



From the Program Director – Mike Mader, VP & Asst. PD

“Quality SSPR Teamwork”

There have been several examples of quality SSPR teamwork across the NPOESS team over the last few months for which I would like to recognize a couple of the true successes.

•**Svalbard Initial Mission Recovery (SIMR)** - Mark Sargent recently made the claim that C3S was the first NPOESS segment to go operational. While at first glance it may seem be a slight overstatement, the C3S team has pulled off a significant accomplishment to assist the IPO in capturing valuable WindSat Coriolis data that would otherwise have been lost due to limited data downlink capabilities. An excellent example of SSPR behavior, the customer, IPO, and contractors came together to define the requirements, draft a statement of work, design a solution, prepare a proposal,

issue an ATP, negotiate subcontracts, purchase the necessary hardware, work the export/ITAR issues, deliver the equipment to Svalbard, install and integrate the equipment, test, and start taking operational passes all within about 3 months. Known as SIMR (Svalbard Initial Mission Recovery) this new capability takes advantage of a recently completed antenna and a newly christened fiber optic network between Svalbard and Tromso, Norway. The “final mile” of fiber into NESDIS took a little longer than hoped but a work around solution was put in place to allow us to reach IOC bringing down 5 to 10 Coriolis passes per day and delivering them to the customer in a reliable, timely manner. Every member of this team played their role with the ultimate goal of mission success. In addition to meeting the IPO’s needs, SIMR will act as a risk reduction effort for NPP and NPOESS. There have already been lessons learned and as we continue with an operations of Coriolis there will be additional lessons learned that will benefit future O&S efforts.

•**Ground Segments** - Both Ground Segments are well along their way toward ground readiness. C3S Build 1.2 is nearly complete with 7 out of 8 SIs through final qualification test. The last SI will be complete



Contents

Page	Section
1-2	From the Prgrm Director
1-2	IPO Insight
1	Upcoming Events
2	Meet the Management
3	IPT Intel
4-5	Team Members' Accomplishments
4-5	Suppliers Conference
5	Science Focus
6	Personal Profile: Dodson
6	Six Sigma!
7	NPOESS Facts
8	People on the Move
9	External Affairs
9	Contract Performance
10-13	NPOESS Related News
12-13	Special I: Svalbard
14-15	Special II: SafetyNet
16-18	Team Scrapbook
19	IPO Spring Picnic

IPO Insight – Frank Hinnant

“Significant Progress”

•I would like to commend the NPOESS industry team on the significant progress made on the NPOESS program over the past several months. Despite significant technical challenges and the competing need to finish the replan effort, it was evident to me at the Delta Integrated Baseline Review in December 2003 that the spirit of the team was high and the quality of information and effort have never been better.

•That brings me to my main point—what are the chances we will have to go into another costly and destabilizing replan effort (not to mention exhausting!) because of additional budget reductions? The “final answer”, just like so many things in this business, is it depends! Why? Because of the many different aspects of the budgetary process, especially on the NPOESS program with two budget streams, and the political changes that can affect any program. The signs are all good, however!

•The attention and visibility NPOESS received in the aftermath of the fiscal year 03 (FY-03) budget reduction, have resulted in the program enjoying tremendous support within the participating Government agencies of NOAA, Air Force and



NASA. NOAA’s support of NPOESS has never been greater, perhaps recognizing that the possibility of incurring a gap between the planned delivery of our first operational satellite, C1, and the last of their existing polar satellites, N-prime, of 21 months is higher than originally believed and poses a serious risk to satisfying National Weather Service forecasting needs and continuity with long term climate records. Within the Air Force, we have an advocate in Mr. Teets, the Undersecretary of the Air Force, who also realizes that past budget reductions have increased the risk of meeting availability requirements. NASA’s strong partnership with the IPO in the NPOESS Preparatory Project is

Upcoming Events:

- 27-28 Apr: Science Advisory Team (SAT) Mtg, IPO, Silver Spring MD
- 29 Apr: NPP Monthly Program Status Review (PSR), GSFC, Greenbelt MD
- 3 May: Per 3 AFRB Brfg to Fee Determining Official (FDO), IPO Silver Spring, MD
- 4-5 May: IDPS/FTS Build 1.3 Build Architecture Review (BAR), Aurora CO
- 5 May: C3S F2F Mtg, Aurora CO
- 12-13 May: NPOESS Monthly PMR, IPO, Silver Spring MD
- 13 May: FDO Period 3 Award Fee Brfg to NGST, IPO, Silver Spring MD
- 14 May: IPO Annual Spring Picnic, Walter Reed Army Medical Center Annex, Silver Spring MD
- 19-20 May: IDPS/FTS Direct Readout Users Forum, NGST, Redondo Beach CA
- 31 May: MEMORIAL DAY HOLIDAY
- 3 Jun: NPOESS EXCOM Mtg, Wash DC
- 14-17 Jun: Numerical Weather Prediction 50th Anniversary Conf., University of MD, College Park MD
- 16-17 Jun: NPOESS Monthly PMR, NGST, Redondo Beach CA
- 17 Jun: NASA EOS ‘Aura’ Satellite Launch, Vandenberg AFB CA



From the PD (Cont from P.1)

by mid-March. Build 1.2 delivers over 1.28 million lines of code into CM. Build 1.3 will integrate many of the unique spacecraft and sensor interfaces. A successful Critical Design Walkthrough was completed in February and Build 1.3 has moved into the code and unit test phase. Build 1.3 will satisfy all the current requirements for flying NPP. Any additional changes or newly identified requirements will be resolved through either an additional build (depending on criticality of the new requirements and schedule) or will be worked as a deficiency in O&S. IDPS Build 1.2 is nearing completion with SIs already moving into SWIC. Build 1.2 will deliver the major functional parts of infrastructure, data management, and data delivery, and portions of all remaining subsystems.

•**American Meteorological Society (AMS) Conference** - I believe the AMS Conference held in Seattle in January was the most successful to date for NPP and NPOESS. This was the first year that we were able to have a joint NPOESS booth staffed by both contractor and Government personnel. The full-day NPOESS Symposium brought out a standing-room-only crowd for NPP and NPOESS related presentations. A series of excellent presentations included John Cunningham's program overview, technical presentations by renowned scientists on the anticipated use of NPP and NPOESS, and a panel discussion with senior executives from the user communities. A group led by Gerard Wittman and Carl Hoffman worked for almost a year to make this a tremendous success. Many thanks to all that made everything from the booths, to the give-aways, to NPOESS Session - AMS was a resounding success.

IPO Insight (Cont from P.1)

clear proof that they continue to advocate the need to get our advanced sensors like VIIRS, CRIS, ATMS, and OMPS in orbit to provide climate continuity with their Earth Observing System sensors like MODIS, AIRS, AMSU, and TOMS.

•On the congressional front, NPOESS enjoyed full appropriations in FY 04. The FY 05 President's Budget was published in February and satisfies the congressional requirement to fund the program 50/50 between the Air Force and NOAA—and at the needed level of approximately \$308 million each. This past year, Congressional members and staffers clearly signaled their concern over the potential gap caused by last year's budget reduction. So it seems that the signs are positive that Congress will support the President's Budget in FY 05.

•Back-to-back years of full funding would be a record for NPOESS and give our team, Government and industry, the stability and resources we need to continue on schedule and meet our planned NPP launch in FY 06. With the talent and spirit currently being demonstrated by our first class team, there is little doubt in my mind we will achieve our plans. Keep up the great work!



Meet the Management - system Engineering & Integration IPT Leads

Roy Tsugawa -- SE&I IPT Lead

•Roy has been with Northrop-Grumman (formerly TRW) for close to 26 years. In fact Roy has never lived more than 15 miles away from Space Park – born in Gardena, raised in Palos Verdes, went to school at UCLA, now lives in Lomita. Roy started at TRW a few weeks after graduating from high school (the longest he's been away from work is the 3 weeks of his honeymoon and 3 weeks right after NPOESS FPR). His first job was to write and run computer programs that analyzed data from the SESS instruments on ISEE-1, 2, and 3 as well as SESS data from Pioneer Venus Orbiter and Voyager's 1 and 2. Roy continued working at TRW while going to school at UCLA where he graduated as a computer engineer (after sneakily changing his major from pre-med since he was supposed to be an MD like both his parents). At TRW/NGST Roy has been a flight simulator engineer for the Orbital Maneuvering Vehicle, a system engineer on autonomously maneuvering spacecraft, a visual sensor developer, system engineer on various interplanetary mission concepts, a system engineering dept. manager, lead mission engineer for Ka-band comm. programs, IWPTB lead on NPOESS, and finally NPOESS SE&I IPT Lead.

•While not working Roy likes to spend time with his wife (no kids, just 2 cats). Roy likes woodworking and is using his Shopsmith to remodel his house (a 20 year project). Roy is an avid skier and hates running (but runs so



that he can ski). He likes to rollerblade (its like skiing on pavement) and occasionally goes bike riding. Roy likes camping, hiking, and climbing. He also likes to trade his timeshare to visit various places around the country. For those of you who can speak Japanese, his Corvette's license plate is OMO4ROY, his motorcycle license plate is RKT ROY (his middle initial is K).

Jim Schaeffer -- IPO Chief Systems Engineer

•Jim has had a long career as a public servant, just short of 30 years with NOAA. Much of his time has been in weather RADAR and associated processing of that data. His proudest project was the NEXRAD program, where he served as Chief of the Engineering Division (he believes that NPOESS might overtake that favorite position). A few years ago, NOAA "loaned" some of their acquisition expertise, giving Jim the opportunity to help the Census Bureau buy their Census 2000 Data Capture System from Lockheed Martin. Jim has been with the IPO since 2001.

•When not at work, Jim and his wife Julia spend a lot of time at Silver Spring Presbyterian Church, where they sing in the choir and work with the Youth Group. The highlight of the year is when they take a group of teenagers on a mission trip to repair homes in Appalachia. Jim is an alumnus of the University of Maryland, College Park.





IPT Intel: System Integration IPT Raised to Level 2

NPOESS Organization Announcement -- 3/5/04

• We are announcing a change to the NPOESS organization at NGST, effective immediately. The role of System Integration IPT is taking on additional responsibilities and is being elevated from a level 3 IPT to a level 2 IPT, reporting directly to the Program Director. Brian Chappel is the leader of this team, effective immediately. This change is in response to increasing needs of the program to focus on integration of interfaces, design, cost trades, multi-government schedules, trade studies, and multi-government organization policies / processes / practices. This restructuring will enable a single point of leadership for these broad dimensions of system integration.

• Brian Chappel has the right qualifications to lead the program's System Integration work. He has contributed greatly to the NPOESS program in several key positions. He has been instrumental in establishing the Supply Chain Manager role and guiding program efforts in establishing effective working relationships with our subcontractors and management of their contracts. Prior to this Brian was Capture Manager of our successful bid for the current Prime contract and its follow-on options. Brian came to NGST following his career in the US Air Force, where he managed small satellite development programs.

During his tenure at NGST he has held increasingly responsible positions of leadership for Pricing, System Engineering and in TRW Ventures.

• Don Dodson will replace Brian as the NPOESS Supply Chain Manager. Don most recently was Director of Technology in Production & Supply Chain. Prior to that, Don led a commercial telecommunications electronics subsidiary known as TRW Milliwave as Vice President and General Manager; and he helped expand its capability and market reach through a merger that created TRW Endwave Corporation. Don was Chief Operating Officer of Endwave from 2000 to 2002. From 1992 to 1996 Don was Vice President for Engineering, TRW Automotive Electronics. Don has held a variety of other senior management roles within NGST since he joined in 1975, including the management of RF design centers and projects.

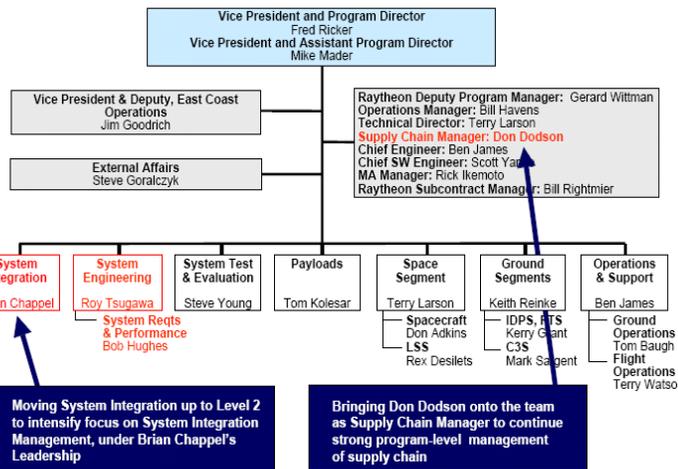
• Roy Tsugawa will continue to manage the level 2 System Engineering IPT on the program. He will work in close collaboration with Brian to ensure completeness of end-end system requirements, technical performance assessment, system verification, and system algorithm assessment and subsequent flow-down of requirements for operational software design. Roy continues to have responsibility for the system PDR to be held next April.

• Gary Waldeck, who managed the level 3 System Integration IPT, will be moving to a different assignment in NGST. This will be the subject of a separate announcement. We thank Gary for his contributions to NPOESS, which has included the management of work to develop more than 20 Interface Control Documents, a large number of system trade studies, and a comprehensive derivation and flow-down of the system Concept of Operations.

• We ask for your support of each of these individuals in their new roles within the NPOESS program and NGST.

Fred Ricker, Vice President and NPOESS Program Director, NGST and

John Daegele, Vice President, System Engineering, NGST



Moving System Integration up to Level 2 to intensify focus on System Integration Management, under Brian Chappel's Leadership

Bringing Don Dodson onto the team as Supply Chain Manager to continue strong program-level management of supply chain

C3S Organizational Changes Announced

C3S IPT

M Sargent
Deputy
B Sullivan

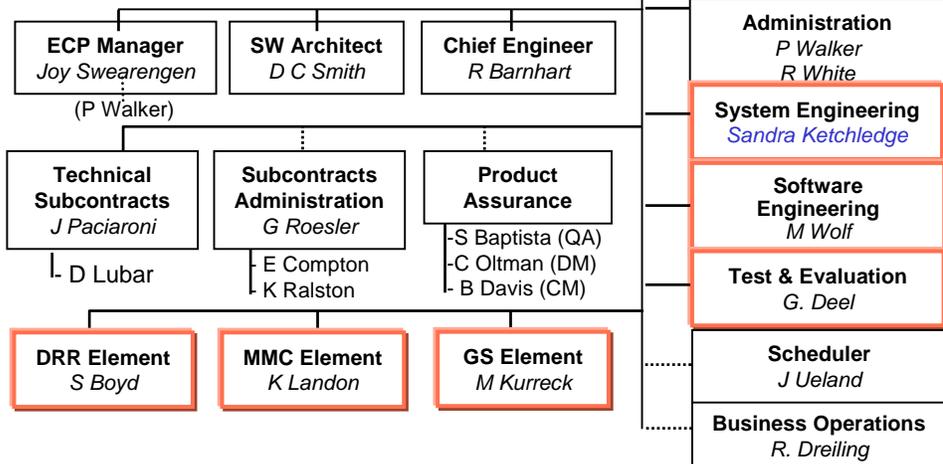


Mark Sargent, the Command, Control & Communications Segment (C3S) IPT lead, announced some internal organization changes - the purpose of this article is to communicate those changes to the greater NPOESS program.

• Mark was pleased to announce that Joy Swearngen has accepted the position of C3S ECP Manager. In this role, Joy is responsible for leading the efficient production of high-quality ECPs, NCRs, and BCRs for C3S. Paula Walker will be supporting Joy part-time in this effort.

• In addition, C3S is re-aligning the Test and Evaluation cost and schedule accountability to: 1) align T&E with the successful SE and SW discipline models, and 2) allow each SI to act as a mini-IPT (fostering communication and teamwork).

• The wiring diagram to the right provides additional information on these important changes:





Team Members' Accomplishments



Fred Cross Named 2003 Black Engineer of the Year

• Fred Cross, a Raytheon program capture manager for the Tactical Operations business area at Engineering and Production Support (EPS), has been named a 2003 Black Engineer of the Year. The selection was announced November 14 by Career Communications Group, Inc., publishers of US Black Engineer & Information Technology magazine and producers of the Annual Black Engineer of the Year Awards Conference. This is the first time an engineer from EPS has won the award.

• "It is both a blessing and an honor to be selected for such a prestigious award," said Cross. "Although my name may be on the award, the true recognition belongs to the team that surrounds me."

• The Black Engineer of the Year Awards Conference is one of the most comprehensive career and professional development events for African-American executives, professionals, and students. More than 10,000 people are expected to attend the event and take part in various workshops, seminars, and networking opportunities.

• "Fred is one of our most respected and admired engineers," said Keith Harmon, RTSC Vice President and General Manager. "Through his technical expertise, leadership and business skills, he has demonstrated a strong commitment to the growth and development of our Tactical Operations business."

• Recently, Cross was EPS's primary capture manager for the National Polar-Orbiting Operational Environmental Satellite System (NPOESS) pursuit. Through his leadership, EPS developed a successful logistics approach for the winning Raytheon proposal. With the NPOESS program now smoothly underway, Cross has turned his attention to capture efforts involving critical pursuits such as the future surface combatant program DD(X), Satellite Laser Ranging System (SLR-2000), and the Geostationary Operational Environmental Satellite (GOES)-R.

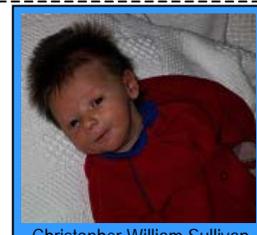
• Cross has a Bachelor of Science in industrial technology from the University of Arkansas where he graduated cum laude, and a Master of Business Administration from Indiana Wesleyan University. In addition to these degrees, he has completed the Kellogg Graduate School of Management "Executive Development Program" at Northwestern University.

• Community service and outreach activities are also important components of his focus. He serves as a Raytheon representative for both the Indiana Black Expo and the Indianapolis Urban League. He is also involved in Kappa Alpha Psi's Indiana Black Expo Circle City Classic activities, and is part of the non-profit Circle City Frontiers Club Youth Leadership Development program.

• Fred is currently Raytheon's NPOESS Indianapolis Project & Site Manager working under the Ground Operations & Support (O&S) IPT.

• Our hearty congratulations to one of our own Raytheon Weather & Climate guys, Fred Cross! Fred received his award at the annual Black Engineer of the Year Awards Conference February 18-21 in Baltimore, MD.

Bill Sullivan & Karen Casey: Christopher William Sullivan, born February 7, 2004; 7 lbs, 12 oz; 20.5" long. Bill and Karen both work for Raytheon at the Aurora CO campus. Bill is the Deputy Lead for the NPOESS C3S IPT. Karen Casey works for Raytheon as a Program Manager in DOD Systems. She returned from leave on 4/2/04, and Bill now is taking 4 weeks off for PTO – He couldn't wait for that!



Christopher William Sullivan



John van de Wouw, NGST Field Terminals System Integration Manager, achieved 25 years with TRW-NGST on April 2nd.

Vince Ruland, Raytheon-Aurora Ground Operations Lead, won Raytheon's NPOESS Technical Person of the Quarter Award for 4QCY03. Vince went far above and beyond doing yeoman's work for the GO&S IPT and in interfacing with most other NPOESS IPTs.

Brave Californian Remains ... Undaunted by icy Januarys, steamy Augusts, wacky drivers, plastic palm trees, and close proximity to IPO, **Pam Emch** has signed on for a 2nd year at the NPOESS East Coast Office (ECO)! This now keeps her there until April 2005. Pam was quoted as remarking: "Now I can experience the return of the 17-year Cicada plague (just read about this), the 8-year Bush (maybe), and the yearly IPO Halloween & Christmas parties!!!"

NORTHROP GRUMMAN NEWS

Northrop Grumman Space Technology Honors NPOESS Suppliers With First Annual Awards

Redondo Beach, Calif. – April 21, 2004 – Northrop Grumman (NYSE:NOC) Corporation's Space Technology (NGST) sector honored four suppliers with the first annual National Polar-orbiting Operational Environmental Satellite System (NPOESS) Supplier Awards last month. The suppliers honored were Raytheon Corporation, ITT, AT&T, and Technology Advancement Inc.

NGST established the awards program to reward suppliers who have demonstrated outstanding execution and collaborated in working towards NPOESS' mission success. As the prime contractor for NPOESS, NGST is leading a team of software, sensor, data processing, and spacecraft suppliers that is developing the nation's next generation environmental monitoring satellite system.

"Suppliers are critically important to the success of NPOESS," said Fred Ricker, NGST vice president and NPOESS program director. "More than 70 percent of this program's work is being performed by suppliers. We established the awards as a part of a comprehensive incentive plan to motivate our suppliers to help us achieve overall mission success. We highly value each and every supplier, and intend to give each of them a chance to share in the NPOESS' success."

Suppliers were honored this year for the following achievements:

• **Raytheon.** Raytheon worked in close collaboration with NGST on system-wide topics and made significant progress on the ground segment software development work, with excellent cost and schedule performance, ensuring the ground segments will be ready when the NPOESS Preparatory Project satellite is launched in 2006.

• **ITT.** ITT overcame technical challenges in development of the Cross-track Infrared Sensor (CrIS) and demonstrated excellent cost & schedule performance. ITT routinely developed innovative approaches to effectively solving key issues for both their sensor and the program at large.

(Continued Next Page)



Team Members' Accomplishments (Continued) – Suppliers Conference (Cont)

•**AT&T.** AT&T demonstrated outstanding system engineering and security engineering support during planning for the implementation of a new security standard. AT&T's initiative and leadership helped to develop a response and efficient implementation approach.

•**Technology Advancement, Inc.** TAI identified and resolved many cross-system operations and support issues, and also provided excellent leadership when NPOESS' schedule was re-planned last year.

•**NGST's principal teammate and subcontractor, Raytheon Co.,** also recognized an outstanding supplier of the year, **Kongsberg Satellite Services (KSAT).** KSAT is a Norwegian company providing space-to-ground link services and ground fiber interconnection services in support of the NPOESS command, control and communications segment. KSAT was rewarded for demonstrated excellent performance in the installation of a ground station antenna system and fiber interconnection to support early mission data and retrieval and dissemination.

Scheduled for launch in 2011, NPOESS merges existing military and civilian satellite systems to form a single cost-effective national program. Advanced sensors aboard the spacecraft will help civilian forecasters reduce potential damage to life and property from severe weather conditions; will help the military to anticipate and exploit atmospheric conditions in operations planning; and will provide continuous, long-term climate data for scientific environmental assessment.

Northrop Grumman Space Technology, based in Redondo Beach, Calif., develops a broad range of systems at the leading edge of space, defense and electronics technology. The sector creates products for U.S. military and civilian customers that contribute significantly to the nation's security and leadership in science and technology.



KSAT's Rolf Skatteboe displays Award



Gerard Wittman, Raytheon; Tim Hutchison, AT&T; & Dave Gallet, ITT, show off awards.



Attendees hear NGST President, Wes Bush's opening remarks.

IPO Wins Two NOAA Administrator's Awards!

As part of the NOAA awards program, the IPO had two Administrator's Award winners!

(1) Martin J. Deiseroth - For exemplary leadership in developing, planning, and implementing significant improvements to the NPOESS Integrated Program Office's safety and working conditions.

(2) Program Control Office - For establishing and successfully executing a program necessary to control and account for NOAA and USAF funds appropriated to build, launch and operate NPOESS. Group Members include:

Doug Namian; Carol Breger; LtCol Keith Gilmore, USAF; Bev King; Trish Mahoney; and Capt Khalim Taha, USAF

The Administrator's Award Ceremony will occur in Silver Spring MD on Tuesday, May 25, 2004.

Science Spotlight - NPOESS Scientists: Unsung Heroes



Who are on the NPOESS Science team? Ask this question of the NPOESS community and they would most likely answer ...which Science Team? ...the NOAA Science Team? ...the NASA NPP Science Team? ...the OATS? ...the NGST Science Team? ...the Raytheon Science Team? ...the NGST Science Advisory Team? ...Vendor algorithms scientists? ...Vendor instrument scientists? ...NOAA Scientists? ...NASA Scientists? ...DoD Lab Scientists, ...University Scientists? During our recent NOAT meetings (seven OATs plus the NASA NPP Science Team), we had 200 plus attendees; including a substantial number of renowned, internationally recognized scientists. Many NPOESS scientists have published papers and can be found as references in recent conference proceedings and technical journals. Yet, believe it or not, there is another group of NPOESS scientists who are quite busy carrying on the scientific business of the NPOESS program. These folks are the "unsung" science heroes; scientists who work diligently and quietly in the design and engineering organizations doing the work needed to bring the sensors and data processing algorithms to an operational stage. They also provide significant input to design the infrastructure that supports the smooth running of these algorithms, to generate high quality products for the user community. One of these unsung "heroes" scientists committed to making NPOESS a success is Dr. Art Dybdahl. Art works as part of the Northrop Grumman Science Support Team within the Systems Engineering and Integration IPT. He has worked on a number of NPOESS tasks that have tapped his understanding of meteorology, remote sensing, and engineering. Art started his scientific career by earning a BS in physics at the University of Nebraska. After completing his studies he worked for several companies, including G.E., MACDAC, the EPA, and Lockheed Martin, with his focus on air pollution and remote sensing. It was during his tenure as a senior air pollution engineer at Rocky Flats Nuclear Arsenal

by Dr. James Duda, NPOESS OATS Lead

that Art decided to return to the university to continue his education. Art attended the University of Denver and earned both his M.S. and Ph.D. in physics. His dissertation topic was ozone depletion mechanisms over Antarctica. Art then joined TRW (now NGST) and started his new career by working on the NPOESS PDRR phase as a payload instrument manager. When the opportunity to join the Science Support Team opened up, Art grabbed the opportunity. Art's current assignment is to support the System Test and Evaluation IPT, working on sensor calibration and validation team. He is also working to define the science algorithm graceful degradation, quality flags, and intermediate products that will be needed for the NPOESS system. He enjoys spending time with his wife, as well as flying and target shooting. Art has continued to pursue his interest in research through UCLA and the University of Denver. Art and his wife currently live in Los Angeles. They have six children, three of whom are adopted, and eight grandchildren.



Our unsung scientist heroes are legion in number; we thank them for their dedication, diligence, and continued scientific contributions to the success of the NPOESS Program!

Dr. Arthur Dybdahl



Personal Profile – Don Dodson, New NGST NPOESS Supply Chain Manager, Joins NPOESS Team

• **Don Dodson** joins NPOESS as NGST's Supply Chain Manager, having just completed 29 years of service with NGST/TRW. Don most recently was Director of Technology in Production & Supply Chain. Prior to that, he led a commercial telecommunications electronics subsidiary known as TRW Milliwave as Vice President and General Manager; and helped expand Milliwave's capability and market reach through a merger that created Endwave Corporation. Don participated in taking Endwave public and served as Chief Operating Officer of Endwave from 2000 through 2002. At Endwave Don established a world class manufacturing capability for sophisticated millimeter wave products and established offshore production in Asia. From 1992 to 1996 Don was Vice President for Engineering, TRW Automotive Electronics. He has held a variety of other senior management roles within NGST since he joined in 1975, including the management of RF design projects and of the RF design centers.

• **Don** holds BSEE and MSEE degrees from Drexel University in Philadelphia, and lives in Manhattan Beach, California with his wife and two sons. A hearty "Welcome" to Don from the NPOESS Team!



Six Sigma: 4QCY2003 Achievements Abound!



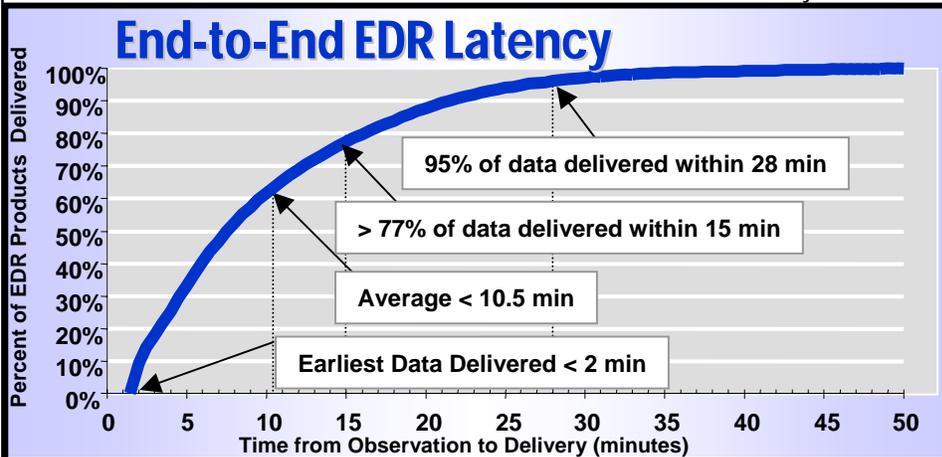
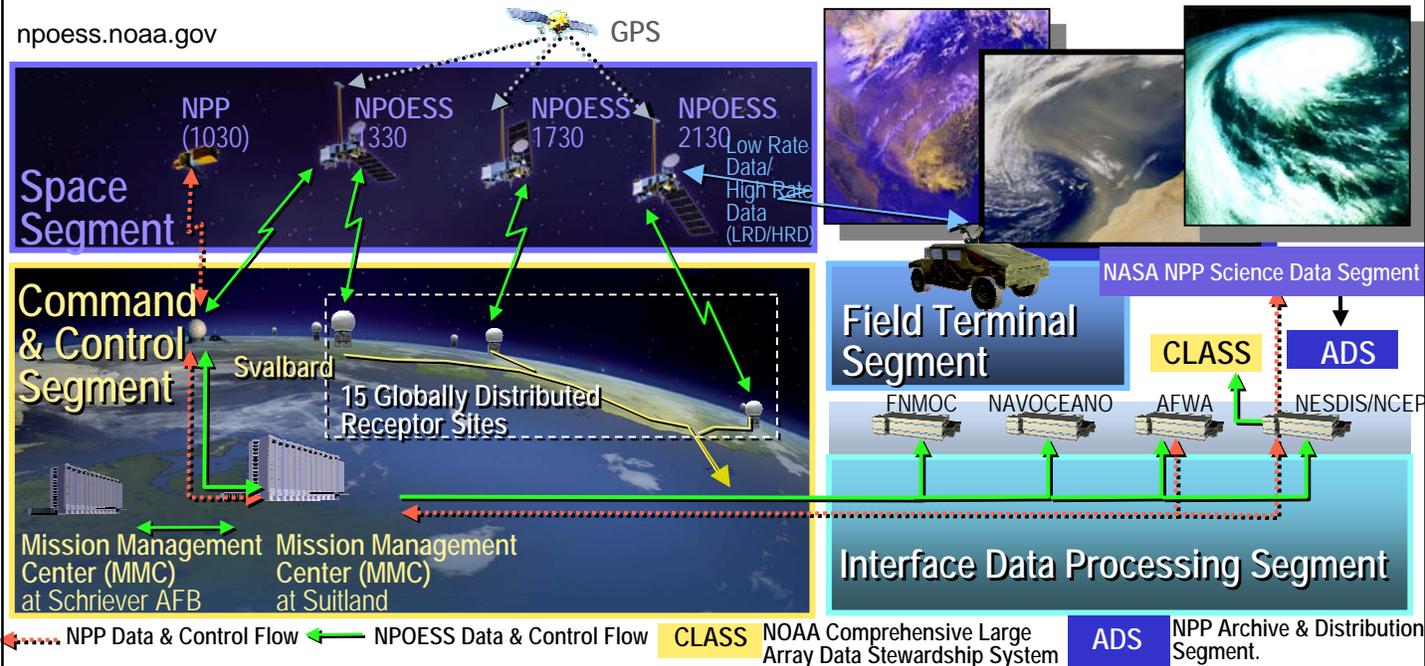
- Achieved our Aurora stretch goal of 60% Qualified Specialists with 35% having completed multiple projects.
- Ran a NGST-Raytheon Business Diagnostic on our systemic Award Fee concerns. Kicked off 6 sub-teams to address the key items. Each sub-team has members from IPO, NGST, Raytheon and 6 Sigma.
- At the IPO's request, provided Specialist training to 35 IPO employees. Average overall rating for the class was 4 on a scale of 1 to 5.

NPOESS Personnel Qualified as Specialists During 4QCY03

BRONZE		William	Johnsen	Jennifer	Trotta	Lyle	Rogers
Duff	Ansburg	Khomkrit	Kaowthumrong	James	Turk	David	Smith
Kathy	Boye	Thomas	Konchan	Amy	Van Der Vaart	William	Sullivan
Justin	Bradshaw	Michael	Kurreck	Todd	Wohling	SILVER	
Mark	Bray	Bret	Lowell	Mark	Wrapp	Jason	Bergstrom
Bruce	Christofferson	Jeffrey	McCall	Christopher	Wright	Gary	Deel
Darren	Cook	Michael	Moxey	James	Yaich	John	DiUbaldo
David	Cunningham	Theodore	Olson	GOLD		Gary	Heckman
Bryan	Davies	Letitia	Ottem	Randy	Barnhart	Doug	Heitkamp
Victoria	Denny	Louis	Panas	Jason	Bergstrom	Mary	Hutchings
Jeffrey	Dockins	Alicia	Penney	Cathy	Bird	Avery	Johnson
Stephen	Dutka	Philip	Priest	Richard	Brophy	Craig	Kloosterman
Darla	Duval	Lawrence	Pugh	Gary	Deel	Dave	Lubar
James	Eberle	Donald	Romano	Chad	Fox	Steve	Rinaldo
James	Gilmore	Martin	Sagara	Kerry	Grant	Sherry	Sandri
Kandy	Gondek	Alexandra	Sinclair	Rita	Hurst	Dana	Smerchek
Shannon	Guidice	David	Smith	Mark	Hyde	Richard	So
Stephen	Herder	Michael	Smith	Leslie	Patridge	Warren	Waas
Christopher	Hines	Margaret	Traynom	Steve	Rinaldo	Cynthia	Werbach



NPOESS Facts: NPOESS Top Level Architecture



Latency
NPOESS System Latency is the sum latency of the Space, Command, Control, and Communication (C3) and Interface Data Processing (IDPS) Segments. Integrated Operational Requirements Document (IORD) requirements specify a 90-minute threshold and a 15-minute objective for processing most Environmental Data Records (EDRs). The NPOESS System provides near-objective EDR latency performance. The System delivers 95% of EDRs in less than 28 minutes across the full NPOESS operating environment.

Key system design factors
The NPOESS SafetyNet architecture provides 1) frequent downlinks and maximizes contact duration (>100% margin) at low cost, 2) downlink bandwidth margin that allows all Stored Mission Data to be down linked twice to different receptors and 3) minimal latency impacts from loss of multiple ground receptors.

The NPOESS Interface Data Processing Segment (IDPS) design achieves high Environmental Data Record (EDR) processing rates by exploiting inherent opportunities for parallelization in NPOESS data streams and accommodating loading peaks created by the dynamic nature of the NPOESS data stream.

Data Quality	SMD/HRD LRD	128 attributes above, 721 at, 12 below threshold 305 attributes above, 180 at, 0 below threshold
Data Latency	SMD HRD/LRD	Threshold Objective
Data Availability		
Operational Availability		



People on the Move:

***Status:** With respect to NPOESS Program, Arriving/Arrived (A); Departing/Departed (D); Changing/Changed Jobs (C) (within program).

Status*	Name	Org-Location	From	To	Notes
D	Lyle Rogers	Raytheon-Aurora	NPOESS Business Mgr	DoD Sys Business Mgr	
C	Barbara Weaver	Raytheon-Aurora	Raytheon-Aurora Business Ops Mgr	NPOESS Business Manager	
D	Tony Morgan	Raytheon-Aurora	Raytheon NPOESS SE Lead	Other Raytheon-Aurora Program	
C	Gary Johnson	Raytheon-Aurora	C3S Sys Engineering Lead	Raytheon NPOESS SE Lead	
C	Marcus Sorrells	GD-Veridian-IPO	USAF User Liaison	NPOESS Security, NCF & MOAs POC	
A	John Cymermann	Aerospace-IPO.	POES/EOS, Lockheed-Sunnyvale	Senior Project Engineer	Works for Chris Pate
A	Cassandra Adley	NOAA-IPO	DC Area USG Position	ADA Admin.	Works for S. Simione
D	Lisa Manzanares	Raytheon-Aurora	IDPS Admin.	Admin Asst to Raytheon Rocky Mtn Engrng Director	Promoted
A	Greg Talley	GD-Veridian-IPO	Paramount King's Dominion	Outreach & Ext Afrs Spt	Works for Jean Fitch
A	Thomasine Swann	NGST-IPO	Outside NGST & NPOESS	NGST ECO Admin. Sprt	Works for J. Goodrich
D	Capt Shaun Boles	USAF-IPO	Commander, Future Op Flights	USAF Change-of-Station to WY	
C	Dyane Lyons	Raytheon-Aurora	SE Team	IDPS Admin.	
C	Eileen Snodgrass	Raytheon-Aurora	C3S Admin.	SE&I Admin.	
A	Roxi White	Raytheon-Aurora	Outside Raytheon & NPOESS	C3S Admin.	
D	Warren Wolf	Raytheon-Aurora	IDPS Seg Engr Mngtr	Other Raytheon-Aurora Pgm	
A	Jerry Thomas	Raytheon-Aurora	Other Raytheon-Aurora Prgm	IDPS Seg Engr Mngtr	
C	Melinda Milani	Raytheon-Aurora	C3S DRR Element	C3S Intgrtn Lead & NCT Coord	
D	Jim Watzin	NASA-GSFC	NPP Project Manager	NASA New Exploration Ofc	
A	Ken Schwer	NASA-GSFC	Solar Dynamics Obsrvtry pgm	NPP Project Manager	
D	Joy Henegar	NASA-GSFC	NPP SDS Manager	GLAST Integration & Test Mgr	GLAST: Gamma Ray Large Area Space Telescope
A	Bob Schweiss	NASA-GSFC	Landsat DCM Cal/Val Mgr	NPP SDS Manager	
A	Don Dodson	NGST-Space Park	Director of Technology	Supply Chain Manager	
C	Brian Chappel	NGST-Space Park	Supply Chain Manager	SI IPT Lead	
A	Tina Clements	NGST-Space Park	NGST Pricing	O&S Admin	
D	Lark Ann Bruce	NGST-Space Park	O&S Admin	Retirement	
D	Steve Rinaldo	Raytheon-Aurora	NPOESS Business Ops	Non-Raytheon Business Op	
D	Bob Murphy	NASA-GSFC	NPP Project Scientist	Retirement	
C	Sandra Ketchledge	Raytheon-Aurora	SEIT Architecture Manager	C3S System Engrng Mngtr	
D	Aimee Jonio	Raytheon-Aurora	C3S Sr. QA Engineer	Graduate School	
A	Kathryn Bryant	Raytheon-Aurora	Graduate School	C3S QA Activities Support	



External Affairs by Mike Jamilkowski, EA Admin Team Member

The NPOESS Calendar Year 2004 External Affairs season started off with a resounding "Bang" with the NPOESS Presidential Symposium and the joint IPO-NGST-Raytheon NPOESS booth at the 84th Annual American Meteorological Society (AMS) Meeting in Seattle, January 11-15, 2004 (see Mike Mader's "From the PD" article on page 2). You can access e-copies of the NPOESS Symposium presentations at this Internet site: <http://npoess.noaa.gov/News/Archive/2004/jan/01/page02.html>



The NOAA Booth



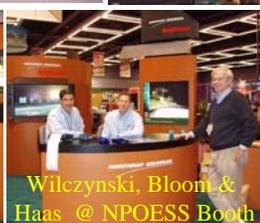
Users Panel: Kelly, Witkur, Stuckford, Kaye, and Moin



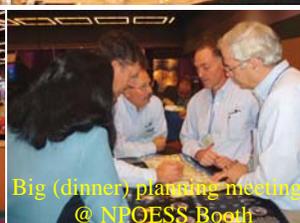
NPOESS Ext. Affairs Team Meeting



Col (S) Mike Bedard, Northern Command



Wilczynski, Bloom & Haas @ NPOESS Booth



Big (dinner) planning meeting @ NPOESS Booth



C. Nelson, T. Spencer & R. Golin @ NPOESS Booth



Downtown Seattle



K. Coyle, J. Fitch & S. Goralczyk: External Affairs Planning



NPOESS Symposium audience entranced



Dr. Joe Friday moderates the NPOESS Users Panel



Seattle Convention Center Exhibit Hall

CONTRACT PERFORMANCE

WBS	LVL	DESCRIPTION	Nov 03 CpiCum	Dec 03 CpiCum	Jan 04 CpiCum	Nov 03 SpiCum	Dec 03 SpiCum	Jan 04 SpiCum
121	3	Sat Assembly & Test	0.99	0.97	0.94	1.03	1.00	1.01
122	3	Spacecraft (SC)	1.00	1.01	0.99	0.98	0.97	0.95
123	3	Payload	0.92	0.91	0.90	0.96	0.94	0.93
124	3	SS Engin & Mgt	0.87	0.91	0.86	0.89	0.91	0.92
131	3	C3S Mgt	1.02	1.01	1.01	1.00	1.00	1.00
132	3	C3S Engin I&T	0.97	0.95	0.94	0.98	0.98	0.98
133	3	Mission Mgt Cntr	1.01	1.00	1.01	1.00	1.00	1.00
134	3	Backup MMC (BMMC)	0.00	0.00	0.00	0.00	0.00	0.00
135	3	C3S Ground Station	1.01	0.96	1.00	0.97	0.98	1.00
136	3	Data Routing & Rtrvl	1.03	1.01	1.02	1.00	0.97	1.01
137	3	Satellite FVS	0.85	0.78	0.72	0.94	0.80	0.75
141	3	IDPS Mgt	1.00	1.01	1.01	1.00	1.00	1.00
142	3	IDPS Engin I&T	1.02	0.99	1.02	0.98	0.98	0.98
143	3	IDPS SW Devel	0.99	0.98	0.99	1.00	0.99	1.00
144	3	Centrats	5.94	1.06	1.06	1.00	0.70	0.54
151	3	Sys Eng & Integr Tm	1.01	1.01	1.00	0.99	0.99	0.98
152	3	Program Management	1.00	1.01	1.02	1.00	1.00	1.00
161	3	ST&E Management	0.99	0.99	1.00	1.00	1.00	1.00
162	3	Devel Test & Eval (T&E)	0.98	0.97	0.98	1.00	1.00	1.00
163	3	Operational T&E	1.10	1.16	1.13	1.00	1.00	1.00
164	3	Infrastructure Support	1.09	1.10	1.17	0.98	0.98	1.01
171	3	C3S Training Devel	0.96	1.02	1.09	1.00	1.00	0.97
172	3	IDPS Training Devel	1.13	1.12	1.15	1.01	1.00	1.00
173	3	FTS SW I/F Training	0.00	0.00	0.00	0.00	0.00	0.00
174	3	Training Infrastructure	1.04	1.04	1.05	1.00	1.00	1.00
175	3	SS Training Devel	1.30	1.43	1.57	1.00	1.00	1.00
182	3	SS PSE	1.05	1.06	1.05	0.97	1.00	1.00
1A1	3	MU Integration	1.04	1.06	1.13	1.01	1.03	1.01
1A2	3	Mate, Check & Launch	0.00	0.00	0.00	0.00	0.00	0.00
1A3	3	On-Orbit Support	0.00	0.00	0.00	0.00	0.00	0.00
1F1	3	O&S Management	0.99	0.99	0.99	1.00	1.00	1.00
1F2	3	Operations	0.00	0.00	0.00	0.00	0.00	0.00
1F3	3	Sustaining Eng Support	0.00	0.00	0.00	0.00	0.00	0.00
1H1	3	FTS Mgt & Engineering	0.98	1.00	1.01	0.99	1.00	1.00
1H2	3	FTS IDPS Softw are	1.08	1.08	1.08	0.21	1.00	1.00
1H3	3	FTS Hardw are Spec	0.02	0.97	1.79	0.01	0.59	0.98
1H4	3	FTS IT Field Support	0.00	0.00	0.00	0.00	0.00	0.00
		Grand Total	0.95	0.95	0.94	0.97	0.96	0.95



NPOESS Related News

Earth

Air Force Weather Agency (AFWA) to Change Commanders in June

BGen Thomas Stickford, HQ USAF Director of Weather, Pentagon, announced on February 25, 2004:

• Col Charles L. Benson, AFWA/CC, has announced a desire to retire effective 1 September 2004. Col Benson has been a tremendous commander for AFWA and has made outstanding contributions to AFW throughout his distinguished career--his leadership and operational focus will be sorely missed. We wish Col Benson great happiness and continued success as he starts this new chapter in his life.

• Taking over the reins as AFWA/CC at a 2 June 2004 Change-of-Command Ceremony will be the extremely capable Col John M. Lanicci, currently the AF/XOW Plans Division Chief. Col Lanicci will have big shoes to fill, but he certainly has the knowledge and leadership skills needed to continue guiding AFWA forward into the 21st Century! Congratulations, Col Lanicci!



"Choose The Weather For Battle"



NOAA Satellite and Information Services
National Environmental Satellite, Data, and Information Service

NESDIS Head Delivers Positive New Year Message to His People

NOAA's National Environmental Satellite, Data, & Info Service (NESDIS) Asst. Administrator, Mr. Greg Withee, sent out the following message to NESDIS employees, January 29, 2004:

• "As the first newsletter of 2004, Happy New Year is in order! This phrase reminds me of our organizational optimism and team spirit that will help us meet the exciting challenges before us. This year we have numerous goals and key milestones that each of us must commit to achieving in order to accomplish our mission. Examples of some of these include supporting NOAA's leadership role in the ad hoc international Group on Earth Observations (GEO). GEO is developing a 10-year implementation plan that will lay out the development of a comprehensive, coordinated, and sustained Earth observation

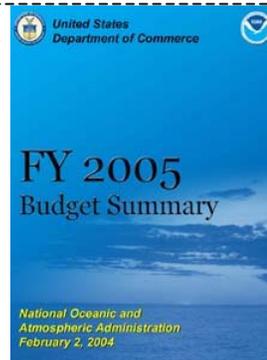
system. We are forming international partnerships so data can be shared and new satellite products can be generated to support not only our nation's but also assist in the world's environmental health. We are as focused as ever on continuing our outstanding record of availability of satellite data with our polar and geostationary spacecraft. We are gearing up for the National Polar-orbiting Operational Environmental Satellite System era. NPOESS is now in a risk reduction phase. This preparation phase "NPOESS Preparatory Project" ensures that we are accomplishing a smooth transition of our enhanced satellites, GOES and NPOESS, without interruption of coverage from current systems. On the environmental data front, because of the increasing amount of data available, data center archiving is approaching 1.6 petabytes. This is expected to grow to more than 18 petabytes by 2011. We are now working to make more data available from our national data centers to support academic and scientific analyses and assessments at regional, national, and global scales."

• "Yes, we have many challenges ahead this year, but with the steadfastness and tenacity of our Team, I know that working together these challenges will be accomplished."

NOAA ADMINISTRATOR ANNOUNCES 2005 BUDGET REQUEST

• Feb. 5, 2004 — Retired Navy Vice Adm. Conrad C. Lautenbacher, Ph.D., undersecretary of commerce for oceans and atmosphere and NOAA administrator, today unveiled the proposed 2005 budget for NOAA. Speaking to more than 125 stakeholders in Washington, D.C., Lautenbacher said NOAA's request totals \$3.4 billion, an increase of \$146.9 million over the FY 2004 request. (Editor's Note: NPOESS represents approximately \$300 million of NOAA's FY2005 budget request. The DoD/USAF matches the DOC/NOAA request for an NPOESS total of approx. \$600 million.)

• "This proposed budget maintains and enhances the services and programs for our scientific understanding of the oceans and atmosphere and allow us to sustain the nation's environmental health and economic vitality," said Lautenbacher. "This budget request allows us to develop the science necessary to improve weather, water and ecosystem forecasts of the future, as well as give policy makers the data they need to make important decisions related to climate change." The budget request is based on NOAA Strategic Plan goals.





NPOESS Related News

DAVID JOHNSON SWORN IN AS NEW DIRECTOR OF NOAA'S NATIONAL WEATHER SERVICE



- Brigadier General (USAF retired) David L. Johnson was appointed as the new assistant administrator for Weather Services at NOAA's National Weather Service (NWS), where he will be responsible for the day-to-day management of NOAA's domestic weather & hydrology operations. NOAA is an agency of the U.S. Department of Commerce.
- Weather affects nearly \$3 trillion of the U.S. gross domestic product. Economic sectors and the public are increasingly looking to NOAA for information to improve efficiencies and manage environmental resources, said retired Navy Vice Adm. Conrad C. Lautenbacher, Ph.D., Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator. General Johnson has the experience, knowledge and talent to not only manage the NWS and support its mission, but also to move it forward into new and expanded capabilities.
- Prior to joining NOAA, Johnson served as the U.S. Air Force Director of Weather. He retired from the USAF as a brigadier general, after a 30-year military career. As director of weather, he was one of ten directors at the Headquarters Air Force, Air and Space Operations, and was responsible for developing doctrine, policy, requirements and operational organizations to support Air Force and Army operations worldwide. He also served as one of NOAA's military deputies.
- Notably, he organized, trained and equipped forces for the war in Afghanistan and the war in Iraq, and managed a steady flow of accurate & focused environmental information to battlefield commanders. He was a key advisor in the development of NPOESS.
- "I am extremely fortunate and proud to be heading the NWS as part of NOAA's team," Johnson said. "The investment of our nation and NOAA staff is already enormously significant, and I am eager to begin building on that with the dedicated talent at the NWS & NOAA. All Americans have come to rely on timely, accurate, focused information and I look forward to working closely with NOAA staff as well as existing and new partners to keep pace with evolving and fast accelerating national needs."
- Johnson's career is marked by his strong management and fiscal capabilities. During his time as USAF Director of Weather, he led a massive reengineering effort that revised the organizational structure, training & operations of the 4,000-person career field. Under Johnson's steady hand, retention of weather-career airmen and officers grew to 97 percent, up from 74 percent previously.
- Johnson guided the planning, programming and budgeting process implementation at the highest levels in the USAF and in the Department of Defense. He has a worldwide perspective, having served in leadership positions on the Joint Staff with planning portfolios in Europe/NATO and Asia/Pacific. He secured funding for a new facility for the Air Force Weather Agency to house collection, analysis, modeling and career-field supervision functions.
- Prior to his service as Director of Weather, Johnson flew fighter, transport & special operations aircraft. He has over 3,800 flying hours including 78 combat sorties. Johnson commanded airdrop and air/land operations in Bosnia-Herzegovina and was deputy commander of the Joint Task Force for Operation Support Hope in Rwanda. He was selected for early promotion three times.
- Johnson is an honor graduate from the University of Kansas with a degree in geography, and earned his master's degree in human relations from Webster's University. He is a graduate of the National War College, Maxwell School of Citizenship and Public Affairs at Syracuse University, and from the Paul Nitze School of Advanced International Studies at Johns Hopkins University.

Appointment of NESDIS/OSDPD Director

- NESDIS Assistant Administrator, Greg Withee wrote:
- I am pleased to announce that **Richard M. Barazotto** has been selected as the Director of the Office of Satellite Data Processing and Distribution (OSDPD). He assumed this role on February 22, 2004.
 - Mr. Barazotto was Manager, Special Programs for OSDPD and has been acting as its Deputy Director since April of 2003. He has served as the Program Manager for NOAA's participation in the Japanese Advanced Land Observing Satellite (ALOS) mission and received the NOAA Administrator's Award in 2003 for his leadership of the ALOS program. Prior to joining OSDPD, Mr. Barazotto established NOAA's National Coastal Data Development Center and served as its first Director. For this effort, he was awarded the Department of Commerce Bronze Medal in 2001. Since 1986, Mr. Barazotto has held a variety of senior management positions in NOAA, including serving as the Director of NOAA's Center for Operational Oceanographic Products and Services (CO-OPS) from 1997 to 2000. Mr. Barazotto also previously served in OSDPD from 1974 to 1983. While a member of the Satellite Services Division, he helped to establish the New Orleans Satellite Field Services Station and was one of the first two NOAA employees selected to serve at the inception of the Navy/NOAA Joint Ice Center (JIC). The JIC was the predecessor organization to today's National Ice Center.
 - Please join Colleen and me in giving Richard your full support in his new role and in congratulating him for his induction into the Senior Executive Service.

Greg Withee





NPOESS Related News

UNIQUE FUNDING SAVES COSTS

BY Michael Hardy, *Federal Computer Week*, Jan. 26, 2004

•Once fiber-optic cable is laid to connect a remote polar satellite receiving station to the Norwegian mainland, NASA and other users of the site will begin saving. It costs about \$6 million a year to transmit data from the station to a relay satellite and then on to other facilities.

•Through a public/private partnership with a financial firm based in Annapolis, Md., the cable will cost the agencies \$5 million a year each for five years. The agencies will then have almost free use of it for the next 15 years, under an agreement with the Norwegian Space Centre.

•Hannon Armstrong, the financial firm, essentially borrowed funds for the \$40 million project from large institutional investors, said Jeffrey Eckel, president and chief executive officer. The company then used the funds to pay for the cable project.

•It will get its return as NASA and the Integrated Program Office (IPO), which includes the National Oceanic and Atmospheric Administration and the Defense and Commerce departments, repay a total of about \$50 million over the next five years.

•As a result, Congress doesn't have to appropriate money for the project. The agencies will save about \$1 million a year over the cost of using the relay satellite for five years, and then each will save the whole \$6 million a year for 15 more years, said Bill Watson, program executive in NASA's Office of Earth Science.

•For a total cost of \$50 million, NASA and IPO will avoid about \$190 million in future costs.

•Decreasing budgets make it difficult for agencies to invest in infrastructure projects, Eckel said. "By using this unconventional financing approach, Norway and the U.S. government were able to access a critical service" without appropriated funds, he said.



Pictures from the Svalbard Fiber Optic Cable Commissioning Ceremony on Jan 31st in Longyearbyen Norway: The top picture is of the Norwegian Minister of Trade and Industry officially connecting the cable to Svalbard from mainland Norway. The middle picture shows the IPO/NASA invited guests sitting in the University auditorium awaiting the start. The bottom picture is of Distinguished Visitors (left to right, John Cunningham, Bill Watson (NASA Hqs), Rolf Skar (President, Norwegian Space Centre), Tyco's Vice President of Marketing, and the Governor of Svalbard, Morten RUUD. Sitting and addressing "NPPy" is the the Norwegian Minister of Trade and Industry.

SVALBARD 76-50-80-80°N Latitude
10-34°E Longitude



Svalbard Tidbits:

•**Location:** Small chain of islands between the Arctic Ocean, Barents Sea, Greenland Sea and Norwegian Sea.

•**History:** Discovered by the Norwegians in the 12th century. Served as an international whaling base during the 17th and 18th centuries. Norway officially took possession of the islands as a territory in 1925.

•**Climate:** Arctic, tempered by Gulf Stream. Cool summers, cold winters. Mean temperature is minus 14 degrees Celsius (6.8 F) in February, and 5 degrees Celsius (41 F) in July. **Size:** Slightly smaller than West Virginia. Glaciers and snow fields cover 60 percent of the land area.

•**Population:** 2,811, with Norwegians representing 55.4 percent, and Russians and Ukrainians 44.3 percent. **Major industry:** Coal mining.

•**Distance to North Pole:** 1,231 kilometers (765 miles). Sources: *CIA World Fact Book, King's Bay AS*





NPOESS Related News: Listening to the Arctic Skies

BY Michael Hardy, *Federal Computer Week*, Jan. 26, 2004

•A cold wind blows through the sharp, stark mountains towering over the narrow six-mile road that connects the tiny Norwegian village of Longyearbyen to an array of satellite receiving stations. On the island of Spitsbergen, part of an archipelago called Svalbard on the Arctic Circle, the polar bears outnumber the people, and NASA listens to the skies.

•The Norwegian Space Centre, an independent foundation that serves as Norway's space agency, runs the satellite facility, called Svallsat. NASA owns two antennas there, and the Integrated Program Office (IPO), which includes the National Oceanic and Atmospheric Administration and the Defense and Commerce departments, is building one. Three others serve the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) and a Norwegian firm called Kongsberg Satellite Services (KSC).

•The traditional dish-shaped antennas are housed at Svallsat inside spherical enclosures to protect them from the elements. Although the warm Gulf Stream waters flow near Svalbard and keep the island chain warmer than other arctic locations, subzero temperatures are still common in winter.

•At the end of January, the Norwegian Space Centre will activate a 1,000-kilometer (621-mile) loop of fiber-optic cable to connect the satellite facility to the Norwegian mainland. It will boost data transmission rates and lower costs for the agencies that use the facility, making it more useful for NASA and NOAA research projects.

•The fiber is already working, but the January ceremony will mark its formal lighting, said Bill Watson, NASA's Office of Earth Science program exec. Svallsat plays a critical role in both NASA and NOAA earth sciences projects. Situated at 70 degrees north latitude, receivers there can "see" polar-orbiting satellites every time they circle the planet, allowing them to download data on each pass.

•"They paint a picture around the pole," Watson said. "From this location at Svalbard, you can see them as they pop over the pole. The satellites are recording data as they go around the world and they can dump that data into these antennae every orbit."

•NASA has 2 satellites, Terra & Aqua, that are already sending data. A third, Aura, is due to start this summer. The agency's satellites measure atmospheric temperatures, land & sea temperatures, energy fluctuations and humidity. They also measure changes in ice formations, vegetation, sea levels and snow cover. It will use the new fiber to transmit half a terabyte of data a day to Norway and then to the US over existing networks.

•"One of the things NASA is trying to do is to look at Earth as a complete system," Watson said. NASA's Earth Science Enterprise includes the satellite-based Earth Observing System and other mission components.

•The Svallsat facility is important because it can communicate with the satellites on all 14 of their daily orbits. There are similar receiving stations at Fairbanks, Alaska, and Wallops Island, Va., but they have blind spots, said John Overton, a senior project manager at the Aerospace Corp., a non-profit corporation under contract to the IPO at NOAA. "There are three [orbits] you can't see," he said. "Svalbard enables you to see lengthy contacts on every orbit of the satellite." When the satellite passes without downloading data, getting good info. becomes trickier on the next pass.

•"An orbit is 101 minutes," Overton said. "So it would be another 101 minutes before you saw the spacecraft again. You have to order the spacecraft to resend the data you didn't get on the orbit before. So you have to get 2 orbits' worth of data in one contact, which is not always easy to do." Also, weather info, a NOAA's interest, is time-critical, he said. 2-hour-old info is not always useful to track fast-moving weather events.

•"These are harsh locations," Watson said. "When you need a contact every orbit, if there is a breakdown, it helps to have an alternate location."

•NOAA's National Polar Orbiting Operational Environmental Satellite System will also gather earth-science data. NOAA officials will launch a satellite in 2006 that will beam data to the receiver that will be built at Svallsat, Overton said.

•The project's success is due in large part to a unique funding strategy NASA officials pursued with the help of financial firm Hannon Armstrong. The same approach could serve as a model for other agencies, said Jeffrey Eckel, the firm's president and CEO.

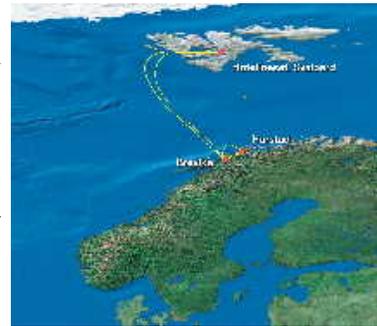
•"If they use this type of third-party funding approach to finance a new asset, they could put their budgets to better use while reaping the benefits the infrastructure improvements would bring," he said. "It's using private capital to save the public sector a ton of money."

•The arrangement also inspires private investors to fund important science projects that would not have a payback if done in the commercial market, he said. "There isn't a lot of money to be made on this system. This is government to government — a sensible thing to do."

•Eckel hopes the idea will catch on with other agencies. "It can be used for any large infrastructure project," he said. "It's consistent with the Bush administration's desire for public/private partnerships."

•Part of the fiber-optic data capacity is going to benefit the inhabitants of Longyearbyen, Watson added. "There are about 1,500 people that live there year-round. It's an economy in transition from coal mining to the Information Age."

•About 6 years ago, the Norwegian government made the first overture to get NASA to build 2 satellite antennas at the site. "They came to NASA and offered it up as a solution," he said. "It was attractive to us to have another location that saw all orbits in a day."



NPOESS Replan Completed

Thanks to the hard work and dedication of both Government and SSPR contractor personnel, the extensive replan effort caused by Government-directed cuts to the NPOESS baseline program have been completed. The replan effort commenced in February and negotiations were completed in December 2003. The replan effort had a cumulative effect of adding \$391 million to the baseline SSPR program.

Throughout the replan, a great deal of effort was placed on maintaining the NPP program schedule. This included minimizing the slip of the NPP launch to only 5 months and a 7-8 month slip in NPP sensor delivery and ground system readiness. Unfortunately, this necessitated a 19-21 month (depends on the orbit) slip to the first launch of NPOESS.

The ability to replan a program while simultaneously executing the technical efforts necessary to minimize impact to the NPOESS program is a testimony to the dedication and skills of the NPOESS team.



NPOESS Special: Making SafetyNet a Reality - NPOESS Landing Rights

By David G. Lubar, C3S Manager of NPOESS Regulatory Affairs

• Traveling the world in support of NPOESS certainly sounds glamorous. At times it can be; other times the pace of travel is maddening. As the manager of the team that negotiates earth station locations and licenses for SafetyNet II, my time in foreign countries has been significant in the past year, visiting six of the seven continents.

• NPOESS and NPP will provide a large information resource of more capable environmental data, from the variety of sensors carried into space. Scientists, businessmen, citizens and soldiers will all benefit from the terabytes of data transmitted from NPOESS via the Stored Mission Data (SMD) downlink for processing at the four centrals within the United States.

• The concept is simple. Place receive-only earth stations at or near access points to the terrestrial fiber optic network, in geographically diverse locations throughout the world.

• This allows the spacecraft to send the raw sensor data to earth much more rapidly than the current polar-orbiting systems do today. Most presentations, magazine articles and briefings show SafetyNet as neat circles spread throughout a world map in Antarctica, Australia, Brazil, Chile, Germany, India, New Zealand, Norway (Svalbard), South Africa, South Korea and USA. Few people realize that those circles are a point picked on a map to compute data delivery times and do not represent a real address. Our job on the Landing Rights team is to transform those circles into a street address with the proper approvals needed to construct and operate an earth station.

• Making the concept into reality is quite achievable; however, working through all the details is very complex.

• It is Monday, and three of our team members, a meteorologist, a lawyer and myself, are staying in a high-rise hotel on Copacabana beach in Rio de Janeiro. The ocean waves from the Atlantic are crashing ashore across the street. Two of us are grabbing an hour of relax time in the rooftop pool. Our meteorologist is describing the cumulus, cirrocumulus and altocumulus cloud formations that are moving by, just touching the famous mountain top statue of Jesus at Corodova, with outstretched arms. We are briefly resting after a long day where a team of three local lawyers, one Brazilian engineer from Raytheon and a translator join our core team of three to brief the local equivalent of the U. S. Federal Communications Commission. We have spent over a month trying to secure meetings with key staff and at least one commission member. Tomorrow is the big day, with 9 government regulators responding to hold one large meeting in mid afternoon. We have only two hours and must use it wisely...



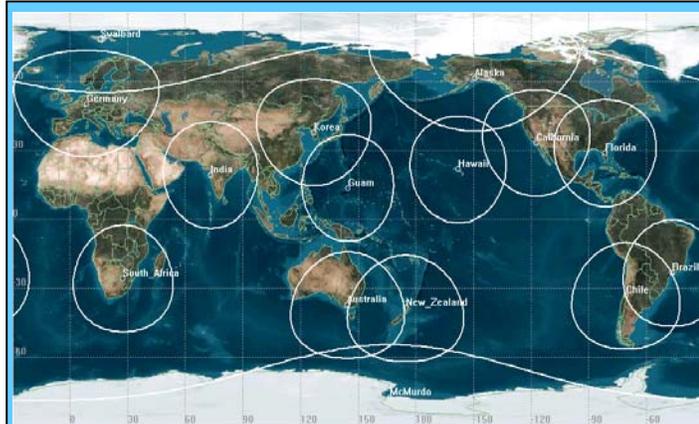
Rio de Janeiro

• Our (internationally approved for release) description of NPOESS has been translated into Portuguese, and today we conducted the third review of the technical terminology. Our three and one half hour dry run, with each sentence briefed in English and translated simultaneously into Portuguese was exhausting. And that meeting followed a four hour legal strategy meeting discussing how we were going to request a change to Brazilian law, that will be necessary for us to share the radio spectrum with future services.

• As the locals sat on the world famous beach, situated behind us and 20 stories below, we considered that only late last week did we find an available translator. Two local candidates located in the capital of Brasilia, were only available for one hour.

• We hired a technical translator who lives in Rio de Janeiro and flew her to the meeting, an hour away. Two IT technicians stood ready, leasing a projector in the event the government's conference room had any difficulties.

||| SafetyNet is patent pending by Northrop Grumman Space Technology



NPOESS Planned Ground Antenna-Receptor Sites (Station circles and Associated Countries), a.k.a., SafetyNet.

(The government's unit was broken, when we arrived and our rental unit saved the day.)



Fortaleza



Rio



Brasilia

• Most of the C3S team, developing the NPOESS ground segment, is focused upon hardware and software for NPP. Few realize that critical advance work is being done in support of SafetyNet now, which will include site selection and identification of access points to the AT&T Global Network.

• Before departure to the capital, Brasilia, we get one last chance to check email in the hotel. (Just because the team is in South America, does not stop other events underway throughout the world in support of SafetyNet sites. A worldwide smorgasbord of items is simultaneously ongoing:)

- A satellite teleport marketing engineer asks what our plans are for Australia, since we have not talked about SafetyNet with him in a number of months
- Our lead lawyer in South Africa inquires about payment for advice rendered
- An update on Korean radio wave law and issues regarding frequency availability
- Report on the health of two legal associates on medical leave and one ready to return from maternity leave
- Details of rules incorporation for foreign Raytheon subsidiaries, required for making license applications in several countries.
- Environmental rules for placement of earth stations near coastal areas in India
- Descriptions of potential antenna sites in Antarctica, which would be accessible year round by the NSF personnel and discussion of installation and planning schedules.
- Memorandum of agreement drafts between NOAA International Affairs and a foreign meteorological organization, to use for drafting a government-to-government agreement in another country
- Confirmation of appointments with both the US Embassy and a local meteorological organization in rural Brazil.
- Photographs from AT&T on potential antenna locations in Portugal (candidate backup to Germany) and plans for Korea & Guam surveys.



NPOESS Special (Cont) - "Making SafetyNet a Reality - NPOESS Landing Rights,"

By David G. Lubar, C3S Manager of NPOESS Regulatory Affairs

Brazil completely redesigned and built its federal capital in an open high plain near the center of the country. Modern buildings cover the planned Brasilia city design, which is in the shape of a bird with spread wings. We arrive in advance of the balance of the team, to brief the commercial attaché at the US Embassy and the information technology specialist in the Economics section.

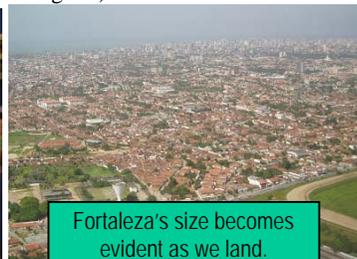


Brasilia

- They ask for a general overview of NPOESS and provide any insight & advise they may have on telecommunications and the various Brazilian agencies. We agree to meet the next morning to provide a results summary from today's Brazilian federal regulatory discussions.
- Our total team assembles at the local law office, where we receive a briefing on the various government members that we expect to attend our meeting. They inform us who speaks English, who may understand technical English and who only speaks Portuguese.
- We make final plans for a summary discussion and decide that the local Brazilian attorney will begin the meeting with an introduction followed by a translated NPOESS overview by David Lubar and a benefits summary to Brazil and high-level sensor description by Mike Jamilkowski. Then the lawyers take over to recommend how we avoid conflicts with a planned frequency auction this year for terrestrial users in the spectrum needed for SafetyNet. We hope to leave the meeting with a recommended path for application in Brazil and an indication of whether such an application would be successful.
- Few people realize that NPOESS is the first satellite system to use the frequency band proposed for the SMD downlink. NPOESS is a pathfinder, breaking "new ground" in 10 countries. It is no easy effort to find common frequency spectrum in 10 countries when other types of services share the band. Each country has sovereignty over its own frequency spectrum; therefore each country can say yes or no (or "yes, with conditions") to grant approval for an earth station. To date, no country has rejected our informal inquiry. However the final word comes when we submit an application. (This is why it is called "Landing Rights" because each country has authority over signals that impinge upon its soil. Receiving the signal on foreign soil from space require the grant of landing rights for that specific signal.)



Another airport...



Fortaleza's size becomes evident as we land.

- With all the preparation for this meeting, there is no time to consider that tomorrow after flying 3 1/2 hours, two of us spend a day to inspect a potential antenna host site on the coast of Brazil, to meet a local AT&T engineer. One stop requires someone to climb on a water tank adjacent to the roof to measure obstructions on the horizon and then onto a second stop to conduct a briefing about the benefits of NPOESS to a local meteorological forecasting and environmental branch of the state government.

- However, that's for tomorrow. For now, it is time to begin the regulatory discussions:

- "Bom Dia. O Sistema Nacional de Satélite Ambiental Operacional em Órbita Polar ou NPOESS."
- "O sistema NPOESS beneficiará toda a comunidade científica internacional já que as informações meteorológicas e ambientais coletadas por esse sistema de satélites serão colocadas à disposição de meteorologistas, oceanógrafos e outros usuários ao redor do globo. ..."



Jammer on 40' tower photographing horizon for possible antenna site



Another Hotel

Brazilian tropical jungle & clouds...



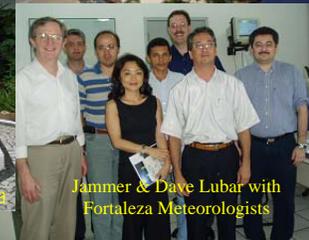
Dave photographing Fortaleza weather agency's infrastructure



Weather instruments display at the Fortaleza meteorological office



Fortaleza's Atlantic Beach



Jammer & Dave Lubar with Fortaleza Meteorologists



Another Flight...



Head meteorologist with POES receiver antenna



Jammer & Dave with Technicians at GlobeNet Comm.'s Fortaleza Network Ops Center





Team Scrapbook – NPOESS Symposium at AMS Annual Mtg



User Panel: Kelly/NWS; Withee/NESDIS; Stickford/AFW; and Mohr/EUMETSAT



Tom Lee, NRL



Dr. Steve Lord, NCEP



The 'Fred & Mike' Show



Dr. Tom Karl, NCDC



Dr. Dave Staelin, MIT



Symposium participants filled the hall all day and listened intently



Carl Hoffman & Jeff Hawkins oversee the Improved Imagery Sessions

The NPOESS Symposium at the American Meteorological Society Annual Meeting, Washington Convention Center, Seattle WA 11-15 January 2004



SI-SC Offsite: Sean Kelly (SI), Don (a.k.a. Jean Claude) Adkins (SC), Gary Waldeck (SI), Blair Ohler (outsider) & Maj Vic Chambers (SC) at Keystone CO



SE Offsite: Milt Panas, Jim Schaeffer, Brad Haughley, and Kathryn Fricks at Keystone CO



The Booth Crew: Hagan, Wilczynski, Duda, Haas, Bloom, Overton, Nelson.



The Joint NPOESS Booth

84th AMS Annual Meeting
Washington State Convention and Trade Center
Seattle
11-15 January 2004

Lt Col Mike Bonadonna w/NPOESS Model.



More photos from the First NPOESS Suppliers' Conference



Team Scrapbook (Cont)

47th ANNUAL GODDARD MEMORIAL DINNER



At the Washington Hilton Hotel, Washington DC, March 19, 2004



Speaker, George Will,
on overhead screen



Dignitaries at head table



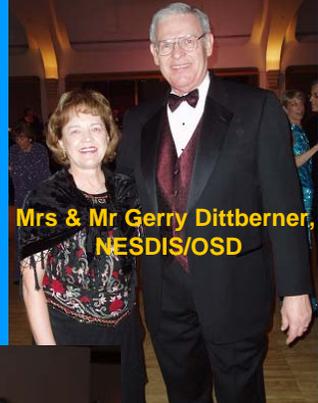
Head Table and
Dinning/Ball Room



Mrs & Mr/Col Hinnant
and Maj Carol Wetsch



Karen St Germain &
CPO Joe Mulligan



Mrs & Mr Gerry Dittberner,
NESDIS/OSD



Mrs & Mr Stan Schneider



Overtons & Rickers



Jamilkowski-Ducey



Mrs & Mr Art Napolitano,
Raytheon-SBRS



Mrs & Mr Carl Hoffman



Mrs & Mr Dick Fisher,
NASA HQ/Code S (LWS)



Shipleys & Dudas



Bev King & Mike Crison



Cunningham entourage



Team Scrapbook (Cont)



Craig Nelson, Mike Haas, Mike Crison



The Broadmoor Hotel



Frank Himant, Nelson, Carol Welsch

NPOESS Team Members, Friends and the joint exhibit booth at the National Space Symposium, Broadmoor Hotel, Colorado Springs CO, March 29 – April 1, 2004.



Steve Simone, Mike Haas and booth visitors



Kellie Coyle & Jane Whitcomb



Raytheon members setting up hospitality suite



Mike Haas



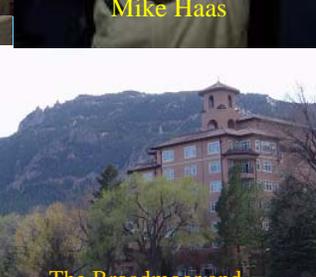
Dave Gallet, ITT



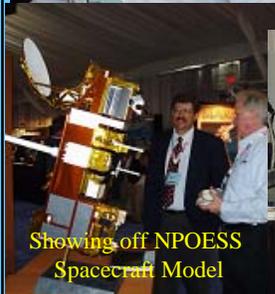
Prochaska, Patterson, Simone, Jamilkowski



Lt Col Mike Bonadonna showing off the NPOESS display



The Broadmoor and Cheyenne Mountain



Showing off NPOESS Spacecraft Model



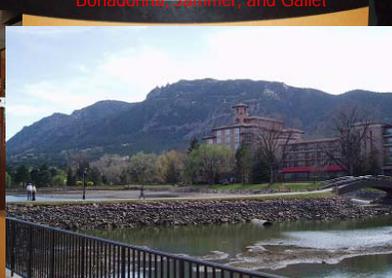
The NOAA booth: Eric Marsden (R) and colleague



The Joint NPOESS Booth Team: Munn, Simone, Coyle, Fitz Moore, Himant, Patterson, Haas, Whitcomb, Bonadonna, Jammer, and Gallet



Jenny Moore & colleagues answer Congressional Staffers' questions





2004 ANNUAL NPOESS/IPO

PICNIC

MAY 14, 2003

Walter Reed Annex-Recreation Park

\$20 (per person)

With the exception of

GS-15/equivalent & above

\$25 (per person)

1130 Lunch Served



PLEASE RSVP TO MARIA JONES (Suite 950)
E-MAIL (maria.jones@noaa.gov) or 301-713-4706

NLT COB FRIDAY, MAY 6, 2004

PAYMENTS DUE NLT MAY 12, 2004



only

Join the FUN:

--Good food

--Games

--Kids 6 & under Free

--Softball Game

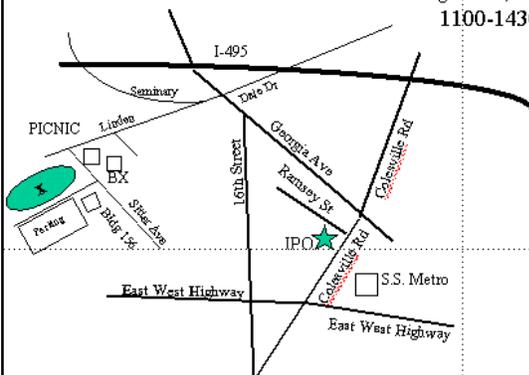
Times: TBD

(See Steve Mink Re: Softball)



Directions to 2003 ANNUAL IPO PICNIC

August 18, 2000
1100-1430



From IPO:

Georgia Ave North, left at Seminary Road. Bear left on Linden at the split. Turn left at Sitter Avenue (2nd left after crossing the bridge). A Child Care Center and the BX will be on the left. Turn right before Building 156 (Vet), picnic grounds are on the right at the bottom of the entrance drive, across from the parking lot. Area 2.

From the Beltway:

Exit Georgia Avenue South, Turn right at 2nd light, Seminary Road. Bear left on Linden at the split. Turn left at Sitter Avenue (2nd left after crossing the bridge). A Child Care Center and the BX will be on the left. Turn right before Building 156 (Vet), picnic grounds are on the right at the bottom of the drive way entrance, across from the parking lot. Area 2.

FOREST GLEN ANNEX
BUILDING 156
STEPHEN SITTER AVE
301-295-8008 (Mac)

MENU FOR THE 2004 IPO ANNUAL PICNIC

- Grilled, Smoked BBQ Ribs
- Grilled BBQ Chicken
- Hand Pulled Pork BBQ
- Creamy Coleslaw
- Tomato-Cucumber Vinaigrette
 - Pasta Salad
 - Corn on the Cob
 - Baked Beans
 - Chips & Pretzels
 - Rolls