

**Summary of the April 14, 2015  
Federal Geodetic Control Subcommittee Meeting**  
2399 Jefferson Davis Highway, Hilton Crystal City, Arlington, VA 22202

**Meeting Chair:** Juliana Blackwell, Director of the National Geodetic Survey

**FGCS Membership and Attendance**

**Department of Agriculture**

*US Forest Service* – [Absent]

*Farm Service Agency* – [Absent]

**Department of Commerce**

*US Census Bureau* [Absent]

*National Geodetic Survey* – Juliana Blackwell, Tatiana Bowie, Neil Weston, Rick Foote, Dru Smith, Julie Prusky, Joe Evjen, Kendall Fancher, Mark Armstrong, Courtney Lindo, Erika Little, Brian Shaw and Zeldia Lecoat

*Center for Operational Oceanographic Products and Services (CO-OPS)* - Michael Michalski

**Department of Homeland Security**

*US Coast Guard*-

*Federal Emergency Management Agency* – [Absent]

**Department of Defense**

*National Geospatial-Intelligence Agency* – [Absent]

*US Army Corps of Engineers* - Mark Huber, James (Jim) Garster

*US Naval Observatory* – Christine Hackman

**Department of the Interior**

*Bureau of Indian Affairs* – [Absent]

*Bureau of Land Management* – Mike Londe

*Bureau of Ocean Energy, Management* – [Absent]

*Fish and Wildlife Service* –David Hill

*National Park Service* – Tim Smith, Neil Winn

*Office of Surface Mining, Reclamation, and Enforcement* – [Absent]

*US Bureau of Reclamation* – [Absent]

*US Geological Survey* – Larry Hothem

**Department of State**

*International Boundary Commission* – [Absent]

*International Boundary and Water Commission* – [Absent]

**Department of Transportation**

*Federal Aviation Administration* - [Absent]

**Independent Agencies**

*National Aeronautics and Space Administration* – [Absent]

*Tennessee Valley Authority* – [Absent]

California Department of Transportation -

## Juliana Blackwell (Chair, NOAA/NGS)

### Welcome and introductions

Juliana-

[Roll call led by Juliana Blackwell]

### Agenda

### National Executive Committee for Space-Based Positioning, Navigation, and Timing (PNT)

**National Coordination Office Briefing: Colonel Christopher Eagan**, is the Deputy Director of the National Coordination Office for Space-Based Positioning, Navigation, and Timing. He leads a 13-person team of joint senior advisors from the Departments of Commerce, Defense, Homeland Security, and Transportation and six other federal agencies to develop national-level reports and studies for the National Positioning, Navigation, and Timing Executive Committee and for the Executive Office of the President. Colonel Eagan is responsible for information sharing, coordination, and issue resolution on space-based positioning, navigation, and timing programs, as well as requirements, budgets, and policies across the federal government.

Presented: **GPS Modernization and Interoperability**

- Status of GPS
- Provided an update on NDGPS and complementary PNT activities

### Brainstorm actions needed to coordinate the release of New Reference Frames: Dru Smith

Dru outlined a few related issues on this topic:

- *Blue booking's purpose is standardization and quality control. As such, re-inventing it should be about an easier process, but not about removing the main purpose. Recent thoughts at NGS include the complete overhaul of the NGS IDB into a "spatial database" to support this process and the new reference frames.*
- *Reference Frame release needs to be run through the FGCS as a final step*
- *Reinventing Bluebooking will begin in earnest this year with a comparison of ADJUST/PAGES/Bluebook against OPUS-Projects. USACE will work with NGS on this.*
- *Creating more usable transformation tools has begun (ability to provide massive batch routines – FEMA and USGS)*

comments:

Mark - Schedule 2022 to be accomplished, Organize milestone for project activities and make them visible to interested parties.

Juliana - Budget is not mapped out beyond this year. Projects and milestones to be mapped out to 2022+ and will require buy in.

Dru - Will layout activities that need to be done to coordinate the release of new reference frames

David Hill -(Fish and Wildlife Service) 95% of geospatial data in Esri shape files NGS needs to work with them to assure their transformations are working correctly. This will take care all or most of any problems for the lower accuracy data requirements for any groups who are Esri based.

Kendall – Develop new field procedures for leveling field operation Standards and Specifications for GPS derived height ties and how people can tie leveling into the new reference frames.

Courtney Lindo; Need time to set control to get the level of accuracy (a list of steps for 2<sup>nd</sup> order class 1 and 2) Put out changes in guideline, Public needs updated guidelines

Uncertain: Need to be able to account for uses of different realizations and geoid models

Larry Hothem: Larry recommends NGS provide a standard data format for agencies to use in submitting sample data sets being collected for research in testing the batch transformation process; requiring the use of a standard format for data input should avoid problems with data submitted to NGS in a variety of formats.

**Action:** Develop a full rollout of how we can combine the process and train the employee in new way of doing things (Retraining)

Inform manufacturer of reference frame change

Define how NGS wants Data (what content format for review)

### **Discuss or collect fresh feedback from the Geospatial Summit: Juliana Blackwell**

- Hold more often (NGS planned to have Summit in 2012 but this was impacted by federal conference/travel issue)
- Most thought 2015 Summit was well done and well organized
- Most felt better with the rollout of new reference frame and are comfortable with “Web services” direction
- Support for Web service transformation tools
  - Will be easy to pull in and use, in particular for commercial, off-the-shelf software vendors; Web service for industry to use anywhere
- Put up Dev web page and later a Beta for use
- Suggest Breakout groups during the summit for providing hands on feedback
- Focus more on the benefits that these new datums will provide (heights in AK)
  - More discussion on PP or other future methods that might be used in the future (2030?)
- Repetitive information
- Small groups would be less repetitive
- Ideally not schedule FGCS meeting at the same time as the Height Modernization Partner Meeting
- Excitement about NGS making new software modular and data sheets customizable
- Consider impact and application with respect to Precise Point Positioning (PPP). While communication network is a problem now, PPP will be the reality in the future.
- Great Job!
- Request to share data through OPUS Projects

**Action:** Provide feedback from FGCS meeting to Summit planners for incorporation into Summit feedback and report

### **OPUS Projects update: Recent developments, data sharing, use of OPUS-RS engine to allow for occupations less than 2hr.**

Mark Armstrong- NGS, Oregon State Advisor: Presented: **OPUS Projects Users & Statistics**

NGS, Rick Foote: Presented: **OPUS Projects (OP) Update**

Comments:

Webinar for OP has benefits,

Shorter time -30 minute to one hour

Define a minimum time for OPUS project

RTN Webinar Coming Soon

Ideas for discussion PSC

Juliana – Shared downside of OPUS Projects data sharing

NGS cannot take responsibility for data being shared as it has not gone through an FGCS QA/QC process (i.e., Bluebooking)

Need to set rules and disclaimers for sharing

For example, how will “significant” differences in coordinates and heights be reconciled?

Commerce policy for sharing data.

Question for the trainer:

Does anyone fail OPUS Projects training? After the training, is everyone ready to submit a project? (NO)

There is a test, but the best students are everyday users

Larry- Why do we need this to have 1.5 meter

[Precise Point Positioning (PPP) is evolving faster than expected. PPP involves accessing in real time, precise orbital coordinates and clock correction data that enables users to produce 3D positions at the sub-meter accuracy level and with accuracies eventually approaching a few centimeters – maybe at the centimeter level.

However, today, PPP field operations is currently limited by how effective is real-time access to precise orbital coordinate data that is substantially more accurate than what is the accuracy for the predicted orbital coordinate data in the GNSS satellites’ broadcast message. With expected availability of ubiquitous broadband Wi-Fi service

*in the 2020s, by 2030 there should be GNSS combined with Wi-Fi data communication receivers that allows users to employ PPT methods for meeting most 3D positioning and navigation needs.]  
2030 have ability to get coordinate on point with good accuracy*

*Neil - Models vary thing with Ionosphere and Troposphere  
Multi GNSS capability in 2022 meets the needs of the future  
Next generation modular customize the needs of State Plane , Etc.  
We are looking into user requirements*

*Larry – incorporating into small box, think of the next generation 2030 [Small low power with fast processors boxes featuring combined GNSS and data communication capabilities for real-time PPP will be the norm by 2030.]*

*Mark – OPUS data carried on to readjust the new reference frame when it comes on line, in a matter of hours able to process, publishing OPUS project sooner than later, photos and description to manage better.*

*Dru – (the dream) OPUS DB pull forth into new reference, go to the original file and pull into new reference frame data*

*Brian Shaw – Demo – Coordinate Transformation*

### **FGDC Geographic Information Framework Data Content Standard Part 4: Geodetic Control:**

*NGS,Rick Foote presented: Discussion - FGDC Geographic Information Framework Data Content Standard Part 4: Geodetic Control*

*Comments:*

*Rick – Data content Standards, FGDC part 4 draft mode; recommended by the FGDC Standards Working Group is replacement with the ISO Technical Committee 211 International Standard 19111 Spatial referencing by coordinates. Rick noted there were deficiencies in the current version 19111:2006. It doesn't cover modern geodetic references such as for dynamic geodesy and geopotential datums.*

*Larry – In recognition of initial identification of deficiencies in 19111:2006, a Workshop is scheduled for 11 and 12 June in Southampton, UK, to discuss revisions that may be needed. The Workshop is led by geodetic experts representing the International Association of Geodesy, and the Control Body for the ISO Registry for Geodetic Codes and Parameters. The Workshop is open to anyone interesting in contributing to the discussions. A list of issues that will be covered will be distributed. An international Webex system for video and voice will be available for those who cannot attend in person.*

*Infrastructure for GIS setting standards for coordinates, June 11,12- South Hampton England*

*Abstract of OGC, pdf to public for review, Wants comments and participation*

*Brian – NOAA is currently transitioning to ISO metadata formats from FGDC format*

### **Closing remarks: Juliana Blackwell**

*Juliana Blackwell (NGS) Closing: Thank you participating and working together to address interagency issues.*

*Agency will respond to feedback from other agencies. We appreciate your input and feedback.*

*Reminder: Detail Opportunities available at the National Coordination Office*

Notes Provided by: Zelda LeCoat