike Rudibaugh, Lake Land College)
- "Monitoring Trends in Wildland Fire Burn Severity" (Christine Lewis, Diablo Valley College)
- "Unsupervised Landsat Classification of Soils for Agricultural Land Parcel Tax Valuation" (Angela Milakovic, Bismarck State College)

Agricultural Land Parcel Soil Tax Valuation

Topic: Environmental/Economics/Agriculture
Problem Statement: Use of GIS and ENVI to find soil production values that can be used for tax parcel assessment.
Level: Intermediate to Advanced
Software: ArcGIS, Spatial Analyst and Soil Data Viewer Extension, ENVI
Description: This module uses Landsat images and soil surveys to assign a true & full value to agricultural soils which will result in fair tax assessment of the property. The project study area covers a small section of Burke County, ND in the NW corner of the state.
Key words: Agricultural Land Parcels, North Dakota, NDVI, GIS, NCO, Unsupervised Classification, Burke County, Soil Production.

Areas in Cultivation

Topic: Agriculture, Urbanization
Problem Statement: Quantity Areas in Cultivation
Level: Basic
Software: ENVI, ArcGIS
Description: This module uses ENVI software to extract cultivated lands for Maricopa County, Arizona from Landsat 7 imagery. Students use an interactive Web mapping site to compare their results with reality and examine recent changes in land use. Students use ArcGIS to clip the result and provide maps & data for South Mountain Village Planning Committee.
Keywords: Supervised Classification, Clip, Georeferencing

Learning Unit (LU) authors created one-side handouts in PowerPoint which appear in a collection on the iGETT Web site. Educators reviewing LU topics for applicability to their own programs can grasp the nature of each LU at a glance.

► Training Resources

Educators who wish to adopt all or part of the agendas, presentations, and tutorials developed for iGETT can download them from the iGETT Web site. In the agendas, the title of each needed resource is provided and hotlinked.

► Evaluation

South Carolina Advanced Technological Education (SCATE) is conducting the external evaluation of iGETT.

Elaine Craft, President of South Carolina Advanced Technological Education, Inc. (SCATE, Inc.) helps Tora Johnson, University of Maine at Machias, to discover NSF ATE online resources.

