GPS on Bench Marks Update to FGCS

Today's Presenter:

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Dr. Kevin Ahlgren, Geodesist & Geoid Modeler

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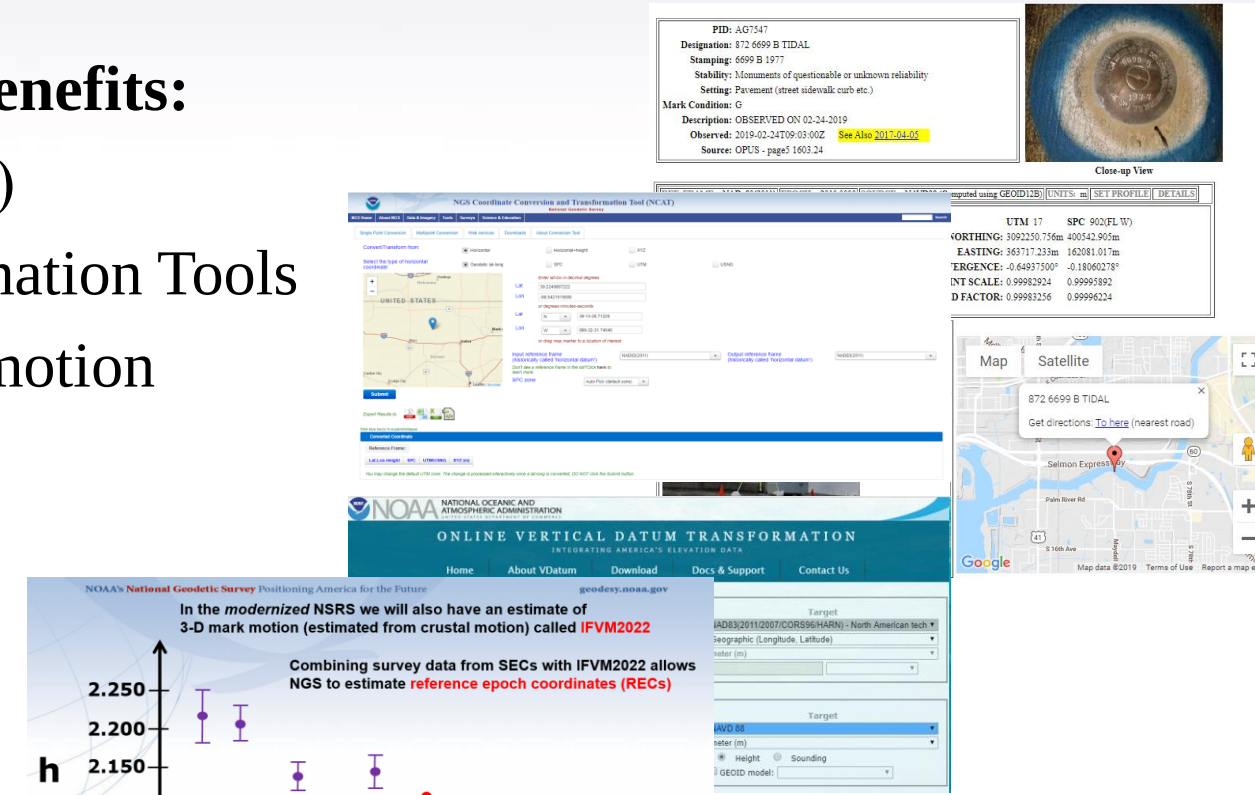
GPS on Bench Marks - What & Why?

GPS on Bench Marks is about preparing the country and our communities to take full advantage of the benefits of the Modernized NSRS, by collecting new GPS observations on bench marks with published NAVD 88 heights.

Primary GPSonBM Campaign Benefits:

- 2020.0 Reference Epoch Coordinates (REC's)
- Data for NAVD 88 – NAPGD2022 Transformation Tools
- Build time series of observations in areas of motion



Added benefits:

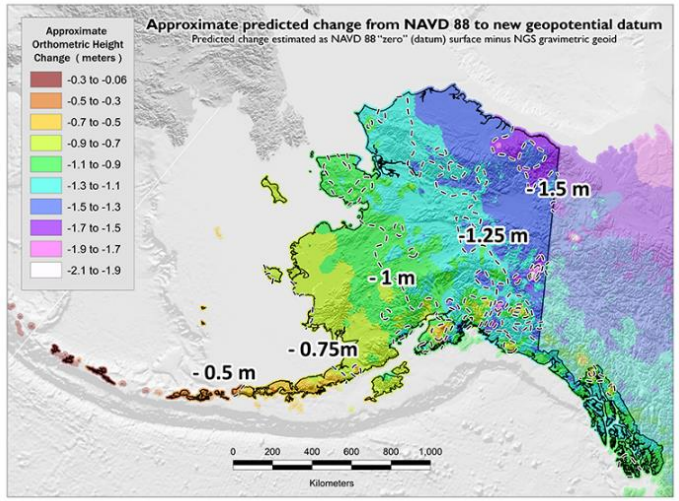
- Evaluate gravimetric geoid models
- Check your RTN results
- Update and maintain passive control marks
- Identify marks suspected of movement

GPSonBM Measurements Connect Current and Future Datums

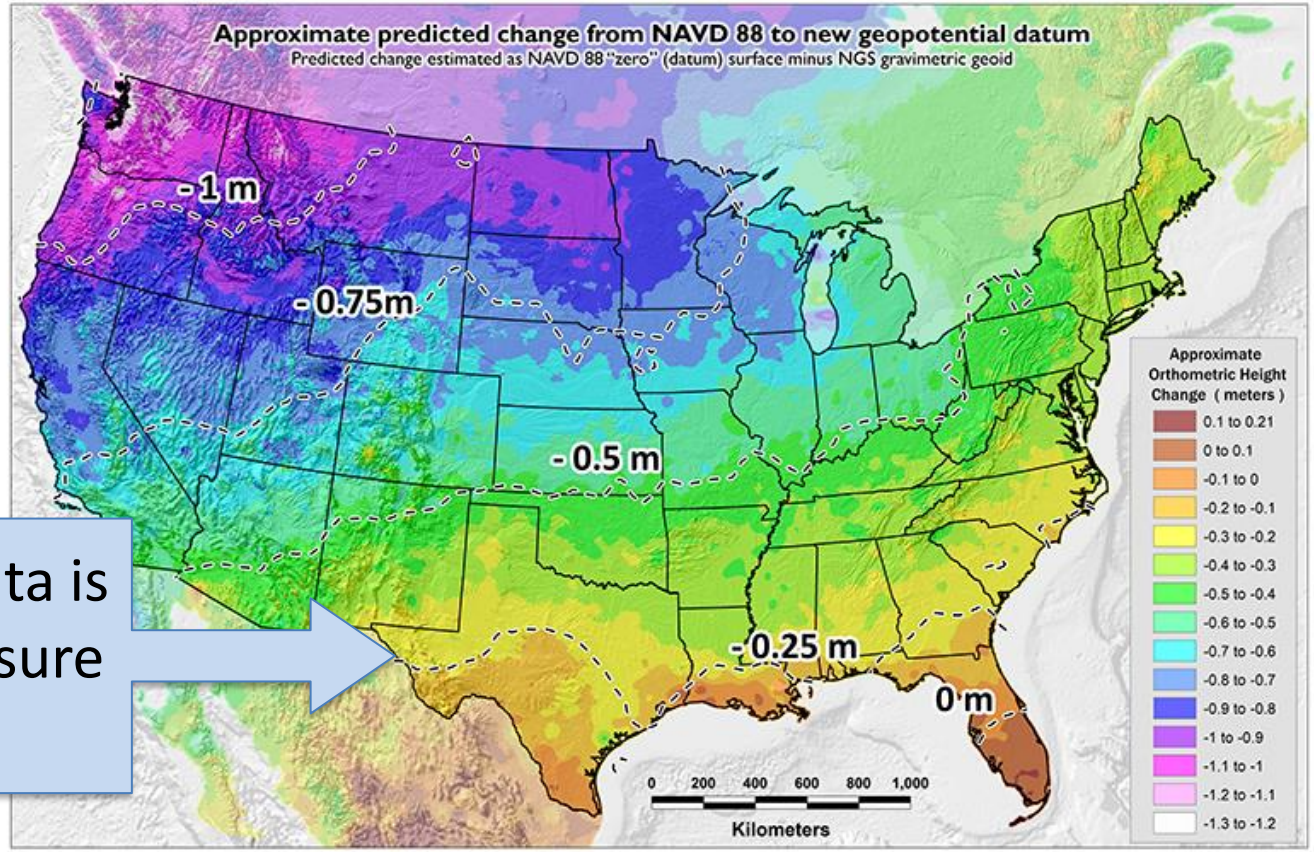
The relationship between the old and new datums vary by location. GPSonBM data is used to measure that relationship. The accuracy of the transformations in any particular place will be directly related to the density of GPSonBM data available in that area.

In moving from NAVD 88 to NAPGD2022, there will be a Shift: A one-time 0 to 2 meter jump in orthometric heights

-From fixing biases and/or tilts in NAVD 88



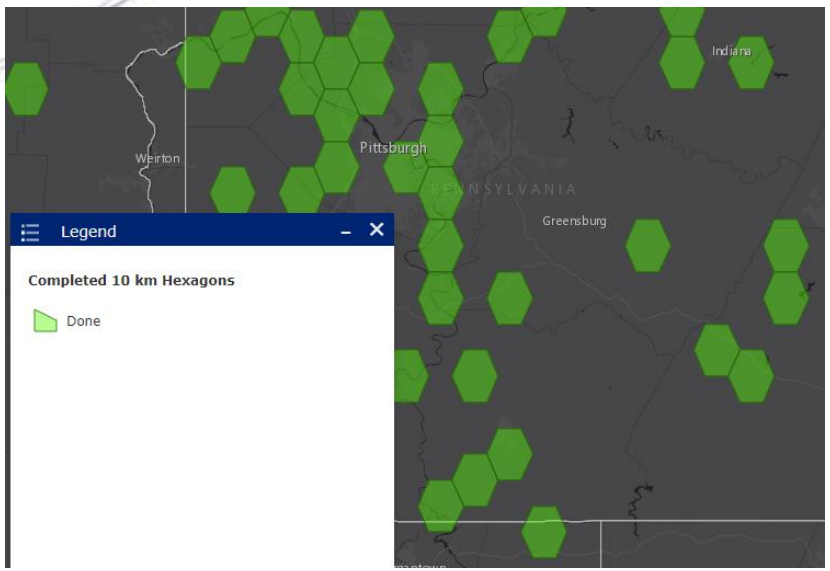
GPSonBM data is used to measure the Shift

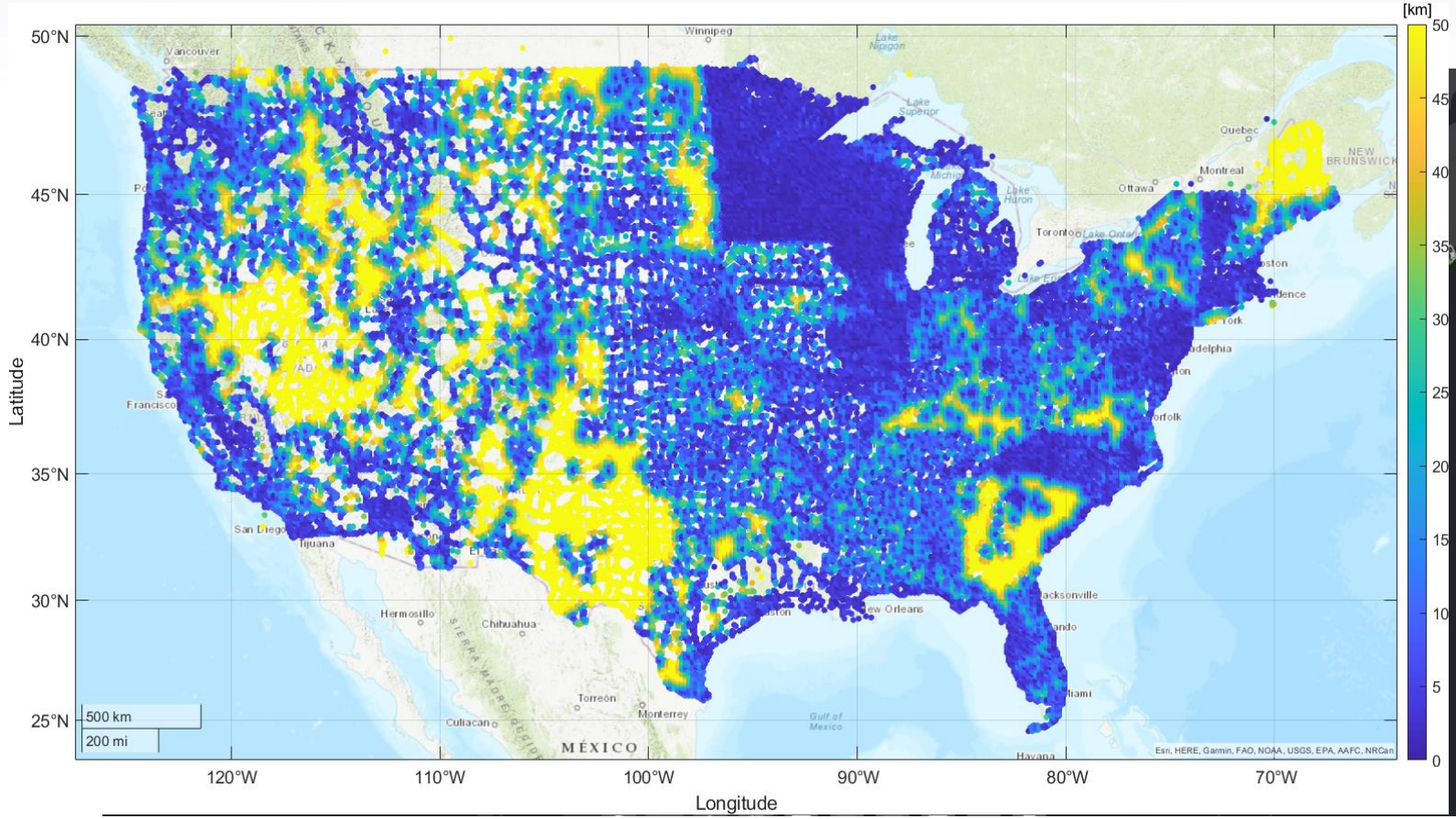


2022 Transformation Tool Campaign

NGS will make a **national scale**, **mapping grade** transformation tool with the data we have in the NGS Database and Shared through OPUS. We must interpolate over areas with data gaps.

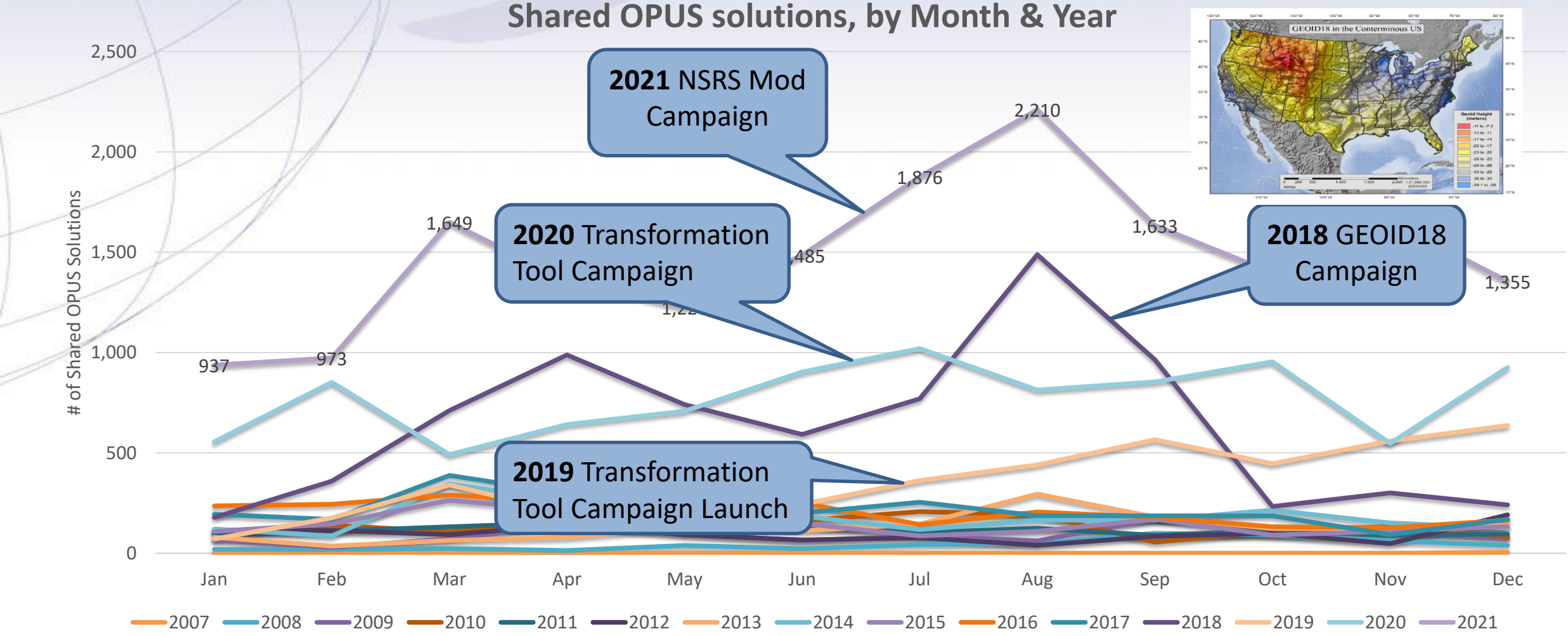
Uncertainties in the transformed coordinates will grow larger as the distance from a GPSonBM data point increases.





GPSonBM is Driving a Surge in Shared OPUS Solutions

Modernized NSRS will be Realized through Shared GNSS Data



Break to Live Demo

- GPS on Bench Marks for the Transformation Tool
- GPS on BM Transformation Tool Progress Dashboard
- OPUS Shared Solutions Dashboard
- OPUS & OPUS Projects

Recent Resources

- NGS OPUS User Forum: Tips on Successful Use of OPUS Shared Solutions from 11/30/21 – Available in NGS Presentation Library
- A guide to the latest Beta NGS Map – December 2021 GPS World – by Dave Zilkoski
- GNSS on Bench Marks? – January 2022 xyHt - by Gavin Shrock
- NSPS "Surveyor Says!" Podcast with Tim Burch – January 2022-

Title	Presenter
State Plane 2022: Where Things Stand and the Road Ahead	Michael Dennis
OPUS User Forum: Tips on Successful Use of OPUS Shared Solutions	Dave Zenk, Joe Evjen, and Galen Scott
NOAA CORS Network Stakeholder Meeting	Theresa Damiani, Phillip McFarland
The Colorado 1-cm Geoid Experiment	Yan Wang
A Guided Tour of the National Spatial Reference System with NOAA's National Geodetic Survey	Lynda Bell and Michael Dennis
NGS Geospatial Resources	Brian Shaw
Status of the New National Spatial Reference System	Jacob Heck
GitHub and NOAA Big Data Project	Srinivas Reddy
NGS APIs	Krishna Tadepalli
Modernization Plan for the NOAA CORS Network	John Galetzka

https://geodesy.noaa.gov/web/science_edu/presentations_library/