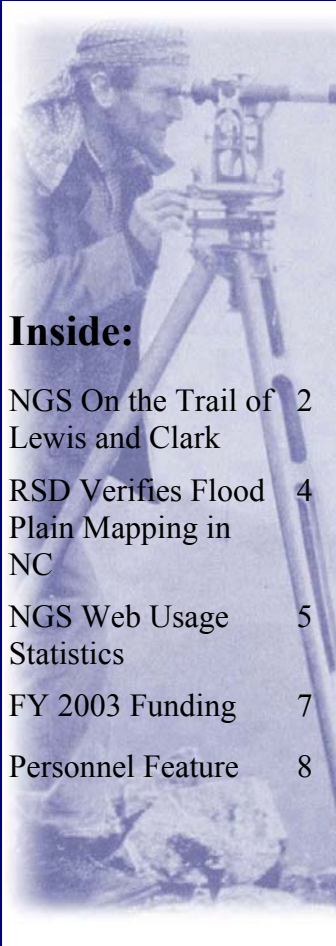




The Observer

NATIONAL GEODETIC SURVEY

January –March 2003



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NGS Works Smarter with Data Integration Technology

NOAA’s National Geodetic Survey, partnering with the U.S. Geological Survey, has recently released a software package, called VDatum, that allows the non-traditional geodetic user to integrate geospatial data products. By fusing diverse data into one application, this transformation tool reduces personnel and cost needs and increases efficiency in mapping and charting.

This project began in December 1999 when Dennis Milbert, chief geodesist at NGS, met with other colleagues from NOAA and USGS at a User Forum held in Tampa Bay. Users had trouble with the conflicting depictions of shoreline on USGS maps and NOAA nautical charts, and they frequently had to resort to elaborate GIS processing to circumvent the discrepancies. The different depictions were rooted in both shoreline change as well as the vertical datum defining the shoreline. In consultation with Bruce Parker and his lab in the Office of the Coast Survey, Dennis

Milbert created VDatum – a technology for vertical datum transformation.

This technology not only supports the creation of seamless bathymetry and topography data sets, but also supports extraction of shoreline referenced to desirable vertical datums and more efficient collection of hydrographic and remote sensing data. When applied to the shoreline problem, VDatum becomes an invaluable tool. A shoreline has a vertical datum imbedded in it.

Changing a shoreline’s vertical reference will cause translations in the shoreline and will also change the shape of the shoreline. Knowing the exact vertical datum of shoreline is important because of land and legal issues intrinsically tied to shoreline. As a Java application, VDatum is portable across many platforms and can transform heights and soundings between vertical datums. The

With VDatum, the user can focus on the data, not the geodesy.

Continued on page 6

From Monticello to Harpers Ferry: NGS On the Trail of Lewis and Clark

Over the next five years, NGS will celebrate Lewis and Clark's contributions to surveying with a series of commemorative



Curt Sumner, Dave Doyle, Alan Drago, Kat Imhoff, and David Holland with original field map.

markers. Set at sites along the Corps of Discovery II route, these markers are observable with the Global Positioning System and can be used as reference points.

On January 14, NGS joined the Thomas

Jefferson Foundation at Monticello in dedicating the first survey marker of

the series. Set on the West Lawn in October, the 12-inch diameter brass marker symbolizes the formation of the Corps of Discovery, part of Thomas Jefferson's Congressional act to chart the unexplored West.

The program included participants from the American

Indian Society Color Guard, author Dayton Duncan, National Park Service



Charlie Challstrom presents Dan Jordan with replica marker.

Superintendent Gerard Baker, and National Park Service Director Fran



Observing the commemorative marker at sunrise at Harpers Ferry.

Mainella. Charlie Challstrom delivered a speech dedicating the marker and presented Dan Jordan, president of the Thomas Jefferson Foundation, with a replica of the marker. David Holland, Secretary and Treasurer of the Virginia Association of Surveyors, then presented the original field map of the location survey to Jordan.

The next dedication ceremony will be held at Harpers Ferry on April 12. For more information about the Lewis and Clark bicentennial celebration, visit www.nps.gov.



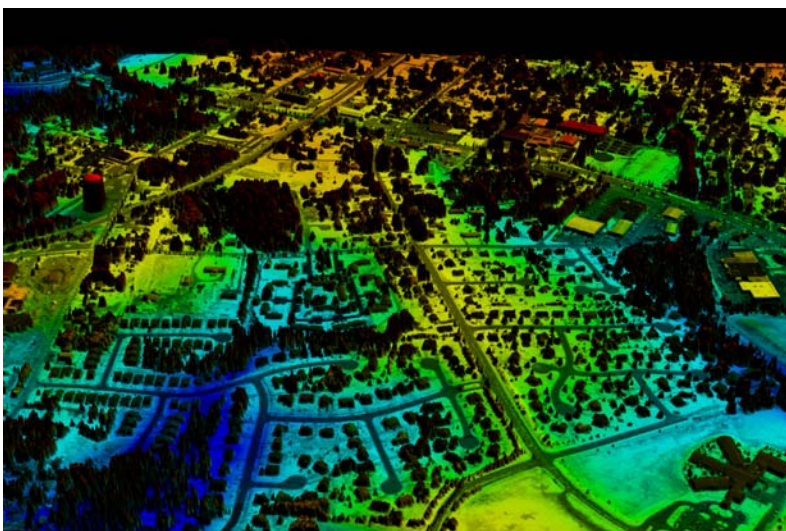
Marker at Harpers Ferry

RSD Verifies Flood Plain Mapping in North Carolina

During the last week of February, the Remote Sensing Division (RSD) verified flood plain mapping work done by contractors in North Carolina. Utilizing the Research and Development Platform on the NOAA Citation, RSD used control from the North Carolina Geodetic Survey and kinematic GPS to confirm the accuracy of LIDAR Digital Elevation Models.

North Carolina's frequent flooding and hurricanes have prompted the State to become a Cooperating Technical State through the Federal Emergency Management Agency's Cooperating Technical Community partnership initiative. Since 1989, there have been 14 federally declared disasters in North Carolina, resulting in billions of dollars of damage to uninsured and under-insured homes. This project will conduct flood hazard analyses and produce updated, digital Flood Insurance Rate Maps for all of North Carolina, protecting lives and property of North Carolina citizens.

For more information about this project, please visit <http://www.ncfloodmaps.com> or contact [Gary Thompson](#).



LIDAR Digital Elevation Model in Raleigh, North Carolina.

Center of Population Marked in Tennessee



TN Center of Population dedication ceremony in Murfreesboro, TN.

On February 19, NGS participated in the public dedication ceremony for a geodetic monument marking the center of population for the State of Tennessee in Murfreesboro, TN. The state center of population was determined using U.S. Census Bureau data from the 2000 Census and monumented in cooperation with NGS and the Tennessee Association of Professional Surveyors. The final position of this mark will be determined using Global Positioning System observations. For more information, please contact [Dave Doyle](#).

NGS Appears on Educational Television Program



On February 26, Joe Evjen, Martha Herzog, and Donna Shaw taped an appearance on Excellence by Choice, an educational television program geared for college bound students. The taping featured the science of and

careers in geodesy. High school students host the program and use the show to influence their peers by emphasizing the importance of education.

The show is a half hour talk-show format. A team of students asked questions about how to get into the profession of geodesy, including college courses and experience needed.

“When I say I’m a cartographer, people either ask if I take pictures or if I am a doctor.”

Martha Herzog commented that the show was a good opportunity to educate people about geodesy. “It was a really positive experience about letting people know about an obscure profession. Most people don’t have any idea about what I do. When I say I’m a cartographer, people either ask if I take pictures or if I am a doctor (confusing photography and cardiology with cartography). So I was glad to give some more exposure to my profession.”

This program is made possible with the cooperation of District of Columbia Public Schools Channel 28, The College Board - DC Office, Consortium of Universities of the Washington Metropolitan Area, National Association for Equal Opportunity in Higher Education, American Council on Education, and others.

NGS Web Usage Statistics

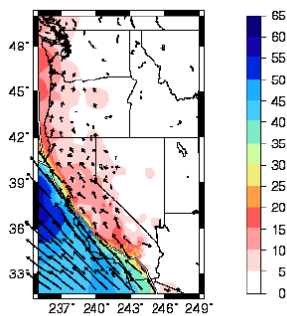
In February, the NGS Web site averaged 5000 hits per day, with the average visit time being 15 min. There has been a 100% usage increase since February 2000 and a 20% increase from February 2002. Below are the Web usage statistics from September 2002 through February 2003.

	Sept.	Oct.	Nov.
NADCON	56866	58009	65437
VERTCON	1329	1542	1623
Datasheets	177055	186486	177516
OPUS	2312	3061	2936
UFCORS	32821	34580	25145
CORS ftp	271957	296198	217573
Rcvy Notes	2435	1707	1158
Inv_Fwd		528	1084
	Dec.	Jan.	Feb.
NADCON	41247	32090	43557
VERTCON	1025	2330	1526
Datasheets	164453	230091	219405
OPUS	3967	3969	4598
UFCORS	22421	30570	33937
CORS ftp	172528	237505	229628
Rcvy Notes	3046	1509	2870
Inv_Fwd	856	1865	874

Horizontal Time-Dependent Positioning - Version 2.7

-By Richard Snay

NGS recently released version 2.7 of the HTDP (Horizontal Time-Dependent Positioning) software for transforming



Horizontal velocities across the Western United States. Colors specify speed in mm/yr and arrows specify corresponding directions of motion relative to a fixed North American plate reference frame.

positional coordinates and/or positioning observations across time and between spatial reference frames. Users may also apply HTDP to predict the velocities and displacements associated with crustal motion in several popular reference frames.

Version 2.7 expands the list of permissible reference frames to include the new

realization of the World Geodetic System of 1984, as well as two new reference frames related to the North American Datum of 1983, NAD 83(PACP00) and NAD 83(MARP00). Version 2.7 allows users to input ellipsoidal heights for points via the *86* record of the "BlueBook." (See <http://www.ngs.noaa.gov/FGCS/BlueBook/>)

The output of Version 2.7 displays input velocities when users apply HTDP interactively to transform positional coordinates. Version 2.7 incorporates a more accurate model than previous HTDP versions for the 3D displacements associated with the magnitude 7.1 Hector Mine, CA earthquake of October 16, 1999.

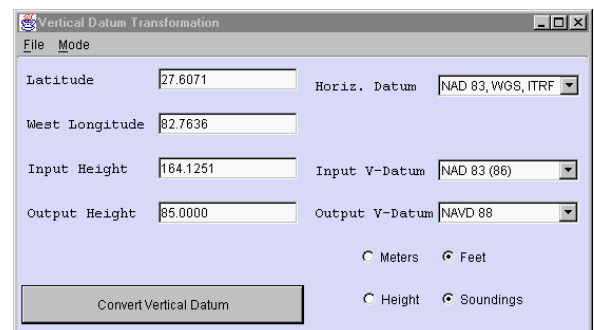
Users may execute HTDP_2.7 interactively at <http://www.ngs.noaa.gov> by clicking on "Geodetic Tool Kit" and then on "HTDP." Users may also download the HTDP software and related information from this Web site.

NGS Works Smarter (cont.)

Continued from page 1

software works in two modes, interactive and batch, and incorporates regional datum transformation grids. It supports 28 different vertical datums. VDatum's open source, portable implementation allows this technology to be imbedded in GIS software systems. It is also validated against geodetic control, including leveled benchmarks, GPS control points, and tide gauges. With VDatum, the user can focus on the data, not on the geodesy.

The technology of VDatum will continue to grow in the future. Eventually, VDatum will be extended to cover the entire U.S. coastline, and accuracy maps will be available for the transformations. Current models, including the regions of Tampa and Delaware Bays, North/Central California, Southeast Louisiana, and the New York/New Jersey Bight, are available at <http://www.chartmaker.ncd.noaa.gov/bathytopo/vdatum.htm>. For more information, please contact [Dennis Milbert](#).



VDatum transformation tool.

FY 2003 Funding

GEODESY	FY2002	FY2003
Geodesy Base	20,591	20,478
National Spatial Reference System	250	248
Height Modernization Study - NGS Implementation	250	248
Height Modernization Study - North Carolina	1,000	994
Height Modernization Study - California Spatial Reference Center	1,000	994
Height Modernization Study - Mississippi	0	497
Height Modernization Study - Wisconsin	500	497
Geodetic Survey - Louisiana	1,000	497
Geodetic Survey - South Carolina	500	497
Total for Geodesy	25,091	24,950

MAPPING & CHARTING	FY2002	FY2003
Coastal Mapping Base	4,526	4,496
Shoreline Mapping	2,000	1,987
Total for Coastal Mapping	6,526	6,483

Total for NGS	31,617	31,433
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-By Rick Yorczyk

At the end of February, the President signed the omnibus spending bill, which enacted funding for NGS. We are now funded for the year and no longer operating under a continuing resolution. Note that before the President signed it, Congress applied a 0.65% rescission, which explains why FY2003 appears less than FY2002.

NGS is funded under two line items in NOAA's budget. Most of our funds come from the GEODESY line item. Our Coastal Mapping Program is funded under NOAA's MAPPING & CHARTING line item. The Congress and Senate conference committee directed that the FY2003 Shoreline Mapping funds be focused on the North Slope of Alaska. NGS was also directed to begin collaboration with the State of Alabama to help them develop a comprehensive statewide Geographic Information System data base and clearing house, though no funds were provided for this effort. By way of comparison, enacted FY2002 funds are also displayed.

* The funding is shown in thousands of dollars.

These figures are based on our latest information and do not include reimbursable funds (e.g., FAA, State Advisors) nor the various overhead charges that NOAA and NOS make.

Personnel Feature

NGS and the Presidential Management Internship Program



Erika Wilson came to NGS as a Program Analyst through the Presidential Management Internship (PMI) program. This two-year program is a venue for those finishing graduate school who wish to enter a Federal agency.

The PMI program has helped over 6,000 participants become employees in all cabinet offices and in over 50 Federal agencies. After being nominated and competing in a day of intense written and oral exercises, selected PMIs travel to Washington for interviews with various agencies.

After finding a good fit, the PMI will remain in that office for at least two years, during which he or she will do at least one rotation to another office, agency, or organization. At the end of the two years, with satisfactory performance and mutual agreement, the PMI can be converted non-competitively to regular full-time status.

Since coming to NGS in July of 2001, Erika has worked on several projects, including the Continuity of Operations Plan (COOP) and a Partnership Proposal for installing geodetic markers at other NOS sites, like Estuarine Reserves.

Through an agreement with NOS leadership, Erika has also spent time staffing the NOS front office. She has staffed several Homeland Security working groups. At the end of February, Erika began a three month rotation in the Science and Water Division of the Office of Management and Budget. After that, she will spend 2-3 months at

NOAA's Chesapeake Bay Office working on outreach-education projects. Erika has a BA in Political Science from Winthrop University in South Carolina. Her graduate degree is a Master of Public Affairs from the Lyndon B. Johnson School of Public Affairs at the University of Texas at Austin.



Erika with other 2001 PMIs at the National Hurricane Center in Florida.

Upcoming Events

March 30-April 1 - 2003 ACSM Annual Meeting - Phoenix, AZ

April 12 - Dedication of Harpers Ferry Marker - Harpers Ferry, WV

April 14-18 - 2003 National Hurricane Conference - New Orleans, LA

April 16-18 - MidAmerica GIS Symposium - Kansas City, MO

May 3 - 9 - ASPRS 2003 Annual Conference - Anchorage, AK