



GeoTREE News

Volume I, Issue I — April 2006



GeoTREE Launched!

The National Aeronautics and Space Administration (NASA) has awarded the University of Northern Iowa (UNI) a research grant for the purpose of establishing a Geoinformatics Training, Research, Education and Extension (GeoTREE) Center. The funding period for this new grant began January 15, 2006 and has been approved through January 14, 2007 for the first year. This new Center is housed in the Department of Geography (see page 4 for more about the department) on the UNI campus on the second floor of the Innovative Teaching & Technology Center (ITTC) building. This new facility will provide state-of-the-art technologies with more than 15 staff computers, 25 lab computers and two servers for research and training purposes. (Please refer to page 4 for more information.)

Goals & Objectives

The primary goal of this project is to establish GeoTREE as the center for education, multidisciplinary research, and outreach services in the geospatial technology areas for individuals from federal, state, local and tribal government (FSLT) agencies. GeoTREE is an interdisciplinary center and is unique in transferring the geospatial technologies to FSLT agencies by bringing NASA scientists, academic members, and members from FSLT agencies together to integrate remote sensing data into Geographical Information Systems (GIS) and help in improved decision-making through Decision Support Systems (DSS).

The purpose of the GeoTREE Center is multi-faceted with three major areas:

- 1) Education and Training
- 2) Research and Development
- 3) Extension and Outreach in geospatial data and technologies

The outcome from this project includes:

- a) To understand or learn the geospatial technology needs of FSLT agencies by researchers from both NASA and academic members,
- b) To develop new geospatial tools and techniques to solve FSLT agencies day-to-day problems, and
- c) Transfer the techniques and tools developed in this project to other communities across the country.

To learn more about GeoTREE, please go to the following web site:



University of Northern Iowa

We're on the web!

Check us out at: www.geotree.uni.edu

In This Issue

<i>GeoTREE Launched!</i>	1
<i>Meet the GeoTREE Staff</i>	2
<i>Advisory Board</i>	3
<i>Upcoming Events</i>	4

GeoTREE Staff

- Dr. Ramanathan Sugumaran
- Mr. John DeGroot
- Dr. Yanxin Duan
- Ms. Jane Gillen
- Mr. Nathan Green
- Mr. Nick Nwasike
- Mr. Nick Phillips
- Mr. Derek Rieckmann
- Mr. Jonathan Voss
- Mr. Matt Voss

See page 2 for additional info.

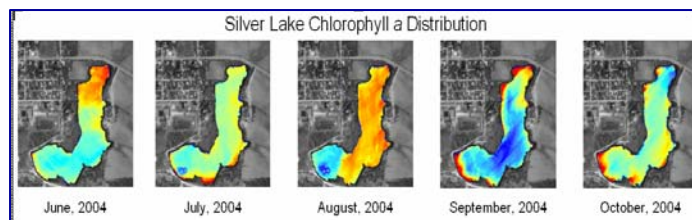
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Ongoing Research Projects

In the past three years, Dr. Sugumaran's team has been collaborating with several local, state, and federal agencies in geospatial technologies related research and educational activities. Some of the recently begun and other on-going research topics include the following:

- GIS-Based Site Suitability Analysis for Planning Confined Animal Feeding Operations
- Water quality monitoring using remote sensing data
- Air quality monitoring using MODIS satellite data
- Tree species identification using remote sensing and GIS
- The Intelligent Winter Maintenance Decision Support System
- West Nile Virus habitat analysis using RS and GIS data
- Emergency planning tools for first responders
- Potential Wetland Restoration Area using Object-Oriented classification and a GIS-Based Model



Meet the GeoTREE Staff

To contact us, call: 319/273-3713 or 319/273-3816 or 319/273-3877 (Lab)

Dr. Ramanathan Sugumaran ("Sugu") - Associate Professor and GeoTREE Center Director

Sugu has over 15 years of experience in remote sensing, GIS, GPS spatial decision support systems (SDSS) applications for natural resources and environmental planning and management. He is and has been working with federal, state, local and tribal government agencies (FSLT) for the past 10 years and developed several SDSS tool and techniques. He has served as Principal Investigator (PI) or Co-PI on over \$5 million worth of research grants funded by NASA, Raytheon, NOAA, USDA, DOT, and US Fish and Wildlife Service. He has also published more than 15 journal articles and presented more than 60 papers in national and international conferences.

Mr. John DeGroot - GeoInformatics Specialist

John earned his M.S. in Natural Resources at the University of Wisconsin-Stevens Point. Currently John is investigating the potential application of Remote Sensing and Geographic Information Systems for public health issues, particularly the West Nile Virus habitat in Iowa. He will be working with Iowa public health as well as other local government officials, and will develop tools and techniques which will be used to better understand the spatial aspects of the West Nile Virus.

Dr. Yanxin Duan - GeoInformatics Specialist

Yanxin earned his Ph.D. in watershed management with GIS emphasis from the University of Arizona. In his Ph.D., he has developed a web-based Spatial Decision Support System (SDSS) to aid range managers in considering sediment control. In March 2006, he joined GeoTREE as a post-doc fellow. Yanxin will be working on implementing a web-based SDSS for TMDL development. He will closely work with Iowa DNR and the NASA Ames Center.

Ms. Jane Gillen - Administrative Assistant

Jane has worked at UNI since 1993 as administrative assistant for the Geographic Alliance of Iowa. (GAI) In January 2006, she was hired for the GeoTREE Center as administrative assistant. She coordinates the training workshops, travel arrangements, processes all payments involving the program project accounts, and communicates regularly with core and individual project coordinators regarding grant fiscal activity.

Mr. Nathan Green - Remote Sensing Specialist

Nate completed his M.A. in Geography December 2005 at the University of Northern Iowa. His master thesis research involves use of air-borne hyperspectral remote sensing to monitor water quality of inland lakes. Nathan's current activities include developing new methodologies to monitor water quality of Iowa Lakes using space-borne hyperspectral data. This project will explore the use of ASTER, MODIS, Hyperion and LIDAR data in the monitoring of water quality. He will closely work with Iowa DNR and NASA Ames Center.

Mr. Nick Nwasike - UNI Computer Science Graduate Assistant

Nick is a graduate student in the Department of Computer Science at UNI. He earned his MSC computing degree from North Umbria University, in Newcastle, United Kingdom. His research interest is the application of web-based GIS for Emergency Planning and Response. The intention of this project is to provide suggested alternative routes to consider when an accident occurs and how to divert the traffic. This is a GIS-based planning tool to help first responders, dispatchers, and other DOT personnel for managing the emergency situation.

Mr. Nick Phillips - UNI Computer Science Graduate student

Nick completed his undergraduate degree in Computer Science at Simpson College in Indianola, Iowa. Nick is a graduate student in the Department of Computer Science at UNI. Nick is currently creating a remote sensing educational tool using Macromedia Flash. His interactive software will allow novice users to understand and learn basic principles and techniques of satellite remote sensing.

Mr. Derek Rieckmann - UNI Geography student

Derek is currently enrolled as an undergraduate student studying geography with an emphasis in GIS. Derek is working on the West Nile virus project for GeoTREE.

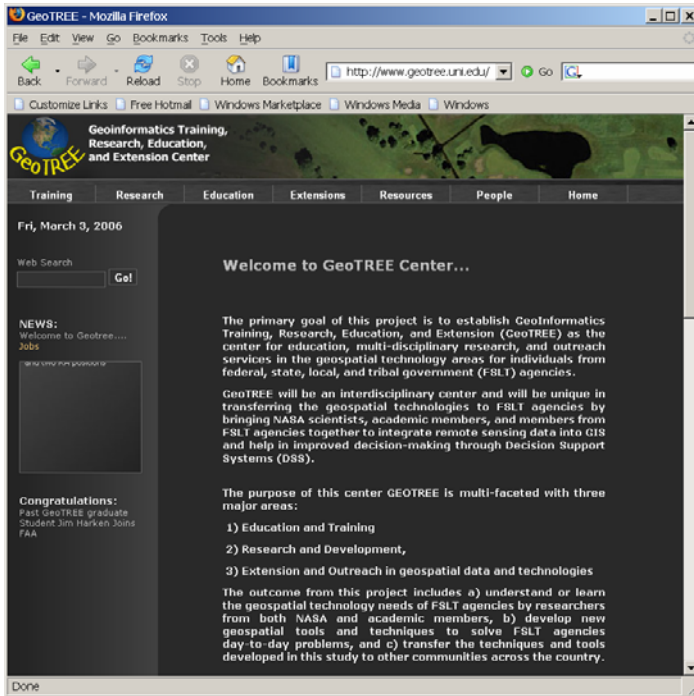
Mr. Jonathan Voss - GeoInformatics IT Specialist

John received his Computer Science degree from Iowa State University in Ames. Currently he is working as a systems administrator for the GeoTREE lab. He is also responsible for designing and updating the GeoTREE web site.

Mr. Matt Voss - UNI Geography Graduate Assistant

Matt earned his B.A. in Geography from UNI, and is currently finishing up his M.A. in Geography at UNI. Matt is currently using hyperspectral imagery to determine tree species identification on campus and is also learning about LIDAR applications.

We are pleased to introduce you to our staff and look forward to meeting your educational and research needs in this vital area.



- Our new GeoTREE website is now up and running. A screen shot of the site shows various information relating to the GeoTREE Center. To access the site, go to:
<http://www.geotree.uni.edu>
- Future training programs and workshops will be posted to the site as summer and fall plans are finalized.
- Past research reports, publications and other GIS and remote sensing tools developed through various project are also available in the website.
- The GeoTREE Advisory Board members list and GeoTREE staff list is also available on our website.

GeoTREE Advisory Board Members

The recently formed GeoTREE Advisory Board is composed of various professionals representing NASA scientists, academic members, and members from federal, state, local and tribal agencies (FSLT). Following is a list of our current Advisory Board members. The Advisory Board will continue to be expanded as we progress. The first meeting is scheduled on April 11, 2006 in our new campus facilities.

FSLT Agencies:

Federal:

Greg Hadish	State GIS Specialist — USDA — NCRS
Cathy Henry	U.S. Fish and Wildlife Service
Karen Kohlmeyer	Farm Service Agency (FSA)
Robert Vobora	Resource Soil Scientist — NRCS

State:

Eric Abrams	GIS Technical Coordinator — DOT
Brad Cutler	Chair — Iowa Geographic Information Council
Jim Giglierano	GIS Coordinator — DNR — USGS
Jon Paoli	GIS Coordinator — Homeland Security
Bill Byrd	Iowa Space Consortium

County:

Kevin Blanshan	INRCOG
Barbara Berquam	Black Hawk County
Wayne Chizek	GIS Department Director — Marshall County

City:

Steve Cooper	GIS Specialist — Cedar Rapids
Kris Tuttle	GIS Administrator — City of Des Moines

Tribal:

Sandra Monck	GIS Specialist Sac & Fox Tribe
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Academic Collaborators at UNI:

- Biology
- Chemistry
- Computer Science
- Earth Science
- Geography
- Industrial Technology
- Statistics

NASA Centers:

- Ames Center — California
- Kennedy Space Center — Florida
- Langley Center — Virginia
- Stennis Space Center — Mississippi



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New Facilities Located at UNI's Innovative Teaching & Technology Center (ITTC)

GeoTREE is housed in the newly remodeled Innovative Teaching & Technology Center (ITTC) on the UNI campus. Our Center includes over 1,000 square feet. The lab has "state-of-the-art" technologies that include 15 Dell staff computers, a teaching lab complete with 25 computers utilizing the latest multi-media, and two servers with gigabyte Ethernet connection. These computers are loaded with GIS software, (ESRI suite, IDRISI, AutoCAD, etc.), Remote Sensing (ERDAS Imagine, eCognition, Sub-pixel classifier, ENVI, etc.), and GPS (Trimbles Pathfinder office, AscPad, etc.). Please call to visit with us, or stop by to see our new facilities. We look forward to meeting with you.



GeoTREE Calendar

Event	Date(s)	Location
Advisory Board Meeting	April 11, 2006	GeoTREE Center — 234 ITTC — University of Northern Iowa — Cedar Falls, Iowa
Upcoming Presentations	AAG—March 7-11, 2006 IGARSS— July 31, to August 3, 2006	Chicago, Illinois Denver, Colorado
Future Programs	Several workshops will be organized for FSLT Agencies. GeoTREE is sponsoring a LIDAR workshop in conjunction with the Iowa DNR on May 31, 2006.	GeoTREE Center — 234 ITTC — University of Northern Iowa, Cedar Falls, Iowa

The **Department of Geography** at UNI offers various educational opportunities including GIS Certificate, GI science emphasis major at undergraduate level and MA in Geography.



For further information regarding the Department of Geography, please contact Dr. Dave May at: Dave.May@uni.edu or by phone at 319/273-6059, or their web site at: <http://www.uni.edu/geography>

GeoTREE Survey

The goal of this survey is to identify federal, state, local and tribal agencies needs on geospatial technologies particularly Geographical Information Systems (GIS), Remote Sensing (RS) and Global Positioning System (GPS). We are planning to host 4 to 5 FREE workshops this summer at the University of Northern Iowa.



Please complete this survey by going to the following website:

www.geotree.uni.edu/survey/

Thank you for your assistance in helping identify FSLT agency needs in these areas.