

The

Critical

Path

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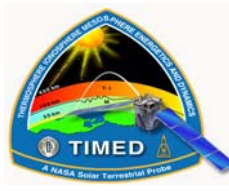
A FLIGHT PROGRAMS AND PROJECTS DIRECTORATE QUARTERLY PUBLICATION
A Newsletter Published for Code 400 Employees

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IT'S FINALLY TIMED'S TIME!

TIMED was successfully launched from Vandenberg AFB aboard a Delta II launch vehicle on December 7, 2001. Project Manager, Bruce Campbell tells us all about the activities leading to the launch, the spacecraft mission, and the instruments aboard.



Like so many science missions we support here at Goddard, the concept for TIMED came about many years ago. The first call for a mission like TIMED, which stands for Thermosphere-Ionosphere-Mesosphere Energetics and Dynamics, came from the National Academy of Sciences in 1981, even though the real emphasis by the science community for a TIMED-like mission began in 1988. A TIMED study was approved by NASA HQ in 1989, and a Sci-

(TIMED Continued on page 4)

THE TRIANA ADVENTURE

About 3 years ago, a GSFC project was formed to take on an exceptional challenge - to develop, build, and launch onboard the STS, the Triana Observatory - in less than 3 years time! Little did the project team know that was only going to be a fraction of their challenge. As they soon became aware, they would also have to complete their work under very dynamic, and unstable, programmatic circumstances. They endured a 5 month Congressionally mandated work stoppage and review by the National Academy of Sciences, a 5 month programmatic restart, several STS launch date changes, demani-



(TRIANA Continued on page 8)

GOOD LUCK JOHN CAMPBELL

Printed below is an abstract from the December 13, 2001 message from Center Director, A. V. Diaz:

"I am pleased to announce that Dr. John Campbell will become the next Director of Suborbital and Special Orbital Projects, replacing Dr. Torres at the Wallops Flight Facility, effective January 13, 2002. From his experiences in the Hubble Space Telescope program and as Director of Flight Programs and Projects, Dr. Campbell will bring a wealth of program and project management experience, strong relationships within the NASA program and project management community, and a strategic perspective on space and Earth science programs that will greatly benefit the Wallops Flight Facility as its role within the Center and Agency continues to transition into the future.

Upon Dr. Campbell's reassignment, Mr. Bill Townsend will assume the responsibilities of Acting Director of Flight Programs and Projects in addition to his role as Deputy Director of the Center, pending designation of a longer-term replacement."



Wallops Bound

Editor's Note:

The staff of The Critical Path join all employees and support personnel of Code 400 in wishing John Campbell a bon voyage (over the Chesapeake Bay) to the WFF. We thank him for his outstanding contributions to the FP&PD, and wish him the very best at Wallops.

"Cultural Tidbits"

Did you know ...

Storytelling and proverbs are revered in African culture. These oral traditions convey history, traditions, and values, preserving them for generations to follow. Their use continues to evolve and thrive today through communal experiences where they are told and retold.

Proverbs are the daughters of experience. - African Proverb

"...it is only the story that can continue beyond the war and the warrior. It is the story that outlives the sound of war-drums and the exploits of brave fighters."

- Chinua Achebe, Nigerian Novelist and Poet

Do you have a cultural tidbit to share? Send it to the Code 400 Diversity Council c/o Andrea Razzaghi @ andrea.i.razzaghi@gsfc.nasa.gov and we'll publish it in a future issue.

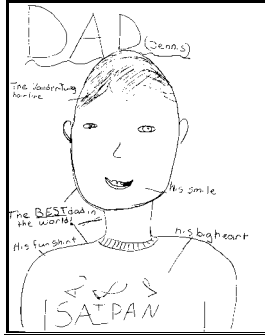
Note—Material abstracted from 2001 "Honoring Difference" calendar.

Andrea Razzaghi,/Code 424

PERSONALITY TINTYPES

Dennis Vander Tuig

Dennis Vander Tuig is Business Manager for the Mission Services Program, Code 450. The MSP transitioned into the FPPD in December 1997, as part of the "Project Goddard" reorganization. The Program is responsible for managing space operations activities at Goddard. The MSP works with the Space Science and Earth Science Operations organizations, and with Code M's Space Communications Office, the JSC-based office formerly known as SOMO, and the Consolidated Space Operations Contract. The MSP manages the Space Network, Ground Network, TDRS project, and a customer commitment office, providing resources necessary to meet space communications and operations needs of Goddard's flight projects and other NASA and non-NASA customers.



Dad's picture drawn by 9-year old daughter Gillian

Born: Sheldon, Iowa

Education: Bachelor's degree in philosophy and history from Calvin College in Grand Rapids Michigan. MS in Management from University College, University of Maryland.

Family: Dennis, his wife Mary Monsma, daughters Dena and Gillian, and son George William (GW), live in Silver Spring. Mary is a freelance natural science illustrator. Dena is a junior and GW is a freshman at Richard Montgomery High School in Rockville, and Gillian is a fourth grader at Charles E. Drew Elementary School in Silver Spring. Music activities (including vocal, piano, stringed instrumental) are a big part of their lives, with sports and drama filling most other available schedule slots.

Life in the Mission Services Program

Dennis seems to spend much of his time converting the latest management plans and organization charts of the agency's Space Operations program into a sensible structure for Goddard's space operations program activities. Developing and maintaining an appropriate set of business processes for a JSC-managed program, including the challenging transition to the agency-wide Consolidated Space Operations Contract, within FPPD framework, ensured adequate job security and few dull moments when the MSP organization

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Jaya Bajpayee

Jaya Bajpayee joined the Flight Programs and Projects Directorate in April 2001 as the GOES-R series Observatory Manager. This series of satellites will fly advanced instruments for imaging, sounding, solar viewing and space environment monitoring. Jaya says that developing an operational satellite that can accommodate instruments with so much new technology is very exciting.



Born: West Bengal, India

Education: Jaya has a BSEE degree from the University of Pittsburgh.

On Family: Jaya is very close to her family, most of whom live in Pittsburgh. She is especially fond of her 18-month old nephew.

Life on GOES: Jaya loves it! The work is challenging, extremely engaging and, moreover, fun! Each day provides opportunities to learn, contribute and interface with colleagues who are as enthusiastic as she is. Jaya feels extremely lucky to have GOES managers who are experienced and very supportive.

Jaya originally came to GOES in September 1998 as the Solar X-Ray Instrument (SXI) Manager for the GOES N-Q series. Her previous job was Range Safety Officer at Wallops. This was her first exposure to GSFC's project environment and instrument management. Her new role required some adjustments in attitude and approach. However Jaya feels the GOES Program provided the support structure that allowed her to learn quickly and perform. She is very thankful to Marty Davis, the GOES Program Manager, for giving her this opportunity.

As GOES-R series Observatory Manager, Jaya is involved in all thoughts and ideas regarding the capability of the sensors, the architecture of the constellation, how to best achieve image navigation and registration, allow for continuous technology infusion and the list goes on. Jaya says it is great to be in the midst of so much imagination. She believes one of her major responsibilities/

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FEEDBACK

GSFC Resident Office at KSC

- Security policy has remained in place and will continue into 2002 at Cape Canaveral Air Force Station (CCAFS) and Kennedy Space Center (KSC). NASA badges or "Mission Badges" have been authorized for payload mission specific personnel. GATE 3 (perimeter badging gate in the vicinity of U.S. #1 and Space Camp south of Titusville on Highway #405) issues "Mission Badges." All "Mission Badges" must be returned to the GSFC Resident Office at the end of the payload campaign. Projects should check with our Resident Office before travel to get security requirement updates.
- Hubble Space Telescope Service Mission (HST SM 3B) is currently being processed at the Vertical Processing Facility (VPF). Due to an unexpected event with the HST, the launch date is being tentatively re-scheduled for no earlier than February 28, 2002. A problem surfaced a month or so ago when one of the observatories' four steering mechanisms shut down for 7 minutes. The satellite uses three reaction wheels to point the telescope precisely and carries a fourth as a spare. Plans are to repair this problem during the mission, which has required new planning and additional astronaut training.
- On December 5, 2001, we had the successful launch of STS-108. MACH 1, GBA, LMC, PSRD and Get-Away-Special (GAS) were the GSFC payloads on board this flight. STS-108 landed on December 17, 2001, just before the holidays; de-integration began early in January.
- Delays have precluded payload TDRS-I from being delivered in 2001. TDRS-I arrived at KSC on Feb. 4, 2002. It will be processed in the Spacecraft Assembly and Encapsulation Facility (SAEF II) and launched from Cape Canaveral Air Force Station PAD 36 (ATLAS PAD).
- Year 2002 started out with the completion of the remodeling of the

(TIMED Continued from page 1)

ence Definition team established in 1990. Goddard's involvement began around this time in the old Code 400 Advanced Missions Analysis Office (AMAO), which completed a Pre-Phase A study in June 1991. Anticipating approval to proceed into



TIMED IN THE PROCESSING FACILITY AT VAFB

Phase A, a Project Office was established at GSFC, headed by Harry McCain, to begin these studies. (Some other familiar names on TIMED included Phil Sabelhaus, Gil Colon, Karen Halterman, and Jim Andary, all current titans at Goddard.)

The original science requirements called for a total of fifteen different instruments and two spacecraft at different inclination orbits. The mix of remote sensing and in-situ instruments required the spacecraft to be able to “dip” into the Mesosphere-Lower Thermosphere-Ionosphere (MLTI) region of inter-

est (60 - 180 km altitude) on a regular basis to make measurements. The goal for total mission development costs was \$300M. The Phase A Study Team accepted this challenge and produced several different mission configurations during the study, some very novel and all very interesting. However, the budget just could not support everything the full mission was calling for. In June 1993 the requirement for dipping was eliminated (despite our “Save the Dipper” T-shirts) and that December the proposed funding for the mission was reduced to \$150M. The Project Office was dissolved and the study (and I) transferred back to AMAO to begin anew. Despite a concept that incorporated off-the-shelf spacecraft busses (pre-RSDO), it was apparent that a reduction of the science objectives was necessary. In July 1994 the mission study was transferred to the Johns Hopkins University Applied Physics Lab (APL) and I was lucky enough to join the TRMM project.

Around the time of the TRMM launch (November 1997) TIMED reared its head again at GSFC. A Project office was being formed to oversee APL development of TIMED, which was approaching its Critical Design Review. John Wolff, who also supported TRMM, was assigned as the Project Manager, and I convinced him that, with my background in TIMED, he needed me as his Mission Systems Engineer. The mission had evolved considerably. It was now a single APL “in-house” spacecraft carrying only four of the original (nine) selected instruments. The total mission cost goal had also been further reduced with a “cap” specified. Another interesting change was the co-manifest of TIMED (Code S) with the JPL/CNES Jason (Code Y) spacecraft for launch on a Delta vehicle using the new Dual Payload Attach Fitting (DPAF). A unique “Lite-touch” management arrangement between GSFC and APL was to be used, so the GSFC Project office was very small. When the Solar Terrestrial Probes program office was established at Goddard, TIMED became the first of these missions. In addition, the requirements for a Red

(TIMED Continued on page 5)

(TIMED Continued from page 4)

Team review and software IV&V were imposed late in TIMED development. All of these things contributed to an interesting and challenging experience.

The APL spacecraft design incorporates a number of unique systems and concepts. One of these is the Integrated Electronics Module (IEM), a “spacecraft in a box” concept where several spacecraft subsystems (C&DH, GPS Navigation, RF Communications, and Power Conditioning) are integrated and tested within a single package. The systems within the IEM are novel in that they are predominantly solid-state systems on plug-in cards, all designed and built at APL. In addition to being novel, the on-board GPS Navigation system allowed APL to incorporate a higher level of autonomous operations within the spacecraft, using the continuously-calculated position of the satellite to turn systems on and off, change modes, and self-initiate communications with ground stations, as examples. Other “new” (to APL) items include gallium arsenide solar arrays, a Peak Power tracker, and a distributed control architecture (using lots of Actel FPGAs and Mongeese-Vs). The single primary ground station is located at APL where the Mission Operations Center is also located. During routine operations, only a single ground pass per day should be required.

The four TIMED instruments include the Solar EUV Experiment (SEE) built by the University of Colorado, Sounding of the Atmosphere using Broadband Emission Radiometry (SABER) built by NASA Langley and Utah State University, the TIMED Doppler Interferometer (TIDI) built by the University of Michigan and APL, and the Global UV Imager (GUVI) built by APL and the Aerospace Corp. SEE measures the solar input to the atmosphere, and the other instruments measure the energetics and dynamics (temperature, pressure, composition, winds, aurora) within the MLTI. Another interesting aspect of TIMED is that the space-

craft and instruments are somewhat independent. The spacecraft provides resources to the instruments and collects data, but there is very little on-board monitoring or control. Each instrument institution has a Payload Operations Center that receives instrument data from, and sends instrument commands through the APL MOC with very little interaction. All instrument monitoring and science data reduction is done within the POCs.

The original launch date for TIMED was January 2000, but was changed to May of that year after the co-manifestation of TIMED with Jason in late 1997. TIMED I&T began in September 1998 with the flight structure delivery to the clean room at APL. After baseline performance and vibration testing at APL, the spacecraft was transported to GSFC in November 1999 for thermal/vacuum and other environmental testing. Including a short break for



TIMED ON ITS WAY

Y2K (remember that?), testing at GSFC was completed in early February 2000. It was around this time that the first of eight subsequent launch delays occurred as a result of Jason development problems. Instead of shipping to the launch site, the spacecraft was returned to APL for additional testing and storage. The project used much of this time to investigate some spacecraft and instrument component anomalies (like Interpoint converter re-works),

(TIMED Continued on page 10)

LIVE WEBCAST FROM HAWAII

The Aqua Project will conduct another in a series of live webcasts to High Schools and others nationwide. This is an effort to "raise the bar" on how we inform the public about our flight missions. We want to get people interested in what we do because they can see connections to what they are learning about the environment and their ability to affect it. There will be two webcasts from Hawaii featuring scientists associated with each of the six Aqua instruments. Hawaii is a microcosm of Earth Processes, which the EOS Aqua spacecraft will be studying. There are many examples of these processes within a small geographical area, so it is a natural place to host these live events.

Students nationwide will be watching the Aqua scientists in realtime on their computers. They will be able to chat with them and hear their responses, by tuning into this URL, "<http://www.aqua.nasa.gov/outreach/webcast.html>" Anyone can do it. You try it, too.

The Mauna Kea Observatory will host the February 5, 2002 event that is scheduled to air between 1pm and 3pm EST. This will focus on Atmospheric Factors that affect the global climate. The science behind the CERES, AIRS, AMSU, and HSB instruments will be presented by the Investigators.

The MOBY Site in Honolulu will host the second event on Feb 8, 2002, again between 1pm and 3pm EST. This will focus on Ocean Color and the Water Cycle with Investigators from MODIS and AMSR presenting. The Aqua Project Scientist, Dr Claire Parkinson, will host the scientists and present both Sea Ice and the overall EOS-Aqua mission science.

An earlier webcast was made from TRW describing the Aqua spacecraft.

For more in-depth information about the Aqua Science and its relevance to the public checkout this interactive website, "<http://www.aqua.nasa.gov/outreach/splash.html>".

Mike Comberiate, External Interfaces Manager
Code 422

Note: Both webcasts are taking place the week The Critical Path goes to press.



Things You Should Know About

Foreign-Born Adopted Children Need Social Security Numbers

If you've recently adopted one of the approximately 20,000 foreign-born children who immigrate into the United States annually, you'll need to get your child a Social Security number. The Child Citizenship Act of 2000 grants "automatic" citizenship to your child when he or she is admitted to the U.S. as an immigrant, but to issue a Social Security number, Social Security needs an original document as proof of U.S. citizenship.

Even if you don't have proof of your child's U.S. citizenship, you can still get a Social Security number. The documents issued by the Immigration and Naturalization Service (INS) when the child arrived in the United States will serve that purpose temporarily.

You may want to apply for a Certificate of Citizenship from INS or a U.S. passport from the Department of State for your child. Either document is proof of your child's U.S. citizenship. When you get your child's U.S. citizenship documentation, Social Security will update your child's record to show their citizenship. If your child already has a Social Security number, the number does not change when the record is updated.

When you apply for a Social Security number, you can use your child's birth certificate to prove his or her age, but you will still need an identity document. If you apply for a number card for an infant or young child, you can use -

- *The adoption record;*
- *A U.S. INS immigration document;*
- *Doctor, clinic, or hospital records;*
- *Daycare center or school records; or*
- *Religious record (e.g., baptismal record).*

When you apply for a card for your child, you will need to supply proof of your own identity, as well as your child's. You can use -

- *Driver's license;*
- *Employer ID card; or*
- *Passport.*

If you don't have one of these documents, ask your Social Security representative about other documents that you can use.

For more information, visit the Social Security website at www.ssa.gov, call 1-800-772-1213, or visit your local Social Security office.

The Child Citizenship Act, effective February 27, 2001, provides for foreign-born adopted children of U.S. citizens to automatically acquire U.S. citizenship. After this date, most foreign-born children adopted by U.S. citizens automatically become U.S. citizens on the date they immigrate to the United States without having to apply for naturalization.

(TRIANA Continued from page 1)

festing by the STS, and lastly a NASA directed stable suspension which has placed the mission into “hibernation” awaiting a new launch opportunity, now quite possibly on a foreign ELV. Oh, did I also mention two IG audits, an Independent Management Review, two ISO-9000 audits, and a Red Team, too? Nonetheless, the systems were developed and built, but they are yet to be launched. The ability of the team and its implementation approach to accommodate such disruption speaks favorably for their talent, perseverance, and creativity, and for the flight systems’ flexibility, robustness, and convenience. Their journey has been an adventure, a classic love/hate affair!

So, what is the Triana mission? Well ...

The Triana mission will be the first, the pathfinder effort to begin studying the Earth as a planet in deep space, focused on learning more about the planet’s global climate. Triana will be the first Earth-observing platform at the L1 libration point. The Triana data products will be used for scientific research, real-time advisories (volcanic ash locations, solar storms, UV index, etc.), and for public outreach. The Earth has been studied from a “microscopic perspective” for decades with in-situ and near-Earth observations. But as much as we have learned and surmised from these efforts we have yet to observe the Earth from the “macroscopic perspective”, viewing it directly as a full system, providing a continuous global synoptic view of the Sun side of the Earth.

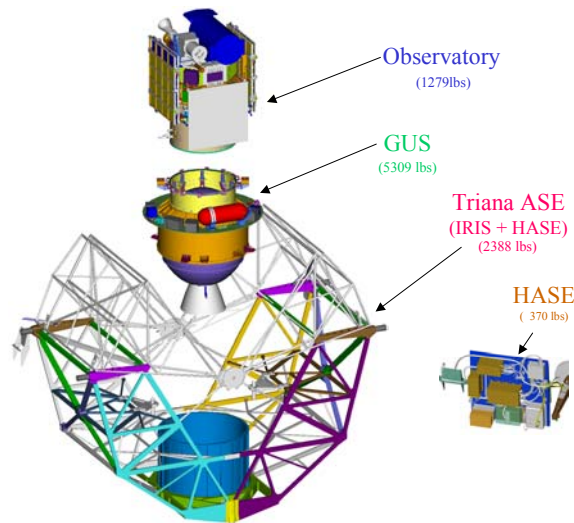
Triana is flying five scientific instruments that will make a broad set of measurements in this field, some unique to this mission, others collaborative with data from other sources, and some complementary to previous work. Taken together as a whole, these data will make significant advances in completing the “patchwork mosaic” of geographically and time-of-day restricted measurements collected by other observing platforms, providing a continuous synoptic view of the Earth’s atmos-

pheric and radiative dynamics.

The observatory and mission development have been implemented as an in-house project at Goddard Space Flight Center, capitalizing on the extensive design, development, and operational experience that has been acquired during the past decade on the Small Explorer Project, Hitchhiker/Spartan Project, and the Hubble Space Telescope servicing missions. Scripps Institution of Oceanography at the University of California at San Diego is providing the core instrumentation and science operations.

The Triana flight system consists of three major elements: the observatory which when mated with Gyroscopic Upper State (GUS) forms the spacecraft; which in turn mated with the IRIS forms the STS payload. Both the Observatory and the GUS are new GSFC designs. The IRIS was provided by Alenia, in Turin, Italy.

The Triana spacecraft is ejected by springs from the



TRIANA PAYLOAD OVERVIEW

IRIS cradle while spinning at 60 rpm. The STS orients the spin axis in the kick motor burn attitude prior to ejection. Approximately a ½ orbit later the

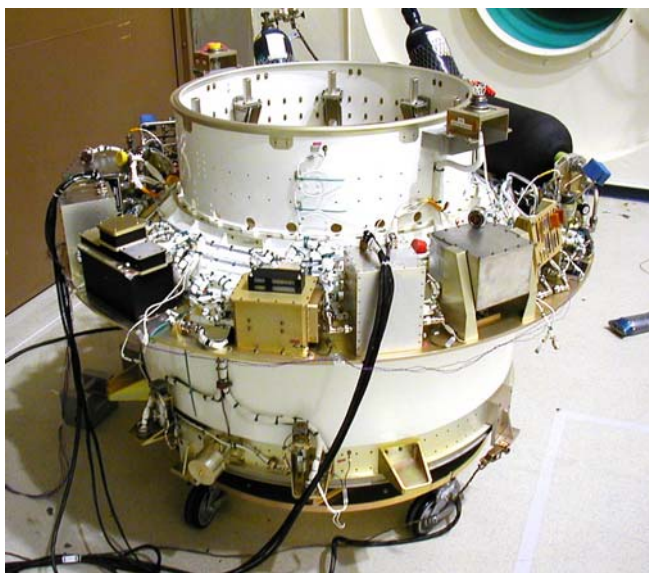
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(TRIANA Continued from page 8)

GUS ignites the kick motor through a two fault tolerant system of interlocked timers. When the motor has burnt out, it is separated from the observatory by a similar series of timers. Once separated, the observatory autonomously despins itself, deploys the solar arrays, and orients itself in a power safe attitude awaiting ground command. After ground tracking determines the exact location of the Observatory, Flight Dynamics will begin a series of hydrazine burns designed to converge the orbit at L1. The journey will take several months to accomplish.



OBSERVATORY PHOTO



GUS FLIGHT UNIT W/O SRM



STAR-48B SRM

The Triana observatory is based on the SMEX•Lite spacecraft architecture. The SMEX•Lite is a next generation system architecture developed by GSFC that has dramatically reduced both the size and cost of spacecraft systems. It leverages modern, digital electronics and comprehensive software designs to shrink a highly autonomous, full performance, 3-axis stabilized spacecraft bus to just 12 inches in height. Triana will be the first flight application of this system.

The GUS is an in-house design born of necessity that married a mix of heritage systems such as the Star-48 motor and Spartan power control systems with state of the art timing control electronics and a new fully redundant nutation control system. Together with the IRIS ASE the GUS restores NASA's ability to launch moderately sized upper stage payloads from the Space Shuttle.

The Triana spacecraft will continuously broadcast science data to the ground, 24 hours per day - 7 days per week - 52 weeks per year. Such an intensive demand for station coverage drove the project

(TRIANA Continued on page 15)

(TIMED Continued from page 5)

and to train and exercise the Mission Ops team. We were also fortunate to have activities like the Red Team reviews and software IV&V assessments, in addition to the normal Mission and Flight Ops reviews to keep us busy.

Finally, in May 2001, we held the TIMED Pre-Ship Review and loaded the spacecraft onto an Air Force C-17 for the trip to Vandenberg Air Force Base to prepare for an August 2001 launch. Processing was conducted at the Spaceport Systems International (SSI) facility at SLC-6, the intended west-coast Space Shuttle launch site. It was quite the sight to see the relatively small TIMED spacecraft sitting in one of the three huge cleanroom “cells” designed to (vertically) process 60-foot long payloads for the Shuttle. Unfortunately, Jason had two more surprise delays for us after we arrived. After a short stand-down, we picked back up in late October for a December 7, 2001 launch.

Upon John Wolff’s retirement from NASA, I was assigned as Project Manager to finish up launch activities and preparations for the Operations Phase. John had done a great job and it was a tough job filling his shoes. Fortunately for me, from this point on things went relatively smoothly, and the Boeing folks did a great job preparing both projects for the launch. Right on schedule, at 7:07 a.m. PST on December 7, the Delta II launch vehicle rose into an azure-blue cloudless sky, streaking past a bright moon on it’s way to delivering Jason and TIMED to orbit. I was in the Mission Director’s room at Vandenberg, but thanks to an on-board camera on the second stage we were all treated to a spectacular ride into orbit on the big display screen. This was a very complicated launch in that Jason was to be dropped off into a 1,300 km altitude orbit at 66 degrees inclination before TIMED was to be delivered into it’s 625 km altitude orbit at 74 degrees inclination. This required five separate “burns” of the Delta second stage, and good navigation and control systems. Two hours and five min-

utes after launch (an awfully long time to hold your breath), the Mission Ops Team at APL picked up signals from TIMED through TDRSS, confirming that we had separated from the upper stage. The Delta had delivered both Jason and TIMED perfectly into their desired orbits.

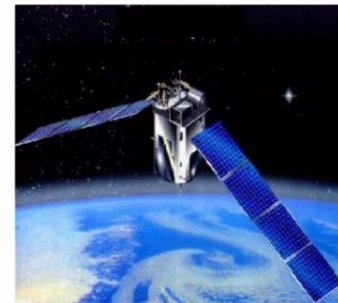
There was a small scare when, after separation, the spacecraft tumble rates started to increase instead of decrease as planned. However, with the help of TDRSS, the ops team was able to correct the problem and get the spacecraft under control. TIMED has recently finished it’s on-orbit check-out, and all systems and instruments are operating fine. We will shortly begin the coordinated gathering of the science data that has been the objective of all the work done since TIMED’s inception over 20 years ago. It’s finally TIMED’s time.



TIMED
Thermosphere • Ionosphere • Mesosphere • Energetics and Dynamics
Flight Readiness Review, December 3, 2001



December 7, 12:12 pm EST



ARTIST’S SKETCH OF TIMED

Bruce Campbell
460/TIMED Project Manager

(TiuType Dennis Continued from page 3)

first transitioned into the FPPD. The MSP challenge involved taking the former responsibilities of a 500-person Goddard directorate and determining what remained to be done after substantial portions of the responsibilities and associated work shifted to JSC, to the CSOC contractor and to other GSFC organizations. Organizing and managing the remaining work under the dual challenge of a diminishing budget and shrinking workforce has kept boredom at bay. The latest shifts of program management responsibility back to NASA Headquarters and then out to the various Centers means that the challenges continue.

The fun part of being business manager of MSP is the opportunity to interact with people in nearly all of Goddard's programs, projects, and directorates, and to maintain a visibility into many other NASA programs. The MSP's requirement to provide space communications and operations support to the wide range of NASA and non-NASA customers offers a uniquely comprehensive view of the U.S. space program.

The diversely talented people involved in the space operations business, and the array of facilities and assets managed by the program add to the interest and challenge of working in the MSP.

Life before the Mission Services Program

Dennis became part of the FPPD when the Directorate accepted responsibility for the GSFC portion of the Space Operations program. Prior to that transfer in 1997, he was head of the business management branch in the Networks Division of the Mission Operations and Data Systems Directorate (MO&DSD), where he also served as COTR of the MO&DSD consolidated logistics support contract. He has been involved with the tracking networks since the beginning of his NASA career in 1980, when he was hired as a logistics management specialist in the Networks Operations Division. His early assignments involved a significant amount of logistics audit travel to interesting locations in Goddard's world-wide tracking network. As the ground network stations began to shut down, he instead traveled to the new White Sands Ground Terminal of the Tracking and Data Satellite System (TDRSS), in the first of his efforts to help manage the development of the integrated logistics system for the site. His integrated logistics support planning brought him into subsequent contact with many of the Flight Projects, including serving as Goddard's Space Station Program (Work Package Three) integrated logistics support manager and participating in numerous Source Evaluation Boards for new flight or ground systems. That work brought him assignments on various agency-wide integrated logistics management boards and committees, and consultant roles for projects at other centers. Dennis also served as the logistics section head before assuming the business management branch head position.

Dennis came to Goddard by way of the islands of the Western Pacific Ocean, where he developed and managed cultural resource preservation programs for one of the most recently added political jurisdictions of the United States. He served on the island of Saipan as the first Historic Preservation Officer of the Commonwealth of the Northern Mariana Islands. He also steered the establishment of a Commonwealth arts agency with the support of the National Endowment for the Arts, and served on various natural and cultural resource management boards in Micronesia and around the Pacific Rim. He lived on Saipan for nearly five years, starting in his first U.S. government assignment as a Peace Corps volunteer, and later working for the Trust Territory of the Pacific Islands and the newly formed Commonwealth government.

(TinTypes Jaya Continued from page 3)

contributions will be in sorting out these ideas in the formulation of this project.

Life before GOES: Before coming to GOES, Jaya worked for 10 years as one of the Range Safety Officers at GSFC's Wallops Flight Facility. There she gained a lot of hands-on experience in testing, integration, pre-launch, and launch activities of rockets and payloads. This hands-on experience was greatly enhanced by her participation in mobile launch campaigns to Brazil, Australia and Spain. Eventually, Jaya became quite well known in her field and even taught range safety to the Brazilian Air Force and the Swedes. In 1998 when she announced her position with GOES, many people couldn't believe she was actually leaving range safety.

Jaya's major contributions to range safety were in two areas — flight termination systems and real time decision-making systems. She was considered an expert in flight termination systems, which are used to terminate launch vehicles when they go off course. She was part of a team that developed the common design and test requirements for command destruct systems, which are used at all U.S. launch ranges.

Jaya developed a prototype "Range Safety Smart System" to facilitate the real time destruct/no-destruct decision made by Range Safety Officers. Typically Range Safety Officers have 3-6 seconds to make a real time destruct/no-destruct decision and take action. This doesn't provide much time for reducing the data. The Range Safety Smart System assimilated and correlated telemetry data, processed tracking data, and monitored the ground system to provide advisories to the Range Safety Officer in ways which did not add to his/her monitoring burden. Even though Jaya's definition of the complete system has not been used anywhere totally, portions of it are used at many launch ranges including the Eastern Range, where GOES is launched from.

Hobbies: Jaya is pretty adventurous. She loves to travel, and meet people. Once she traveled around the world (just went west until she came home). In every country she, stopped in she made friends. Even though she never learned to swim, she has been scuba diving in the Great Barrier reefs. Sometimes she thinks of writing a book about her experiences on that trip, but she has never found the time. She also enjoys the outdoors — she goes hiking in the fall, skiing in the winter, and spends time in the yard in the summer. Jaya enjoys art, movies on the big screen, theater, music, entertaining at the house, hanging out with friends and cooking.

Hobbies:

The Vander Tuig family's current hobby-related activities are nearly all determined by childrens rehearsal, practice, performance, and game schedules, and associated transportation needs, volunteer roles, and audience opportunities. For the parents, there also are still occasional opportunities for participant as well as observer roles in music and sports events, and the family enjoys together a wide range of activities including biking, tennis, swimming, skating, camping and traveling. Dennis recently began another term on the council of the Christian Reformed Church of Washington, D.C., where the whole family maintains an active membership.

Take a Bow

“This letter is to express our thanks for your outstanding support to the Space Operations Management Office’s (SOMO’s) effort to consolidate space operations across the Agency. Specifically, you are being recognized for your professionalism and the outstanding support you provided SOMO and the Johnson Space Center (JSC) as a Beacon Team Member in the effort to generate the future 2025 vision for the Agency’s Communication and Navigation Architecture. The support you provided to SOMO this past year was exceptional.



Please accept this JSC Group Achievement Award as a token of our appreciation. Because of efforts such as yours, NASA goals and objectives can be achieved in the future, and we look forward to working with you to make them a reality.

Congratulations and our best wishes for your continued success.”

Jack W. Seyl, TA/Acting Director, Space Operations, JSC to Al Levine, Code 452 and Badri Younes, Code 450

“I would like to bring to your attention the outstanding effort of Ms. Mary DiJoseph. From March to August of this year (2001), Ms. DiJoseph served on a detail assignment from Goddard Space Flight Center to the NASA Headquarters Office of Space Science (OSS).

Ms. DiJoseph assumed management leadership of the Decadal Planning Team (DPT) while Ms. Lisa Guerra was on extended leave. In this capacity, Ms. DiJoseph provided excellent organizational and management skills to this cross-Enterprise, multi-Center team. On a regular basis Ms. DiJoseph met with senior NASA management delivering coherent updates of DPT progress. Over a short period of performance, Ms. DiJoseph became instrumental to the team. In particular she successfully coordinated a working group dedicated to the human and robotic partnership in space, effectively bringing the expertise across JSC, JPL, GSFC and ARC together.

Again, I wish to commend Ms. DiJoseph’s admirable support to OSS, and the Agency as a whole, in her contributions to the DPT.”

Edward J. Weiler, HQ Code S, Associate Administrator for Space Science to
Director/Flight Programs and Projects

(Take a Bow Continued on page 13)

(Take a Bow Continued from page 12)

Take a Bow

"I would like to take this opportunity to personally thank you for your support during the 2001 Combined Federal Campaign (CFC). CFC means hope for charitable causes in our local communities and around the world. By contributing to CFC, we extend a nurturing hand to our friends and neighbors in need.

Thanks again for caring and taking time from your busy schedule to participate in this worthwhile cause."

Lois Ryno, CFC Administrative Officer to Maureen Mathews, Code 405

Quotes of the Quarter

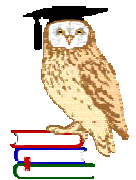


"The old believe everything, the middle aged suspect everything and the very young know everything."

— Walter P. Chrysler —

"Shoot for the moon. Even if you miss it you will land among the stars."

— Les Brown —



"Children today are tyrants. They contradict their parents, gobble their food and tyrannize their teachers."

— Socrates (470-399BC) —

Letters to the Editor

"Many thanks for continuing to send me The Critical Path. I certainly appreciate it when it arrives every quarter. I can remember the days when we were involved getting the newsletter off the ground and trying to find a title that fit. You, Nancy, and Paula continue to put out a very snazzy publication."

Rich Long/HST Program/DPMR (Retired)

"Enjoy your code 400 Critical Path."

Mel Donohoo/Projects Directorate Resource Manager (Retired)

"Appreciate receiving The Critical Path."


John Hurd/Resources (Retired)

"I just received the latest edition of The Critical Path; thanks, as always."

Mitchell K. Hobish/Ph.D. (Retired)

Critical Path Social News

Births

Nancy Iacona/QSS Group Inc., from the STP Program (466) delivered a beautiful baby girl, Nicolette Reece Iacona, on September 8, 2001, at 6:21 a.m., weighing 7 lbs., 9 ozs., and 21" long. Nancy loved being a Mommy so much she's staying home with Nicolette. 

Norman Rioux, GLAST Systems Engineer (490) and wife Nathalie welcomed a baby girl, Fiona Rioux, at 5:00 p.m. on January 17, 2002. She weighed 6 lbs., 9 ozs, and was 19.25" long.

Stan Underwood (Code 425/Swailes 543), and wife, Stacey Longanecker, became the proud parents of a beautiful baby girl, Kendyl Jean, on November 16, 2001, at 4:41 p.m. Kendyl weighed in at 7 lbs., 15 ozs. She measured 20" long. Stan, Stacey, and Kendyl are doing fine.

Angela Brade gave birth Tuesday, January 29, 2002, at 11:22 a.m. to Beau LaCroix, a healthy baby boy of 8 lbs., 6 oz., and 20 inches long. Husband Ron (214.6/423/428/450) is also doing well.

Dr. Eleanor Ketchum, Systems Engineer for GLAS (556/425) will be appearing as one of 4

(TRIANA Continued from page 9)



IRIS

to pursue NASA external solutions under a commercial data services contract. Universal Space Network (USN) was selected to provide these services. USN installed three new strategically located (Hawaii, Alaska, and Australia) 13-meter systems just for this purpose. Other existing worldwide stations of the "Priorinet" commercial network were linked to provide a robust ground network. All data will be routed through USN control center back to GSFC where operators within the SMEX common Mission Operations Control Center (MOCC) will run the Triana mission along with the five initial SMEX missions. Science data will be passed on to Scripps for immediate use by the science team and permanently archived at the GSFC Distributed Active Archive Center (DAAC). Image products will be continuously displayed on the Internet for public and educational use.

When Triana entered its stable suspension, the Observatory had been integrated and qualified, the GUS had been integrated and functionally tested, the IRIS had been refurbished and functionally tested, and the Ground System was ready to support mission testing. Just prior to suspension the integrated Triana payload successfully completed Phase II Shuttle flight safety certification. All systems are poised for quick re-activation. As for that, NASA is actively pursuing launch opportunities, considering both U.S. and overseas launches. Nothing would

make this team happier than to get an early launch date.

Congratulations to everyone who helped to bring the mission this far on the Triana adventure. The next phase promises to be equally as exciting! Check out <http:// triana.gsfc.nasa.gov> for more details.

Jim Watzin
 Triana Project Manager



HESSI LAUNCHED

HESSI (High Energy Solar Spectroscopic Imager) was successfully launched at 3:56 p.m., February 5, 2002, by a Pegasus XL Rocket, carried by a L-1011 Aircraft.

"We're extremely thrilled to report the Pegasus drop went without a hitch," said Frank Snow, HESSI Project Manager.

The HESSI scientific payload is a collaborative effort between the University of California, Berkeley, GSFC, the Paul Scherrer Institut in Switzerland, and the Lawrence Berkeley National Laboratory in Berkeley. The mission also involves scientific participation from France, Japan, The Netherlands, Scotland, and Switzerland.

HESSI is the first NASA Small Explorer mission being managed in the 'principal investigator' mode. Doctor Robert Lin of the University of California, Berkeley, is the principle investigator.

HESSI is the sixth Small Explorers (SMEX) mission, and the first one dedicated to studying the most powerful explosions in our solar system - solar flares. These explosions fire solar gas, which gets heated to tens of millions of degrees, causing it to sizzle with high-energy radiation in the form of X-rays and gamma rays.

HESSI is expected to provide scientists with the finest images and spectra ever made using the gamma rays and the highest energy X-rays emitted by solar flares.

The Explorers Program Office at Goddard provides overall management for the HESSI mission for NASA's Office of Space Science in Washington, D.C.

The spectrum Astro, Inc. of Gilbert, Ariz., constructed the HESSI spacecraft and provided integration support.



FUTURE LAUNCHES "A BIG YEAR"	
*HESSI	FEB
HST-SVC 3B	FEB
GRACE	MAR
TDRS-I	MAR
AQUA	APR
NOAA M	JUN
GALEX	JUL
CHIPS	OCT
ICESAT	OCT
SORCE	NOV
TDRS J	NOV
INTEGRAL	DEC

* Successfully launched February 5, 2002

ATTENTION INTERNET BROWSERS:



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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: hottenst@pop400.gsfc.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 April 30, 2002.