

## WORKSHOP PROGRAM

Tuesday, July 29, 2014

7:45 am	<b>Registration &amp; Check-in</b> Conference Center Lobby
8:30 am	<b>Housekeeping</b> Dr. Joshua Kent
8:40 am	<b>Welcome &amp; Introductions</b> Welcome by Dr. K.T. Valsaraj, Introductions by Dr. George Voyiadjis
9:00 am	<b>Keynote</b> Mr. Tim Osborn
9:30 am	<b>BREAK</b> Coffee in the Lobby
10:00 am	<b>Session 1:</b> Mr. Cliff Mugnier
10:15 am	<b>"What is Your Vertical Truth?"</b> Geodetic leveling along the Gulf Coast; Passive monuments versus active stations; The new geometric and geopotential datums. Mr. William (Bill) Henning, PLS, NGS Geodesist (ret.)
11:00 am	<b>"Heights – Using Orthometric, Ellipsoid, Dynamic, Local Sea Level and Geoid Heights for Height Modernization"</b> HTMOD benefits, applications and a background on all the heights found on NGS data sheets. Mr. William (Bill) Henning, PLS, NGS Geodesist (ret.)
Noon	<b>LUNCH</b> Box Lunches in the Lobby
1:15 pm	<b>"Comparing and Contrasting Static and Real-Time GNSS Positioning for Orthometric Heights"</b> Using NGS guidelines 58 & 59; real time single base and RTN guidelines; best field methods for RT confidence. Mr. William (Bill) Henning, PLS, NGS Geodesist (ret.)
2:45 pm	<b>BREAK</b> Coffee & Snacks in the Lobby
3:00 pm	<b>Panel Discussion</b> Question & Answer Session
3:50 pm	<b>Closing</b> Dr. Joshua Kent

# 2014 Louisiana Height Modernization Workshop



Tuesday

**JULY 29, 2014**

**The Cook Hotel & Conference Center**

3848 West Lakeshore Drive

Baton Rouge, LA 70808

Louisiana State University

## WELCOME

Welcome to the 2014 Louisiana Height Modernization Workshop. This is the first of many workshops conducted in Louisiana and across the Gulf states that aims to communicate the latest technologies and resources for collecting GNSS derived heights.

## ABOUT THIS WORKSHOP

This workshop has been made possible by a grant from the National Geodetic Survey – National Height Modernization Program.



It is the goal of the NHMP to support the positioning needs of the Nation. Nowhere else is height modernization more important than in Louisiana and the Gulf Coast. To that end, the NGS awarded a five-year, multi-million dollar grant to a consortium of spatial reference centers and geodetic stakeholders in Texas, Louisiana, Mississippi, Alabama, and Florida.

The grant activities directly supports NOAA's goals and objectives outlined for *Resilient Coastal Communities and Economies*. Specific targets include: enhanced geodetic control infrastructure; support education, capacity building, and technological outreach; coordinate partnerships with geodetic stakeholder groups; and data distribution, tools, and resources for analysis.

Consortium partners include the Texas A&M University – Corpus Christi, the University of Southern Mississippi, LSU, the Alabama Department of Transportation, and Florida Atlantic University.



## ABOUT THE CENTER FOR GEOINFORMATICS

The LSU Center for GeoInformatics (C4G) is a science and technology unit focused on high precision 3-D and 4-D Earth positioning. The Center maintains C4GNet, the Gulf wide network of continuously operating GNSS reference stations. This state-of-the-art infrastructure represents the largest, self-sustaining, university owned and operated positioning network in the world. The C4GNet has proven scientific, commercial, and legal applications that are recognized by the state and the nation as the official positioning reference system within Louisiana (R.S. 50: 173.1).

The principle scientific research pursued by the Center is concentrated on monitoring and modeling land subsidence across Louisiana. The Center provides the technological, intellectual, and practical leadership for contemporary subsidence research in the State. In order to sustain these contributions and continue to be the vanguard for subsidence research, the C4G created the LA Spatial Reference Center (LSRC) to promote, educate, and enhance the geodetic needs of Louisiana and the Nation.

## Contact Information

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## LSU Department of Civil & Environmental Engineering

Researching effective solutions for coastal and environmental engineering, geotechnical engineering, geophysical engineering, materials modeling and visualization, materials characterization, structural engineering, transportation, and water resources.

<http://www.cee.lsu.edu/>



## Navigation Electronics, Inc.

NEI is your one-stop-shop for survey, MGIS, construction, and marine sales, service, support, training, fleet management, manufacturing, field supplies and equipment rentals. We are based in Lafayette, LA with offices in Georgia and sales representatives in MS, AL, AR, FL, GA, TN and LA. We recently rolled out our completely new brand, including a new logo and website. To see what we have been up to, please visit us at [www.neigps.com](http://www.neigps.com).



## Precision Data Solutions

**Precision Data Solutions**, a Texas based company, is your distributor for Hemisphere GNSS Land survey products coupled with a full line of accessories from leading manufacturers. Hemisphere GNSS designs and manufactures innovative, cost-effective, compatible, and easy-to-use GNSS products for RTN –RTK connectivity and positioning - guidance applications. [www.pdsolutions.net](http://www.pdsolutions.net).



## Progressive Tractor

**Progressive Tractor** is an established, quality conscious Case IH and Kubota dealer serving Central and South Louisiana since 1991. We offer farmers the best in new and used agricultural equipment, including the high horsepower, 4-wheel drive models; row crop tractors; utility tractors; compact tractors; harvesting equipment. Our *Precision Farming Division* is dedicated to sales and service of AFS equipment and numerous allied lines of equipment.

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## GUEST SPEAKERS



### William Henning, PLS

Mr. William Henning is a Registered Professional Land Surveyor with over 46 years of active experience in all phases of the land surveying profession. He has authored articles for professional journals and trade magazines on GNSS positioning as well as authoring an extensive guideline document on single base real-time GNSS positioning and spearheading a real-time network guideline document while working at NOAA's National Geodetic Survey (NGS). He has been the project lead for new height modernization geodetic networks in county-wide projects in the U.S., where he planned, helped construct, processed, adjusted and managed new geodetic control systems using NGS guidelines. He has over 19 years experience working with various GNSS manufacturers' real-time positioning systems. Mr. Henning was awarded the Maryland Society of Surveyors "Surveyor of the Year" for 2013-14.



### Clifford J. Mugnier, c.p., c.m.s.

Mr. Clifford J. Mugnier is board-certified as a Photogrammetrist and a Mapping Scientist (GIS/LIS). His research on the geodesy of subsidence in Louisiana dates back prior to his first seminar presentation to the Louisiana Society of Professional Land Surveyors (LSPS) in 1979. Cliff was a part-time member of the faculty of Civil Engineering at the University of New Orleans for 20 years and since 2000 has been a full-time member of the faculty of Civil Engineering at Louisiana State University in Baton Rouge where he teaches Surveying, Geodesy, and Photogrammetry. He is a Lifetime Honorary Member of the LSPS, and he is a Fellow Emeritus of the ASPRS. Cliff is also a full member of the Association of Petroleum Surveying & Geomatics (APSG).



### Tim Osborn, NOAA Office of Coast Survey

Tim Osborn is a native of Tampa, Florida. He received his B.S. Marine Biology from Florida State University, an M.S. in Marine Sciences from Louisiana State University, a Masters of Public Administration from Louisiana State University, and a NOAA Sea Grant Fellowship Program in Washington, D.C. Mr. Osborn is currently the Regional Manager for NOAA's Office of Coast Survey, Eastern Gulf, in Lafayette, Louisiana. In this capacity, he is responsible for Implementation of

surveying and mapping of the Coast of the Gulf Coast, charting and navigation programs and projects, responding to hurricanes and coastal incidents. He has been involved in many restoration project including the first large scale underwater coral reef restoration project implemented by NOAA in the Florida Keys. He has been engaged in coastal restoration projects, coastal navigation and port and waterways and coastal hurricane response for over 26 years. He has also been involved in Gulf Coast Height Modernization Initiatives for many years and has participated in the planning and implementation of new programs such as densification of NOAA's tides and water level programs and installations (including PORTS, and IOOS related activities) and the installation and support of GPS based reference CORS stations in response to the need for enhanced positioning reference systems for the northern Gulf Coast.



### Kalliat T. Valsaraj, Ph.D.

Professor Kalliat T. Valsaraj is the Vice Chancellor for Research & Economic Development at LSU. Dr. Valsaraj has broad research experience in wastewater treatment, atmospheric chemistry, and modeling the fate and transport of contaminants in all three environmental media (air, water and soil/sediment). He holds the titles of Charles and Hilda Roddey Distinguished Professor in Chemical Engineering and Ike East Professorship in Chemical Engineering. He is a Fellow of both the

American Association for the Advancement of Science (AAAS) and the American Institute of Chemical Engineers (AIChE). In 2010 he was awarded the LSU Rainmaker Award in the Senior STEM category and in 2011 he was awarded the Distinguished Research Master award by LSU. The professional societies of AIChE and ACS (American Chemical Society) awarded him the Charles E Coates award in 2012.



### George Z. Voyiadjis, Ph.D.

Professor George Z. Voyiadjis is a Boyd Professor and Chair of the LSU Department of Civil and Environmental Engineering. Dr. Voyiadjis is also the Interim Director for the Center for Geo-Informatics. Dr. Voyiadjis' primary research interest is in plasticity and damage mechanics of metals, metal matrix composites, polymers and ceramics with emphasis on the theoretical modeling, numerical simulation, and experimental correlation. He is a Fellow of the American Society of Civil Engineers, the

American Society of Mechanical Engineers, and the American Academy of Mechanics. He was the Chairman of the ASME Joint AMD-MD Committee on Constitutive Equations of the ASME, and the Chairman of the Inelasticity Committee of the ASCE Engineering Mechanics Division.

## EXHIBITORS



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### Haag & Trammell, Inc.

Haag & Trammell Inc. is a Louisiana firm based in Metairie offering GNSS products to the Engineer, Surveying, and Construction Markets. We offer Topcon, Sokkia and Carlson products to both industries while offering the Leica Machine Control GNSS resources to contractors. [haagtrammell.com](http://haagtrammell.com)



### Louisiana Society of Professional Land Surveyors

Established in 1961, the **LSPS** serves to enhance the status of Louisiana's community of professional Land Surveyors by maintaining high technical and cultural standards, maintaining continuing education, requiring ethical practice, licensing, encouraging personal and professional development, and supporting their membership through service and opportunities. [www.lspss.org](http://www.lspss.org)