GPS on Bench Marks

Recover, Observe, Report

February 17, 2016

Outline

1. Background / Definitions
2. Past Campaigns
3. How to participate (Live Demo and video)
4. 2016 Campaign

National Surveyors Week
GPS on Bench Marks Campaign

National Geodetic Survey (NGS) and National Society of Professional Surveyors (NSPS) are working together to sponsor this year's GPS on Bench Marks campaign during **National Surveyors Week - March 20 - 26, 2016**

Goal is to get an OPUS Share solution from every State!

Stretch Goal: Simultaneous observations in every state over the same four hour time period on Wednesday, March 23rd beginning at 1:00 pm ET

NSPS

Three Ways to Participate

1. Collect survey grade GPS data on bench marks.

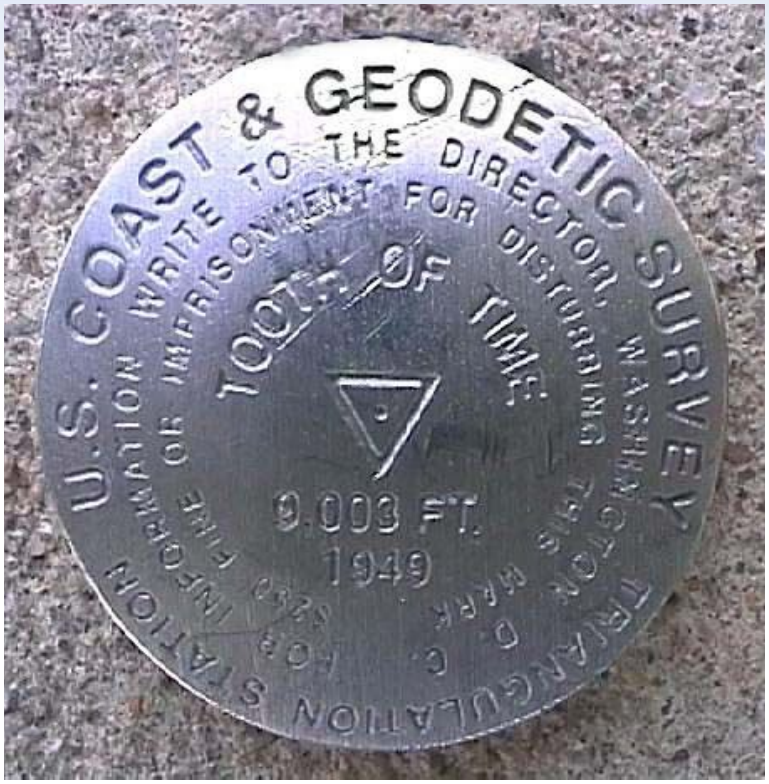
2. Update coordinates for marks with "scaled" positions

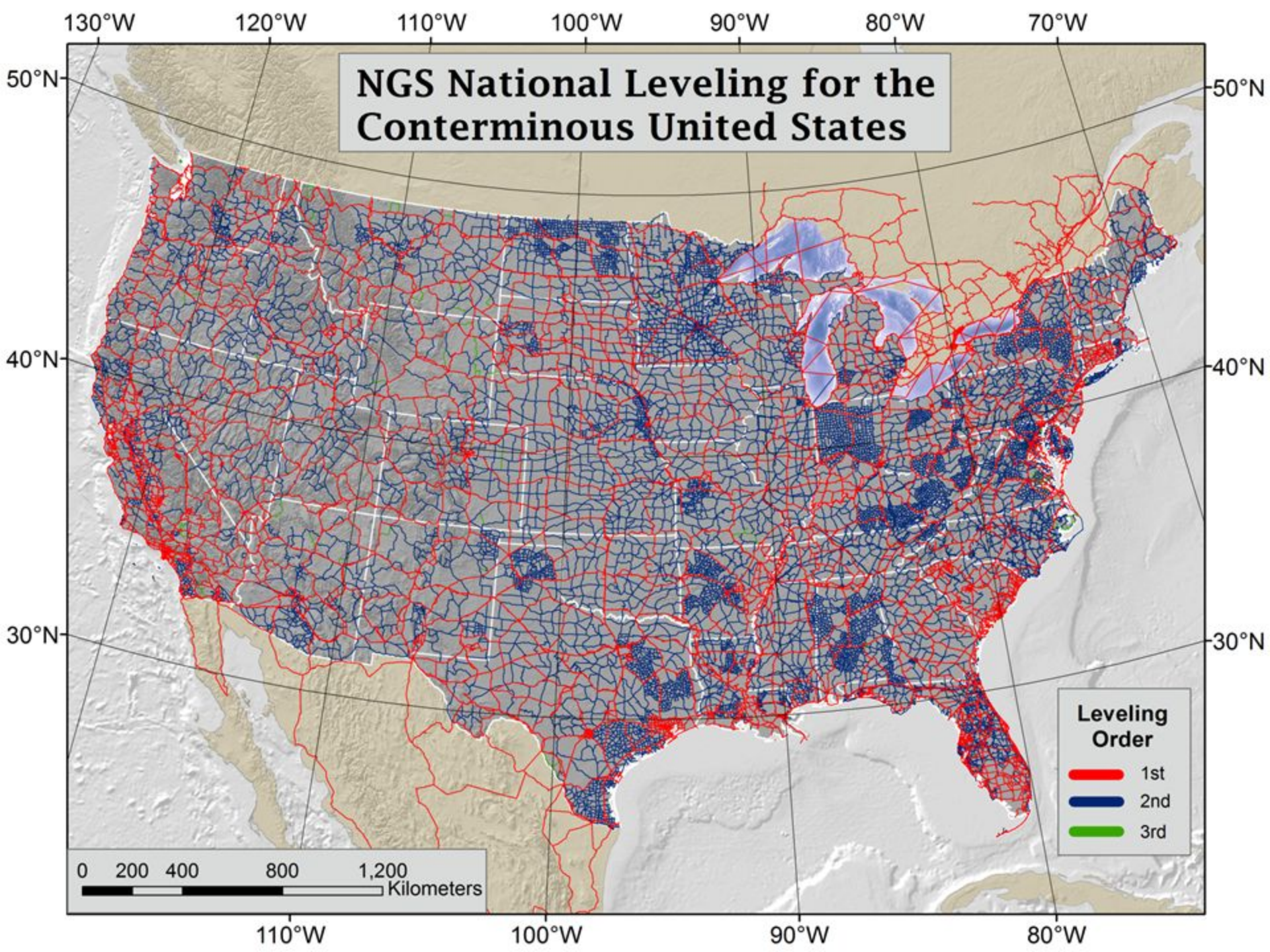
3. Find and report marks that have not been found in decades

What is a bench mark?

A **bench mark** has a known elevation above or below an adopted surface or datum.

Historically, bench marks have a known height derived from **geodetic leveling**. Thus, they have a known **orthometric height** (e.g. NAVD 88).




NGS National Leveling for the Conterminous United States
130°W
120°W
110°W
100°W
90°W
80°W
70°W
50°N
40°N
30°N
Leveling Order
1st
2nd
3rd
0 200 400 800 1,200
Kilometers

What is "GPS on Bench Marks?

Collecting GPS observations on a **bench mark** that has an **orthometric height** from leveling provides new accurate information:

latitude,

longitude, and

ellipsoid height

How many GPS on BM exist?

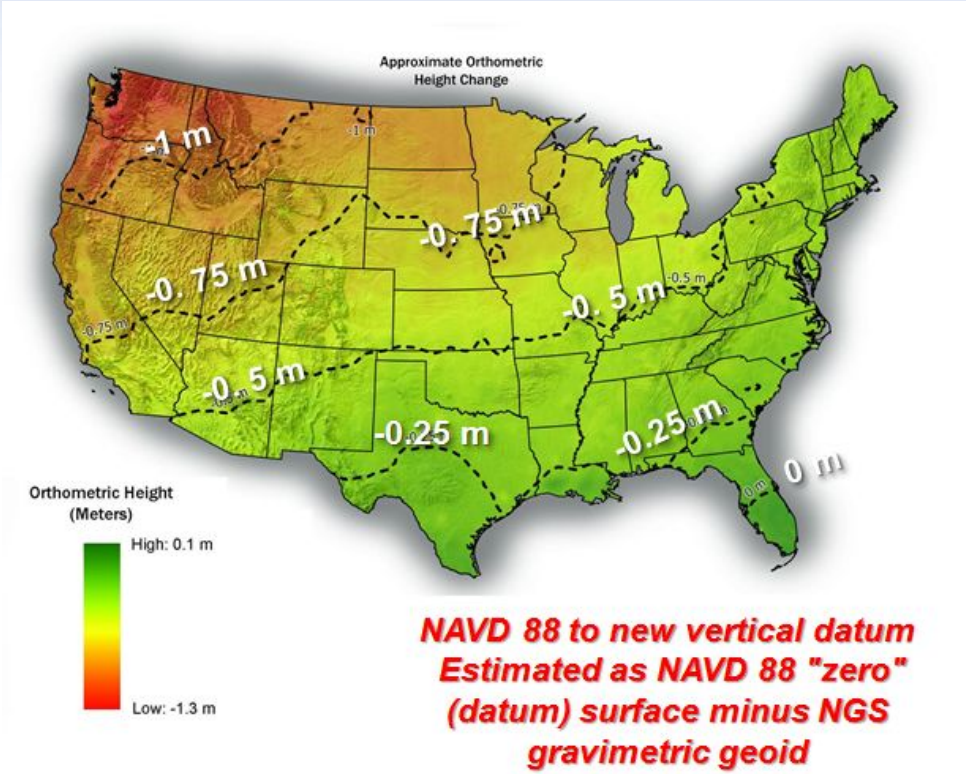
About **27,000 GPS on BM** used to create GEOID12B.

Out of **400,000+** 1st and 2nd order bench marks, about **300,000** bench marks have **SCALED positions** (ie no GPS).

Benefits of GPS on BM (Surveyors)

Improve hybrid geoid models, and

Improve transformation tool for new vertical datum in 2022.



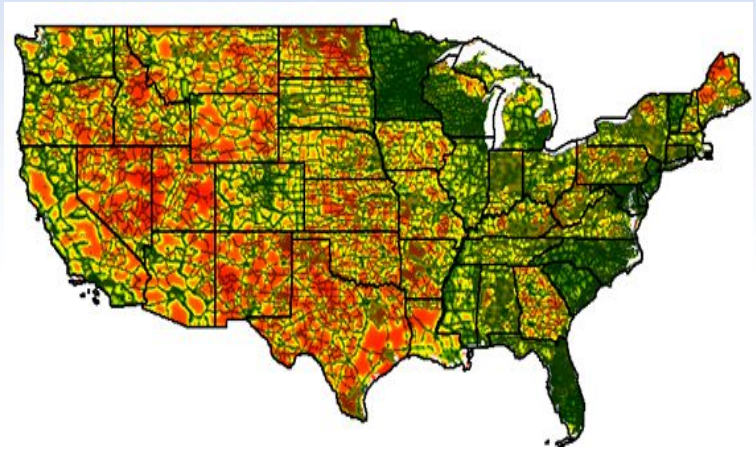
Benefits of finding marks and updating Coordinates

Easier recovery for local surveyors and future GPS observations.

Previous GPS on BM Campaigns

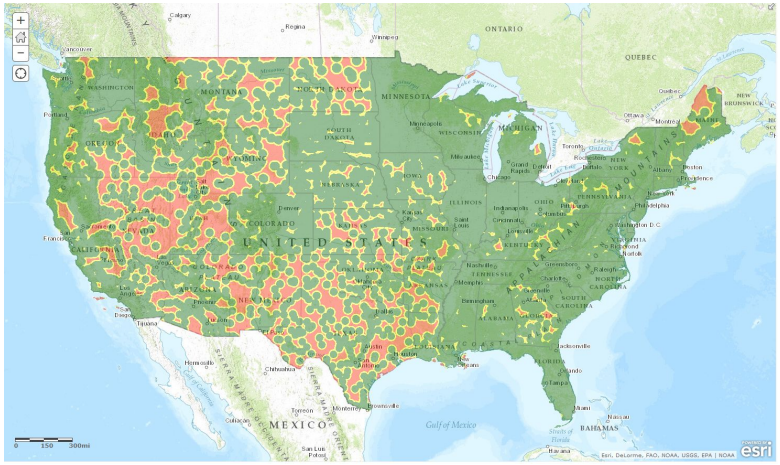
2014

Web Page
Map Series



2015

Website
Web Map



2015 Webinar

Recover

Perform desktop reconnaissance using NGS Data Explorer

- Brian Ward, Arkansas Geodetic State Advisor

Use ArcGIS Online Web Map to investigate and plan

- Brian Shaw, NGS

Observe

Submit data via OPUS-Share

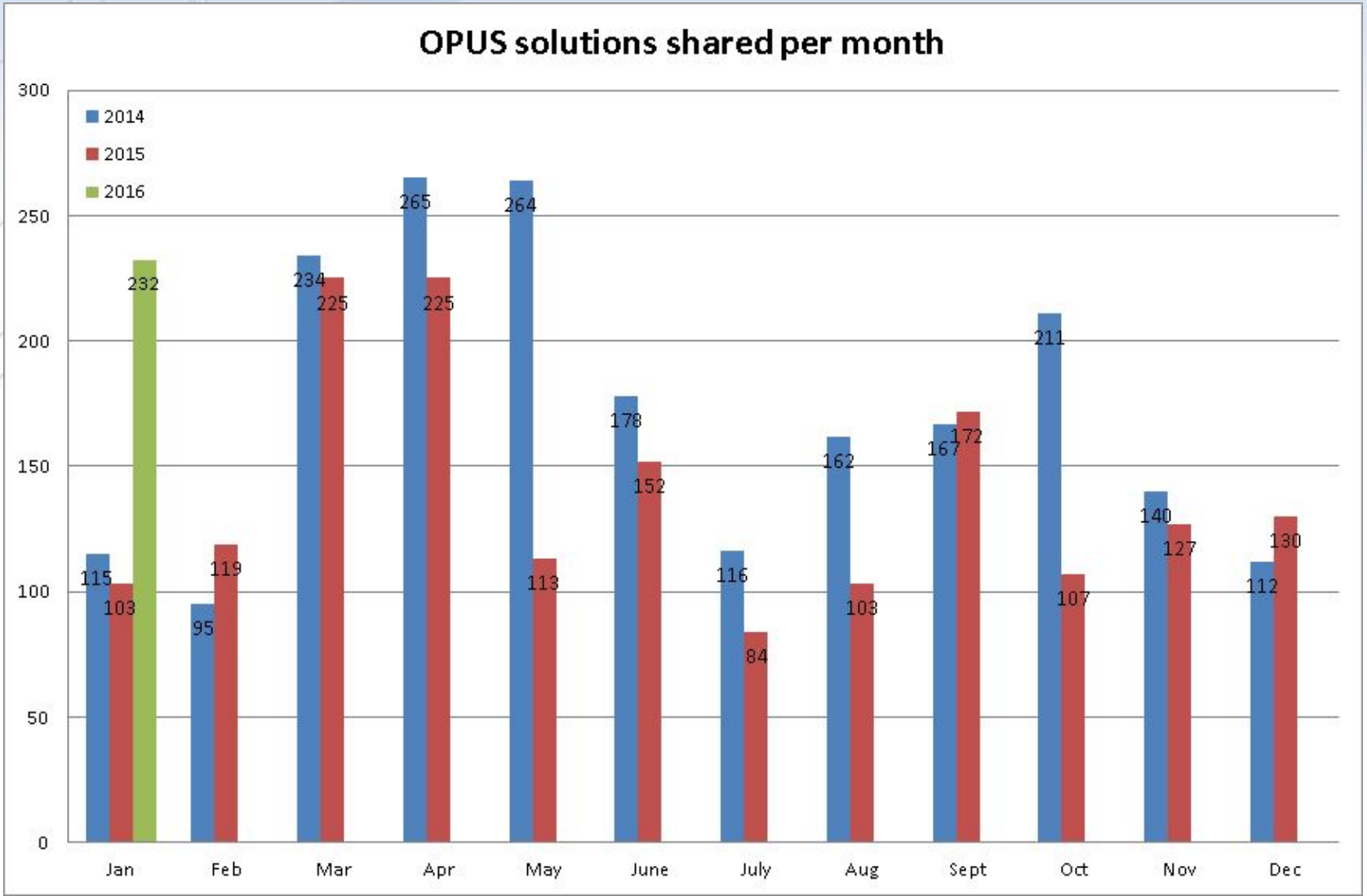
- Joe Evjen, NGS Branch Chief

Report

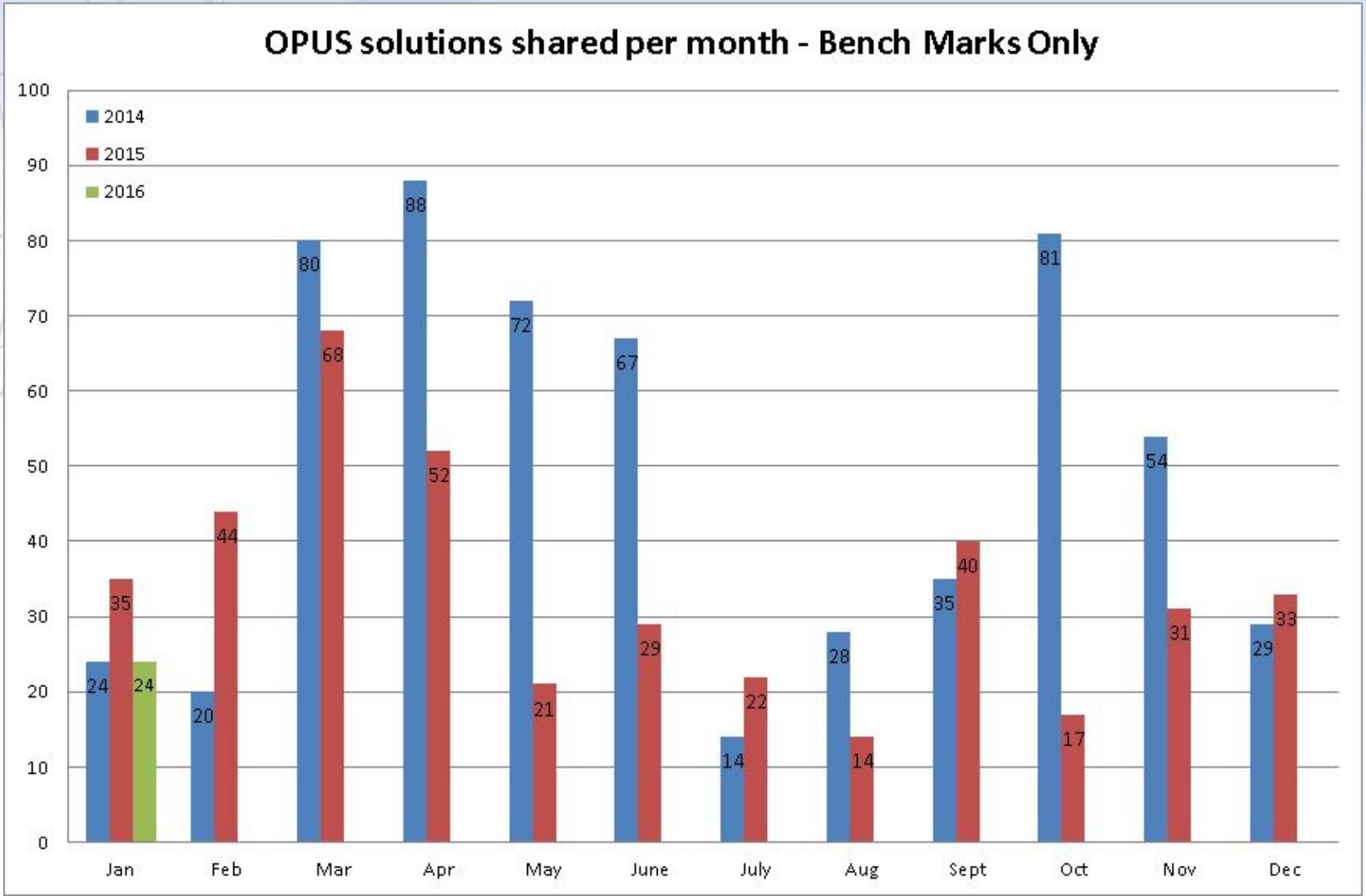
Use DSWorld mark recover and photo submissions

- Malcolm Archer-Shee, NOAA Contractor

OPUS Share Solutions



OPUS Share Solutions Bench Marks



How to Participate

Recover: Look up the description of an existing bench mark and visit the bench mark of your choice.

Observe: Record field notes, take digital photos, and collect GPS observations or coordinates for the bench mark you visit.

Report: Use online tools to send the information to NGS.

More instructions online: http://geodesy.noaa.gov/GPSonBM/

Ideas for Participating

1. Set up a base station to collect static GPS on a bench mark and use an RTK rover to update coordinates for other marks in the area with scaled positions.

2. Observe a mark in a park or public setting and use the opportunity to talk to the public about surveying.

3. Organize your friends and partners to observe a set of local marks together.

https://www.youtube.com/watch?v=KLCDQ8yafY0&index=1&list=PLsyDl_aqUTdGmAeHGgFucHkTfWDOwElOB

Demonstration: Web-site and tools

2016 GPS on BM Campaign

National Surveyors Week:

March 20th thru 26th, 2016

GNSS Day:

Wednesday, March 23rd

Contact **National Society of Professional Surveyors** (NSPS) to coordinate local efforts.

Frequently Asked Questions

Can observations be collected and shared after National Surveyors Week?

When will the next hybrid geoid model be released?

Read more: http://geodesy.noaa.gov/GPSonBM/

More questions?

Visit http://geodesy.noaa.gov/GPSonBM/

Email GPSonBM@noaa.gov