



A Flight Projects Directorate Quarterly Publication
A Newsletter Published for Code 400 Employees

Volume 19 number 2
2011 Summer/ Fall

INSIDE THIS ISSUE:

NPP Given the Green Light	Page 1
Working with the Children of Zambia	Page 1
Message From The Director of	Page 2
Personality Tintypes	Page 3
The GSFC Engineering Boot Camp	Page 11
Aruban-Born NASA Engineer & His Team at the Final Shuttle Mission	Page 15
Code 400 Peer Award Winners	Page 16
Social News	Page 20
Agency Honor Awards	Page 21
PM Challenge 2012	Page 23
Comings & Goings	Page 24
Quotes to Think About	Page 25
Cultural Tidbits	Page 26
New Code 400 Logo	Page 26
New NASA Salt Mapper to Spice Up Climate Forecasts	Page 27
Future Launches	Page 28

NPP Given the Green Light

NASA's next Earth science satellite, the NPOESS Preparatory Project (NPP), successfully completed its most comprehensive end-to-end compatibility test. All segments of NPP's ground system were measured, including monitoring data flow and active commanding of the satellite during four weeks of testing at Ball Aerospace & Technologies Corp's (BATC) facility in Boulder, Colorado.

During the NPP Compatibility Test 4 (NCT4), NASA utilized two tracking and data networks, the primary tracking antenna site located in Svalbard, Norway and the Tracking and Data Relay Satellite System networks. The NCT4 also served as a high-fidelity operational "dress rehearsal" called Mission Rehearsal 3 (MR3), which simulated on-orbit operations

(JPSS Continued on page 4)

Working with the Children of Zambia -- As told by Goddard Employee, Mark Fuerst

In 2009, my daughter, Christa, told my wife and I that she was making plans to go to Africa for a summer missions trip. She had just graduated from college and was planning to work with a ministry called Family Legacy Missions International that ran summer camps for orphans and vulnerable children in Lusaka, Zambia. Up until that time, I had no idea where Zambia was and was surprised with her announcement, as I knew that she was going to be working with many

(Zambia continued on page 8)

Message from the Director Of



This issue of The Critical Path finds the NPP Project tirelessly working to a late October launch date from Vandenberg Air Force Base under Ken Schwer's strong leadership. As is usual for the end game leading to shipment of the spacecraft to the launch site, this very diligent team identified several issues, evaluated them, and closed them out effectively and efficiently. By the time you read this, NPP will be at Vandenberg in the launch flow. Please give the NPP team your support in any way you can.

I want to congratulate Bruce Jakosky (University of Colorado) and Dave Mitchell and their Mars Atmosphere and Volatile EvolutionN (MAVEN) team on the very successful Mission CDR. The team came through the review with only a handful of RFAs and MAVEN is well on its way through development and I&T toward a launch date in November 2013.

Congratulations are also in order for Michael Drake (University of Arizona) and Bob Jenkens and their Origins, Spectral Interpretation, Resource Identification, and Security – Regolith Explorer (OSIRIS-Rex) team. OSIRIS-Rex, a mission to return a sample from an asteroid, was selected as the next New Frontiers Program mission and our second planetary mission. Its launch date is in September 2016.

Not to go overboard on the congratulations but our Comet Hopper (CHopper) mission was also selected for Step-2 study for the Discovery Program this summer. Congratulations to Jessica Sunshine (University of Maryland) and the new project manager, Kevin Grady. I'm so proud that we have 3 planetary missions now underway at GSFC!

Lastly, I want to acknowledge the great work of Frank Cepollina and his team on the successful development and launch aboard STS-135 of the Remote Refueling Mission (RRM) payload. RRM is on the International Space Station (ISS) and later this fall will be used to demonstrate technologies necessary to refuel spacecraft in orbit to extend their operational life.

The Mars Science Laboratory (MSL) is at KSC in the launch flow with our Sample Analysis at Mars (SAM) instrument suite installed. MSL is preparing for a launch in December.

The Creating a New Future for Code 400 initiative remains in full swing with the People, Processes, and Relationships team making significant progress on near-term activities and future planning. The teams would all welcome additional participation from anyone that works in Code 400. Please call Bob Menrad for the People team, Robin Krause for the Relationships team, and Kevin Carmack for the Processes team to volunteer.

I hope you have all been able to take some time off this summer to rest, relax, and recharge with family and friends.

George

PERSONALITY TINTYPE

Eleanor Ketchum Silverman



Eleanor Ketchum Silverman has been the Associate Director for Earth Science Projects Divisions within the Flight Projects Directorate since August 2009. Under her direction, ESPD (code 420) is responsible for the fleet of Earth Science satel-

lites in space, taken care of by Earth Science Mission Operations (ESMO), and their Data, Earth Science Data and Information Systems (ESDIS); also the Earth Science satellites in development at Goddard, JPL, and Langley, namely: (National Polar-orbiting Operational Environmental Satellite System (NPOESS) Preparatory Project (NPP), LandSat Data Continuity Mission (LDCM), Global Precipitation Measurement (GPM), Ice Clouds and land Elevation Satellite (ICESat)2, Soil Moisture Active Passive (SMAP), Stratospheric Aerosol and Gas Experiment (SAGE-3), Gravity Recovery and Climate Experiment Follow On Mission (GRACE-FO), Surface Water and Ocean Topography Mission (SWOT), and the Tier II and III Decadal Survey missions in pre-formulation). She also has the responsibility for phase F, or disposal of missions, which her group successfully carried out last year after 7 good years with ICESat1. Finally, she has a new program in her division with a set of reimbursable missions from NOAA and USGS including Landsat 9/10; Polar Orbiting Environmental Satellite (POES); Meteorological Operational Satellite (MetOp); Jason 3; Deep Space Climate Observatory Mission (DSCOVR); and Search & Air Rescue (SAR).

Born: Stamford, Conn.

(Ketchum Silverman Tintype continued on page 27)

Steve Shinn



Steve currently serves as Deputy Director for Planning & Business Management for the Flight Projects Directorate. His first day at GSFC was May 9th. In his role, he serves as the principal operating official for the

Directorate in the planning and development of management processes and business strategies.

Born: Camden, New Jersey

Education:

BS, Finance, College of New Jersey;
MS, Engineering Management, Johns Hopkins University - Whiting School of Engineering;
Project Management Professional (PMP) Certification

Life Before Goddard: For the last 5 years, Steve served as the Supervisor of Operations Management at the Johns Hopkins University (JHU) Applied Physics Laboratory (APL) Space Department. He managed a group of more than 40 engineering and business professionals and was responsible for business operations supporting the Civilian Space and National Security Space Business Areas. In this role, he served as the central point of business leadership for the Department managing finance, project control, earned value

(Shinn Tintype Continued on page 24)

(NPP continued from page 1)

beginning with the launch phase and continuing through instrument activation. The successful completion of NCT4 and MR3 signifies that all mission systems are ready to proceed to launch.

"This gives NPP the green light to be shipped from Ball Aerospace down to Vandenberg Air Force Base (VAFB), California," says Ken Schwer, NPP's project manager. "NPP will enter orbit via a Delta II rocket leaving from VAFB."

The NPP satellite is a NASA climate mission that will also gather meteorological data for the National Weather Service. And so, maybe it was apt that as NPP went through its paces out West, wild weather shook the U.S. There were swarms of spring tornados, drastic flooding, record-setting wildfires, extreme droughts and a massive 'heat dome' that throttled the country with days and days of 100 degree temperatures.

NPP begins a new era of Earth observations by serving as the bridge between current Earth observing satellites and the next generation of missions. This next generation is the Joint Polar Satellite System (JPSS), a program that resulted from the restructuring of the National Polar-orbiting Environmental Satellite System (NPOESS).

The climate satellite was built by BATC under contract with NASA's Goddard Space Flight Center. Three of the five instruments onboard NPP were provided by the National Oceanic and Atmospheric Administration (NOAA) and the Department of Defense.

The NPP satellite is slated to launch aboard a Delta II rocket from VAFB in October. NPP will have a polar orbit, meaning that it will circle the planet from the North Pole to the South, covering the Earth about 16 times a day as it flies 512 miles (824 kilometers) above the surface.

The five instruments aboard the minibus-sized satellite will collect 24 types of data about the ocean, atmosphere and land surfaces. These data will provide a record for observing climate change as well as helping scientists monitor natural disasters such as dust storms, volcanic eruptions, floods, wildfires, droughts and hurricanes.

NPP's largest instrument is the Visible Infrared Imaging Radiometer Suite (VIIRS), a multi-spectral scanning radiometer that covers a 1,889-mile wide swath of Earth and is used to monitor the pace of climate change by looking at multiple parts of the Earth system. Data collected from 22 bands of the electromagnetic spectrum will observe active fires, vegetation health, sea surface temperature and ocean color, which is used as an indicator for ocean health. Some electromagnetic bands will assist atmospheric scientists in observing aerosols in the air, others aid biologists in monitoring forest cover. A new instrument, VIIRS will add to the vast amounts of information gathered by the Moderate Resolution Imaging Spectroradiometer (MODIS) that's currently aboard NASA satellites Terra and Aqua.

Also contributing to the climate record is the Cloud and Earth's Radiant Energy System (CERES) instrument. CERES measures the amount of solar energy that is reflected by the Earth, as well as the heat that Earth emits. These data are critical in understanding Earth's Radiation Budget, a

(NPP continued on page 5)

(NPP continued from page 4)

complex system used to describe the balance between the sunlight that's reflected from Earth's light colored surfaces, like snow and ice, and the sunlight that's absorbed as heat. Creating long-term, stable datasets of where and how much energy is present will help scientists construct climate models for projecting global climate change. Currently, CERES is flying aboard the NASA satellites Terra and Aqua, and so using it on NPP ensures there will be no breaks in the data record.

Another instrument aboard NPP, the Ozone Mapping and Profiler Suite (OMPS), is designed to track both protective ozone in Earth's upper atmosphere as well as harmful ozone air pollution near Earth's surface. Data from OMPS will help improve air quality monitoring and set upper limits for safe levels of sunlight exposure, as well as track the size of the 'ozone hole' over Antarctica. OMPS has two newly designed sensors with three advanced hyperspectral-imaging spectrometers.

The final two instruments aboard NPP work together; they're the Cross-track Infrared Sounder (CrIS) and the Advanced Technology Microwave Sounder (ATMS). Together they develop temperature and moisture profiles to create cross-sections of storms and other weather conditions. The data from CrIS is used in areas with less than 50 percent cloud cover while ATMS works in cloudy conditions and takes measurements of temperature and humidity. Together they provide soundings of the entire planet and will play a large part in gathering data used for short-term weather forecasting.

Testing, Testing and more Testing

Prior to the ground station system testing, a team of scientists and engineers at Ball Aerospace put NPP through rigorous environmental testing, a crucial step in confirming that the satellite will survive launch and life in space. Engineers tested each of NPP's five instruments individually before integrating them onto the satellite. Once they were all aboard, testing the performance of all the instruments at the same time was a major engineering challenge. The team had to figure out how to run their tests without damaging or contaminating NPP's different parts. For example, the OMPS is extremely sensitive to the tiniest amounts of organic molecules, like solvents, and the CrIS instrument actually has reflective paint that cannot be touched, lest it fleck away.

One way engineers ensured the instrument's safety was by doing much of their work in clean rooms while wearing bunny suits, but other times, just a simple plastic bag wrapped around an instrument could keep out the dust that could compromise testing. They simulate weightlessness to test the unfolding mechanisms for NPP's three solar panels by putting the panels on legs that floated on a thin cushion of air. For thermal vacuum testing, the team built a scaffold dubbed the "Iron Maiden" that holds carefully fitted heaters and coolers working at less than an inch away from each instrument. Other tests included extreme hot and cold temperatures in a vacuum chamber, bombarding NPP with the same electromagnetic radiation at levels it will experience in space, and taking it for a ride on a giant shaker table that simulates launch. And, while the human threshold for pain is about 130 decibels, NPP was exposed to the sound of a rocket being launched at 143.6 decibels; a level that would damage human eardrums.

(NPP continued on page 6)

(NPP continued from page 5)

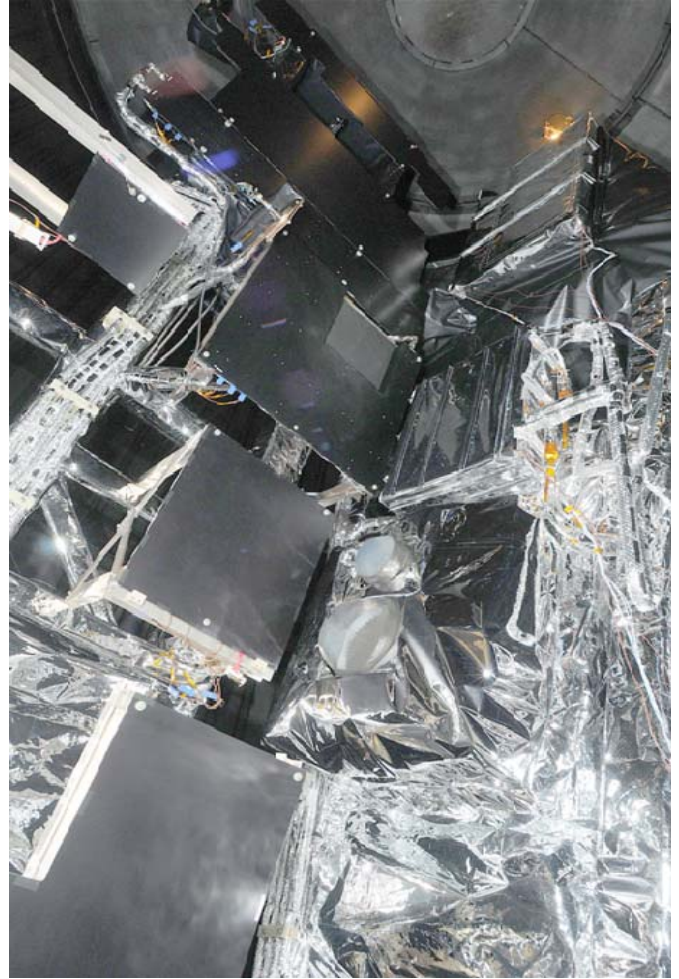
Throughout it all, NPP passed. Now, with its successful NCT-4, verification test of the end-to-end mission configuration of the satellite and the ground station that receives NPP's data, NASA's next Earth observing satellite is just several weeks away from its October launch.

<http://nasa.gov/npp>
<http://npp.gsfc.nasa.gov>

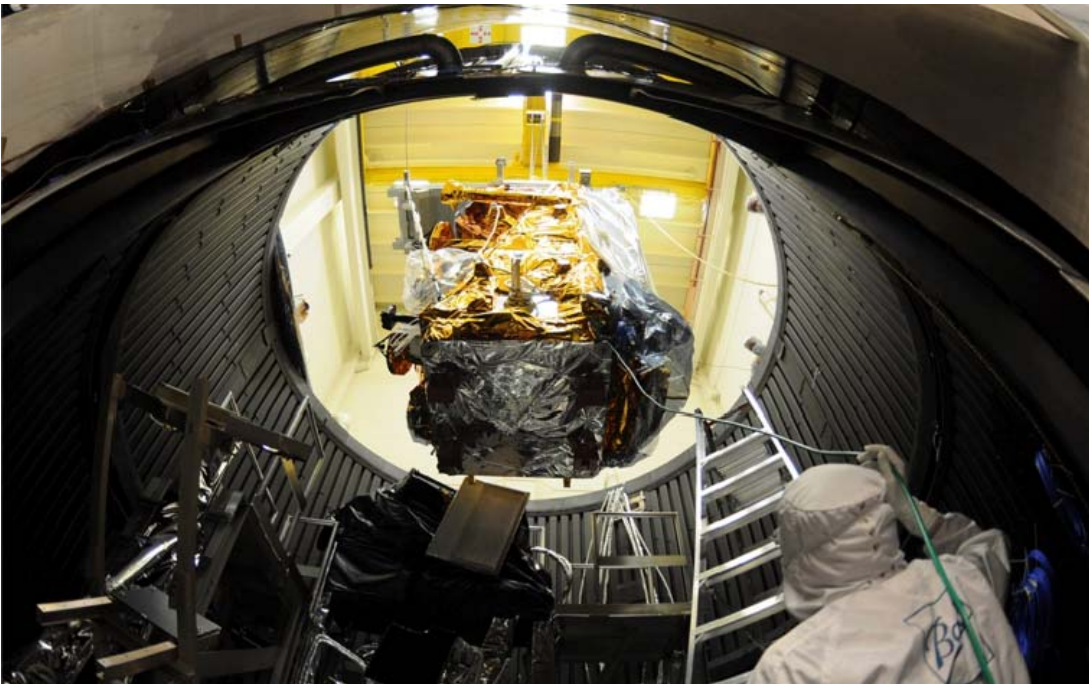
Christina Coleman
Ellen Gray (Code 130)

For thermal vacuum testing, engineers built the "Iron Maiden" structure. It holds heaters, coolers and cold targets (panels left) next to the instruments inside the thermal vacuum chamber. The satellite (right) is covered in thermal blankets to help engineers control the temperature changes.

Image credit: Ball Aerospace



NPP Runs the Gauntlet of Environmental Testing



NPP is lowered into the thermal vacuum chamber. Once inside the Iron Maiden (visible in the lower left) is fitted in place. Then air is pumped out of the chamber and temperature extremes are applied to replicate orbit conditions.

Image credit:
Ball Aerospace

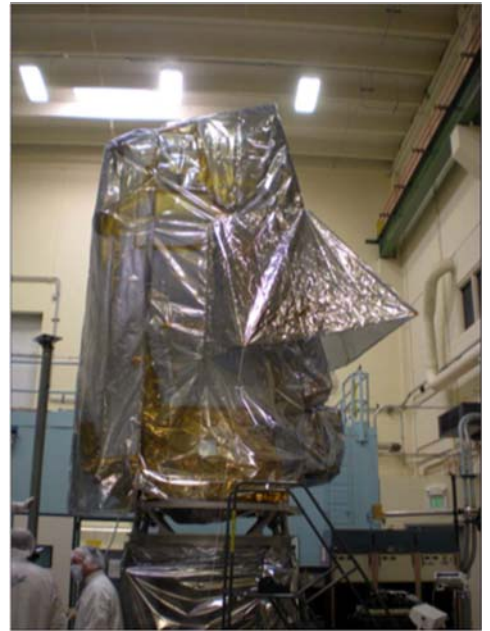
(NPP continued on page 7)

(NPP continued from page 6)



Electromagnetic compatibility testing occurs inside a specially designed room that stops the reflection of sound or electromagnetic radiation, called an anechoic chamber. NPP is bombarded with the same amounts of electromagnetic radiation the satellite will be exposed to in space. NPP also releases its own electromagnetic radiation, so tests determine if that will interfere with other satellites.

Image credit: Ball Aerospace



The NPP satellite sits on the shaker table for a simulation of the rocket thrust vibrations. For this dynamic testing, NPP is covered by protective bagging that "prevents dust contamination with a special drape to hold the bagging away from the sensitive white paint on the CrIS instrument.

Image credit: Ball Aerospace



On a slick floor made of polymer roofing material, NPP's solar panels glide on a cushion of air to test the mechanisms that unfold and lock the solar array into place.

Image credit: Ball Aerospace

(Zambia continued from page 1)

children that were potentially infected with AIDS—something I really didn't know much about, except I was afraid. Besides, it's hot in Africa! Right?

When she returned, I met her at the airport, and with tears in her eyes, she told me, "Daddy, Zambia is where I belong! I want to devote my life to working with orphans." Well I did what any father would do—I said, "Okay." She now works full-time for the Christian Ministry Family Legacy and since her return she lovingly encouraged me to come along with her. I had all the usual excuses, for example, too busy, it'll cost too much, I can't take that much time off from work, and besides it's hot in Africa!

However, in September 2010, I attended a fund raiser in Dallas, Texas for Family Legacy. It was there that all my excuses (NOTE: they were not reasons—they were excuses) melted away as I listened intently to the words of Nevers Mumba, the former Vice President of Zambia, as he challenged me to reject the thought that I'm just one person and the problems are so huge—I can't do anything. As I looked around the room of over 850 people, I caught sight of my daughter, and it was as if God spoke to me chiding me that He was using my little girl to get me to do what I knew in my heart I had to do. At that moment I committed to go.

So, I raised the funds through many generous sponsors. I told my sponsors it was like I was going to the Moon, and they were the team of NASA specialists that made sure I had everything I needed to complete my mission—they made it so I could go to some place as foreign to me as the Moon, perform my mission, and return safely. And although I was the one going—they too were there with me enabling me to perform a mission I couldn't do without them. I got the shots (not too many ...really!), and got serious about getting in shape. I was not going to be the "old man" who couldn't keep up with a bunch of kids. I joined the Goddard gym and to the surprise of my loving wife started getting up at 5 a.m. to go to the gym and get in shape! As the date of my departure approached, my uncertainties faded into resolve to do what I was now convinced was exactly what God wanted me to do. I can't explain it other than to say it became a simple act of faith in something so far out of my personal comfort zone. I just knew I had to do this.

On 23 June 2011, I arrived in Lusaka, Zambia—the nation's capital—and discovered it's winter time here! Duh, the country is just below the equator! I arrived with 76 other Americans and we spent the next few days getting ready for working with children in a week-long day camp called Camp Life. Prior to the start of camp, I visited the poorest sections of Lusaka where I was overwhelmed by the profound level of poverty. I visited several homes that are nothing like what I would call "home." The streets are dirty, dusty paths leading past dense two or three room cinder block shacks, most without electricity, windows, doors, running water, or anything of the comforts I had accepted as "normal." My heart was overwhelmed with all that I was seeing. The children were everywhere—they were dressed in filthy clothes, without shoes, and they were dirty as well. Trash was everywhere and there were smells that ordinarily I would avoid and even run from. Yet the children welcomed the visitors with smiles, cheers, and as quickly as I was repulsed by all I was seeing, I was compelled to smile, wave, hold the hands that were readily extended, and finally give hugs to children I'd just met. Although they had nothing, they offered everything they had to the strangers that had come to their distress.

(Zambia continued on page 9)

(Zambia continued from page 8)

We visited homes with and/or without parents, where sometimes up to 10 to 12 people lived. Their gratitude for the simple gifts of food and other items (like 300 baseball hats I brought; many from Goddard personnel), was sincere and rocked me to my core. I was hooked! I wanted to do more.

On Monday, week four of Camp Life, (my one week working in Zambia) started. I would spend the time working with two translators, Humphrey and Delton, reaching out and having fun with 12 young boys. Approximately 800 kids were in camp attendance this week. Camp Life, run by Family Legacy, has conducted eight weeks of camp each summer for several years and 2011 is the eleventh year of Camp Life in Lusaka. We played soccer—



excuse me, I mean football, and despite being in the best physical shape of my last ten years, they ran circles around me. What was I thinking!? Regardless, they called me Uncle Mark and by the end of the first day I was truly in love with these boys, was saddened when it was time for them to leave, yet couldn't wait for the next day to see them again. Upon their arrival on Tuesday, they ran from the bus to give me huge hugs and proceeded to fight to hold my hand, have their picture taken, or give me still another hug.

We sang songs as loud as we could, and with amazement, laughter, and cheering we watched skits. We shared simple lunch time meals of four slices of white bread. In one-on-one sessions my heart was broken to learn about the conditions far too many children lived in every single day. Most were single or double orphans, living with a Grandmother, Uncle, or Auntie. Many times they only have the most meager single daily meal—often going without eating at all. Many can't go to school because although grades 1 – 7 are free, a child cannot attend school if they can't afford the books, supplies and uniforms. Zambia has an unemployment rate of 70%, so most have no money to pay for these essentials for school attendance. They told of horrible nightmares and deplorable living conditions. And just about the time I would think I couldn't stand to hear anymore, they would smile, hug me and tell me they loved me. My translator and I would pray with the children, hold them, and I committed myself to seeing what I could do when I returned home to make a difference in their lives.

I travelled to Zambia to minister to these children with care, gifts, and the Gospel. Yet truthfully it was they who ministered to me. On the last day of Camp Life, all the children received a certificate,

(Zambia continued on page 10)

(Zambia continued from page 9)

an award to wear around their neck, a bandana, two pieces of candy, a bookmark, a t-shirt, and a brand new pair of shoes. Shoes! The place erupted in cheering and they danced in the dust to celebrate! As the dust clouds arose, and the cheering became almost deafening, I thanked God for the opportunity to participate in this amazing, life-changing event. When the time came for my 12 “found boys” to depart, I wept.

I returned home and to work with a new outlook on so many things. I’ve committed myself to three things:

1. Get all 12 boys sponsored for food, clothing, and schooling. Done! Many I’ve spoken with have stepped forward to sponsor a child on a monthly basis.
2. Raise \$80K to build an orphan home in Lusaka at the Family Legacy Tree of Life center. I’ve no idea how to do this, but I am confident it will get done.
3. Take 20 people with me when I return in 2012. For every person that comes, 10 – 12 children get to come to Camp Life.



When people ask me about my trip to Africa, I tell them it was an amazing, life-changing event. I will never be the same. I now understand my daughter’s passion (who was there at the same time as me) for working with these children. Although Zambia is a country of 12 million people, half of which are under the age of 16—because AIDS has decimated the 20, 30, and 40 year-old generation, and 1 million of those 6 million are orphans, unemployment is 70%, and the average life expectancy is 38—I can’t wait to go back! There’s so

much more to tell about the children, Zambia, and the difference one person can make. If you’d like to know more, please contact me. You won’t be sorry!

By the way, did I mention it’s NOT hot in Africa—at least not in the winter!

Mark J. Fuerst
ESMO Modernization Plan Mgr. (Code 444-HT)

The GSFC Engineering Boot Camp

You walk into the Labs in Building 25 and the hum of activity is intense. There's a focus of purpose spread out among perhaps 40 people working in groups all over the place. The energy is contagious. What's going on here? It reminds the old timers of the days when NASA was reaching for the Moon and getting there. Could this be a new NASA in an incubator? Seems like it.

They call it the GSFC Engineering Boot Camp (EBC).



It's a novel program that solicits top engineering graduates and near-graduates to work at Goddard for a semester on real NASA projects. They work during three semester-long sessions year-round. This program has affected the career development of almost 100

(EBC continued on page 12)

(EBC continued from page 11)

young engineering students this past year alone. A large group of about 25 highly skilled, new engineers work on multiple NASA projects involving many technical disciplines. In addition to this core group of leaders, there are a number of foreign national consultants, who are collaborating with this GSFC program on technical projects that have mutual benefits. These collaborators from five other countries send professional engineers to GSFC for a few weeks during the year to exchange knowledge and to combine our efforts towards some common long-range goals. They all volunteer to be here at no expense to NASA. In addition, another 20 or so undergraduates from US engineering colleges and about ten high school seniors will participate in some of the sessions during the year to learn from the leaders and the consultants.

The EBC is a final step in NASA's long-standing effort to encourage more diverse people to get into technical careers. The participants working together in this fashion are demonstrating exactly the skills, aptitude, attitude, and energy that are needed to succeed in the aerospace workplace. They are completing their skills in a way that will maximize their



(EBC continued on page 13)

(EBC continued from page 12)

marketability in a very tight job market. This EBC is actually doing real engineering work for a dozen or so small budget science and engineering missions at a small fraction of the normal cost, enabling more post-doc missions. Because the lead group is so highly skilled, Code 500 engineers are able to provide guidance with minimal time commitments. In the process they can see top candidates for new hire opportunities doing real NASA work and thus determine who is a best fit for NASA, far better than they could from a resume alone.

Tangible Results

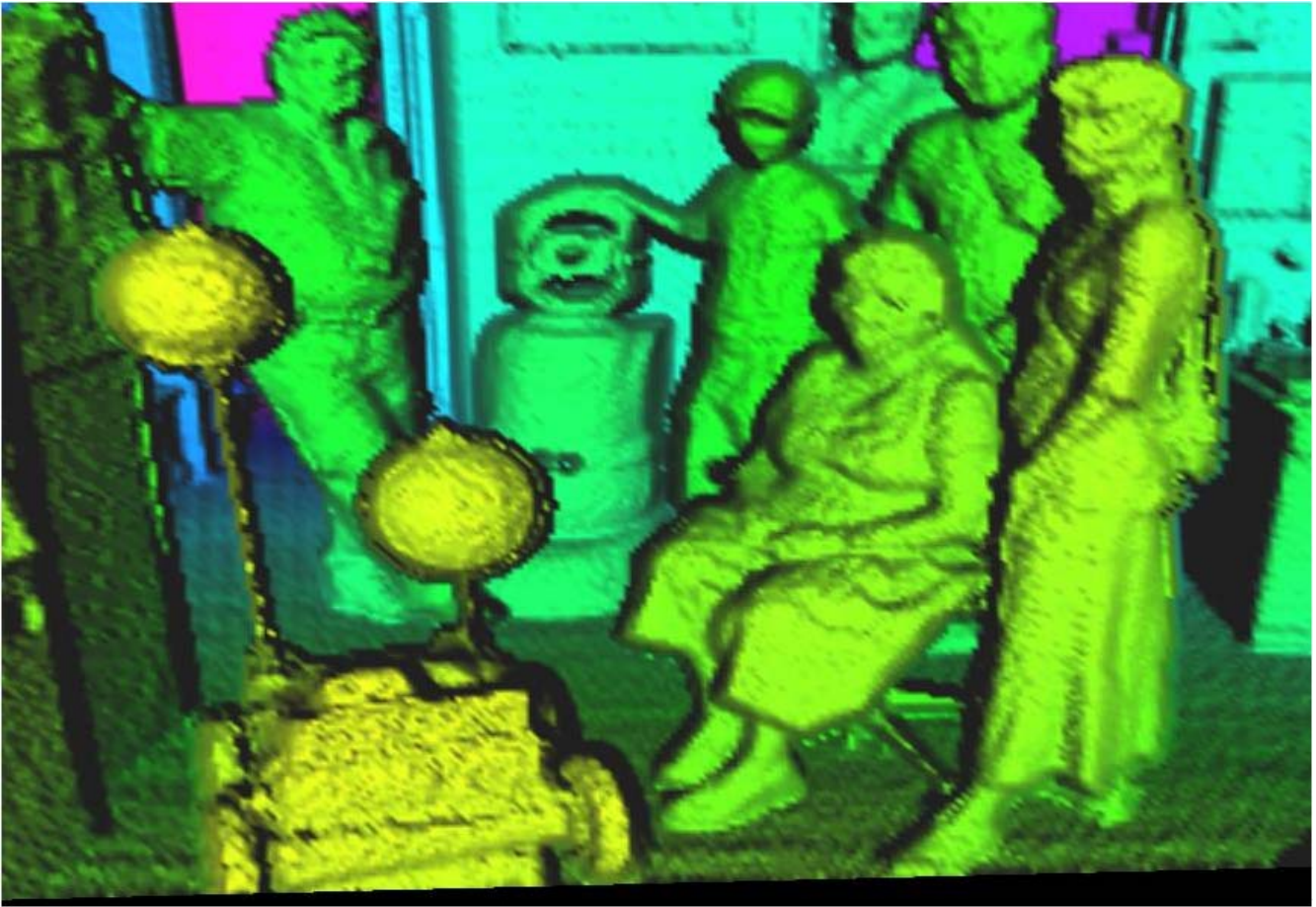
There are 55 participants in this summer session: 35 are engineering grads – including some unpaid foreign national consultants from five countries; 13 undergrads; seven high school interns here to learn. Ten engineering projects were completed for six different scientists; three for the Satellite Servicing mission, which has already flown one on a zero-G flight; two for the Engineering Directorate; two for Flight Projects in Code 400.



This is the second version of an autonomous robotic vehicle which is designed to carry a Ground Penetrating RADAR across the two-mile deep Ice summit in Central Greenland. It is powered by Sun and Wind so it can operate autonomously for three months while being monitored remotely through a IRIDIUM satellite link. It is designed just like a NASA spacecraft but it operates on Earth.

The Boot Camp has collaborated with Code 547 to professionally manufacture parts for some of the robotic projects. This enables the products to actually be used by the NASA customer, but it costs only a small fraction of the norm for the engineering.

(EBC continued on page 14)



(EBC continued from page 13)

Hardware has been designed, analyzed, built and used in most cases. Some designs are slated to be built in the Fall. The LIDAR image above is part of an ongoing software development among the Boot Camp grads and several universities. They are developing novel ways to use LIDAR for Artificial Intelligence in an autonomous Robotic Group Exploration effort. Several technical papers and theses are springing out of this work. Several participants are being interviewed for full-time jobs with contractors. Every one of the participants has testified to the amazingly productive and memorable experience they have had in this inspired work environment. It is a Win for the participants and for GSFC all around. Currently it has been operating with *ad hoc* funding only; yet one would think this is a multi-million dollar operation. They have just been very successful at leveraging excess equipment from labs that are closing, soliciting support with minimal burden, getting things done within the available resources, and impressing everyone who visits with an incredible enthusiasm for doing great work at NASA. The program makes all of us at GSFC very proud.

Follow this link for more about the GSFC Robotics and Engineering Boot Camp
http://mediastream.ndc.nasa.gov/COOLSPACE/spioffice/albums/spioffice_menu.html

Matt Harrington
Code 400 Summer Intern

Aruban-Born NASA Engineer & His Team at the Final Shuttle Mission

Dr. Edward Cheung has spent his entire career as a robotics specialist with NASA, which funded his scholarship to Yale University to obtain his PhD in Electrical Engineering. In 1990, a recruiter from NASA observed his doctorate dissertation, resulting in a summer job at Kennedy Space Center (KSC) and the start of his career with NASA, where for many years he was Principal Engineer of the Hubble Space Telescope Servicing Project. Since the last mission to Hubble in May 2009, Dr. Cheung and his team have focused their talents and expertise on a new project with Ed holding the position of Robotic Refueling Mission (RRM) Electrical Lead.

The RRM goal is to refuel communications and weather satellites while in orbit, and their experimental equipment went to the International Space Station with the last launch of the Atlantis on July 8, 2011. Ed was very much involved in this final mission, acting as a presenter in the “Tweet Tent” on the day of the launch, when thousands came to witness this last historic take-off of a manned orbiter from KSC.

“I was surrounded by people who had, for a large part of their lives, been part of the space shuttle program,” he recounts, “and afterwards, at Goddard and Marshall Space Flight Center (MSFC) while following the final landing on July 21st, I had a moment, as I watched Atlantis climb, of amazement, and when it was all over, a feeling that if I could at that moment wave a magic wand allowing the shuttle program to continue, I would be a hero to the NASA people with me.”

The RRM project will be entirely controlled by Dr. Cheung and his team from the ground, and he recently returned from MSFC, which will be working in conjunction with the RRM team, to his home base of Goddard Space Flight Center in Maryland.

NASA has several ongoing projects for space exploration and the improvement of aeronautics, including ways to make aircraft safer and more environmentally responsible. Dr. Cheung’s project will double the life of satellites, which at present are sent to a “space junkyard” once they have expended the fuel tanks filled at launch. His team is also developing the robotics to effect repairs on satellites, which will save millions of dollars in replacement equipment.

Though a number of Dr. Cheung’s colleagues have moved into the private sector, which may offer higher pay, he and his team feel the “esprit de corps” of being a part of NASA, often in the forefront of developing and advancing the technology for space exploration. His years with the HST have made him a confirmed “Hubble Hugger,” and being such an integral part of that ground-breaking project is something that he will always treasure.



Edited from The Aruba Morning News
Rosalie Klein, Reporter

Code 400 Peer Award Winners for 2011

Boundless Energy

Angela L. Conley, Code 460

"To MAVEN's Travel Queen, who provides such excellent service for travelers who roam the Earth on their journey to Mars, and without whom the journey would not be possible."

Robert W. Lambeck, Code 560/Muniz Engineering

"Mr. Lambeck's contributions to NPP mission success have been clearly demonstrated through his tireless efforts to first become educated and then to apply that knowledge to re-engineer the NPP observatory environmental test program."

Evan K. Goldstein, Code 426/Stellar Solutions Inc.

"For your sustained superior performance, integrity, teamwork and energy, which resulted in the successful delivery of the Glory Observatory."

Mission Impossible

Ronnice N. Wedge, Code 422

"To Ronnice Wedge, a manager who not only manages, but also mentors and positively encourages her staff to think outside the box and strive to deliver better service for our project staff."

Jeanine E. Murphy-Morris, Code 427

"For your unwavering dedication to the LDCM Project and your outstanding leadership of the Operational Land Imager instrument through many years of political turmoil and project redirection."

John H. Eckhardt, Code 140

"For your commitment to the fight for JPSS and the Government's rights!"

Karen M. Latham, Code 474/ASRC Research & Technology Solutions

"Karen is a true asset to the JPSS Program and we appreciate all that she does to support the many personalities and organizations within the JPSS Program. She does it all with a smile."

Robert F. Miller, Code 461/ASRC Research & Technology Solutions

"For your creativity and dedication in producing and analyzing the multitude of MMS schedule products."

(Awards continued on page 17)

(Awards continued from page 16)

Steady Helm Award

Diane Stassi, Code 443

“For your unwavering commitment and steady management of NIRCcam through some difficult times. Thanks for keeping things together and moving forward!”

Virendra Thanvi, Code 581

“For keeping the Japanese Advanced Land Observing Satellite downlink through NASA’s Tracking and Data Relay Satellite team on track and focused while fostering a climate for high morale and mutual respect.”

Janice K. Smith, Code 474

“For your steadfast determination and exceptional achievement in the Joint Polar Satellite System Ground System contract transition.”

Evan H. Webb, Code 599

“For your energy, dedication, and superior systems engineering leadership and management for the Landsat Data Continuity Mission.”

Lynn Westine, Code 426/BW Solutions

“For your leadership, under very difficult circumstances, on the front lines of Glory Observatory Integration and Test which greatly contributed to the development of the Glory mission and resulted in successful delivery of the Glory Observatory to the launch site.”

Rookie of the Year

Mary G. Reph, Code 442

“In recognition of your valuable contribution to the Flight Project Directorate’s new business efforts from 2009 – 2011: culminating in the writing of an outstanding cost volume for a Discovery proposal (submitted September 2010); and your leadership of an Explorer proposal (submitted February 2011) in which you displayed a sustained commitment to the principles of sound project management.”

Justin C. Gronert, Code 423/ADNET Systems

“Justin just started on the SDE3/EMS project a year ago. He is a problem solver with a can-do attitude, very knowledgeable for being at the “junior” level he was hired on as, very eager to please everyone he works with, and never expects anything in return. He is an awesome employee.”

(Awards continued on page 18)

(Awards continued from page 17)

Jerry Nagy, Code 560/Muniz Engineering

“For outstanding support to NPP as I&T Manager.”

Unsung Hero

Donna L. Burfoot, Code 420

“Donna is not active in the day-to-day management of the ICESat-2 Project, however her behind the scene support and expert analytical work are a foundation for timely and effective project management decisions. She embodies the qualities of dedication and teamwork and is certainly an individual worthy of the Unsung Hero award.”

Linda M. Fatahi-Yar, Code 427/ASRC Research & Technology Solutions

“In recognition of your Unsung contributions (which now are Sung) in tireless support of processing deviation, change, and waiver requests, and contract modifications; and for your ceaseless efforts to prod recalcitrant engineers.”

Helen D. Wright, Code 480/Vantage Systems Inc.

“For quiet, consistent and dedicated resources support to the POES Project and always demonstrating good humor and grace, Helen Wright is truly deserving of the Unsung Hero Peer Award.”

Joel B. Acree, Code 420/Vantage Systems Inc.

“Joel Acree is quietly but constantly saving the day. He is the Lead System Administrator for the Earth Science Projects division. Joel has always gone above and beyond for everyone who has a question or a problem, be it his immediate IT team, the projects he supports or Goddard as a whole.”

Donna Smith, Code 401/ASRC Research & Technology Solutions

“In recognition of your unique contributions, persistence and ability to consistently implement Improvements enhancing the overall business and technical processes within the Advanced Concepts & Formulation Office.”

Tamara A. O’Connell, Code 426/QinetiQ

“For your dedication, as the behind-the-scenes thermal systems engineer, and ability to lead by influence with Raytheon and Orbital, resulting in a fully verified Observatory thermal design resulting in Glory launch readiness in February 2011.”

(Awards continued on page 19)

(Awards continued from page 18)

Wild Card

Linda A. Greenslade, Code 470

“For your tireless efforts in helping to establish the new JPSS program, and gaining the complete confidence and respect of the NOAA and NASA senior leadership through your dedication, integrity, and high work standards.”

Matthew Mazur, Code 440

“Thank you for your long hours, hard work, and dedicated support in the preparation and execution of the MOSES II contract. Your efforts will help ensure that Hubble continues to operate for many years to come!”

John B. Satrom, Code 426/Stellar Solutions, Inc.

“For your sustained superior performance, integrity, teamwork, and ability to fulfill multiple critical roles, which resulted in the successful delivery of the Glory Observatory.”

Diversity

Kevin P. McCarthy, Code 453

“For the tireless promotion of diversity, the selfless concern for others and success in collaborating with people from all backgrounds.”

Mentor

Matthew W. Ritsko, Code 463

“For an individual who truly embraces his role as a mentor and who has demonstrated time and again his commitment to positively influence early-career employees towards developing and achieving their career goals.”

Henry P. Wong, Code 420/SGT Inc.

“For your dedicated service mentoring many current and future NASA project managers, passing on your experiences from >40 years of NASA service starting with the Apollo program, and your efforts to facilitate project and program managers, in their day to day efforts to execute missions within budget and schedule constraints.”



Social News

Congratulations to Ross Bagwell (423). The U.S. Army Reserve published the Command Sergeant Major Designee List (for future promotion) and Ross was one of 113 (out of 230) that were selected. He is a military reservist with over 24 years of service.

The Critical Path Editor, Howard Ottenstein (403) and his wife Marcia recently celebrated their 50th Wedding Anniversary. To observe the occasion they went on a cruise (19th) aboard the Queen Mary II (first) on a delightful visit to Canada and Boston. They arrived in the latter city on Independence Day and saw the sailing of the Constitution (it leaves the dock just once a year) followed by a flotilla of small craft, and the nighttime fireworks celebrating the 4th of July.

Congratulations to Joshua Abel (441) and his wife, Elisabeth, who welcomed daughter Aubrey Elise on July 25. She arrived at 10:40 a.m., weighing 7 lbs., 3 oz., and was 20" long.

Proud parents, Kristina Safdie (432) and Chris Pevear announce the birth of their daughter, Miranda Temperance, born on July 9, 2011, at 7:05 a.m. She weighed 6 lbs. and was 18.5" long.

Bob Caffrey (460) and his wife Kirsten were blessed with another daughter. Brynn Rose was born on August 3 at 10:52 a.m., weighing 6 lbs., 11 oz., and was 19" long. Big sister, Kiera is very excited about having a baby sister!

Congratulations to Steve Benner, Mission Capture Group Lead in the Advanced Concepts and Formulation Office (Code 401), for a published article in the July edition of *The Celator*, a Journal of Ancient and Medieval Coinage. Steve's 10-page article is entitled "*History and Coinage of the Akarnanian Confederacy*" and provides great information about his interest in researching the history behind the human face on a bull's head on one side of specific coins and why the designs were used. Steve has been an ancient coin collector for over 35 years specializing in coins of the ancient Greek leagues and is the author of the book [Achaian League Coinage of the 3rd Through 1st Centuries B.C.E.](#)

Agency Honor Awards

The Agency Honor Awards Ceremony was held on August 4, 2011. Noted below are awards to Code 400.

OUTSTANDING LEADERSHIP MEDAL

Elizabeth Citrin/Code 470

For exceptional achievement in leading the Solar Dynamics Observatory project team in the successful development, launch and on-orbit performance.

Bryan Fafaul/Code 472

For outstanding leadership, dedication and flawless management of the Glory Project, leading up to and including launch.

Robert Lilly/Code 429

For outstanding management expertise and leadership skills in building a team, a project and a mission, the Solar Dynamics Observatory.

Pamela Sullivan/Code 472

For outstanding leadership and contributions to maintaining continuity in weather coverage and climate monitoring.

EXCEPTIONAL ACHIEVEMENT MEDAL

Gregory Frazier/Code 460

For exceptional effort in support of the successful completion and delivery of the Sample Analysis at Mars instrument suite.

Keith Walyus/Code 450

For outstanding litigation preparation and hearing execution in defense of the Space Network Ground Segment Sustainment General Accountability Office procurement protest.

(Honor Awards continued on page 22)

(Honor Awards continued from page 21)

EXCEPTIONAL SERVICE MEDAL

Wynn Watson/Code 428

For exceptional service to the Satellite Operations Center and outstanding vigilance and attentiveness to the NASA Earth Science assets it commands.

EXCEPTIONAL PUBLIC SERVICE MEDAL

Peter Gonzales/SGT/Code 422

For outstanding leadership and excellence in the development and execution of the functional test program and mission operations concept for the Solar Dynamics Observatory.

GROUP ACHIEVEMENT AWARD

The Earth Science Constellation Red Team

For outstanding coordination, analysis and resolution of the Landsat 5 orbit crossings through the Earth Science Afternoon Constellation (A-Train) to ensure satellite safety.

The Glory Project Team

For exceptional team commitment, dedication and perseverance in completing the Glory Observatory.

The LANCE Near-Real Time System Team

For exceptional accomplishment in resolving the LRO C&DH Reset Anomaly.

The MAVEN Phase B Team

For outstanding teamwork in meeting all technical, schedule and cost objectives during Phase B, putting NASA in good stead on its journey to Mars.

The Sample Analysis at Mars Team

For exceptional achievement, dedication and technical expertise in the successful completion and delivery of the Sample Analysis at Mars instrument suite.

(Honor Awards continued on page 23)

(Honor Awards continued from page 22)

The Solar Dynamics Observatory Team

For exceptional dedication, skill, teamwork and perseverance in developing and delivering the Solar Dynamics Observatory to its long-awaited science mission.

Teams Nominated & Recognized By Other Centers

TDRS-1 Disposal Support Team

PUBLIC SERVICE GROUP ACHIEVEMENT AWARD

Solar Dynamics Observatory Parts & Radiation Team

For sustained efforts in implementing an innovative flight parts program and ensuring quality flight parts for the Solar Dynamics Observatory mission and its success.

The Advanced Baseline Imager PTM Instrument Team

For successfully developing and qualifying the prototype Advanced Baseline Imager instrument, the Nation's most advanced geostationary weather imager.



NASA PM Challenge 2012

Mark your calendars for NASA PM Challenge 2012 !

“Evolve and Excel” is the theme for PM Challenge 2012, to be held in Orlando, Florida on February 22-23, 2012.

Check out the new website at: <http://www.nasa.gov/pmchallenge>

Find out:

1. How to submit a speaker proposal
2. How to nominate a panel
3. Where to make hotel reservations
4. How to be an associate/volunteer with the PM Challenge team

The PM Challenge is sponsored by [the Office of the Chief Engineer](#) and [the Office of Safety and Mission Assurance](#).

Comings & Goings

April 1 through August 31, 2011

Comings:

- * Vincent Galbraith to 450/Exploration & Space Communications Project Division, Deputy Spectrum Manager
- * Tynika Rawlings to 443/JWST Project, Sr. Resource Analyst
- * Charlotte Johnson to 422/GPM Project, Sr. Resource Analyst
- * Sandy Sumner to 427/LDCM Project, Sr. Resource Analyst
- * Steve Shinn to 400/FPD Deputy Director for Planning & Business Management
- * David Haskins to 441/HST Operations Project, Deputy Operations Manager
- * Richard R. Harman to 444/SSMO Deputy Project Manager
- * Michael W. Rackley to 452/Space Network Project, Deputy Project Manager
- * Eric Moyer to 428/ESMO Project, Deputy Project Manager
- * Robert Thoman from 592 to 453/Ground Network, NEN NASA Stations Manager
- * Dr. Don Cornwell to 450.2/LLCD Mission Manager
- * Joe Sparmo to 444/SSMO SSMO Ground Systems Manager and GSMO COTR
- * Keith Parrish 443/JWST Project, Observatory Manager
- * Michael Scott to 472/JPSS Flight, CrIS Instrument Manager

Goings:

- * Michelle Crigger to 153/Program Analyst

Lisa Hoffman, Administrative Officer Code 400

(Shinn Tintype continued from page 3)

management, project scheduling, security administration, capital planning, facilities management, and flight hardware execution.

Prior to this position, Steve was a Senior Business Manager with Computer Sciences Corporation (CSC) overseeing system integration programs for the Federal Aviation Administration (FAA) and the Internal Revenue Service (IRS) as well as numerous other programs with contract values ranging from \$10 million to \$15 billion.

Life at Goddard: “Drinking from a fire hose” is a popular (and fitting) aphorism around GSFC. He’s quickly learning his way around, absorbing all of the new acronyms, and meeting a lot of really impressive people. Steve is responsible for the strategic initiatives and organizational processes that must be planned and deployed throughout the Directorate in order to successfully support its mission in matters relating to business, resource management, performance management,

(Shinn Tintype continued on page 25)

Quotes To Think About

“To care for him who shall have borne the battle,
and for his widow, and his orphan.”
Abraham Lincoln

“Give me a lever long enough, and a fulcrum strong enough, and single-handed
I can move the world.”
Archimedes

“Contentment is the smother of invention.”
Cynic’s Calendar

“For I dipt into the future...
Saw the heavens fill with commerce, argosies of magic sails.”
Alfred Tennyson

“You must do the thing you think you cannot do.”
Eleanor Roosevelt

Responding to one of his players recommending that ‘he walk more with the Lord’
“I’d rather you walk with the bases loaded.”
Earl Weaver – (Manager/Baltimore Orioles)

(Shinn Tintype continued from page 24)

organizational staffing, workforce development, human resources processes, core capabilities, and physical assets. There are several new and existing initiatives vying for attention. Most notably, Steve is analyzing Goddard’s planning activities, project control processes, and management reporting with the intention to find ways to further improve cost and schedule performance on missions.

Family: Steve has been married to Jennifer, an Anne Arundel County 8th grade math teacher, for 9 years. They have two wonderfully exhausting boys, John, 3½ years old, and Andrew, 15 months old.

Life Outside of Goddard: Steve resides in Annapolis, Maryland, where he has been renovating a 90-year old home and after 12 years, 16 stitches, and countless days filled with drywall dust, the home is nearly finished. For his daily exercise, Steve’s yellow lab (Brody) takes him for an “exhilarating” carefree morning run. Steve is also a professor in the Master’s program at the Johns Hopkins University Whiting School of Engineering. Steve grew up 10 minutes from Philadelphia and is an avid Philly sports fan. E-A-G-L-E-S! While free time has become a precious commodity, Steve enjoys spending time with family, skiing, reading, playing tennis, and woodworking.

Cultural Tidbits

Did you Know.....

There are some etiquette tips for working with individuals who have visual impairments:

- * When speaking, always identify yourself and introduce anyone else
- * Speak distinctly, using a natural conversational tone and speed
- * Be an active listener and use verbal cues
- * Do not avoid visually descriptive language; be precise and thorough when you describe things
- * Verbally extend a welcome if the person does not extend a hand to shake hands
- * Do not distract dog guides, they are not pets, but rather highly trained mobility tools
- * When offering seating, offer a verbal cue or ask if you can take the person's hand, and place it on the back or arm of the seat
- * Let the person know if you move or need to end the conversation

Remember if you don't know, just ask! Appreciating our diversity and allowing everyone opportunities helps build stronger teams.

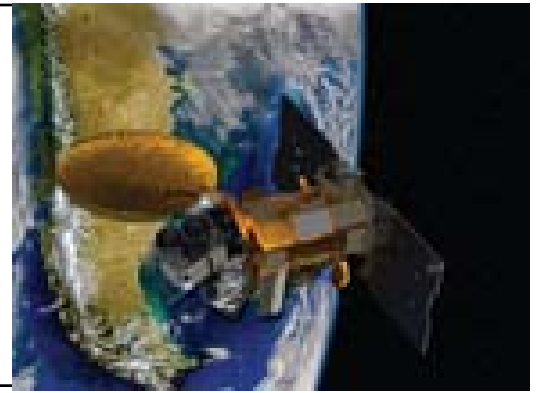
Do you have a cultural tidbit to share? Send it to the Code 400 Diversity Council c/o Matthew Ritsko at matthew.w.ritsko@nasa.gov and we'll publish it in a future issue.

New Code 400 Logo

Keep your eyes peeled and ears open for the new Flight Projects Directorate logo, and the name of the contest winner. The contest ended on July 30th. There were approximately 50 applications submitted.

New NASA Salt Mapper to Spice Up Climate Forecasts

Aquarius / SAC-D is busy gearing up to measure the ocean's saltiness from its orbit 400 miles above Earth. The 3-year international mission, a collaboration between NASA and the Argentine space agency, was launched aboard a Delta II rocket from VAFB, CA on June 10, 2011. GSFC will manage mission operations and process scientific data.



(Ketchum Silverman Tintype continued from page 3)

Education:

BA, Mathematics, William and Mary;

MS, Applied Math, Johns Hopkins;

DSc, Mechanical Engineering/Astronautics, George Washington University

Life at Goddard: Eleanor started working at Goddard as a freshout and PIP (she is glad that program is still around) in flight dynamics in 1986. She worked with many of the great observatories including GRO, UARS, EUVE and then TOMS-EP and some other spacecraft ground support. She got to poke around and see what it's like to send commands and fiddle with other people's spacecraft.

From there, having not caused any real damage, she moved into design and build of attitude control systems in the former Special Payloads division, Code 745. These were perhaps the most fun couple of years of her career. She worked Small Explorers and Spartan Programs.

Then, she had the privilege of being the systems engineer for the Geoscience Laser Altimeter System (GLAS), the only instrument on ICESat1. OK, THAT was the most fun 5 or so years of her career. Doing in-house instrument work was invaluable technical growth work, and working side by side with Ron Follas the brilliant instrument manager was an experience that she selfishly takes with her every day.

Life Between Goddard Lives: Eleanor left her NASA badge behind in 2004 for another government badge. She thinks perhaps THAT was the most fun 5 years of her career. It was certainly good career growth, including experience with cost estimation/analysis, large out of house project and program management, and a lot of "sir" and "ma'am" -ing, which really isn't so bad.

On family: Eleanor resides in Catonsville, "life is great in 21228." She has been married to Mike Silverman for 17 years, and has a 10 year-old daughter and 5 year-old son. Both swim, play lacrosse and soccer – it is, of course, all about them!

Life outside of Goddard: Eleanor studies classical piano. Also, she and her family are committed beach people. She is active at St. Bartholomew's Episcopal Church in Baltimore doing everything from Sunday school, to several terms of vestry, to homeless shelter work. Finally, she is trying, so far unsuccessfully, to break her blackberry habit, a new problem since rejoining NASA in 2009.



The Last Shuttle

FUTURE LAUNCHES CALENDAR YEAR 2011	
NPP—RSDO S/C	OCT
MSL / SAM	DEC

**ATTENTION INTERNET
BROWSERS:**

We're on the WEB
<http://fpd.gsfc.nasa.gov/news.html>
 Or via the New "Code 400"
 Homepage
<http://fpd.gsfc.nasa.gov>



The Critical Path
 Published by the Flight Projects
 Directorate
 — In April, August, and December —

Howard K. Ottenstein,
Editor

Nancy L. White,
Production Assistant/Photographer

Paula L. Wood,
Editorial Assistant

If you have a story idea, news item, or letter for The Critical Path, please let us know about it. Send your note to Howard Ottenstein via Email: Howard.K.Ottenstein@nasa.gov, Mail: Code 403, or Phone: 6-8583. Don't forget to include your name and telephone number. Deadline for the next issue is November 16, 2011.