Reunion of NESDIS Administrators - Edited August 19, 2002

Honoring the Heritage of the National Environmental Satellite, Data, and Information Service

Tape 3: Presentations by Vice-Admiral Conrad C. Lautenbacher, Jr.[1] , Greg Withee.

Transcriber: Doria B. Grimes, Senior Analyst, Riverside Technology, Inc.

[Tape 3]

G. Withee: Thank you very much.

Tom Potter: I spoke to John early on. We were the first people on the call this morning and we had a chance to reminiscence a little bit. I see Fred Singer at almost all the AMS national meetings and Greg Withee and a number of other people that you name there. Of course, I have known Sig Fritz for a number of years and the rest of the people ---Tom Pyke and so on.

G. Withee: Thank you, again, for your remarks. At this point, unfortunately, we are going to lose John McElroy and Tom Potter because we are going to take a break.

[Plaque Award Ceremony and Admiral Lautenbacher Meets attendees.]

G. Withee: At this juncture, I'd like you to help me, Admiral. What we want to do is to unveil a plaque that is going to sit in our new building, our new Suitland complex (NSOF)[2] building, probably the first modern NOAA building that we have had a venture of getting. It looks kind of like a boat with antennas on the top. Inside this building will be our Satellite Acquisitions, our Satellite Operations, and a new interface to our Data Centers, the Satellite Data Archive Complex. So it will be all in one building. In it we propose to put your picture and this plaque.

Adm. Lautenbacher: **"**Dedicated to the distinguished public service to the nation at the National Environmental Data and Information Service within the National Oceanic and Atmospheric

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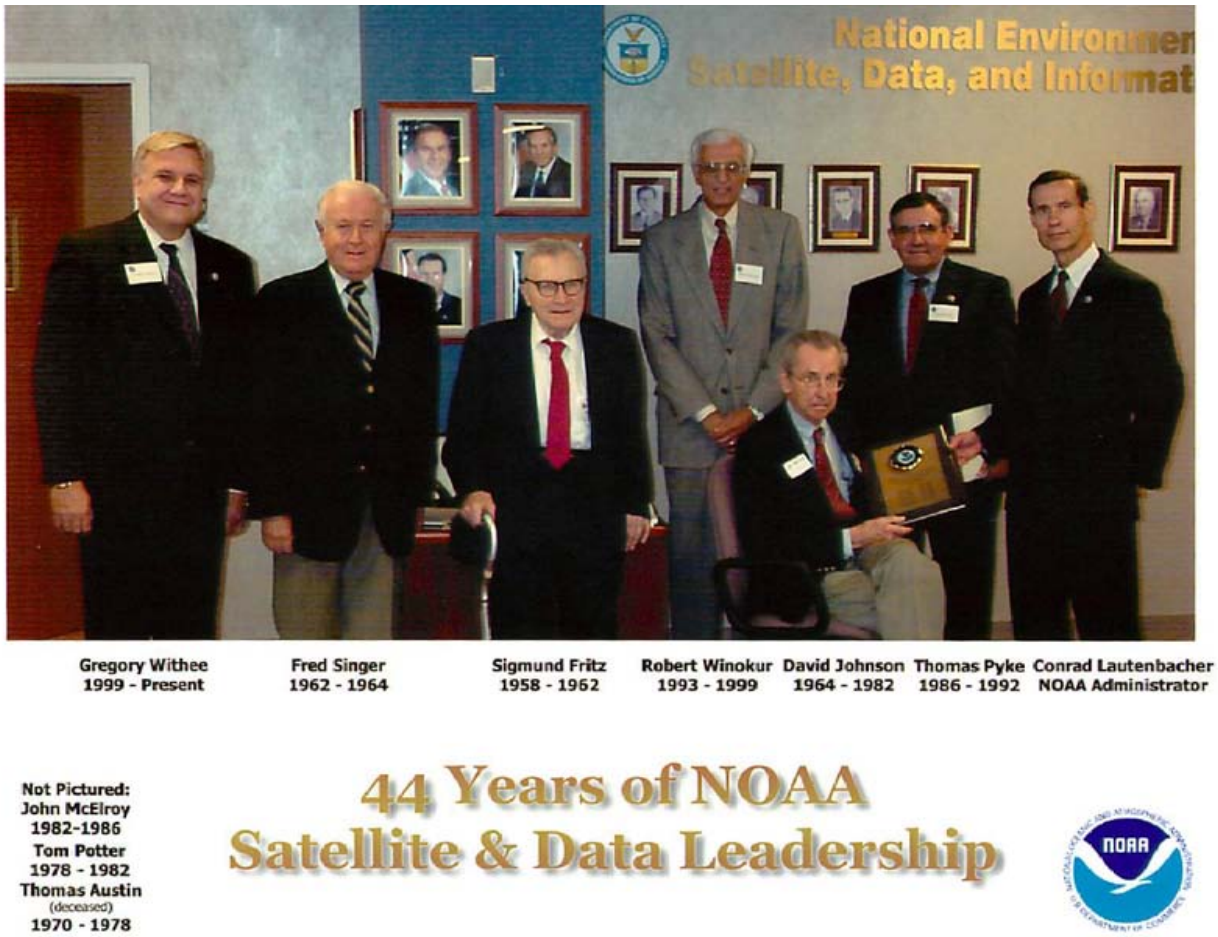
[1] [1] Vice Admiral Conrad C. Lautenbacher, Jr., U.S. Navy (Ret.), Under Secretary of Commerce for Oceans and Atmospheres and NOAA Administrator, Dec. 19, 2001 – Oct. 31, 2008

[2] NSOF – NOAA Satellite Operations Facility.

Administration of the Department of Commerce, August 19, 2002. We have the names of the distinguished gentlemen who occupied the position of Head of NESDIS: Sig Fritz, Fred Singer, David Johnson, Tommy Austin, Tom Potter, John McElroy, Tom Pyke, and Robert Winokur --- 1958 to 1999.

Sig Fritz: Can I look at it? Looks great! How did they get 1962? I was still there, but I wasn't the director.

[Pose for pictures.]



G. Withee: So let me take this opportunity to introduce the Under Secretary of the Department of Commerce for Oceans and Atmosphere, our Administrator of NOAA, Vice-Admiral Conrad Lautenbacher. He has a long distinguished career in the Navy, having graduated from the Naval Academy. He earned his Ph.D. in mathematics at Harvard and spent the rest of the time in the Navy in a number of different assignments including Cost Analyst of OSD Systems Analysis. He also had many different functions as a

Flag Officer including Deputy Chief of Staff for the Management Inspector General on the staff of the Commander-in Chief, U.S. Pacific Fleet.

We are proud to have him in NOAA, and he has been with us over 6 months now. It is my pleasure to introduce Admiral Lautenbacher.

Adm. Lautenbacher: Thank you, Greg. It is a great pleasure to be here with you. I think this is a marvelous event. I would like to thank Greg for inviting me to come and meet the former Assistant Administrators and heads of this marvelous organization of NESDIS. It has a long and glorious history. It is good to bring the family back together and get caught up on what is going on, and ask for your support as we move into the future, and learn from your experience. I appreciate being a part of this and I think this is a good event for NOAA as well as for NESDIS, and I appreciate Greg setting this up. The folks who are here today, the former AA's, were extremely important to this organization, not only to the foundation of NESDIS but certainly to NOAA.

Even today, I am delighted to have Greg as the Assistant Administrator. He does a marvelous job. He has been a great supporter of creating the greater NOAA and the types of things our country needs. This, again, is an organization that is a mainstay of NOAA's pre-eminence.

I am going to talk for just a few minutes and I want to make three points. Those three points are as follows. First of all, I am a big believer in a Global Observatory System. I have been working hard to try to reach that plateau. I want to talk to you about that for a minute. I also want to tell you a little bit about NPOESS and how it fits into that Global Observing System, and why it is so important. Why this organization needs it. The last point is to ask for your continued support and help, and assistance. We want to provide to you, the former Assistant Administrators, any data that you need. We want your opinions on what we are doing right and what we are doing wrong. And, if you support us, go out and help us to build this Global Observing System, get NPOESS online, and build the NESDIS and NOAA of the future. That is what I want to talk about for a minute.

I am hoping that is an audience that does not need a lot of motivation into understanding why a Global Observing System is a good thing to have. It is not understood universally. My background as President of CORE[3] in the year before I came to NOAA and my background in the Navy shows that we earth scientists are not very good at getting together. We have a fractured community in too many senses. We are not as good as the astronomers are in getting the next

[3] CORE – Consortium for Oceanographic Research and Education.

telescope or as good as the high-energy physicists are in getting the next big cyclotron or the next big linear accelerator.

To me, a Global Observing System (GOS) is the next big engine that earth scientists ought to have for lots of reasons. Climate change is the most visible political imperative that we have today for a GOS. But a GOS could do an awful lot for improving our ability to understand our environment and to predict changes in it across a wide variety of subjects. We have lots of pieces of the GOS and we have examples such as the World Meteorological Organization (WMO) and meteorologists that have traded data for years building reasonable weather models. Nobody like then completely but they are not bad. People understand where they came from. They can understand where the data came from and it is transparent and it is visible. We have arrangements around the world trading that data that survived the Cold War. We have models of the ways to operate on an international scale that is important. It is time to fill in the holes of a truly Global Observing System and work for the future. What is happening in the administration is that the President has told Don Evans[4], the Secretary of Commerce, to lead a cabinet level effort both in climate change science, and research and climate technology. So within NOAA we are the focal point of the climate research effort. My Deputy, Jim Mahoney[5], is in charge of an interagency office to try to get, first of all, government agreement, cross-agency agreement, 12 agencies that deal with the types of instruments and measurements and science and projections together in a system.

The next step is to get a national level agreement bringing in academia, industry, and other users. We are going to have a workshop scheduled now for the beginning of December to do that.

I have been on the road along with a number of other folks including Greg to push the idea of international cooperative effort to coordinate a plan, an architecture, and a way to accomplish this. We have a number of international agreements or mechanisms in place. IGOS is one, the Integrated Global Observing Strategy. I want to point out that Greg is to become the chair of that group this Fall, which puts us in a good position to be able to sell our system, propose what we want to do on a Global Observing System basis. That looks like really the right way to go. We don't need any more international organizations. We have enough international organizations to do this. We just need to get our act together, get an architecture, get a bigger umbrella, get everybody to support it, get out

[4] Donald L. Evans, Secretary of Commerce, Jan.20, 2001 – Feb. 3, 2005.
[5] Dr. James R. Mahoney, Assistant Secretary of Commerce for Oceans and Atmosphere, and Deputy Administrator of NOAA, April 2002 – April 2006.

there and do it. I think the time is right. I like to use the phrase "to take the pulse of the planet" and the debating point I use for people who don't think this is important, I say to them:

If you have a headache and decide to go to your doctor, and the first thing he does when he looks at you and says, "We need to do brain surgery because you have this headache". Wouldn't you say, "Wait a second? I'd like to have an MRI, at least, before you do surgery for a headache, maybe some other tests, maybe a little blood work, maybe something else before you do brain surgery." That's what we have going on in the world today. We have the exact thing going on. Wouldn't you want to take the best technology that we have today, put it together in a logical, comprehensive system, make it visible, give the world a test and let's decide what the right way to go is before we spend billions and billions of dollars and we dislocate billions of people and ruin their quality of life forever, perhaps, if do we the wrong thing. I don't say we should take forever to do this, but it is at least worth the effort to try to get to the next level of understanding in the world. That's where I am on that.

Satellites and NPOESS – very important. As you know, the world is 70% water. It is hard to take comprehensive data of the earth's surface for the atmosphere without satellites. Satellites are a critical part of the Global Observing System. We have a couple of challenges here. First of all is to have good solid satellite programs that are going to deliver for us. The second of all is to get them integrated into what earth scientists think is a reasonable system which is a combination of satellites and a combination of in situ monitoring stations in which we can calibrate and share data, build the types of confidence we need in satellite data so everyone will start using it. There is a lot more to data assimilation and building the right kinds of models, etc.

NPOESS is where we are going right now. This is a great opportunity to make giant steps forward in technology, better instruments, more consistent data. It is a system which, for the first time, goes across at least 3 agencies. It is cost avoidance at one point, depending on how you count the money. However, it still is better than building several different systems, and it gives us an opportunity to work together in the government. Because we work internationally, it is a chance to share more data with the rest of the world, one of our contributions toward a Global Observing System. I am very proud of the work that NESDIS has done reaching this level of where we are in NPOESS. It is a model program. I was greatly impressed when I had my first briefing and now my successive briefings on this program and the way it is being managed, certainly better than a lot of the things I listened to in the Dept. of Defense, in terms of Program Management. It is a good program. It is being managed very well. It is

meeting its milestones. We are doing well with it. So whatever you can do to help us sell it out there. Please do it. We need your help with Congress and the public.

Let me stop at that point and thank all of the former AA's for the contributions that you made to this marvelous organization. I am delighted to be part of it. I know it wouldn't be as good as it is without the leadership and talent that is present in this room today, from the history at the beginning of this marvelous organization to its present day splendor and grandeur. We, who are here serving today, appreciate that. We want to make sure you remain part of our family and whatever we can do to help you to stay in touch with what we are doing. If you think there are some other things we ought to be doing, please let us know. This is a way we can stay in touch with the public and which can push our mission and our message.

Let me quit, and I'll turn it over to Greg. Thank you very much for the opportunity to talk to you today. I wish you all very well.

[clapping]

G. Withee: Does anyone have an aching desire to ask the Admiral a question? We had a lot of conversations this morning in the very areas you spoke about, global issues, climate uses.

Adm. Lautenbacher: I might mention that I was the successor to Admiral Halsey. I understand you heard a sea story this morning about the typhoon. There were two typhoons. One was very, very damaging.

S. Fritz: You are too young for that.

Adm. Lautenbacher: No, but I was the Third Fleet Commander in San Diego. Remember, the Third Fleet was disestablished after World War II and was re-established in the 80's and re-formed in San Diego. So, basically, Admiral Halsey was the godfather of my ship. His hat, his sword and all of his uniforms sat in our Ward Room and all that. When I walked in every morning in the office, there was his picture. Believe me, I felt his connection.

And as I mentioned earlier, there was a problem with first amphibious group that I sent across the Pacific after it had been trained. We had given them optimum ship routing tracks. They had storm warnings. They had satellite pictures. There was no reason why any ship gets into any trouble at all today. I got this report back, "We hit a storm and we suffered damage." What in the heck was going on here? The commander of that unit had decided that he needed to cut a day off his track, so he could get there earlier. So he went further north and he went right into a North Pacific storm,

thinking that he's got a big ship, and he could get right through this. And, of course, he didn't. We had a million dollars worth of damage – a couple of aircraft, water damage. That was the last time anybody sailed from the Third Fleet without knowing they were going to be dead if they went outside of 30 knot circle on their weather chart. Even with the information, people don't use it sometimes. That's my sea story.

G. Withee: Thank you, Admiral. You can see that we are in very good hands in NOAA, somebody who believes in the very issues that we are all about here in NESDIS. Some of you who came back and took a look, I hope you are pleased with the way things are going. We are still heading in the same direction with satellites and information services, working together to bring you a good chunk of what NOAA does in concert with, of course, the Weather Service, the Ocean Service, and Research.

I thought that you might be interested in bringing you up to speed a little bit about where we are today and a few issues on where we are going. As the Admiral said, if you can help is with our future, and some of you are already involved with it. If you understand where we are going, perhaps you can give us those kinds of help that we need both here in the Administration and elsewhere. Thought I'd show you some glimpses. This is not a sales job or that kind of a performance. It's just some fun things to look at.

We'll start with a bit of a clip from our 40th anniversary video[6].

[Plays video.]

[6] ***Video:*** TIROS, 40 years of discovery
http://docs.lib.noaa.gov/noaa_documents/NESDIS/video/TL798M4T5752000.mov
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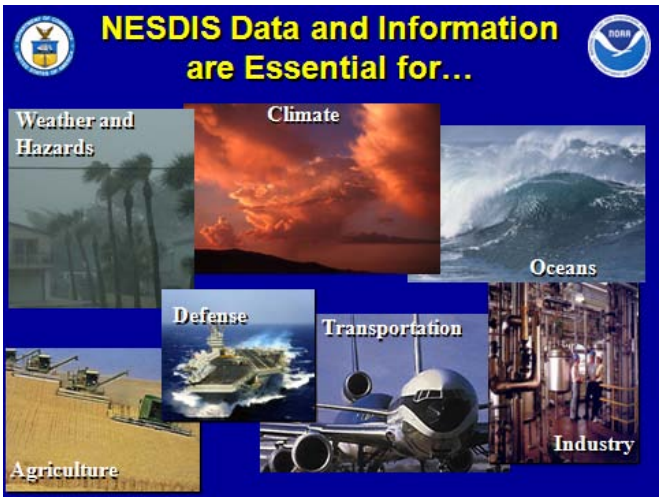
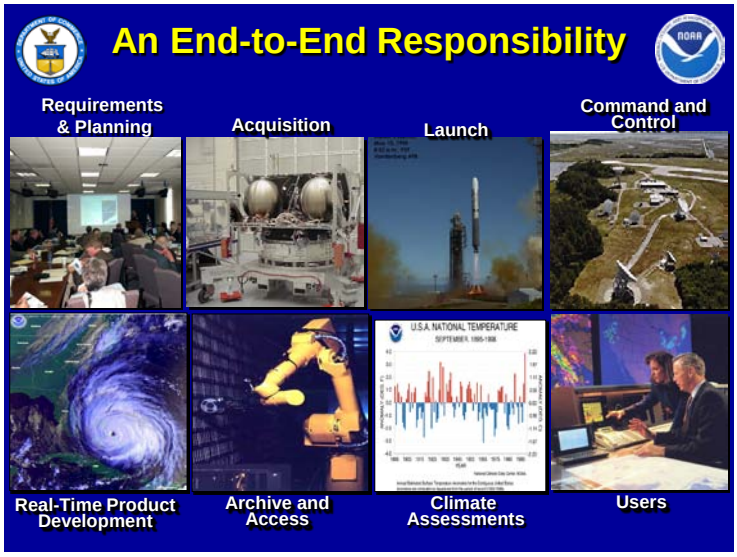


So let's start with where we are and go into the future a little bit with NESDIS, The Satellite Information Service of NOAA. We are a part of NOAA. I think this graphic illustrates that we've come a long way with integration. We've got all our systems on a single plot. Those didn't exist ten years ago. We didn't have that wherewithal and the NOAA culture to put us all together. But we are there with our ship, airplanes, radar systems, undersea technology, all working together on these issues.

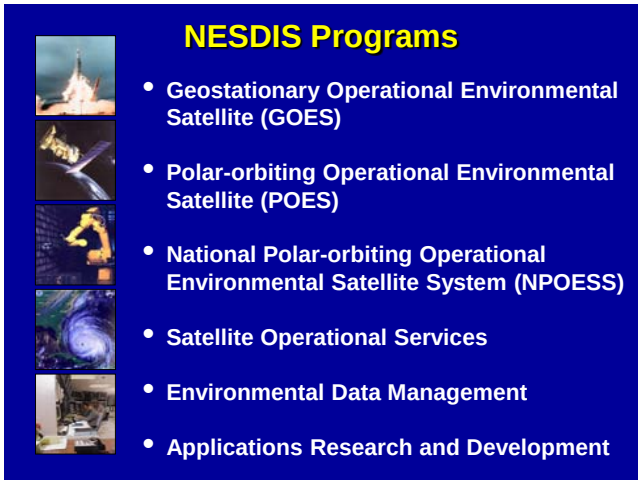
Now in NESDIS, we did very well. Still, most of you talked this morning about weather and then some of you went into climate issues; Fred noting that these satellites were providing wonderful global results for climate. Also, we mentioned oceans, the emergence of synoptic oceanography. And then our partners in agriculture, defense, transportation and other parts of Commerce are still with us today and very important.



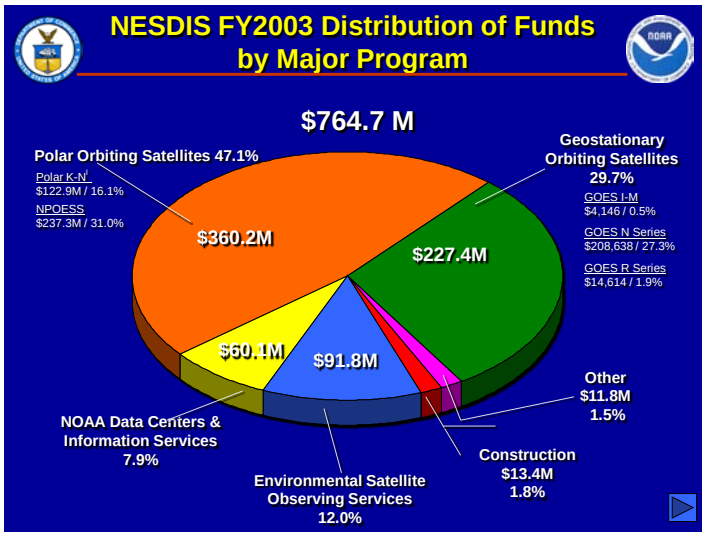
We are more than ever end-to-end. When Sig came in the late 50's, I'm sure the people there were thinking about acquisition and launching, but weren't so concerned with the temperature record that was going to result from these satellites, or the archive that had to be produced in order to save the data in order to get that record. Well, today, we have a healthy dose of requirements and planning which includes everything from our satellite program to our data program.

We still acquire and launch with NASA's help, of course, and soon the Air Force to be our partner with the new NPOESS program. We still command and control both from Wallops and Fairbanks and our Suitland facility shortly. Still produce real-time product development. Again, earlier we talked about missing entirely a hurricane. And we will never miss another one, as far as the people in this room and the people that take over in our place are concerned.

We archive. We produce assessments and products of all kinds within NESDIS, climate products, ocean assessments, and so forth, all supporting our mission.



We have the GOES program and the polar program.



This is not necessarily big news to the tax payer until you put benefits on it. It costs a lot more but we are getting a lot more out of these programs. The polar program is orange. The geostationary program is green totally around $750 million. This $10M is for the Data Centers that we talked about so hard about to get anybody to pay attention to it. It still has its problems, but we are up to $60M and doing thousands of products and over a thousand databases as opposed to back when we were doing hundreds of products and hundreds of databases.

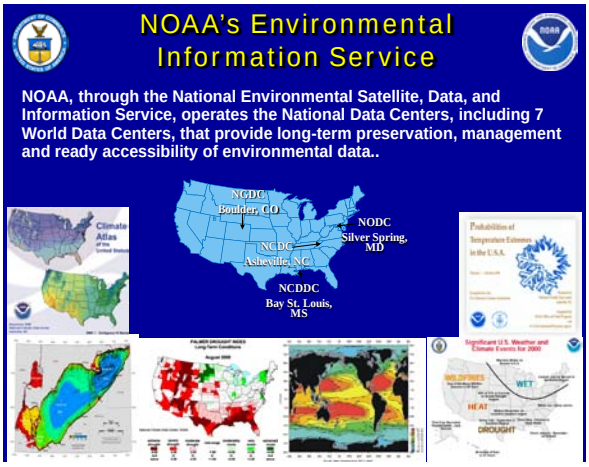
We operate the satellites with about for $100M. That's what we look like. Again, we are not trying to force the budget up or down. We are trying to make it realistic, but that's where we are in NESDIS at this point.

[Plays video clip.]

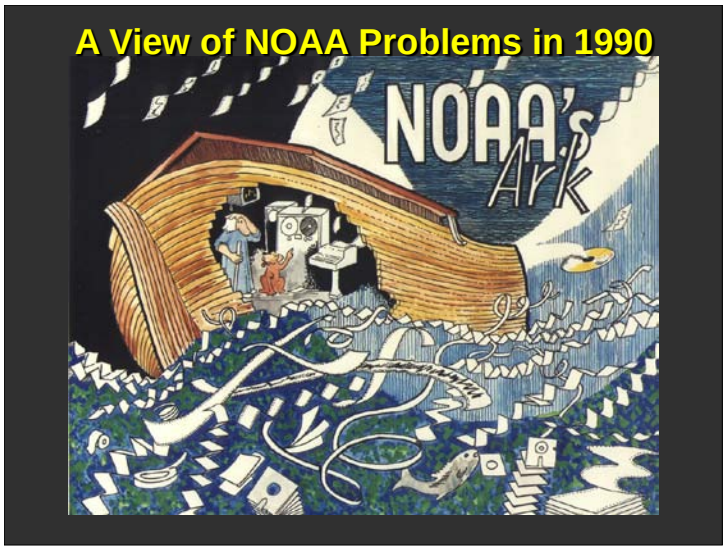
Marie Colton: We acquire the hardware and then we launch the instruments. We have the Operations bring the data down. We have scientists doing research with the product. We have the Product Distribution Office sending the product out to the users, and then the Data Centers take all of that information and put it into an archive. So it is there for posterity, and there are many ways the users can assess our data. Basically all the information that is being transmitted, even through commercial enterprise, is from government weather satellites. And I think people don't always appreciate that.

G. Withee: The story there is trying to get out satellites with our information services working together. This is a new clip. You have seen if first. Marie hasn't seen it before. That will form a larger NOAA video.

So the Data Centers, now called the Environmental Information Service or part of the Satellite and Information Service. We still have 3 – Boulder, Silver Spring, and Asheville. There are a whole host of products. I'd love to get into these. You would be amazed at what comes out of those.

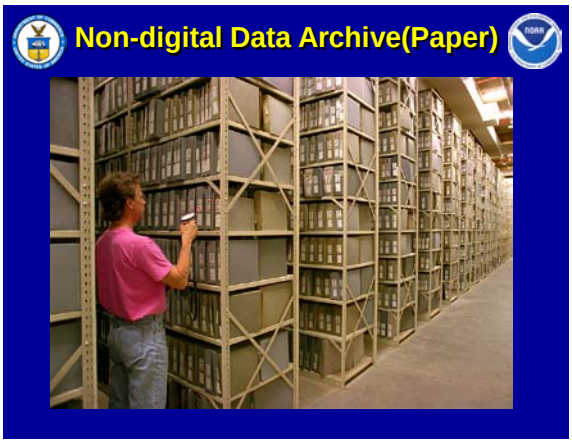


Here is a number for you all. Last year when I was working with George Ludwig, we talked about a petabyte. No one knew what it meant in 1989. We kept on drawing a one with 15 zeroes. That's how we described it. That word is now a reality. In 2001, we broke a petabyte in NOAA, in or Data Centers. That's a lot of data. If you can imagine the twin towers in Indonesia, the largest buildings in the world, and if you fill both twin towers with CD-ROMs, that would not be a petabyte. That's a lot. But we still have challenges. Here is one George, Ken Hadeen, and I worked on. We are drowning in paper.

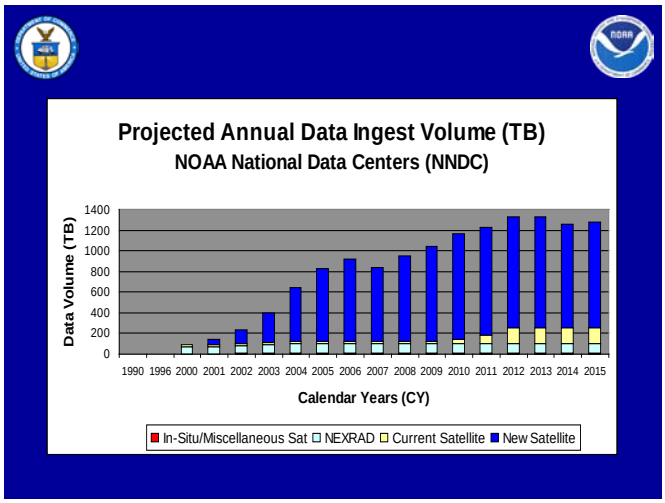


This was done in 1990. We had the CD-ROM's to the rescue with the NOAA gull. We made this up to try to sell our programs and we did. We took this along with and the story that went with it. And we went from $20 million at that time, and we picked up, just with this slide and this story. And that became $15M more where we could do something about this. We have 200 million records on paper, still today. But we are working for those of you who have tried to do this in the past. The Hill is interested in the problem. We do have people working in West Virginia and Kentucky who do nothing but type records in. It is good employment for those states and great for us. We are getting the climate data record back.

Challenges

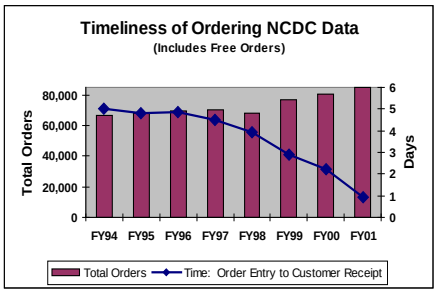


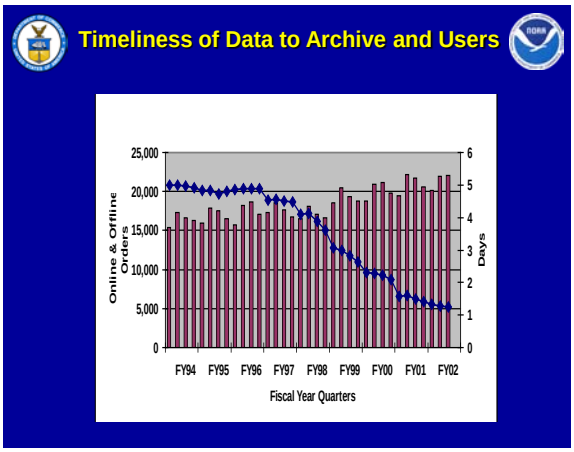
We have a lot of challenges on the data side. I'll just show pictures of some of these. There's our paper as far as we can see, a couple of building's worth.



Here is our data just going up and the only reason it starts to come down is that we are unclear about how the NPOESS launch will change this in those out years. This is 14 of these petabytes, and I should have cut the plot off there.

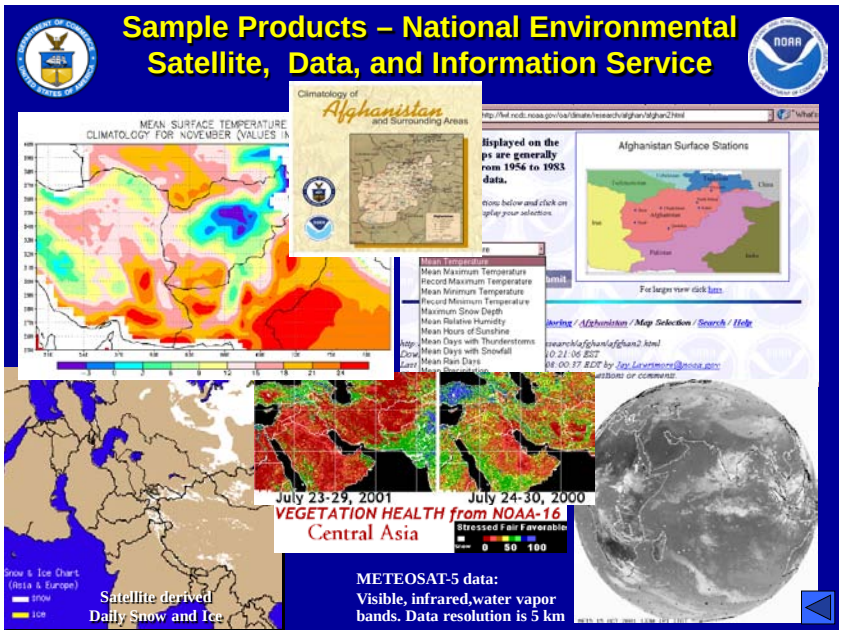
Customer Service
Improved Efficiency due to Web Access



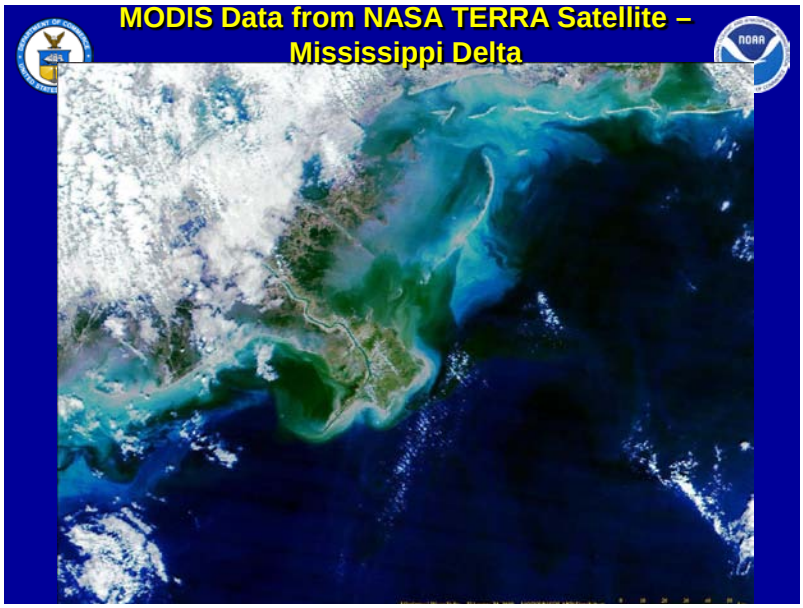


We really like this idea of efficiency. When you were here, you were building a program and had to have a foundation. We are standing on the shoulders of all your work, whether you are on the data center world or the satellite world. Now, we are tightening it up on a business sense.

Our orders are still increasing. In the early 1980's, it took about a month to serve certain types of data. Then in 1994, you pick up now 5 days. Now the average time to serve data back to the user is a day. This is phenomenal and is done through new technology and also through our "best practices".

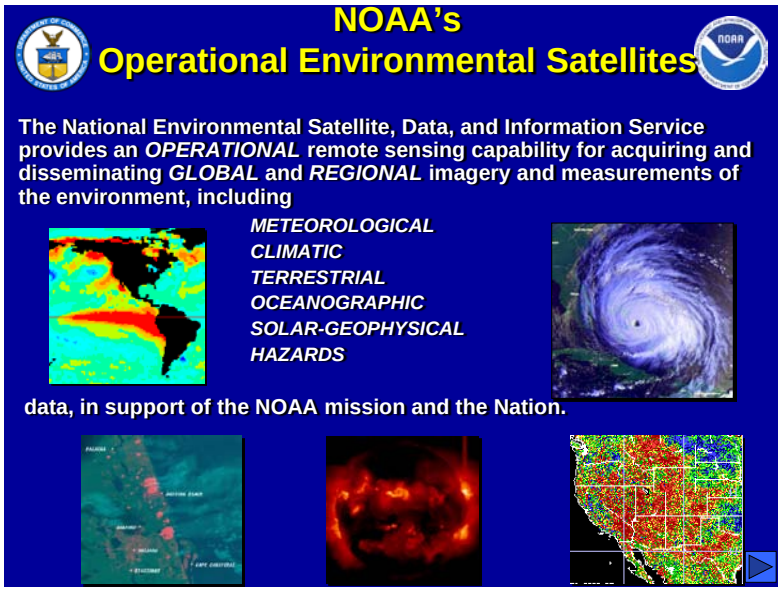


From that, we can collect products of interest to today's challenges such as Afghanistan. What the climatology is and where the droughts are and combining satellite data with the surface data. This is something put together for an AID project there, and has its own web page. We actually had to limit access to a certain audience, for security reasons. Nonetheless, for AID projects in that region, this made a big difference telling them what they were dealing with, where the climate was, where the new weather patterns were in the forecast. These were all combined as a NOAA entity on one page in Afghanistan.



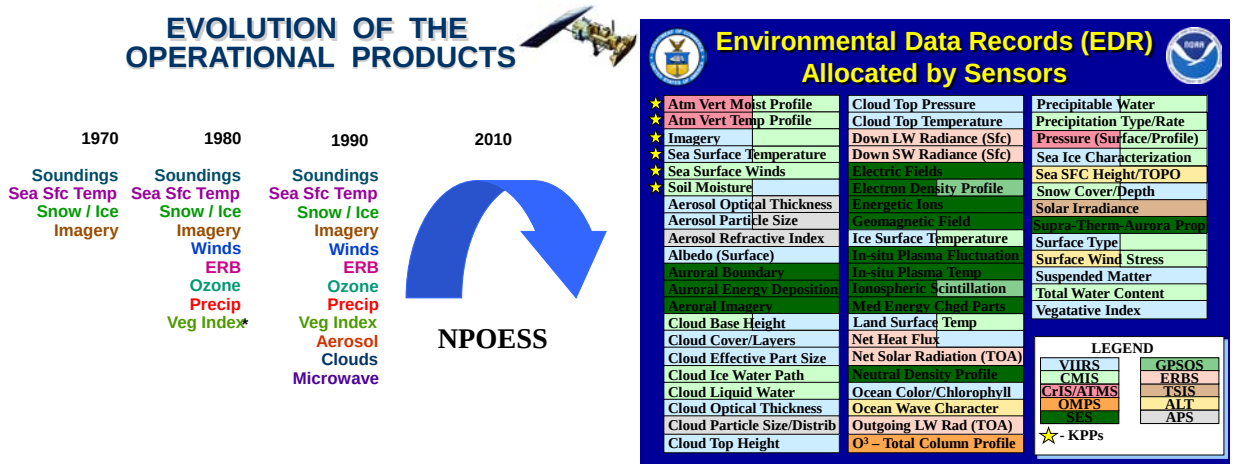
In the future, it keeps getting better and harder. This is MODIS. This is going to be an image just like the new NPOESS program will provide us. It is a couple of hundred meter resolution. When you guys started out, it was 4-5 kilometers. Then it dropped down to the AVHRR which is 1 kilometer. Now you got a couple of hundred meters. Look at the Mississippi Delta. You see features that you never dreamt were these. All of that has to be archived and then made useful and re-used.

The Admiral had brought some friends with him to talk about Data Centers and I'll later show you another one from satellites. This is his friend, President George Bush. He came to see Tom Karl who is now our present Climate Data Center Director. That was done right here in the NOAA building, a tremendous event.



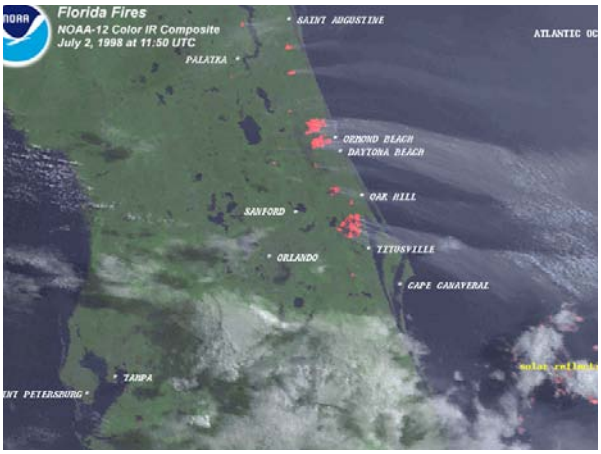
Moving on into satellites, we are getting into other areas, the importance of getting into solar geophysics, hazards, oceans, terrestrial, climate. All of these were in covered. And we are, in fact, trying to get into those areas and in some we already have.

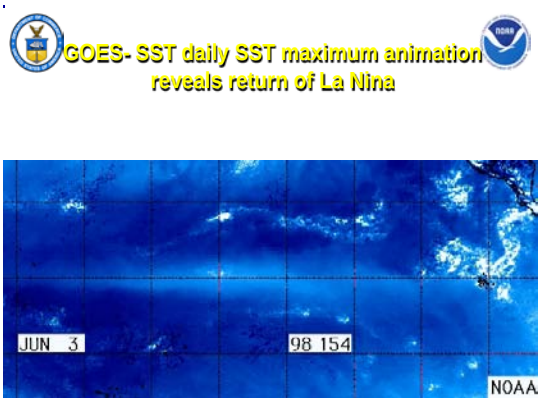
Our newest adventure, that I'll talk about a little bit later, is solar x-ray imagery. We are looking at the sun every few minutes, taking an image, enhancing our ability to forecast solar weather. So from 1960 with our first image from TIROS, we kept building a longer list of parameters. I don't expect you to read all of this but just look at the length in 1990 and when we shift to our next satellite, NPOESS. This is a simpler list of parameters: terrestrial-based, solar-geographical based, climate-based,



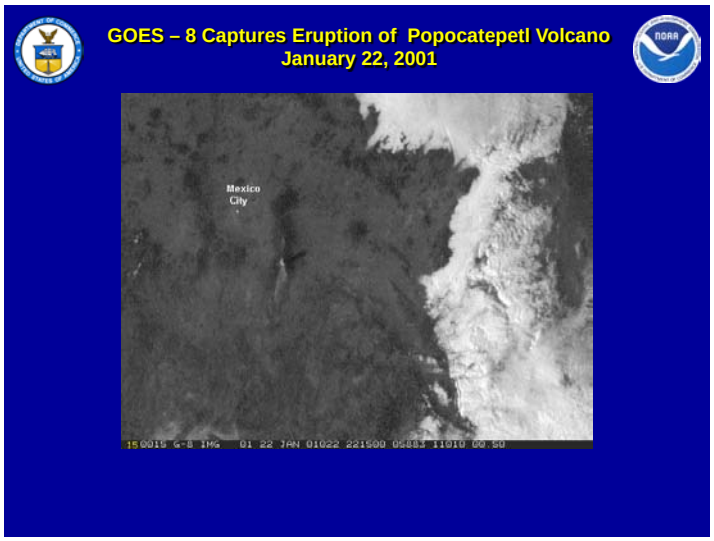
weather-based, and ocean-based. All of those are wrapped into one satellite.

And some new things that we thought were fun, and then became more of a business to us --- detection of fires both from our polar and geostationary systems. This is a film.

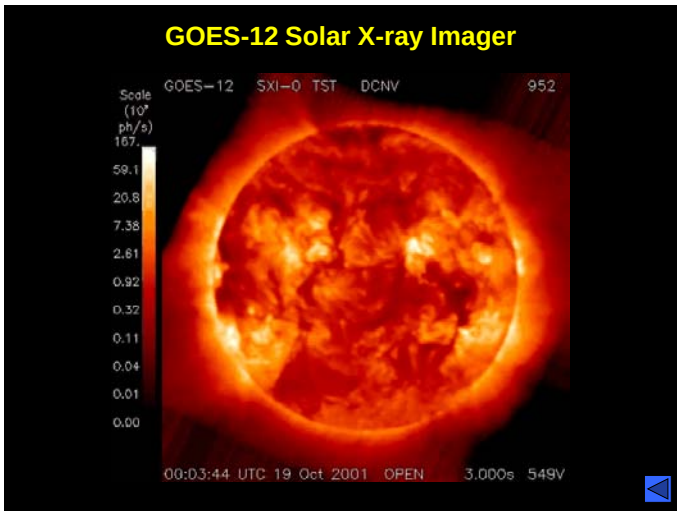




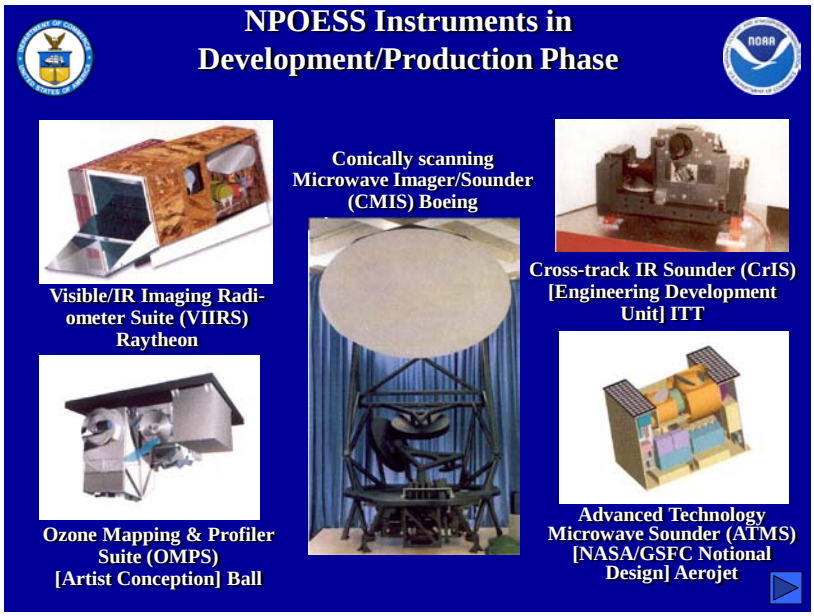
Bob Winokur had a start and we tried to tune it up. This is from the geostationary satellite doing oceanography from a weather satellite looking into the temperature of the ocean. You can see some of the waves, tropical waves going across the screen. And instead of clouds, getting in the way, you can do some cloud clearing and actually see that as opposed to a polar satellite not being able to give such views.



Volcanoes are the same kind of thing. Looking at it from a geostationary satellite, you get a complete view of the ash cloud of the eruption. What we can warn and do. We have a 24 hour-a-day mission and warn for airplanes and the like.

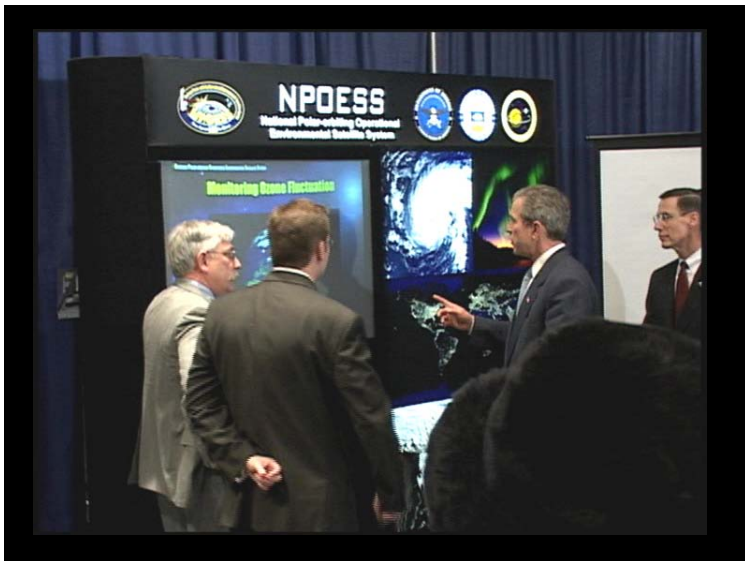


Here is our new solar x-ray imager. We have not been able to get that turned on because it is on one of our spares in space as we speak. As soon as one of our satellites, GOES-8 probably, turns a corner in the Spring, we will swap out GEOS-12 and we'll get day-to-day, every minute-by-minute imagery of the sun on a 24 hours basis, a remarkable achievement in geo.



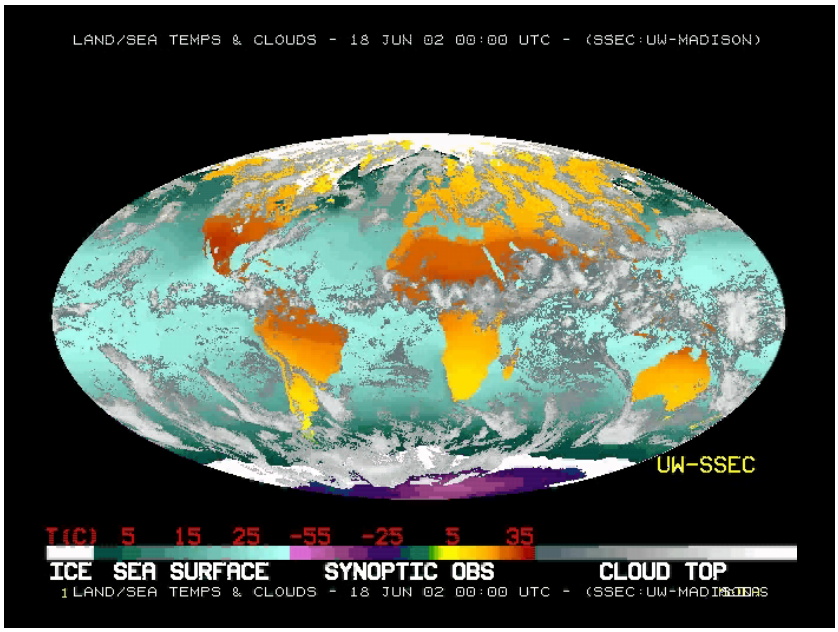
In polar, without going into the individual instruments, there is just a whole suite for people who used to build these things like George Ludwig. It's a whole world we are creating with the polar satellite instrument suite with NPOESS.

This piece is a microwave antenna. The dimensions here are twelve feet from top to bottom. That is just one instrument on the NPOESS satellite.



Here again, President Bush has come by on a tour. We are showing off all of NOAA. We were able to get a climate display which I showed you with Tom Karl. Here is the NPOESS display. This is the new program director, John Cunningham. He is not with us today because he is in the business of trying to wrap up a decision on the NPOESS contract which will be somewhere around $4.4B for a single satellite program which is the largest contract that the Department of Commerce has ever issued. So that's exciting for us.

Here is a diagram which describes what the Admiral was talking about --- “the pulse of the planet”. These guys are taking its pulse. Here is a fellow looking at the physician, “Poor information and data access…” This guy is thinking, “Inadequate monitoring system.” The computer reads, “ Data incomplete.” And they are monitoring CO2, ozone, and cloud cover. The other computer screen reads, “Data not available.” The interesting story about this cartoon is that it was drawn by a friend of Krishna Rao’s in the 1980’s. And now we are going to be given a chance to do something about it. We have been working on this problem for a long time. This is a metaphor that the Admiral is using and we’ll be able to hopefully answer some of these questions now. There are a lot of things to be done on this chart. And if we do it right, it all plays together.



This is a map you can get off the net. These are in situ temperatures and over land working together, different satellites from GOES and POES working together synoptically to form a picture of the earth with the ocean is colorized, gray scales. Hopefully as we get this picture filled in, we can fill in the subsurface. We can fill in the atmosphere with aerosol readings. We can monitor CO_2. If you look at this is from the University of Wisconsin at our Cooperative Institute that NOAA has there, you’ll see the evolving Global Monitoring System come to life, as we help build this.

[video]

This is the signal that this is the end of the talk, and this is the new sequence that NOAA developed for signing off. There you have it.

[Clapping.]

While I am up here I do want to make some concluding remarks unless there are some observations to be made. You were awful vocal this morning. Unless you have something else, I know that several of you are going downstairs to make videos. That would be much appreciated. We'd love to put them in our film archive. And some of you are going to give some supporting statements as part of our heritage and come and share with us. So I hope you will do that.

I don't think I have any other mission up here other than thanks. So let me start by thanking Admiral Lautenbacher for visiting us today and sharing his vision with us. I'd like to thank the staff: Jane, Emily, Bobby McQuilken, Debra Payne, and Nancy Colleton. Thank you very much.

[Clapping.]

Finally I'd sure like to thank all the people who took their time to come join us again, and certainly to thank the previous leadership, AA's of NESDIS, by name:

Sig Fritz who gave us a wonderful sea story;

Fred Singer who told us that satellites were not just for weather but for climate; we know that, Fred, but we need you to push us.

David Johnson through Diana Josephson who told us a marvelous turn of the decade and how we really got here through Dave's talents and who was here longer than any other director;

John McElroy was here by phone and gave us great insights as to how we started to grow up in NOAA. He was the first real NESDIS AA that had both of the functions, the information function and the satellite function underneath him. We had a wonderful insight on climate, oceans, and space weather.

Tom Pyke for your insights on how to put programs together, and then you went off to create more programs, GLOBE being one of them. Observations are important. You came in with an IT hat and left with an observations hat. I hope you have both hats still on.

Bob Winokur who came to us from the Navy and discovered a more intersections than he had thought with ships and satellites and information services of all kinds, and is still helping us today with issues as President of Earth Satellite Corporation;

And Tom Potter who then joined by phone and talked about EDIS and the emergence of information services.

So I want to thank you all. It has been my pleasure to host you. Please visit us anytime and that goes for all of our other guests. George and Ken, we don't see enough of you. Help us with our mission which I know you still share. Thank you.

[Clapping]