



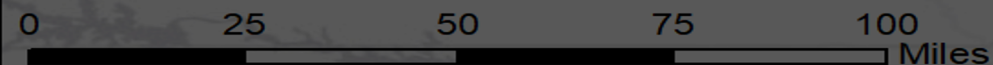
October 2019 Chesapeake Bay Subsidence Surveys

R. Russell Lotspeich

Hydrologist

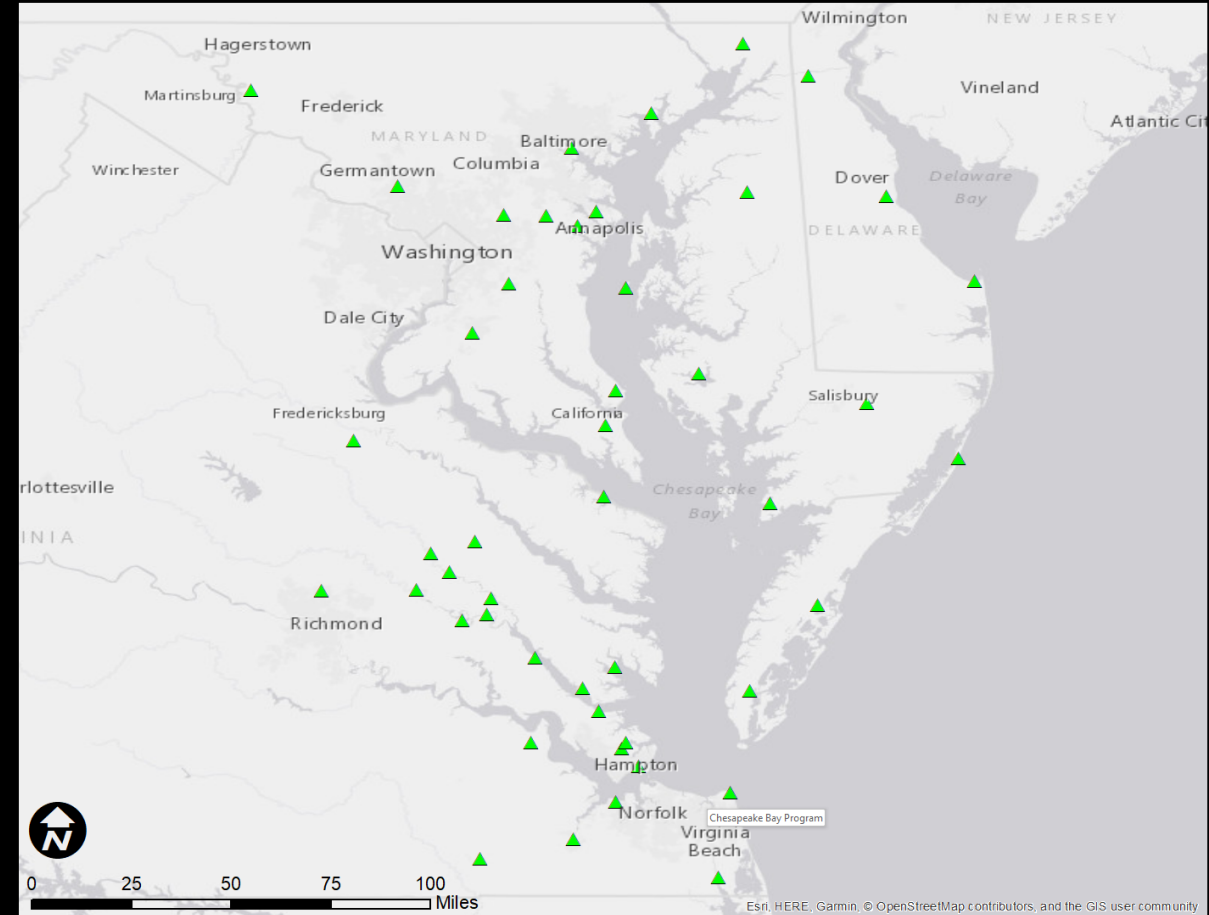
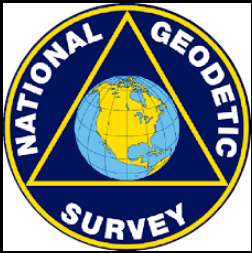
February 28, 2020

U.S. Department of the Interior
U.S. Geological Survey



Background

- Need: ground-truth VLM data in Chesapeake Bay region
- Opportunity: build on existing work in region



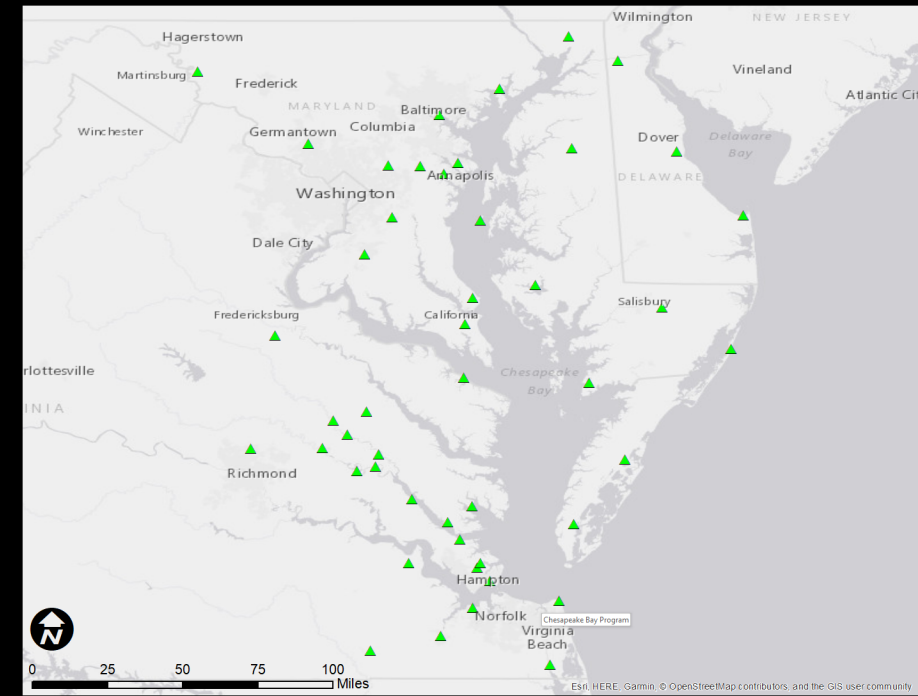
Chesapeake Bay Program

- Committed funding for 5 years
- Primary focus is to provide marsh health researchers with accurate elevation for surface slope assessments
- Opportunity to involve other partners



Network Establishment

- April 12, 2019: Initial phone call
- Apr-Oct, 2019: Bi-weekly meetings
- September 11-12, 2019: Tripodpalooza
- September 19, 2019: Final network design completed
 - 48 benchmarks
 - VA = 26
 - MD = 19
 - DE = 3
- October 7-18, 2019: GPS survey campaign



Tripodpalooza

- Held in Corbin on September 11-12, 2019
- First face-to-face meeting
- Training
- Equipment testing
- Tripod calibrations
- Network design discussions
- Google form



Data Collection

- All benchmarks occupied for at least 72 hours
- Last GNSS setup retrieved on October 18, 2019
- Datafiles and log sheets compiled
- Equipment returned to owners on November 16, 2019

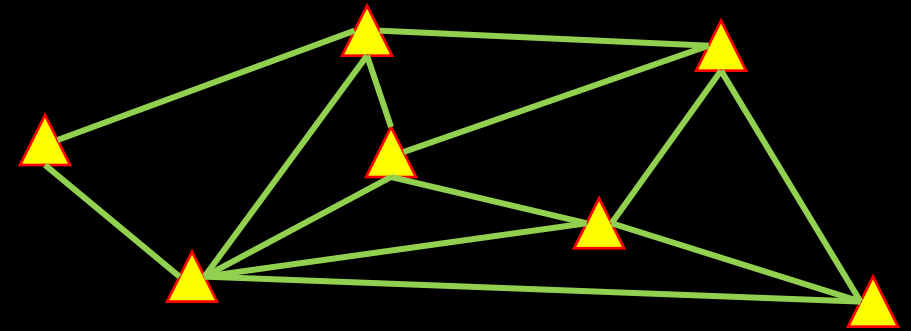


COORDINATION

Not everyone has it

Data Processing

- Dr. Sarah Stamps (VT) now working with data
- Using GAMIT/GLOBK software
- Metadata required for UNAVCO database mined from log sheets
- 42 GPS station files processed
- 175 days worth of data collected
- 10/07/2019-10/18/2019 (not continuously)
- 776 GB of data collected



GNSS data from receiver to processing input

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Massachusetts Institute of Technology, Cambridge, MA, USA

GPS Data Processing and Analysis with GAMIT/GLOBK/TRACK
UNAVCO Headquarters, Boulder, Colorado, USA
19–23 June 2017

http://web.mit.edu/mfloyd/www/courses/gg/201706_UNAVCO/

Material from R. W. King, T. A. Herring, M. A. Floyd (MIT) and S. C. McClusky (now at ANU)

Next Steps

- Provide data processing support
- Establish marsh slope survey networks
- Start planning for 2020 surveys
 - Improve log sheets
 - Secure equipment
 - Create a network field folder
 - Follow-up with property owners
 - New partners?



Eastern Neck Refuge, MD

Questions?

