

Summary of the February 23, 2017

Federal Geodetic Control Subcommittee Meeting

1315 East-West Hwy, Silver Spring, Maryland 20910

Meeting Chair: Juliana Blackwell, Director, National Geodetic Survey

Secretariat: Brian Shaw, National Geodetic Survey

FGCS Membership and Attendance

Department of Agriculture

US Forest Service- [Absent]

Farm Service Agency – David Davis

Department of Commerce

US Census Bureau – Aaron Jensen

National Oceanic and Atmospheric Administration

National Geodetic Survey (NGS) – Juliana Blackwell, Brad Kearse, Brian Shaw, Dru Smith, Dan Roman, Joe Evjen, Kendall Fancher, Krishna Tadepalli, Kevin Choi, Dana Caccamise, Dave Conner, Michael Dennis

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

Department of Homeland Security

US Coast Guard- [Absent]

Federal Emergency Management Agency – [Absent]

Department of Defense

National Geospatial-Intelligence Agency – Dan Mullaney

US Army Corps of Engineers – Mark Huber

US Naval Observatory – [Absent]

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 – [Absent]

National Park Service – Neil Winn, Tim Smith, Karl Brown, Joel Cusick

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 – Sheila Cain

Department of Transportation

Federal Aviation Administration – [Absent]

Independent Agencies

National Aeronautics and Space Administration – [Absent]

Tennessee Valley Authority – [Absent]

Federal Communications Commission – [Absent]

State

Caltrans – Scott Martin

NGS Activities – Juliana Blackwell

NGDA Themes – Geodetic Control

GRAV-D <https://geodesy.noaa.gov/GRAV-D/>

We are making progress and on track for completing on time

Currently at 58%

GSVS17, Will occur in Colorado along hwy 160

Starting in May and working through to the fall

Geospatial Summit, Silver Spring April 24-25, 2017

<https://www.ngs.noaa.gov/geospatial-summit/>

Regional Geodetic Advisors, regional since start of FY17

<https://geodesy.noaa.gov/ADVISORS/>

NSRS Modernization – Dru Smith

Names for the Reference Frames

NATRF2022, CTRF2022, PTRF2022, MTRF2022

Geopotential Datum (Vertical)

NAPGD2022 (GEOID2022)

3 plate fixed frames replaced with 4 plate fixed frames

Remove long-standing non-geocentricity of NAD83

All 4 identical to IGSxx at a TBD epoch (2020.00?)

Updated Euler Pole definition

Each frame will get 3 parameters (Euler Pole Lat, Euler Pole Lon, Rotation rate [radians/year])

*See slides for graphics

Time dependencies as a service (see slide)

Orange line is from a datasheet with 3 different heights

In the future it will be how accurate do we know a height for a point at specific times and the further the amount the more uncertainty of the coordinate

Beta Geodetic Toolkit is available for testing some of the transformations

<https://beta.ngs.noaa.gov/gtkweb/>

NADCON 5.0 is very close to beta

Allows you to transfer between datums

Can go from US Standard Datum to NAD83 (2011)

A couple weeks away from release to beta

Dru would like people to send massive datasets to test it out

Questions:

Are vendors (esri, blue marble) absorbing this?

NGS is recommending linking to the services so that any updates are incorporated and so Esri or others have the most up to date transformations.

What about EPSG and the dynamic approach?

Dan Roman is working with EPSG, similar to how he is working with the ISO transformations

Tim Smith asks about what if I have an old RINEX file and submit it to OPUS?

OPUS uses the midpoint of the data file and will provide the coordinates at that date in the most recent datum

Tim feels this might make field surveys even more complicated and that the surveyor is going to have to pay attention to

Tying to geodetic control will be easy to CORS, difficult to marks and will be discouraged in the future

NGS Web Services – Krishna Tadepalli

NGS is working to develop more Web Services for NGS data sets and transformations

They will be RESTful implementations that will export JSON/GeoJSON files

Note that these web services are in beta so the attributes names and general schema might be adjusted to better meet our constituent's needs.

Here are links to some of the beta services available today:

PID service: <https://beta.ngs.noaa.gov/controlws/pid?pid=AB1234>

Bounding Box service:

<https://beta.ngs.noaa.gov/controlws/bounds?minlat=40.0&maxlat=40.25&minlon=-80.0&maxlon=-79.75>

Radial Search Service: <https://beta.ngs.noaa.gov/controlws/radial?lat=40.0&lon=-80.0&radius=0.5>

NGS Beta Map Products – Brian Shaw

OPUS Share Map - <https://beta.ngs.noaa.gov/opusmap/>

CORS Map - <https://beta.ngs.noaa.gov/corsmap/>

Geodetic Control Diagrams Map - <https://beta.ngs.noaa.gov/gcd/>

Workgroup Updates

Fixed Reference Stations Work Group – Kevin Choi

IGS14 was just released last month. They will no longer be providing IGS08 orbits,

OPUS and the CORS Antennae calibrations are now moving to IGS14

We are technically on IGS08 now since our CORS coordinates are not updated to IGS14 yet

We are working on Repro2 and currently on the 5th iteration to get the discontinuity

This will provide updated CORS velocities

We are transitioning to cloud services for iteration 6

Dan Roman Question: What are next steps after processing and CORS velocities?

Kevin – OAD will evaluate, we are unsure how much we will change the coordinates.

Most of the Southern Alaska, American Samoa and other stations are modeled velocities so this will help fix this so they will help improve OPUS Solutions for these areas.

Juliana – there are no plans at this point to update the passive control

Micahel Dennis Question: What will be the epoch for the repro 2 coordinates?

Kevin – unsure but probably the same as IGS14

Instruments Work Group - Kendall Fancher

Modernization of the EDM Calibration Baseline Program

Historically required significant NGS participation to survey the local CBL across the country.

The procedures and program will be rolled out in the near future

Federal Register Notice:

<https://www.federalregister.gov/documents/2016/11/10/2016-27164/new-policy-and-procedures-documents-announcing-a-change-in-the-calibration-base-line-program>

Methodologies Work Group – Joe Evjen

Oregon state students are doing data analysis from all the different experiments for the NGS 58/59 surveys.

Dan Roman has been providing updates for ISO 19111. Working to update the standard to support modern science and how we currently understand things are moving, and how to document such complex information.

Comment, Larry Hothem – Once this registry goes public then the datums at the global, continental and region level will be standardized. Do not currently have South America Russia or a couple other regions.

Comment, Larry Hothem – hopes that once the registry goes public that it will be compatible with the new NADCON.

Dan and Dru have been very active with ISO and loaded the transformation parameters into the ISO from NADCON 5 so they will certainly be compatible.

Spectrum Work Group – Larry Hothem

Spectrum Matters meeting will be occurring (TBD)

ABC assessment DOT and NASCTN Feb 15, 2017

European Commission request for waiver to allow Galileo capable receivers to operate within the US and territories (PRS)

Two DOT testing studies (April 2016, July 2016)

*More details of signals tested in slides

October 2016 ABC Workshop (presentations available at link below)

Get form presentations

Workshop had initial discussion on use case scenarios

Pending 6th ABC Workshop - TBD

National Advanced Spectrum and Communication Test Network (NASCTN)

The report was just released Feb 15, 400+ pages so a lot of data

<https://www.nist.gov/news-events/news/2017/02/nasctn-releases-report-lte-impact-gps-receivers>

Waiver of FCC licensing requirements (Galileo capable)

FCC rules require licensing of receivers receiving signals from non-US spaceborne systems

Possible US access to Galileo Public Regulated Service (PRS)

Possible use for the use of first responders in emergency response responders.

Comment Dan Roman: NGS had some testing of the ABC testing procedures and has validated their methodologies

Question Dan Roman: Do we need an agreement for GLONASS?

Larry – technically yes for any downlink

Open Discussion

Neil Win –any updates on OPUS Projects?

Joe – last check is a couple months behind but should be released this year.

Dru – We are looking to make an OPUS Projects for everything so that it runs the entire blue booking process.