NGS GPS on Benchmark Campaign - 2021

Everyone,

Once again, we are reaching out to the user community to ask for help in an effort to improve the Spatial Reference System for the State of Alabama. As you may have heard, the National Geodetic Survey has been working toward modernizing the horizontal and vertical datums for the nation. The current NAD 83 datum was developed utilizing terrestrial survey observations, well before the GPS system became practical to use. As the use of GPS became more prevalent, errors became more apparent along with the need to update the datum to reflect this improved accuracy. Satellite observations have also detected anomalies in the vertical leveling across the country indicating a slant from the east coast to the west coast. To make matters more variable, pockets of subsidence, uplift, and continental drift make monitoring and updating these systems more difficult using conventional leveling and classical observations. These new systems will allow NGS to monitor and update the horizontal and vertical datum thru the National CORS Network and remote sensed gravity data collection. For more detailed information on these plans, please visit the following NGS web pages. You can also find recordings of past webinars describing this work.

https://geodesy.noaa.gov/datums/newdatums/ - Main New Datums web page

https://geodesy.noaa.gov/datums/newdatums/policy.shtml - Blueprint documents

The urgent need at this time is for new GPS observations on existing benchmarks. This data is needed to improve the accuracy and reliability of transformation models that we will all use to transition to the new datums. Without these new observations tying to the current NAVD 88 vertical network, transforming elevations to the 2022 vertical datum – The North American-Pacific Geopotential Datum of 2022 (NAPGD2022) will result in "mapping grade" accuracies. The project manager for this work is Mr. Galen Scott with NGS. They have a web page set up that provides more detailed information about this project along with links to status maps, suggested marks for observations, field procedures, and submittal of the data. The following is a brief description of the work needed.

Locate a mark to observe. We have set up a web page at https://aldot.maps.arcgis.com/apps/webappviewer/index.html?id=e383d296473f4a33b7cbd768fc3dd0ba that pulls the same data from the NGS Benchmark page. There is an added option that will allow you to select a mark to observe. This will show other users where someone already has plans to observe to avoid duplication of effort. Another good tool for "office recon' is to utilize the DSWorld application to download KMZ files of the marks allowing you to see the location on current aerial imagery. The DSWorld application can be found at https://geodesy.noaa.gov/PC_PROD/PARTNERS/index.shtml

Observe a mark

- Utilizing a survey grade GPS receiver, occupy a published benchmark for at least 4 hours.
- The benchmark must have a good horizon
- It must have a published first, second, or third order elevation.
- Reliable antenna height measurements are crucial.
- Update the description if needed (what else are you going to do for 4 hours?).
- Take a few pictures of the mark and horizon.
- Upload the data to the NGS OPUS web site and "share" the solution.

These are just the highlights of the work needed. Visit the NGS web page at https://geodesy.noaa.gov/GPSonBM/recover.shtml which gives more detailed information about the work needed.

Once submitted, these marks will be added to the inventory of completed marks found on the GPS on Benchmark map. This page also includes links to information about the upcoming new datums, field procedures, software to download, data sheets, and other useful tools and information.

NGS GPS on Benchmark web page - https://geodesy.noaa.gov/GPSonBM/index.shtml

OPUS web page - https://www.ngs.noaa.gov/OPUS/

Thank you for your help with this effort. The work we do now will greatly enhance the transformation models developed to convert our NAVD 88 data (Flood Maps, LIDAR data, Topo data) from NAVD 88 to the new NAPGD 2022 datum.

Thank you

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