

**NOAA, National Geodetic Survey
HEIGHT MODERNIZATION COORDINATION MEETING
DRAFT NOTES
SSMC3, Room 8836**

Date: Thursday, January 13, 2011
Time: 2:00-3:30 pm East Coast time

Attendees:

Call-ins from: CA (John Canas), IL (Amy Eller, Mike Bloomhoff), KY (Wolfgang Ziegler, Dan Farrell), MI (Andy Semenchuk) MT (Bryce Larsen), NGS (Vicki Veilleux, Dan Callahan, Erika Little), PA (Brad Foltz), USACE (Mark Huber), USGS (Larry Hothem)

Silver Spring: NGS (Gilbert Mitchell, Renee Shields, Ross Mackay, Michael Dennis, Doug Brown, Christine Gallagher)

Advisors/Coordinators: Chris Pearson (IL), Denis Riorden (LA), Dave Rigney (MI), Mark Armstrong (OR), Dave Steele (WA), John Ellingson (WI)

Introduction (Renee Shields)

Today is the kickoff of the new format of these meetings in which there will be a presentation. We hope the presentations will add value to the meeting, and please let us know of any topics you would like to see be discussed. The items that have been covered at past meetings may be cut down, but often there was not a great deal of change to report out. If there are questions about anything that has been dropped from the agenda, you will have time to ask at the end of the meeting.

Outreach and Education

-Height Modernization webpage (Renee Shields)

At the last Height Mod monthly meeting in December, we looked through the updated version of the website that is now in line with the updated NGS look and feel. The greatest change since December, based on feedback, has been a simplification of the left bar menu which is now much more readable. Also, please note how to find the schedule for the speakers at this meeting. Visit the “Events” page, select the hyperlink to the page about the “Coordinating meeting,” and then select the hyperlink to schedule/presentations just above the meeting notes.

Please continue to check the website for the most recent schedule of planned upcoming speakers. In February, there will be a presentation on Real Time Networks (Bill Henning and Lew Lapine presenting) and in March, there will be a presentation on the NGS Aeronautical Survey Program (Mark Howard presenting).

Also, we will begin working on updating the state pages on the web page. We will be sending out drafts to the Great Lakes states in the next few weeks for their review,

comments, and additions. Perhaps those pages can be posted online by the next monthly meeting. In future months we will be working to update the pages for all the states, and will contact individuals in various states for their input. We welcome those who have links, stories, information on projects, or other content to forward that to Renee and Christine.

-Monthly presentations for 2011 (Renee Shields)

Monthly presentation: VDatum

VDatum is a free software tool being developed jointly by NOAA's National Geodetic Survey (NGS), Office of Coast Survey (OCS), and Center for Operational Oceanographic Products and Services (CO-OPS). VDatum is designed to vertically transform geospatial data among a variety of tidal, orthometric and ellipsoidal vertical datums - allowing users to convert their data from different horizontal/vertical references into a common system and enabling the fusion of diverse geospatial data in desired reference levels.

(<http://vdatum.noaa.gov/>)

Speaker biography: Douglas Brown

Mr. Brown presently serves on the NGS Director's Staff as a senior advisor for planning and management. He is also responsible for managing the Vertical Datum Transformation (VDatum) Program, a joint effort of NOAA's Navigation Services program offices. He served as Deputy Director, National Geodetic Survey prior to these assignments. Other significant assignments include service as the NOAA Coastal & Marine Resources Program (CMRP) Manager, the Deputy Director of NOAA's Office of Coast Survey (OCS), and the Chief of External & Special Activities at the Defense Mapping Agency (DMA) Hydrographic/Topographic Center.

Questions/Points of discussion

1. *Michael Dennis:* (Slide 23) Where does the 5cm uncertainty for NAVD88 come from and why is it constant across the nation?

Doug Brown: It comes from the geoid, and currently the latest geoid model used in this is GEOID99. When GRAVD is completed the uncertainty will improve. Also, if later geoid models (e.g. GEOID09) are incorporated, the uncertainty will improve.

2. *Michael Dennis:* (Slide 23) Should we consider that the uncertainty of the geoid model in computing between orthometric NAVD88 from ellipsoid heights?

Doug Brown: The 5.0 cm is the general error in NAVD88 across the country.

Renee Shields: It would probably be a good idea to find out where that value came from, who provided it. It could be a national average. 10 cm at 95% confidence is pretty poor.

Michael Dennis: Agrees 10 cm at 95% confidence is pretty poor, and would be significant spatial variation, for example the Gulf Coast.

Renee Shields: Will there be additional uncertainty analysis done at a regional/local level as well as nationally? Also, is there any validation of NAVD88 being done as they continue to work off bench marks?

Doug Brown: Uncertainties will continue to improve with the introduction of new data (i.e. gravity data)

Michael Dennis: It's a complicated issue, but an important one.

[NOTE: There seems to be some confusion over the meaning of certain accuracies attributed to VDatum. Additional information will be added to these notes as we receive clarification.]

3. *Michael Dennis:* (Slide 34) Is it the international foot or the U.S. Survey foot that is being displayed with the user interface?

Group discussion: It is likely the international foot, although it is not explicitly stated as such.

4. *Mark Huber:* CORPSCON which puts together NADCON and VERTCON and puts a front end on it. Working with Ed Myers, there is a working copy that incorporates VDATUM in the background. They will use that tool for vertical and horizontal transformations. Still more work until release, but it is coming

Doug Brown: Any promotion and use of the tool is great.

5. *Mark Armstrong:* Scientists around Newport have been using VDATUM, but as they go up rivers the tool “shuts-off.” It is not intuitive to them where that is, so is the limit of the database resource something that should be added?

Doug Brown: We are adding polygons to all the VDATUM models, so if you click on a geographic point outside the bounds of that polygon, you will get a null value back meaning you are on land or a non-tidal area where we cannot make a transformation. That is a feature that will be added in the next version of the VDATUM software.

6. *Renee Shields:* Is the VDATUM program interested in getting feedback, having a constituents test an area, etc?

Doug Brown: Yes, send input, suggestions, complaints, etc to vdatum.info@noaa.gov

7. *Renee Shields:* Is there a plan to extend VDATUM upstream in coastal areas?

Doug Brown: We are considering expanding coverage up rivers, but it problematic. Farther from MHHW, it becomes more difficult to model.

8. *Michael Dennis:* I have heard that VDATUM is not giving correct results with respect to IGLD? I do not know what the issue is. Have other Great Lakes folks on the phone or Doug heard of this problem?

Dave Rigney: On some areas the sloping surfaces, the rivers, the connecting channels, VDATUM will return a value where it should not.

Doug Brown: That is true in the Great Lakes and other places, but the developments of polygons should help this.

Michael Dennis: Are there areas where incorrect results are coming out of VDATUM?

Dave Rigney: There are areas where different results have computed.

- Presentation is available online at <http://www.ngs.noaa.gov/heightmod/MeetingNotes.shtml> (NOTE: click on ‘schedule/presentation’ hyperlink because presentation link is embedded in that pdf)
- Send any feedback on VDATUM to vdatum.info@noaa.gov

NGS/CO-OPS Project Activities

- *Geoid slope validation project* (Renee Shields) – Plans are ongoing at NGS to be completed in TX. Leveling, GPS, gravity, and a zenith camera will be used from Corpus Christi to Austin (300 km line). It should fill in gaps in wavelength data from GRACE/GOCE satellites. Geoid team and Dru Smith are developing the project to be completed later in the year.
- *IGLD* (Michael Dennis) – Restarting GPS processing for 2010 International Great Lakes Datum (IGLD) survey that was done with the Canadians. We will be processing and publishing the data, and we will cross-check with the Canadians who are also processing the data. In addition, we will be using OPUS Projects and compare to the published results. On some stations, there were plans to publish cm level orthometric heights – but that part of the project is not certain. Another component of the project is the hope to look at change detection due to the isostatic rebound/uplift.
- *Alaska Surveying and Mapping Conference* (Chris Pearson) – A major NGS contingent is going to the conference: Chris, Dan Roman, Vicki Childers, Renee Shields and Michael Dennis will be attending. Chris will be presenting on HTDP 3.1 with Jeff Freymueller. Renee added that Matt Forney, NOAA Corps Office on the NOAA hydrographic survey ship Fairweather, and currently serving as NGS State Geodetic Advisor to Alaska, will be presenting on activities of the Fairweather.

Updates from States – e.g. outreach, projects

Michigan (Andy Semenchuk) – Bill Henning coming for one day talk next Friday, in excess of 100 people will be attending.

Oregon (Mark Armstrong) – Add to upcoming events Jan. 19-21 Professional Land Surveyors of Oregon Annual Convention in Salem, OR.

Wisconsin (Dr. Dave Moyer) – Article by Paul Hartzheim and Elliot Smith in the February issues of POB on WISCORS and Height Mod efforts in general. WSLS meeting is Jan. 26-28, and there will be a couple of presentations on NGS data and WISCORS. Paul will make a presentation at WLIA in February on WISCORS and trying to bring in private sector uses.

Illinois (Chris Pearson) – Completed meeting on consultants for year 3 level lines, and the final decision will be made in February. Chris will also be giving presentations in February at the ISPLS.

Pennsylvania (Brad Foltz) – Looking to have a Great Lakes Consortium meeting in April on the 13th or 14th. Renee added we have the draft agenda and will begin working to finalize it. The GIS-T is at the end of March in Hershey, PA. Renee explained the format is different, so NGS is unsure who will be attending.

Other Business

Send in any comments or questions, but please put some reference to Height Mod monthly meeting in Subject line.

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

Upcoming 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 19-21, Salem, OR – Professional Land Surveyors of Oregon Annual Convention

January 21, 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

January 26-28, Wisconsin Dells, WI – Wisconsin Society of Land Surveyors Annual Conference

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

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

February 16-18, Madison, WI – Wisconsin Land Information Association (WLIA) Annual Conference

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 70th 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 7-8, Linthicum Heights, MD – Maryland Society of Surveyors

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

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

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

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