National Geodetic Survey Positioning America for the Future geodesy.noaa.gov

Issue 2, December 2015

NSRS Modernization News

For all issues of ***NSRS Modernization News,*** visit: geodesy.noaa.gov/datums/newdatums/TrackOurProgress.shtml

Major Projects

A variety of NGS projects are currently underway, all contributing to the modernization of the NSRS. Significant milestones are highlighted below.

GEOCON v2.0 Lead, Dr. Dru Smith: The transformation software GEOCON v2.0—capable of transforming from HARNs, up through NAD 83(2011/PA11/MA11)—has been released for BETA testing. Please test GEOCON v2.0 and provide feedback via the links at: **http://beta.ngs.noaa.gov/geocon2/**

GEOCON v2.0 is the last stand-alone transformation software NGS is scheduled to produce. All future geometric transformation products and services will be developed through the project "Geometric Transformation Consistency "(see below).

Geometric Transformation Consistency Lead, Dr. Dru Smith: This project is nicknamed "NADCON v5.0," as its intent is to replace both GEOCON v2.0 and NADCON v4.2 with one consistent, easy-to-use tool.

Since September, an entirely new software suite was built to produce transformation grids, geographically-dependent error grids, and maps of all data. Additionally, nearly all data necessary to support every datum between the USSD and NAD 83(2011/MA11/PA11) has been quality checked. Research to determine final grid spacing for each transformation is ongoing.

New River Crossing Methodology Lead, Kendall Fancher: An alternate leveling procedure for conducting river/valley crossings is now available for download at the **NGS Publications: Operations and Field Procedures** webpage. The new procedure will be incorporated into a future revision of *NOAA Manual NGS 3 (Geodetic Leveling)* as chapter 4.5 "River or Valley Crossing Procedures for Theodolite Instruments."

OPUS-Projects to NGS IDB Lead, Dr. Mark Schenewerk: This project is underway and on schedule for completion in approximately one year from the time of this issue.

The first stage of this project is purely for evaluation purposes. Seventeen GPS surveys previously submitted for publication to the Integrated Database (via standard Bluebooking) have been loaded into OPUS Projects and processed, with more surveys being selected and prepared for uploading. Comparison of the published, versus OPUS Projects-generated coordinates, is underway. When inconsistencies are found, a detailed evaluation of both the "conventional" and OPUS Projects data processing is performed. The source of the inconsistencies is identified to yield lists of strengths and weaknesses for both methods.

In the second stage of this project, beginning in late spring 2016, the comparison lists described above will be used to enhance OPUS Projects and to create a simple, robust path for preparing and submitting GNSS survey results to the Integrated Database.

GSVS 16 Lead, Dr. Derek Van Westrum: Mark Setting for the third (and likely last) Geoid Slope Validation Survey took place in Colorado throughout the summer. Unfortunately, winter weather came too soon, and only two thirds of the approximately 200 marks were installed. For this reason, the team is currently evaluating the prospect of delaying field work until the summer of 2017. Either way, remaining marks will be installed this spring.

GRAV-D Lead, Monica Youngman: GRAV-D aircraft continue to fly, despite mechanical and weather-related delays. In the last three months, surveys in Eden Prairie, MN; Fairbanks, AK; Palm Springs, CA; and Amarillo, TX; have taken place, raising the total percent toward completion from 44.7 percent to 47.1 percent.