

FGCS VRSWG Draft Meeting Notes

October 4, 2012

Attending: Mike Hayden (FWS), Larry Hothem (USGS), Karl Brown (NPS), from NOAA/CO-OPS, Tom Landon, and from NOAA/NGS, Renee Shields, Michael Dennis, Dave Doyle,

Renee Shields gave an update on a few things going on at NGS:

- The draft revised NGS Ten-year plan is now on the NGS web site, available for public comment. The main differences from the previous version are (1) a more structured approach to a true strategic plan, with the appropriate language (goals, strategies) and measured outcomes, and (2) a set of goals that includes the one current responsibility that consumes the greatest share of NGS resources, and that is delivering the NSRS to our users today. The previous ten year plan focused on the lofty objective of improving and modernizing the NSRS, while 95% of NGS' workforce is engaged in the activities we do today to deliver NAD 83, NAVD 88, and the National Shoreline. Also there is more emphasis on expanding our stakeholder base through partnerships, and expanding capacity within NGS. NGS hopes stakeholders will download and read the plan and send comments to Dru Smith. An updated final plan will be released in January 2013. Dave mentioned some of the "today" tasks that we hope to tackle include maintenance of our database of survey marks where things like there are errors in the county or state where a mark is, or dates listed as showing a mark was set in a year that is later than the earliest recovery.
- Related but secondary to this, Renee reminded everyone that information about new products is distributed by NGS not just on the web site but also through a newsletter that you can subscribe to. There's a link on the NGS web site home page if you are not on the mailing list.
- Renee and Christine have also composed a National Height Mod plan which has been tentatively approved by NGS' Executive Steering Committee. Renee is currently restructuring it to align more directly with the (now released) Ten-year plan. Larry H mentioned concerns over limited resources facing the federal government in coming years. Renee's vision of how NGS plans will be carried out is that activities are cross-cutting, that they support multiple aspects of the plans. For example, recovering capacity within NGS can be done while working on a pilot project, perhaps training a local partner, in a region where gaps in infrastructure need to be addressed to enable a reliable transformation program when the new datum is published. Projects that address multiple objectives will be justifiable as NGS develops priorities and distribution of those resources.
- The North American Datum of 1983(2011) epoch 2010.00 and GEOID12A have been released at NGS. Michael Dennis, project manager for the Adjustment, reported that some implementation activities are still in process from the National Adjustment, including providing control data in shapefiles, and updating the bluebooking guidelines to accommodate new procedures, such as how accuracies are computed for GPS projects submitted to NGS. Michael is working with a number of individuals who are beta testing the new processes. Renee also mentioned the issues that led to NGS having to recall and correct GEOID12, and release 12A, which included correcting some errors with GPS on bench mark data used. The problems caught by users included a couple of marks where erroneous values were provided by Renee to the geoid team. The "fortunate" thing was that we/NGS decided to take the opportunity to look more closely at all the data that went into the model, and found some other problems. We decided to be more discriminating of the marks we provided along the Louisiana coast, weeding out what we thought were the less reliable points. Also, we identified a mark in Texas where the published ellipsoid height that was determined by a 200 km GPS vector, no check, from a 1995 GPS survey

in the NAD 83(2011) epoch 2010.00 adjustment was in error by ½ meter. We were able to identify the error because of 3 independent OPUS DB solutions that agreed with each other but not with the value from the adjustment. This was the first model in which NGS incorporated OPUS DB solutions as part of the data input to the model. The norm would be to rely on the GPS static survey adjusted height in favor of OPUS DB since the static survey is usually more rigorously determined. Besides the lessons learned about the data, we agreed that we should have repeated our past protocol of making the model available in beta form, rather than releasing it directly. A beta release will be part of our process in the future. In general there were a number of changes in the determination of the gravimetric model, including how gravity in the Rockies was used, and the W_0 point for the geoid.

- Renee also reported that the GRAV-D project manager has decided that the project will produce interim or intermediate products in future years which we will release to the public. In addition to the actual gravity data, NGS will provide annual (or close to annual) gravimetric geoid models, computed by region as area aerogravity surveys are completed, incorporating that gravity data. Since these will not be official replacements for the production gravimetric models (currently USGG2012) they will be available on the GRAV-D web site rather than the geoid web page or through online or downloadable software and tools. The reason to refrain from releasing them as production models is that the data (or lack of data) in a region can greatly impact the area outside the region, and thus the model would potentially have significant errors at the border of non-surveyed regions. Larry asked about NGS providing information on what kinds of differences we are seeing from one model to the next. Renee mentioned the interim models would really be just the gravimetric, not hybrid models. Larry suggested there could be significant interest by researchers, working, say, on Lidar applications, in using and comparing results from different models.
- Tom Landon asked about the work done in the Gulf Coast, and the impact on GEOID12A. Renee briefly described the projects and adjustments done in the Gulf, including a new leveling project from MSDOT that went all the way to Pensacola, FL, and the subsequent readjustments of the historic leveling to update vertical control. Renee wasn't sure if anything in the Mobile area directly is a concern; she would need specifics. NGS worked very closely with John Russell and made sure new leveling was adjusted consistently.
- Michael Dennis mentioned his concerns with surveyors in the Gulf Coast who are using OPUS to get heights for flood certificates, and given the condition of both the vertical network and the geoid model, this being a poor, if not outright wrong method. Michael suggested NGS might want to suspend providing heights through OPUS as a way of preventing surveyors from using it to establish heights.
- Events:
 - o RTN Symposium in Nashville, and Geospatial Summit planned during Esri in San Diego both had to be cancelled because of travel restrictions.
- Renee mentioned a teleconference she had with NGA with appropriate contacts invited by Jim Friederich. Opportunities for collaborations were discussed, and Dan Roman and Vicki Childers mentioned meetings they already had or that were planned. It was a productive and appreciated meeting. A number of pertinent NGA links and contacts were shared. Beyond that it was agreed Jim would continue to serve as NGA rep on the VRSWG, and would share the tracking spreadsheet with others at NGA who need to be aware of NGS' datum change plans.
- Dave Doyle mentioned a second geoid slope validation survey is planned for 2013 and it will be done in Iowa. Renee mentioned that budget issues may dictate the project is spread between two fiscal years, 2013 and 2014.

Fish and Wildlife Service (Mike Hayden – chief surveyor from Northeast Region)

Mike reported on some leveling surveys being done at several refuges on the east coast:

- Bombay Hook NWR, Kent County, DE- 101.7 km 1st order Class 2 leveling
- Prime Hook NWR, Sussex County, DE - 121.7km 1st Order Class 2 leveling
- Parker River NWR, Essex County, MA - 69.2 km near 1st order Class 2 (predicted temps). We also tied in two tidal benchmarks at the request of the refuge. They wanted to know what the NAVD 88 elevation MHW at the refuge.

Mike asked who he should contact about an MOU to work on tying to tide gages at the refuges. Tom Landon recommended Allison Allen (Allison.allen@NOAA.gov). Tom said just mention his name and what they're trying to accomplish.

Dave asked if the leveling is being bluebooked and submitted to NGS. The Bombay and Prime Hook projects will be submitted. Parker River didn't include that in the scope so it won't be submitted. Dave suggested FWS find a way to provide the data to users. Mike can send it, or direct people to other regions to get data. Renee suggested posting information online about the projects being done. Mike will raise the suggestion to his counterparts. Michael mentioned NGS' hope to improve and simplify the bluebooking process, and Mike confessed he doesn't find the current process onerous now that he has learned it. Renee wondered if there might be somewhere on the height mod web pages or the Ecosystems and Climate Operations (ECO) program where either links to the refuges or FWS pages would at least direct people to the fact these projects are happening and this data is available. Dave suggested someplace on the FGCS VRSWG page would be another site to post information.

National Park Service (Karl Brown)

NPS is actively mapping vegetation on American Samoa in the Pacific, and they are struggling with the datums they are referencing their imagery to, including correcting references to WGS84 or NAD 83. Karl asked if there's any Lidar or vertical control surveys being done that would help them he would appreciate it. Dave Doyle mentioned American Samoa has an official vertical datum now (ASVD02) and contemporary leveling used in GEOID12A makes it consistent and accurate to 2-5 cm. There is no realization of WGS84, so that shouldn't be used. The new adjustment also is providing NAD 83 coordinates but fixed to the Pacific Plate rather than the North American plate. Michael stated there were 540 stations in the Pacific altogether, including those marks on the Marianas plate. The datum tag, PA11, indicates the plate the coordinates are referenced to. Karl asked that someone send him some information they can use. Michael offered to provide a shapefile for the marks in the Pacific referenced to the right datum. He mentioned no transformation is needed since the data is already referenced correctly.

USGS (Larry Hothem)

Nothing to report

Renee concluded the meeting with some administrative notes:

- Colin Becker is the current FGCS Secretariat, but was unable to attend. But Jeremy McHugh, who was the previous Secretariat and who had left for Grad School 2 months ago, recently announced his Grad School plans were cancelled and he would be returning. Renee is unsure if he will be resuming his previous role.

- Renee is unsure but assumes FGCS will meet in January. Subject to change, depending on the timing of that meeting, Renee has scheduled the next VRSWG for Thursday, January 3rd.
- Renee announced her plan to retire at the end of December. Mark Eckl, Division Chief of NGS' Operations and Analysis Division, and current Vertical Datum Project Manager, has agreed to assume the reigns as Chair of the FGCS VRSWG. He was unable to attend but will be briefed and brought up to speed on where we stand.
- Dave Doyle also announced his plans to retire from NGS at the end of December. Karl mentioned he would have to make sure he gets anything he needs before Dave and Renee leave.
- Renee expressed her appreciation for the support of all those who continue to attend on a regular basis, and the hope that they work to make sure NGS continues to engage each of the agencies.

Larry mentioned a PNT meeting he would be attending the next day, which is going to focus on Spectrum issues. He wondered if NGS would be represented now that Knute Berstis is retired, and Dave Doyle mentioned Rick Foote had been assigned to replace Knute. Renee will make sure Rick knows about the meeting, if he doesn't already know.

Actions (Renee Shields)

- Mike Hayden will send list of projects to Renee for the meeting notes
- Renee will look at how or where NGS can post links on the web site directing people to information on FWS project activities, and who to contact if they want the data.
- Michael Dennis will send Karl shapefiles for the Pacific, and work with him to get any additional info they can use.
- Renee will brief Mark Eckl on the VRSWG so he can assume the role of Chair.