

MR. DOYLE: Thank you

We're running a little ahead of schedule and that is not a bad thing. Now, we give our speakers for our second session, a little bit more time to talk about some of the things they got on their mind. I'd like to thank both our speakers this morning, Joe and Juliana and John and Dave for giving us their insight not only on the importance of a national spatial reference center but some of the trials and tribulations that we have gone through to achieve what we have today. Just a couple of perspectives I would like to throw in to that: When John talked about the change from the NAD 27 to the NAD 83, one of the most significant aspects we saw was the monumental change that goes in positions. The smallest positional changes that we saw were roughly in the range of about ten meters in the Great Lakes area, and in California, well over a hundred meters Alaska, 200 meters, and Puerto Rico, 200 plus meters, Hawaii, 400 meters.

So we have gone through some phenomenal changes. We will never see those kinds of things again. The changes in heights between 29 and 88 and a meter and a half in some parts of the country. Again, we won't see changes like that. The changes will be smaller and that's a critical element for all of us to think about, the importance of metadata about data that regrettably in many areas has not been well addressed in the surveying and mapping community, something we have to pay a lot more attention to. So a couple of minutes, we are going to take a break and go get a cup of coffee or have a nice bagel and have a few minutes to chat and we will come back. Before we do, that I would like Juliana to come up for a moment, if she would please.

MS. BLACKWELL: This being the first kick-off event for the new datum, We would like to take the opportunity to thank our speakers this morning for their time, their support mostly for sharing their wisdom and insight for how we can all work together to do this and do it in the best way possible. And so, on behalf of the National Geodetic Survey, I would like to ask Joe Klimavicz to come forward and I'm just going to give him a small plaque that says "In appreciation of your contribution to the first federal Geospatial Summit, of NOAA's National Geodetic Survey, May 11, 2010."

MS. BLACKWELL: Joe, thank you. And Admiral Bossler, if you can join us over here. What I took away from Admiral Bossler's, speech from the presentation, I have to look and see who has the most money in National Ocean Service in NOAA. Admiral, thank you.

ADMIRAL BOSSLER: Thank you very much.

MS. BLACKWELL: And last but not least, Dave Zilkoski. Dave, thank you for your support and for championing the importance of having everyone engaged in this process, hearing the good and the bad, the fearful and the support, coming together around the table to make it work. Thank you Dave.

MR. DOYLE: Okay, let's take a half hour break, we will come back at 10.30 and give our speakers for the second session a few extra minutes to chat about what they are going to do.(Whereupon a 30 minute break was taken)

MR. DOYLE: All right, take your seats so we can we get started again, please.

A couple of small announcements here. It would appear that we do not have anyone in the crowd who is significantly hearing impaired other than what they just don't want to hear. So, we are going to let our signers go. If that is incorrect, if we do have someone that needs a signer, please let somebody with a yellow badge know and we will keep them around. But if not, then, they can go. We will let them go for the day. Let's see, what else do I have. For our folks on line, for the minute sessions, and as I mentioned earlier, it really means more like 3 to 5 minutes, we will be somewhat flexible. For those of you that are on line that would like to participate and again, we certainly hope you will take advantage of this, if you would just send in a note with your name and agency, and if you have a power point you want to present, pass that along and we will make sure that you're part of the minute sessions for tomorrow. Okay. I'd just like to take a second here to again, thank our speakers this morning; Joe Klimavicz CIO for NOAA, first of all for taking time away from his incredibly busy schedule. As you can imagine, the requirements for NOAA right now with the issues in the Gulf are pretty intense. So I'm sure Joe is up to his eyeballs in alligators as it were for that one; Juliana for giving us some background on the National Spatial Reference System and especially to Admiral Bossler and Dave Zilkoski for the background on the NAVD 83, and how we got to where we are today. I now would like to introduce Dru Smith, the chief scientist, chief geodesist for the National Geodetic Survey. In the handout material, you should have also I received an e-mail with his white paper. Actually, it is our white paper. Dru is the primary author but a lot of input into that in terms of why we think we need to do what we're going to do here with both the geometric and geopotential data. So Dru, if you would come up and defend yourself, please.

DRU SMITH: I did not like the term "defend yourself" because the white paper sort of stands on its own. And if you read nothing in the white paper before you go home, I hope you do read the entire thing, but just read the very end where you see the number of people at NGS who contributed that paper. I feel like the person who built the house but believe me, everybody handed me the walls and structures and everything else. And in fact, it was a massive effort on multiple people's part to get that put together. Thanks to our speaker this morning.

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Although I'm supposed to be or the title is ten year plan, from NGS has been out since 2008. I will do the service of assuming that most of you are familiar enough with it in the ten year plan. We do discuss two major changes to NGS in addition to all the institutional improvements that we intend to do inside of NGS, two major chapters are on improving the geometric component of the NSRS and the geopotential component. So we have a very solemn duty and I'd like to thank Dave Z for mentioning it in his talk. NGS really takes its duty very seriously in providing the datum. But in providing the datum, we are not the primary users of the thing that we are producing and so in

addition to the empowerment of creating datum, we do have a very solemn responsibility to you to make sure that any changes we undertake are considered.

So I will talk a little bit about NGS's mandate to create a datum for your use and touch on something that Juliana also mentioned, the perpetual struggle between being a scientist and providing coordinates that are constant and serving our users. And I like to feel that I can speak to that having come up through the surveying ranks initially and then, turning my attention to more esoteric science if you will that is hard to explain even to my wife what I do for a living. I will talk a bit about the ten year plan and then hopefully, give you an example of transitioning that I'm going to learn from and I think we can apply to this situation.

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So the meat of this is talking about this empowerment. NGS like NOAA does not draw its mandate from a single law that comes from Congress that says you must do this. We have a number of laws and executive orders and circulars and various other pieces of legislature that tell us what we should do. One of the oldest and clearest to us is that it gave the Department of Congress the right – among other things to conduct geiodotic control surveys. This is very deep inside of this particular survey act but there are a few groups inside Commerce besides us that conduct those surveys.

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I do believe that most of us ought to be familiar with OMB Circular 16. It has got to be one of the clearest documents outlining the various roles and responsibilities for the federal government agencies as to who will work in what parts of the National Spatial data infrastructure. It names the Congress and NOAA specifically and requires that we all work in the National Spatial Reference System as the fundamental form of geiodotic control for the nation.

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Well, since we are the only agency inside of commerce and NOAA that controls the responsibility laid out in OMB Circular actually falls on our shoulders. This is common for example in the previous 16 example that Commerce conducts geiodotic control surveys. Most laws are not going to get down and name the line office or the program offices to which all these responsibilities necessarily fall. So the NSRS responsibility falls on NGS's shoulders. And recently, we made sure that we clarified our mission statement to specifically line up with that so that we are the responsible party for defining, maintaining and providing access to the National Spatial Reference System and that means serving all of you who work within it.

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So that's the job given to our agency. However, and again, thanks to Dave for mentioning this earlier. This is a collaborative effort. Yes, NGS will put together the datum and define it and provide access to it. But when we do so, we do it in collaboration with our partners. So back when the federal datum control subcommittee was the federal control committee and it was time to replace 27 with 83, the FGCC got together and that is not just NGS but with all our federal partners who were working within the horizontal datum, issued a federal register notice indicating that 20 it was time, 27 was going away and transition into 21 NAD 83.

And again, we pulled together our partners and said, 29 is time has also come as a subcommittee, we all agreed we would make an orderly transition into NAVD conversation 88 and that did take time but did occur. So as I mentioned, although the job falls on our shoulders, we are very interested in hearing everyone's opinion working within the community and making sure that this transition is unanimously chosen.

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So in effect, you have responsibility for producing the datums, falling on our shoulder, a desire that this be done in a collaborative way with FGCS and the production of the datums and the use of the datums does not necessarily fall -- in none of these laws does it mention states have to do anything in particular or municipalities, although many of them have chosen in fact to legislate and put NAD 83 in their state law. In doing so that makes the transition off of NAD 83 onto a new geometric system very complicated because this is not just an issue of computing new coordinates. It is an issue with making sure that everybody who has legal entanglements with the datum, make sure that those are considered in the time it is made to change those.

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So, it was 1994 was the last time NGS turned an eye inside and looked and said what are we doing as an agency? How can we best perform our mission? And at the time and that was just about a year before I came to NGS, it was short but very clear document on particular goals that NGS had set aside. And it was on performing control surveys in the FDN, CBN and what was the accuracy we were going to shoot for, a variety of achievable goals to try to perform our mission. In 2008, 14 years later from that last document that we decided -- actually in 2006, we decided it was time to take that introspection, do it again, figure out now that technology has really come spinning along very quickly, how are we were going to perform our functions in the future? We wrote the first draft in about 6 to 8 months and put it out for public review.

Many of you gave us your feedback on this over the course of about 1 a year and in early 2008, we put out a ten year plan which laid out as I mentioned, two primary chapters which are two primary goals that we were to replace NAD

83 and NAD 88 and would rely significantly on what we saw as not just the existing NGS technology but the forthcoming NGS technology, the expected real time accuracy we expected to get out of GPS and who knows what else will come along. And we also thought that if we could provide a geoid model that was accurate enough, that it would give you a much better look with the truer heights were around the nation, then the current system. And those were two of the highlights of the ten year plan.

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This is the conflict. We are a scientific agency. We'd like to refer to ourselves as the oldest scientific agency in the nation. Our name has changed but we been around for over 200 years. But we also have a user base. As we heard from both John and Dave this morning, many people have infrastructure and you have maps, and you have coordinates and you have databases and you are relying on the current data. To change that datum is not done lightly. So we have both knowledge that we are not providing you with the best geocentric latitude and longitude and ellipsoid height. The knowledge that we are not providing you with the very best and truest ellipsoid heights, and knowledge we are not providing you with the changes in those coordinates as part of our desire to be truthful, scientific and accurate. And yet, we do know that there is a significant buildup of internal infrastructure on NAD 83 and NAVD 88. So, as I mentioned, we know coordinates change. This is a truth that on the scientific side, I want to be beholden to this particular truth. On the other hand, some of these dynamics, I want to be sure if they don't necessarily affect you, they are not necessarily something that we care about, -- that you care about. If you are worried about the longitude and latitude points inside central United States, working in Kansas and the rotation of the North American plate as it creeps and rotates over the years, if nothing relative in your survey is changing, if just the absolute latitude and longitude are changing, we can provide you with models of definition, that can come out.

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Some dynamics however, I think should be tracked and monitored immediately and this is for example, heights in the Gulf Coast. I want to make sure that my colleagues and FEMA and the Corps of Engineers know about the changing heights that are occurring year after year so that evacuation routes and levies can be built to a specification that provides safety and accuracy for 50 years out.

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All right, so we have three possible ways to approach the datum in the future; first is status datum. That's sort of where we are now here is your point and it does not change. Dynamic is another. This has everything in motion which does not necessarily serve many people here who need reliability between coordinates in a particular area of survey.

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I think we will end up going which we track change. We provide models and tools to account for them as necessary. If for example, a particular change to coordinate is not something that you need, you will be provided with knowledge of that and you can actually lock coordinates in particular efforts.

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So, last thing I want to talk about is transition example that we will apply at NGS.

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Okay, so, digital TV, we all went through this recently. Radio frequency spectrum there is only so much out there.

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So somebody once thought, if we use this multiplexing technology and broadcast in digital, we can get five times as many broadcasts in the same part of the road. I don't mean spectrum as we are doing now. That sounds like a great solution. If any of you have parent or in-laws who have analogue TV, why are they doing this; they have not told me enough information. I'm not given enough lead time to make this change.

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So, in 1996, Congress took this great idea of going to multiplex and digital broadcasting and said ten years from now people, it's coming, 2006, we are transitioning to digital television. It is 2010. So in 2005, nine years later, people were still making analogue TV. What transition? People are still buying analogue TVs. Why would I stop making and selling? Congress said all right, how does 2009 sound. So they kicked it forward three years and two more years later, analogue TVs were still being made. Around 2006, they really did start to spin the sales down. So Congress said really, seriously, 2009, we are not changing the date this time. And to prove the point, a year before the transition occurred, the FCC put up the very first web site with information about transitioning to digital television. So Congress might have said we are transitioning. The information was not made available to people until well through the process. So in February 2009 there was not enough information. People didn't have converters and Congress said how does June 2009 sound?

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Really an example of not putting out enough information. And it is core, I think this went very poorly for one particular reason, there was not a perceived need to convert TVs to digital. TV is not a necessity, does not feed you, cloth you, keep the rain off your head.

Congress does believe that TV is necessary for emergency readiness, I will grant you that. Nevertheless, available spectrum was running out and there was a real reason, making efficient use of this limited commodity was an important issue. The solution made a lot of sense for those that cared about it. So we can take away, this is a classic example of a solution or problem that nobody even knew existed which is what I'm trying to avoid here.

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The problem does exist, we have knowledge of inaccuracies in both of the datums. We think there that is no question, the NGS 1 technology is only going to be better more widespread and we will see more real time centimeter accuracy positioning as the years go on. So I don't think we have a significant question of why that is answered in the White Paper as to why we think there should be a transition. The real details are that's where we really need a significant feedback from our user community. So we are going to move forward with contemplation, caution and commitment or to take a page out of one of my favorite mentors which would be Spiderman's Uncle Ben.

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With great power comes responsibility. We have been empowered to provide a datum to you, our federal partners in the United States but we cannot do it quickly or without your feedback and that's where the responsibility comes in to listen to your concerns as we make this transition. Thank you very much.

MR. DOYLE: Thank you Dru.

I now would like to introduce, Dr. Dan Roman. Dan leads our geoid team and he is going to talk to you about our efforts to modernize our data, what we refer to as the vertical datum.