

NOAA 'S NATIONAL OCEAN SERVICE  
NATIONAL GEODITIC SURVEY  
FEDERAL GEOSPATIAL SUMMIT

REPLACING NORTH AMERICAN DATUM OF 1983 (NAD 83)  
AND NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

MAY 11, 12, 2010  
NOAA AUDITORIUM  
1301 EAST-WEST HIGHWAY  
SILVER SPRING, MARYLAND 20910

P R O C E E D I N G S:

MR. DOYLE: Well, you know it's a couple of minutes before our starting time but that's not a bad thing I think. Looks like we've got a pretty full crowd here, so why don't we go ahead and get started. We've got a very full day in front of us. First of all, good morning. It's a great pleasure to see everybody here. I'm Dave Doyle, the chief geodetic surveyor here at NGS. First of all, I'd like to welcome everybody to the NOAA campus here in Silver Spring, if you've not been here before. And I would especially like to extend a welcome to our visitors from abroad. We have representatives here from Canada and El Salvador. So I think that is pretty impressive. A couple of administrative things before we get too far along. Most of you I assume at one point or another maybe had some coffee this morning and so if you need to get rid of that coffee, restrooms are through the Science Center in the back, you'll see a big sign down a hallway and you can find it. Another thing, if you have parked in the parking garage next door at a meter and you need some change, we can provide you with change, so we are set up to do that. If you parked at the Giant across the street, please don't! You will need more than a little bit of change to get your car back. So make sure you are parked in a good legal spot.

We've been talking about this Summit now for some time and I'm very glad to see everybody here. You gonna hear a lot today from some really great speakers I think. We got some wonderful folks up here, first of all on the stage that will give you some background on how we've gotten to where we are and the importance of this. I know in many cases, I'm probably preaching to the choir here in terms of the importance of the spatial reference frame, the importance of the accuracy. We are certainly on the verge of some major advancements in positioning technology. With a little bit of luck, ten days from today, the U.S. will launch the first operational satellite with L 5 on it and that's the beginning of I think a whole new trend and what we're going to see. You are going to hear more about that today and the impact that it's going to have on the National Spatial Reference System and what we do here at the National Geodetic Survey. We have a number of us here in the room that were part of the original NAD 83 adjustment process going all the way back to the early 70's. And some of us very much look that way. It was kind of interesting. I was on the original architecture team and if you talked to some of the folks around here doing it, they will tell you a lot of stories about how we put the

original reference frame together from paper data into a digital format. The NAD 83 and NAVD 88 that followed were world setting elements, first time that a spatial reference frame had been geocentric at the civilian level, first time a reference frame had been automated, totally automated, and the work that the National Geodetic Survey was able to accomplish with our partners in Canada was truly a world class event. I remember personally, thinking in 1986, the summer of 1986, when we finished the adjustment of the NAD 83 and we put the coordinates out on the street, just showing a little bit of age here, but I was 37, at least, another 18 years to go in federal service and I'm thinking to myself, so now what do we do? Nothing left to do. We just readjusted the North American Datum. What could possibly be left? Well, within – literally, within weeks it seemed, people were calling up and saying you know it doesn't fit the way we thought it would. And you gonna hear more about this. The technology had changed and NAD the migration into NAD 83 itself was based on changes in technology. So what we have done at NGS is we have been playing catch up for a very long time to technological changes. And that's been a constant issue for us. At this point in time, we kind of think we can see around the corner a little bit and many of you are part of that. You see around the corner too, you see the changes that are coming about. So we'd kind of like to if not be ahead of the curve, at least be staying up with it. We certainly realize that changing the reference frame has an impact, significant impact on the many holders of geospatial data that's out there, all of our federal partners. So we know that changing coordinates, changing heights is something that has a significant impact on many federal programs. And that's of course why we're here is to start this dialogue. I'd like to say this is the first of an annual set of meetings. I'm not quite so sure that we are prepared to do annual but we certainly will have many more federal programs. And that is kind of the focus today. We have a large crowd of people here, we have quite a number that are on-line, the first time we have done that as well in this kind of a forum. But our focus today is on the federal side, the impact that this is gonna have on many different federal agencies. And we certainly know that those impacts are going to be there at the State level and the municipal level and private sector. And we have a number of different venues that we can address some of those other specific issues. But today, we'd really like to focus – today and tomorrow, we'd really like to focus on the federal issues. And many of you have taken time out of your very busy schedules to come here, so one of the things we would like to really encourage you to do is at lunch today, there will be a sign up sheet for minute sessions that you see on the schedule. And what we'd like to do, we really, really would like your input. Take a couple of minutes if you got some thoughts on what we've been talking about today, the impact that you see it having on your agency or perhaps if you're contractor working for one or more federal agencies, the impacts that you see, pro and con, we want everybody's thoughts on this. So we'd really appreciate it if after you heard some of our discussion today, you take some time, give it a few minutes to think about it, sign up for a couple of these minute sessions. It will not be one minute, about 3 to 5 minutes. So we would like your thoughts so that we can pursue, begin this dialogue pursuing the products and services that we need to develop here at NGS as well as the other data elements that we need to move forward with the ten year plan.

On that note, it's a good time to get started. I would like to introduce our first speaker. Joe Klimavicz is the chief information officer for NOAA. And you've got his bio so I'm not going to stand up here and read his bio so Joe, if you would com give us your thoughts, please.

MR KLIMAVICZ: Thanks Dave.

Well having served many years as a federal geodesist it is indeed a great honor to be with you here this morning. When you think of NOAA's NGS, you probably think of science and surveying, although the name has changed over the years, NGS was after all the first civilian scientific agency established by President Thomas Jefferson in 1807. There's good reason for the NGS being a priority in the Jefferson administration. From the ancient past to the birth of the nation, through the present, knowing where people, places, and things are located has been of critical importance. For example, in Jefferson's time, the safety of mariners, ships, cargos, and new nation's fledgling maritime commerce relied on precise locations of shoals, reefs, navigational hazards, among which they moved while carrying the nation's commerce, its critical importance.

Our founding fathers including George Washington and Thomas Jefferson were surveyors not out of hobby or curiosity but out of fundamental necessity for surveying for the growth and defense of the nation. Virtually, all of today's federal surveying and mapping programs owe their legacy to Thomas Jefferson. In 1804, Thomas Jefferson said we shall delineate the correctness of great arteries in this great country; those who come after us will fill in the canvas we begin. So that's where it all started. And the vision of Thomas Jefferson is reflected today in a great network of over 1 million 500,000 survey marks or geodetic points connecting to each other in a very exact set of measurements. With each of these marks given an accurately computed latitude, longitude and height.

The precision, of this network takes into account aspects of measurements that many users of our data and the public are not aware of. This is due to NGSs doing their job as geodesists to make sure this work is done correctly. This includes for example, measuring variations in gravity, movements of the Earth's crust. These markers are one component of NOAA's managed and maintained National Spatial Reference System, NSRS, which provides a consistent framework for latitude, longitude, height and information which supports all of our spatial activities in the United States. The NSRS provides the foundation and a backbone for transportation, mapping, charting along with a multitude of science and engineering applications. The NSRS is a primary element of any system that collects -- and we have lots of these systems across the country -- collects data for predictions, modeling, analysis and precise positioning information whereas it is essential component of any observing system obviously. What our predecessors have built and we continue to expand upon, is an invisible interlocking and precise positioning foundation. It is an economic foundation for this country. In fact today, we are -- we have never been more than a few miles from a brass marker. This is -- I'm sure you have seen these markers, they are just about everywhere across the country. I even have one of these in my backyard. I live at a corner and for those

more informed visitors to my house, I take them on the tour of the back corner to show off my concrete and brass marker. It's a tourist attraction. So, but despite federal laws prohibiting their disturbance, geodetic markers have disappeared by the hundreds annually, making them increasingly, a fragile part of the NSRS infrastructure. While geodetic marks have been a way of conducting surveys for centuries, this is in fact, changing the planet is changing. We know that the Earth is very dynamic and it's difficult to name all the ways the earth is changing. Sea level's rising, lots of questions about sea level rise, glaciers are melting, the continents are uplifting, tectonic plates are moving and colliding and sometimes the very soil beneath our feet is subsiding in the ranges of a few inches every year. A perpetual coordinate system computed from a single survey on a mark set in the ground of this very dynamic earth is no longer as reliable as we once thought. So thankfully, we are constantly improving our techniques and our accuracies. The use of man-made satellites has proven to be the greatest innovation in the history of positioning and navigation. Today, the Global Positioning System, GPS technology is transformed to just about every aspect of our business. NOAA manages a network of over 1,400 continuous operating reference stations or CORS which are GPS base stations. The accuracy and reliability significantly out paces the old brass disks. Using CORS, NGS provides a positioning service to the country, improving the accuracy of latitude and longitude determination variant from range of say five meters down to centimeters. And while positioning methods are changing, they have not changed the economic importance of positioning infrastructure, products and services. A significant portion of our economy is based upon accurate positioning. That is why we are here today is to share information, as a community, to ensure that our modernization of our National Spatial Reference System is performed in coordination with you, with the users, and so that we continue to reap the benefits without significant disturbance of the performance of our missions. In 2009, an independent economic study showed that billions of dollars in benefits to the states and communities from NOAA's positioning products and services including the fundamental geospatial infrastructure for transportation, mapping and charting, along with the multitude of scientific and engineering applications. Specifically the NSRS provides \$2.4 billion in potential annual benefits to the U.S. economy and the NOAA CORS network alone provides about \$800 million per year in benefits. An additional over half a million -- \$500 million a year annual benefits could be generated by the implementation of new vertical reference system allowing user to determine more precise elevations using GPS with approximately, \$240 million alone served from improved flood plain management. So NOAA will lead the modernization effort. We can't do this alone. We need to work in partnership and that is why we pleased to have representatives from our federal partners and the geospatial community here today. We also welcome our partners from states and municipalities, and industry and academia. The NSRS is a critical part of the nation's infrastructure and as we move forward to embrace the new technologies and improved accuracy of our services to you, we hope that you will help us to better understand how we can serve you and work together in a cooperative effort to modernize our reference system.

Thank you very much.