

**NOAA, National Geodetic Survey**  
**HEIGHT MODERNIZATION COORDINATION MEETING**  
**DRAFT NOTES**

Date: Thursday, February 10, 2011  
Time: **2:00-3:30 pm East Coast time**

**Attendees:**

*Call-ins from:* AK (Eric Cousino, Tom Heinrichs), AL (John Russel), CA (John Canas), ID (Rayce Ruiz), IL (Amy Eller, Sheena Beaverson), KY (Wolfgang Ziegler, Brad Rister), LA (Roy Dokka, Randy Osborne), MT (Bryce Larsen), NE (Dan Kahm), NGS (Vicki Veilleux, Dan Callahan, Doug Adams, Perky Falconer, Dan Winester, Monica Stich), NM (Earl Burkholder), NPS (Tim Smith), OH (Bob Warren), OR (Ken Bays), PA (Mike Loose), SC (Lew Lapine), USGS (Larry Hothem)

*Silver Spring:* NGS (Mark Eckl, Tim Hanson, Bill Henning, Gilbert Mitchell, Renee Shields, Ross Mackay, Ajit Singh, Ronnie Taylor, Sonita Tiwari Christine Gallagher)

*Advisors/Coordinators:* Marti Ikehara (CA), Pam Fromhertz (CO), Dave Newcomer (FL), Chris Pearson (IL), Monroes Rivers (KS), Dave Rigney (MI), Jim Richardson (NE), Mark Armstrong (OR), Dan Prouty (TX), Dan Martin (VT), John Ellingson (WI)

**Introduction** (Renee Shields)

**Monthly presentation**

**Orthometric Heights through Real-Time Networks**

More than 75 Real Time Networks (RTNs) are in existence across the United States, and the number grows rapidly. Benefits of RTNs over classical real-time kinematic (RTK) surveying are huge savings in time, equipment, personnel, and therefore money. Issues always exist that need to be addressed while implementing an RTN to produce the desired accuracy, especially regarding coordinate compatibility, data precision and accuracy, and network stability. NGS hopes to encourage RTN administrators to adopt the recommendations and guidelines it is developing to ensure compatibility with the National Spatial Reference System (NSRS).

Bill Henning's presentation **"Using Real Time for Orthometric Heights"**

Dr. Lapine's presentation **"SC VRS Network – To Support Surveying and Machine Control"**

*If you thought of any questions after the meeting, or were unable to attend but have questions after viewing the presentation, please contact Bill Henning or Dr. Lapine.*

*Speaker biographies:*

**William Henning, Senior Geodesist, National Geodetic Survey**

Mr. Henning is a Registered Professional Land Surveyor with over 43 years of active experience in all phases of surveying technology. He has been the project lead for height modernization projects in

the eastern U.S., where he planned, helped construct, processed, adjusted and managed new geodetic network control systems. He has been actively involved with education/outreach to the geospatial community for almost 20 years, presenting over 80 talks and workshops on surveying and GNSS technology. He has 15 years experience working with various GNSS manufacturers' real time positioning systems. Mr. Henning is Past President of the American Association for Geodetic Surveying (AAGS) and is an ACSM/AAGS Fellow. He has recently been presented with the NOAA Administrator's Award for outstanding accomplishment in producing real time GNSS positioning guidelines. He is currently employed by NOAA's National Geodetic Survey (NGS) as a Senior Geodesist, where he is helping to develop guidelines and support methodology for real time GNSS positioning with state, national and international organizations.

**Dr. Lewis A. Lapine, Chief, South Carolina Geodetic Survey**

From 1970 until 1998, Dr. Lapine was a commissioned officer in the National Oceanic and Atmospheric Administration (NOAA) attained his final rank as Captain (O-6) in 1992. He has served on three hydrographic and one oceanographic ship and various geodetic field parties. From 1989 until 1993, Dr. Lapine served as Chief of the National Geodetic Survey (NGS) Remote Sensing Division and in 1993 was promoted to Director of NGS. He managed the National Spatial Reference System comprised of some 1.5 million historic survey markers, a national mapping program for the official U.S. coastline used on nautical charts and the production of 980 aeronautical charts portraying airport facilities and obstructions in the national airspace.

In 1998 Dr. Lapine retired from NOAA and became the Chief of the South Carolina Geodetic Survey where he has continued to build and maintain a unified coordinate system that supports all aspects of mapping, cadastre, construction and the intelligent use of our natural resources. In particular, this activity insures the continued modernization of the South Carolina State Plane Coordinate System through the use of the Global Positioning System and implementation of the National Geodetic Survey, National Height Modernization Program. To facilitate access to the coordinate system, a 52 station GNSS network provides real time centimeter level positioning accuracy anywhere in the state using a single mobile dual frequency receiver and cellular modem technology. Dr. Lapine is also presently an Adjunct Professor at Midlands Technical College and the University of South Carolina.

**NGS Activities (Renee Shields)**

- The notes and presentations from this meeting will be posted on the website. New state pages are being added to the Height Mod web page, and some older content will be archived for states like CA and LA.
- NGS has performed a multi-year solution of the CORS and will be implementing a transition from the current CORS96 to CORS96a. A webinar to discuss the impact of the new CORS coordinates will be hosted on February 25 from 1-2:30 pm eastern time. Due to audio limitations (and a large expected audience), please call-in on time and in groups when possible. Further information may be found in the CORS newsletter at <http://www.ngs.noaa.gov/CORS/news.shtml>

**Updates from States – e.g. outreach, projects**

*Illinois* (Chris Pearson) – ILPLS is next week with Illinois Height Mod support and two presentations by Chris Pearson

*Vermont* (Dan Martin) – State DOT and Land Surveyors Society is coordinating a GPS on bench marks effort in conjunction with the National Survey USA Day, and it is a great opportunity for other states to encourage similar efforts. Renee Shields added that NGS provided some general guidelines to NSPS to help ensure some data captured is usable.

*Louisiana* (Roy Dokka) – LA will be hosting a National Meeting/Workshop on Real Time Networks in June.

### **Other business**

Please send any feedback on the new format of the meetings (i.e. invited speakers) to Renee Shields.

Next meeting: Thursday, March 10, 2011; 2:00-3:30 East Coast Time

### **Recent Past Events**

**January 12-14, Indianapolis, IN** – Indiana Society of Professional Land Surveyors Annual Convention (ISPLS) Height Modernization and GNSS Derived Heights workshop

**January 19-21, Verona, NY** – New York State Association of Professional Land Surveyors Annual Conference (NYAPLS) Best Methods for RT GNSS Positioning: A Field Guide

**January 22, Detroit, MI** – Burt & Mullet Chapter of ACSM, Best Methods of RT GNSS Positioning: a Field Guide

**January 26, Hershey, PA** – Pennsylvania Society of Land Surveyors 2011 Conference, NGS Real Time GNSS User Guidelines

**February 2-5, Honolulu, HI** - Hawaii Land Surveyors Association Annual Conference

**February 2-5, Atlantic City, NJ** – (NJSPLS) Height Modernization workshop

### **Upcoming Events**

**February 10-11, St. George, UT** – Utah Council of Land Surveyors 2011 Convention

**February 17, Springfield, IL** – Illinois Society of Professional Land Surveyors (ISPLS) annual meeting, Modernization of the NSRS

**February 21-25, Anchorage, AK** – Alaska Surveying and Mapping Conference

**February 23-25, Frankenmuth, MI** – The Michigan Society of Professional Surveyors 70<sup>th</sup> Annual Meeting

**February 24, Morgantown, WV** – WV Society of Professional Surveyors Annual meeting, Best Methods of RT GNSS Positioning: a Field Guide

**February 27 – March 2, Annapolis, MD** – National States Geographic Information Council (NSGIC)

**March 3-5, Aurora, CO** – Professional Land Surveyors of Colorado Rocky Mountain Surveyor Summit

**March 11, Ames, IA** – Society of Land Surveyors in Iowa

**March 21-24, Houston, TX** - SPAR

**March 28-30, Hershey, PA** - GIS-T

**April 7, 2010 – Riverside, CA** – Riverside Flood Control and Water District, “State of the NGS” presentation

**April 7-8, Linthicum Heights, MD** – Maryland Society of Surveyors

**April 13-14, New Cumberland, PA** – Great Lakes Region Height Modernization Consortium workshop and meeting

**April 14-15, Little Rock, AR** – Arkansas Society of Professional Surveyors Spring Conference and Meeting

**April 19-21, La Vista, NE** – Nebraska GIS Symposium

**May 26, La Jolla, CA** – at Scripps Institution of Oceanography, California Spatial Reference Center semi-annual Coordinating Council Meeting

**July 7-15, San Diego, CA** – ACSM sponsors Survey Summit in conjunction with ESRI

**July 17-21, Chicago, IL** – Coastal Zone 2011