National Aeronautics and Space Administration
Goddard Space Flight Center

GODDARD news

Greenbelt, Maryland/Wallops Island, Virginia Jan. 1998 Vol. 2 No. 1

The Goddard News is published weekly by the Office of Public Affairs, Goddard Space Flight Center, Greenbelt, MD 20771

Rothenberg Assumes Space Flight Post

Diaz Named Center Director

NASA Administrator, Dan Goldin, has named Goddard's Center Director, ***Joseph Rothenberg,*** to head the Agency's Office of Space Flight, leading the Human Exploration and Development of Space enterprise, effective Jan. 12.

Goldin also named ***Alphonso V. Diaz*** to succeed Rothenberg as Center Director of Goddard. Diaz is currently the deputy director at Goddard.

As Associate Administrator for the Office of Space Flight, Rothenberg will be responsible for all NASA human space flight programs, as well as a variety of expendable launch vehicle operations and tracking and communications functions.

Rothenberg, who joined Goddard in 1983 and has been the Center Director since April 1995, expressed his sentiments about leaving Goddard saying he would miss it very much but was extremely pleased that Al Diaz will be leading the center. "In leaving the Center, I know I'm leaving it in good hands," he declared.

Joe Rothenberg turns the key to Goddard over to Al Diaz

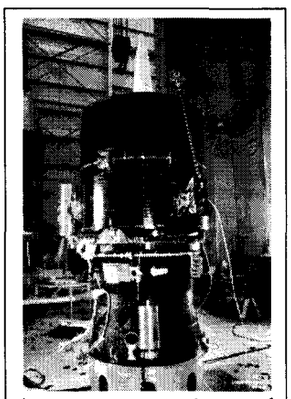
Diaz joined NASA as a cooperative education student at the Langley Research Center in Hampton, Virginia, in 1964. He was actively involved in the Viking Project from 1969 to 1977. In 1979, he moved to NASA Headquarters and had a broad range of experience in the management of space science projects. Before coming to Goddard in 1996, he served as Deputy Associate Administrator for Space Science.

Diaz received a Bachelor's Degree in physics from St. Joseph University, Philadelphia and a Master's in physics from Old Dominion University, Norfolk. He also attended the Massachusetts Institute of Technology Sloan School of Management where he received a Master's in management.

Lunar Prospector Marks First NASA Lunar Mission in 25 Years

By Deanna Adams, Office of Public Affairs

Earlier this week, the Lunar Prospector spacecraft began a four-day journey, a journey that will return the United States to an old friend of Planet Earth for the first time in 25 years. Lunar Prospector (LP), a mission that represents NASA's new way of doing business--faster, better, cheaper--will continue where the Apollo moonwalkers left off, spending a year orbiting the moon, mapping its surface composition, gravity, magnetic fields and its volatile release activity. The studies conducted by LP will answer some of the most intriguing questions about Earth's closest companion, including whether or not the moon contains ice.



The Lunar Prospector Spacecraft

Goddard is playing a large role in the Lunar Prospector Mission. Among LP's payload of five scientific instruments, are the Magnetometer, (principal investigator: ***Mario Acuna***) and Electron Reflectometer, (principal investigator: ***Robert Lin***). The Magnetometer and Electron Reflectometer are designed to work together to determine the strength of the lunar magnetic field, from both the spacecraft's location and the surface of the Moon. In addition, a team at Goddard, consisting of ***David Folta, Mark Beckman, Karen Richon, Greg Marr, Osvaldo Cuevas, Marco Concha, Patricia Johnson,*** and ***Joe Toth,*** has responsibility for navigating the spacecraft.

Lunar Prospector launched from Cape Canaveral Air Station Florida aboard an Athena II rocket on January 6 at 9:28 p.m. EST. The determination of an early 1998 launch was largely due to the fact that this launch window preceeds an unusually long period of time during which no lunar eclipses will occur. During a lunar eclipse, Prospector would have to fly in total darkness, requiring the consumption of additional solar-generated battery power. The launch date allows the spacecraft to spend as little time as possible in Earth's shadow, minimizing battery power drain, an effort that upholds NASA's commitment to be cheaper when doing business.

AAS Meeting Reveals New Facts About Our Universe

By Bill Steigerwald, Office of Public Affairs

The Winter Meeting of the American Astronomical Society was held in Washington, DC during the week of January 6, giving scientists the opportunity to release new findings from a number of NASA's space science missions. The following discoveries were among those presented:

Researchers discovered that a disk of matter surrounding a black hole is periodically disrupted and hurled outward in opposite directions from the black hole, in jets nearly at the speed of light. The black hole replenishes the disk by pulling in hot gas from a nearby star and then repeats the process at half-hour intervals.

Scientists discovered strong evidence that Eta Carinae, thought to be the largest star in our galaxy, may actually be a double-star system. The team based its conclusions on observations of variations in the intensity of X-rays emitted by hot gas near the star.

A team of astronomers using the Hubble Space Telescope's newly installed Space Telescope Imaging Spectrograph (STIS) revealed details that support a theory that planets may be forming inside a disk of gas surrounding the young star Beta Pictoris. For more details visit the Goddard Homepage at ***http://www.gsfc.nasa.gov*** and choose ***FLASH***

GEWA Store Sponsors Stuffed Snowman and Dinosaur Door Prize Give-Away

During this past holiday season, the GEWA Store sponsored a door prize giveaway for a big stuffed snowman and dinosaur. Beginning the day after Thanksgiving, each GEWA customer received a raffle ticket for the prizes with each $10 increment purchased. The names were drawn on December 19.

Eliot Malumuth, Code 681, w/ Dinosaur

Eliot Malumuth was the first winner and he chose the dinosaur. The second winner, ***Tom Bagg,*** received the snowman. Many thanks to all who participated.

A reminder to employees: the GEWA Store offers a wide variety of services for your convenience, including Notary Public, TicketMaster, Graigner ordering at discount prices, business card/wedding invitation printing, one-day film processing and discounted theme park tickets.

Tom Bagg, Code 504, w/ Snowman

Twin Springs Farm and Salt River Lobster visit Goddard every Thursday, offering fresh fruits and vegetables, baked goods, fish and other seafood. A new travel service of one and two-day trips will be offered in 1998. GEWA also sponsors yearly promotionals such as sheet and towel sales, book sales, and Bell Atlantic Mobile services. Information on services and activities are periodically published in Goddard News and Dateline. Visa and Mastercard are accepted.

On Jan. 6, Ukraine Astronaut Leonid Kadenyuk from the STS-87 crew visited Goddard. The photo above shows ***Gerry Daelemans*** and ***Mitch Brown*** giving Kadenyuk, his wife, Vira, and Ukraine Embassy officials a tour of Bldg. 7.

This Month In Space History

- Jan. 5, 1972 - NASA began development of the Space Shuttle Program
- Jan. 6, 1941 - Robert Goddard achieved the highest rocket thrust ever
- Jan. 7, 1610 - Galileo discovered three major moons around Jupiter: Io, Euopa, Callisto
- Jan. 8, 1973 - USSR launched Luna 21 which landed on the moon 7 days later
- Jan. 9, 1839 - Thomas Henderson used geometrical parallax to make the first measurement of the distance to a star

Goddard Conducts Commercialization Workshops for Small Companies

By Lynn Sanders and Nancy MacLennan

Goddard recently held two workshops in the Boston area to assist small companies in commercializing their technology. "Making Money with Your Technology" workshops educated entrepreneurs and small business owners on topics ranging from marketing to business development to corporate partnering. Two other workshops held at Goddard in 1997 attracted over 50 participants from the Maryland region. Additional workshops at other sites are anticipated for 1998.

The interactive workshops include a follow-along workbook containing detailed tips and insights, as well as individual and group exercises. For example, participants are challenged to prepare a "30-second pitch" about what business they are in and present it to the group. During the Team Problem Solving session, common problems confronting entrepreneurs are discussed, often resulting in new and practical solutions. "The participants benefit from the experiences of others," explained ***Nona Minnifield***, Assistant Chief, Office of Commercial Programs.

Under contract to Goddard, the Research Triangle Institute (RTI) developed the workshop module as well as materials for the attendees. RTI also assisted in presenting the material along with the host company, the Center for Technology Commercialization (CTC), which is one of NASA's Regional Technology Transfer Centers. CTC's mission in the Northeast is to provide an effective, market-driven means of transferring technologies from the federal laboratories to the private sector. For information about the next workshop, contact ***Nancy MacLennan*** in the Goddard Technology Commercialization Office on 301-286-6705 or via e-mail at: ***nancy.a.maclennan.1@gsfc.nasa.gov***

Goddard Strives for Excellence through PQA Program

Goddard recently held its kick-off meeting to prepare for the 1999 President's Quality Award Application. During the next two months, the PQA teams will be analyzing the 1997 award winner's application; gathering input from Center Management; gathering preliminary materials; completing a draft of the application's overview section; and outlining strategies for addressing the sections of the application.

Clip-n-Save Clip-n-Save Clip-n-Save

January Calendar of Events

• Scientific Colloquium - Charles Steidel "Young Galaxies" (Bldg. 3 Aud.)	Jan. 9 (3:30pm)
• Center Director's Colloquia - James E. Sierk "Shaping Our Future: An Executive's Perspective on Leadership, Learning and Change" (Bldg. 3 Aud.)	Jan. 14 (1:30pm - 3:00pm)
• Martin Luther King Lecture - Carroll Gibbs "The King Legacy" (Bldg. 8 Aud.)	Jan. 15 (11:00am - 2:00pm)
• Scientific Colloquium - Paul Hoffman "Dance of the Continents" (Bldg. 3 Aud.)	Jan. 16 (3:30pm)
• Scientific Colloquium - Steve Wofsy "Atmospheric Science in Extreme Environments" (Bldg. 3 Aud.)	Jan. 23 (3:30pm)
• Scientific Colloquium - Paul Gross "The Rebellion Against Science" (Bldg. 3 Aud.)	Jan. 30 (3:30pm)

GODDARD NEWS staff

Executive Editor: Darlene Ahalt
Managing Editor: Deanna Adams
Senior Photographer: Mark DeBora
Submission deadline is Friday each week.
(Submissions subject to editing)
For additional information contact:
Deanna Adams 301•286•0918.

Subscription Information:
GSFC & WFF Mailing List
Offsite/Commercial Subscriptions
Retiree Subscriptions

Contact:
Gweny Durrah, Code 239
Darlene Ahalt, Code 130
Bob Wilson 301•422•8334

GODDARD news

National Aeronautics and Space Administration
Goddard Space Flight Center

Greenbelt, Maryland/Wallops Island, Virginia Jan. 1998 Vol. 2 No.2

The Goddard News is published weekly by the Office of Public Affairs, Goddard Space Flight Center, Greenbelt, MD 20771

Al Diaz Speaks Out As Newly Appointed Center Director

(Part 1 of a 2-Part Interview)

What are your first priorities as Center Director? From an evolutionary change standpoint, my first priority is to maintain continuity without any interruption in the process that Joe and I had been working on over the course of the last two years: Leading Goddard to where it needs to be for entry into the 21st century. At the top of the list of things to do in that regard is to complete the center reorganization that was recently effected and work any issues that are associated with the reorganization. In the process, we need to be sure, as always, to meet all our commitments as well.

What do you think is the biggest challenge facing Goddard in the near future? I think the biggest challenge facing Goddard, near-term, is completing the process of change that we started several years ago. There's still a way to go in terms of refocusing the workforce out of operations and into R&D and changing the way we do business. Achieving this transformation consistent with the values articulated in our "Strategic Implementation Plan" will be very important.

Al Diaz, frankly speaking

What about the biggest challenge facing Goddard in the longer term future? In the long term I believe we need to focus on changing culture. What we have been doing for the past several years is changing behavior. People are modifying the way they do things and I believe they're doing so because they are recognizing that they can be successful doing things a different way. We haven't spent enough time yet in the area of advanced technologies--doing our work through methods that will really revolutionize the way we do business. We need to redouble our efforts in the development and use of advanced tools for achieving our mission goals. We need to start thinking differently about the way we do things.

Do you anticipate that the change in Center Director will impact the Center Reorganization? I really don't anticipate any changes in the course of the reorganization. Specifically, I expect to continue approximately on the same trajectory. I think we need to tell our folks that if they had anticipated last week what we are going to be doing next week, they really can anticipate the same. There will be some new issues that come up and we may need to react to those in a way that modify the course of change, but absent any issue, I think folks can anticipate that the course of change will remain the same.

You have been providing leadership for a number of key Center tasks such as uncosted carryover, PQA, EO Advisory. Do you intend to delegate those tasks to your deputy? Yes, to some degree. I think I need to stand back and take a look at different things. Many of the things on my list are things I need to delegate to my deputy or associate. I need to start emphasizing the human resources development issues, worrying about how our people are going to be prepared in dealing with the future as well as concentrating on issues that have to do with defining and improving core processes.

Do you have some sense of how soon a deputy will be selected? I'd like to select a new deputy as soon as possible. While I have some ideas, I really can't say right now when a selection will be made.

You seemed quite surprised at your appointment as Center Director. Have you gotten used to the idea yet? No, I am not at all accustomed to my new position yet. I think one thing Joe provided was a sense of insulation for me. There are demands that are put on the director that make it difficult not to get distracted sometimes. Joe absorbed a lot of that, giving me the freedom to concentrate on my assignments. I can see now that demands on my time will be a lot more diverse than the focused areas that I was able to spend my time on before. As a consequence, remaining focused and not becoming distracted by activities that I shouldn't really be involved in will be a challenge for me.

Did Joe Rothenberg give you any advice that you want to share? Joe didn't give me all that much advice on leaving. It was more him making sure that I was brought up to speed in areas that he may have been concentrating more of his time. Joe was a terrific leader by example and so I watched very closely what he was doing on virtually everything he was doing. He in turn gave me the opportunity to comment and to interact with him, so if anything, I have the benefit of his interaction on almost everything that goes on here.

CODE 300 Risk Management Support Website

This is a new website that describes the services offered by the Office of Systems Safety and Mission Assurance (Code 300) to flight projects in the area of Risk Management. It also contains news, information, training announcements, and the latest happenings in Risk Management here at GSFC. This link will be added to G-Whiz on the internal homepage for future searches. The URL is ***http://arioch.gsfc.nasa.gov/302/Risk/RMPage.htm***

news tidbits

• STS-89 is scheduled to launch on January 22 at 9:43 p.m. EST. STS-89 is carrying four GASCAN experiments and is the eighth shuttle mission to rendezvous and dock with Russia's Mir space station. Follow mission status by visiting the shuttle homepage at ***http://shuttle.nasa.gov***

• SNOE, the Student Nitrate Oxide Explorer, is scheduled to launch on February 3, 1998. SNOE is the first launch under USRA's STEDI program. Visit the SNOE Homepage at: ***http://lasp.colorado.edu/snoe/***

Center Reorganization Moves

Since the reorganization has been effected, the Center's service organizations (facilities, logistics, telecommunications, etc.) are currently being inundated by customer work requests for moves, modificationss, telephone changes and others.

It has been the Center's intent to centrally manage, budget and control the moves associated with the reorganization. All work will be prioritized based on a master move schedule which will begin full development within the next week. Organizations and personnel involved in the initial set of critical moves have already been notified. All other organizations will be contacted in the near future as part of the master schedule development process. The Center is currently in the process of filling the necessary management and staff positions required to implement the reorganization moves.

As a result, individual customer requests that have been received will not be processed. We would appreciate your assistance in informing your co-workers that there is a master schedule and groups will be moved according to that schedule. At the time of their move, we will work with them to get all the necessary documentation. Also some personnel may be in the process of moving themselves. We would also appreciate your help in discouraging this because of the impact to the schedule and because our current processes are designed to ensure the Center is protected from liability and fulfills its obligations to the labor unions.

Customer organizations should be identifying their move coordinators and contacting Jack Cronise of the Facilities Customer Service Office with their names. Training for move coordinators is currently being set up and will begin in the near future. Jack Cronise can be reached at x66887 or via email at John.D.Cronise.1@gsfc.nasa.gov.

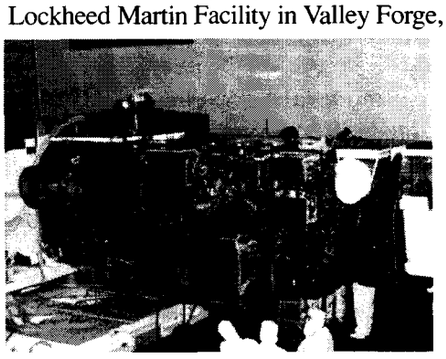
If you have any questions in the meantime, please feel free to contact your Directorate planners in the Facilities Planning Office/Code 221:

Code	*Planner*	*Telephone*
100	Pedro Colon	x64744
200	Alan Thurmond	x62243
300	Mike Maroof	x64358
400	Kim Toufectis	x69952
500/AETD	Terry Spagnuolo	x62769
600	Kent Potter	x68644
700/STAAC	Pedro Colon	x64744
900	Kent Potter	x68644

For questions regarding Wallops and Code 800, feel free to contact Thom Arceneaux at x71342 or via email at Thomas.W.Arceneaux.1@gsfc.nasa.gov.

EOS AM-1 Spacecraft Undergoes Testing

This photo shows the Earth Observing System spacecraft (EOS) AM-1 undergoing testing in a cleanroom facility at the Lockheed Martin Facility in Valley Forge, Pa.



EOS AM-1 is the premier Earth Observing System mission dedicated to studying the characterization of terrestrial surfaces, clouds, aerosols, and radiation balance.

EOS AM-1 is a joint project between the United States, Japan and Canada and is scheduled to launch in June.

Goddard Intern Named Rhodes Scholar

Jonathan Winkler, a senior at Kansas State University, Manhattan, Kansas, was among 32 American students named Rhodes Scholars. Winkler, who has a 3.8 grade point average served as a summer researcher for two years at Goddard from 1996-1997.

In 1996, Winkler worked in the Solar Physics Branch with ***Fred Lang*** in the HESSI Optical Grid Characterization Facility.

From L to R: Michael Hartman (EEO), Laureen Summers (AAAS), Gerard Williger (681), Jonathan Winkler, Joe Rothenberg, Carol Crannell (682), Dillard Menchan (EEO)

During this time period, he helped modify and align a critical laser interferometer system. Additionally, he wrote the owners manual for the facility, describing all hardware and software. Winkler spent last summer at Goddard working in the UV Optical Astronomy Branch with ***Sally Heap*** and ***Gerry Williger***. He worked on the HE II Gunn-Peterson Effect, a basic issue in experimental cosmology.

The Rhodes scholarship will provide Winkler with $40,000 to $60,000 to study for two to three years at Oxford University, Oxford, England. While at Oxford, Winkler will study for a Master of Science in tribological (the study of friction) engineering.

Wanted: New or Improved Technology

Have you designed or developed technology, including hardware and software? Your project may have commercial applications which could impact many lives. Therefore, the Technology Commercialization Office seeks leads in various technical and scientific areas. On your way to building 8, stop by and see our banner display located in the hallway near the Public Affairs Office, rm. N150, through January 30, 1998. Let us know what you are working on by completing a technology lead form which is on a table next to the display. If you have questions on reporting technology, please contact a member of the Commercial Technology Team listed below:

Name	Core Competency	Extension
Joseph Famiglietti	Optics	x62642
Evette Conwell	Information Systems	x60561
Darryl Mitchell	Thermal and Cryogenics	x65169
Glenn Unger	Sensors and Detectors	x65979
Anel Flores	Environmental Systems	x61098
Ted Mecum	Guidance and Navigation	x62198

For general information, please contact Adrienne Marble on x68175 or send an e-mail to ***NASA-GSFC-COMMERCIAL-PROGRAMS@LISTSERV.GSFC.NASA.GOV***

GODDARD NEWS **staff**

Executive Editor: Darlene Ahalt
Managing Editor: Deanna Adams
Senior Photographer: Mark DeBord
Guest Photographer: Jane Love
Submission deadline is Friday each week.
(submissions subject to editing).
For additional information contact:
Deanna Adams 301•286•0918.

Subscription Information:
GSFC & WFF Mailing List
Offsite/Commercial Subscriptions
Retiree Subscriptions

Contact:
Gweny Durrah, Code 239
Darlene Ahalt, Code 130
Bob Wilson 301•422•8334

GODDARD news

National Aeronautics and Space Administration
Goddard Space Flight Center

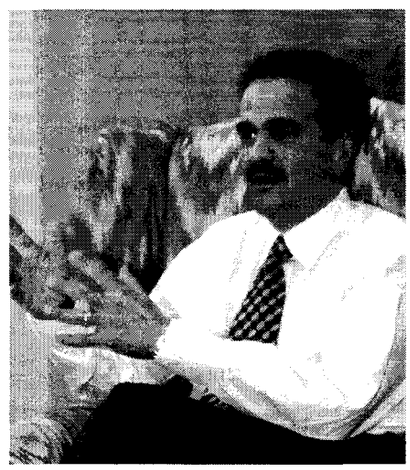
Greenbelt, Maryland/Wallops Island, Virginia Jan. 1998 Vol. 2 No.3

The Goddard News is published weekly by the Office of Public Affairs, Goddard Space Flight Center, Greenbelt, MD 20771

Al Diaz Speaks Out As Newly Appointed Center Director

(Part 2 of a 2-Part Interview)

What do you enjoy most about working at Goddard? I would have to say it is working with the Goddard people. Working with the people here has been very satisfying. Before I came here, I had never really anticipated what interacting with the Goddard workforce would be like. I knew it would be good, but I had no idea it would be as invigorating as it has been. There's this sense that Goddard is a community that has common interests and that everyone is interested in contributing the best they can to satisfy the overall goals of the community at large. That's the thing I've enjoyed more than anything else.



Al Diaz, frankly speaking

If you could have one-on-one meetings with everyone at Goddard, what would you tell them? The thing I'd like to tell everyone is that every individual contribution is important. There are no minor players here. Before I came here, I encountered mostly the technical workforce and it was clear they had the feeling that their contributions were extremely important. But the nontechnical side of the workforce may not be as aware of the significance of the contributions they make to the Center. The one thing I'd like to communicate is that contributions from all functions are incredibly important in order to complete Goddard's mission.

What are the qualities of the Goddard workforce that you admire the most? I thought I knew the Goddard workforce before I came here, but I didn't have a full appreciation of the creativity and the enthusiasm and energy that I found here. I believe the people here are truly the best workforce in the agency. I really think that given the missions that this center has, given the creativity, enthusiasm and motivation that every employee I've encountered here has, we will be successful. I think all our people really need from their management is some guidance about direction and the support they need to get their jobs done. The talent and energy of the people here make Goddard an incredible place to work.

Is there any special program that you supported during your career that stands out? I think probably the program that stands out for me the most, although not as much now as it had in the past, would be the Viking Project which I worked on for ten years. Viking was a terrific experience because it gave me the opportunity to participate in almost every aspect of a flight project's full range of activities. It was kind of a stand-out activity that provided me with a lot of background for everything I've done since then. I must say, though, that some things that I've done since then have been very satisfying, including being the deputy of space science at NASA HQ. The two years I have been at Goddard, however, have probably been more satisfying than virtually everything else.

Do you have a guiding vision, philosophy or central theme that you live or work by? I think we'll be talking at length in the future about my vision for the future. However, I want to make it clear that my vision needs to be shared by the whole workforce at Goddard if we are to be successful. I think it's important, then, that every employee feels a sense of inclusion in Goddard's future. This means they need to clearly understand what we expect from them and they must be offered the right tools and personal development opportunities to enable them to contribute to their fullest. I think that we've reached the stage in our transformation process where we need to translate our vision for the future into a set of core capabilities that need to be nurtured and developed. Then we need to make the investments that are necessary to turn our vision into a reality.

news

RENAMING OF MISSION TO PLANET EARTH ENTERPRISE: Effective immediately, NASA's Mission to Planet Earth Enterprise (MTPE) has been renamed the Earth Science Enterprise. Goddard's, Mission to Planet Earth Office, Code 170, has been renamed the Earth Science System Program Office (ESSPO).

SPECIAL BLOODMOBILE: In addition to Goddard's regular Red Cross Blood Mobile activity, a special need for blood donations has arisen at the Center. The young daughter of a Goddard employee is fighting cancer. She has had surgery and is receiving chemotherapy, while continuing to require large amounts of blood. The Red Cross is hoping to obtain sufficient donations to replace the local blood banks. The Washington Hospital Center will be on-site, Jan. 27 from 8:30 a.m. to 2:00 p.m. in Building 26, Room 205, to collect blood. If you have questions about medications or donor requirements, please call the Washington Hospital Center's Blood Donor Program at 202-877-5250. If you are interested in donating blood, please call Mary Anne Hartman at 301-286-4828.

NEAR Spacecraft Salutes Earth

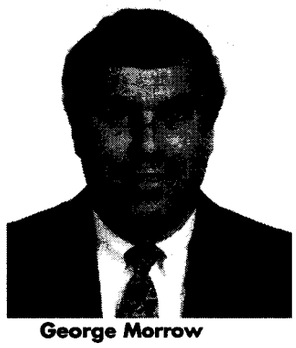
On Jan. 23, NASA's Near Earth Asteroid Rendezvous (NEAR) spacecraft flew by Earth making it the first interplanetary spacecraft ever to be visible to the naked eye. In a greeting to Earth, the spacecraft's solar panels reflected the Sun's rays as it flew by for an adjustment of its trajectory to correctly align the spacecraft for a rendezvous with asteroid 433 Eros, its mission target.

Launched Feb. 17, 1996, NEAR completed a flyby of the asteroid Mathilde in June 1997 and is now on its way back to Earth. Because the United States was in darkness as NEAR approached on Jan. 22, as long as there was no cloud cover, several geographic areas would have been able to see the Sun reflecting off the spacecraft's solar panels, which acted as large mirrors. These sunglints were visible on the East Coast, Friday, Jan. 23, at about 1:30 a.m. EST and the West Coast at about 1:45 a.m. EST (Thursday, 10:45 p.m. PST).

Two Goddard instruments are flying on NEAR: A Magnetometer (***Mario Acuna***) for detecting a magnetic field on EROS and an X-Ray/Gamma-Ray Spectrometer (***Jack Trombka***) which will determine the elemental composition of the asteroid. Additional information on the NEAR mission is available on the Internet at: ***http://sd-www.jhuapl.edu/NEAR/***

New Deputy Project Manager Selected for EOS-PM Project

George Morrow has been selected as Deputy Project Manager for the EOS PM Project. Morrow leaves the position of Deputy Associate Director of Flight Projects for Hubble Space Telescope (HST), where he was responsible for directing the technical the technical activities necessary to operate and upgrade the HST. Morrow worked on the HST project for nine years. During that time, he served as the deputy project manager of the HST Flight Systems and Servicing Project, the HST Observatory Development Manager, and the Observatory Systems Manager. Prior to joining the HST Project in 1988, Morrow served as the Lead Spacecraft Battery Systems Engineer at Goddard. He led the design, fabrication and test efforts for flight battery systems for all Goddard projects, including the Earth Radiation Budget Satellite, Landsat, Cosmic Background Explorer, Gamma Ray Observatory, Upper Atmosphere Research Satellite and Hubble.



George Morrow

GSFC Employee Named NASA Engineer Of The Year

Dr. Mary Cleave

Dr. Mary L. Cleave, the Project Manager for the Sea-viewing Wide Field-of-view Sensor (SeaWiFS) mission at Goddard has been awarded the NASA Engineer of the Year award for 1998.

Dr. Cleave was selected for her outstanding technical and engineering expertise in managing and coordinating the SeaWiFS Project. The award is administered through the Federal Engineer of the Year Award (FEYA) program and will be presented to Dr. Cleave at a luncheon on February 26 in conjunction with the National Engineers' Week. The selection of Dr. Cleave for this award makes her eligible for the national "Federal Engineer of the Year for 1998" award which will be announced at the luncheon.

SeaWiFS is an ocean color sensor that monitors global chlorophyll concentration. Launched on August 1, 1997, the instrument is providing global biospheric maps every 48 hours. This is the first regular global measurement of plant life, the component of the Earth's system that removes carbon dioxide from our atmosphere.

Clip-n-Save Clip-n-Save Clip-n-Save Clip-n-Save

Upcoming Events

- Director's Lobby Meeting (Building 1, Room 130) — Jan. 28 (3:00 p.m.)
- Scientific Colloquium "The Rebellions Against Science" Paul Gross (Building 3 Aud.) — Jan. 30 (3:30 p.m.)
- Center Director's Colloquia General Minihan (Building 3 Aud.) — Feb. 3 (10:00a.m.)

Determining Raindrop Size Distributions

By Lynn Chandler, Office of Public Affairs

Most people recognize the importance of rainfall in the biosphere, but few would think that the size distribution of the droplets was significant. However, raindrop size distributions are used in computer models that describe evaporation within falling rain, soil erosion by raindrop impacts, and radar reflectivity. (Raindrops are distinguished from cloud droplets by size, with raindrops possessing diameters greater than 0.2mm.) In order to improve computer model descriptions of the effects of rainfall, Zial Haddad and co-authors (which includes David Short of Code 910.1) [1997] have used data to develop a new form for the standard mathematical expression describing raindrop size distributions. A better form was desirable because the current standard expression relies on so-called independent variables that are not truly independent of each other. The newly derived expression for raindrop size distributions contains three mutually independent parameters: an instantaneous rainfall rate, a parameter related to the mean drop diameter, and a shape factor. Calculations using the newly formulated parameters in expressions for radar reflectivity and attenuation within rainfall agreed closely with results calculated using Mie scattering theory.

All Employee Awareness Briefing

NASA is the first government agency to seek certification to ISO 9001, a set of world-wide Standards that emphasize product quality through customer awareness, process control, and continuous improvement. Because Goddard is committed to becoming certified, the Center is providing a two hour session for all civil service employees to introduce the concepts of ISO 9001 and Goddard's Quality Management System. Attendance is highly important because most of us will find our work affected by the revised or new processes necessary for compliance with ISO 9001. The following schedule has been set up to allow all civil service employees at Greenbelt and Wallops the opportunity to participate. Note that there will be two open sessions at Greenbelt for those unable to attend the session for which they are scheduled:

Greenbelt (all in Building 3 Auditorium)

Date	Time	Last Name
2/2/98	9-11 a.m.	Abbo - Bind., R.
2/3/98	1-3 p.m.	Bind., L. - Cara
2/4/98	1-3 p.m.	Card - Dalt., C.
2/5/98	9-11 a.m.	Dalt., J. - Farr
2/5/98	1-3 p.m.	Fasc - Gold
2/6/98	9-11 a.m	Gome - Hern., J.
2/10/98	9-11 a.m.	Hern., A. - Jones, James
2/13/98	9-11 a.m.	Jones, Judith - Lafo
2/18/98	9-11 a.m.	Lavi - Mark
2/19/98	9-11 a.m.	Maro - Mont
2/20/98	9-11 a.m.	Moon - Pate
2/23/98	9-11 a.m.	Pats - Rich., J.
2/23/98	1-3 p.m.	Rich., C. - Seuf
2/25/98	9-11 a.m.	Sext - Strak
3/2/98	9-11 a.m.	Stre - Wadd
3/2/98	1-3 p.m.	Wade - Wrig

Wallops (all in the Building F3 Conference Area)

Date	Time	Last Name
3/10/98	9-11 a.m.	Abbo - Hill
3/10/98	1-3 p.m.	Hoge - Renn
3/11/98	9-11 a.m.	Rew - Youn

GODDARD NEWS staff

Executive Editor: Darlene Ahalt
Managing Editor: Deanna Adams
Senior Photographer: Mark DeBora
Guest Photographer: Jane Love
Submission deadline is Friday each week. (submissions subject to editing)
For additional information contact: Deanna Adams 301•286•0918.

Subscription Information:
GSFC & WFF Mailing List
Offsite/Commercial Subscriptions
Retiree Subscriptions

Contact:
Gweny Durrah, Code 239
Darlene Ahalt, Code 130
Bob Wilson 301•422•8334

GODDARD news

National Aeronautics and Space Administration
Goddard Space Flight Center

Greenbelt, Maryland/Wallops Island, Virginia

Jan. 1998 Vol. 2 No.4

The Goddard News is published weekly by the Office of Public Affairs, Goddard Space Flight Center, Greenbelt, MD 20771

NASA Explorers: Searching the Universe for Forty Years

By Deanna Adams, Office of Public Affairs

The desire to investigate our surroundings has been inherent in humans since the days of early explorers like Christopher Columbus and Magellan. From the exploits of those early knowledge seekers, many impressive discoveries have been made. It seems appropriate, therefore, that the first spacecraft launched by the Army Ballistic Missile Agency on February 1, 1958 was named Explorer. Now, 40 years and 70 missions later, the Explorer Program continues to investigate the mysteries of space.

"The Explorer Program offers frequent flight opportunities at an affordable price," said ***Don Margolies***, ACE Mission Manager at Goddard. "In recent years, Explorer and Small Explorer missions have returned more than $80 million to NASA. The X-Ray Timing Explorer (launched in 1995) and the Advanced Composition Explorer (launched in 1997) missions each came in more than $30 million under budget."

During the first decade (1958 - 1967) a total of 35 Explorer missions were successfully launched, leading to a host of significant discoveries. The mysterious saturation of the Explorer 1 radiation counters at 600 miles above the Earth's surface led Professor James A. Van Vallen to suggest the existence of a dense belt of radiation around the Earth. This of course became the now well-known Van Allen Radiation Belt. The first photograph taken of Earth from space was taken by Explorer 6 (1959). Explorer 35, also known as IMP E, was launched in 1967 and discovered a large, empty cavity of solar wind void behind the moon, away from the sun.

Twenty successful Explorer missions launched during the second decade (1968-1977), helping to further expand our knowledge of space. Explorer 42 (SAS-A) developed a catalog of celestial x-ray sources and discovered a "black hole," and Explorer 55 measured ozone in the upper atmosphere with the hope of determining ozone depletion from man-made causes.

NASA's Most Recent Explorer: The ACE Spacecraft

Although the Explorer flight rate in the third decade (1978 - 1987) of the program's history had declined with only nine launches, the missions continued to be nothing short of spectacular. The Explorer 57 mission (IUE-A), launched in 1978, successfully obtained high-resolution data on stars and planets in the UV region of the spectrum. Explorer 59 (ICE) provided long range observations of Comet Halley back in 1986 and is due to return to the vicinity of Earth in the year 2014 where it might be recaptured and returned home. Other Explorer missions, 61, 62 and 63, provided measurements of the global field and images of the global aurora.

The fourth decade of the program (1988 - 1997) brought along more amazing discoveries with answers to some of the universe's most intriguing mysteries. The Cosmic Background Explorer (COBE) which launched in 1989 revolutionized the field of cosmology by providing strong evidence in support of the "Big Bang" theory. The Rossi X-Ray Timing Explorer (RXTE) has made a number of significant discoveries including observation of a black hole that appears to be dragging space and time around itself as it rotates. In August 1997, Explorer 71, the ACE spacecraft was launched. ACE will provide us with data that will help us understand the origin of the matter in the universe.

As we near the end of the century, the Explorer Program continues to be active. Five launches are planned for 1998. These include SNOE, TRACE, TERRIERS, WIRE and FUSE. These missions, along with others planned during the next few years, indicate that the next decade of Explorer missions promises to be every bit as productive as the decades preceding it. As Don Margolies put it, "The Explorer Program is the longest continuing program in NASA because it consistently delivers what it promises."

news tidbits

- NASA and the National Oceanic and Atmospheric Administration (NOAA) have awarded a $423 million contract to Hughes Space and Communications, El Segundo, CA, for the manufacture, launch and delivery on-orbit of up to four weather-monitoring Geostationary Operational Environmental Satellites (GOES).

- Dr. Steven V. W. Beckwith has been selected as director of The Space Telescope Science Institute (ST ScI) in Baltimore. Dr. Beckwith is currently the managing director of the Max-Planck Institute for Astronomy in Heidelberg, Germany.

- Ball Aerospace and Technologies Corp., Boulder, CO, has been selected to provide the spacecraft for the Laser Altimetry Mission scheduled to be launched in a near-polar orbit in July 2001.

To read more about these stories, go to the Goddard Homepage at ***http://www.gsfc.nasa.gov*** and choose ***FLASH***

Fast-Spinning Pulsar Provides Evolutionary Link

By Bill Steigerwald, Office of Public Affairs

Goddard scientists, ***Dr. Frank Marshall, Dr. William Zhang, and Eric Gotthelf***, have recently announced the discovery of a superdense star spinning at an amazing rate of 60 times per second. This star, a pulsar, is the fastest high-energy star of its type known to astronomers.

"The pulsar is spinning twice as fast as any young pulsar that we have ever seen before," said ***Dr. Frank Marshall.*** "To put it in perspective, this pulsar is spinning more than 6 million times as rapidly as the Earth." Pulsars get their name because their emissions appear to turn on and off, or "pulse," very rapidly.

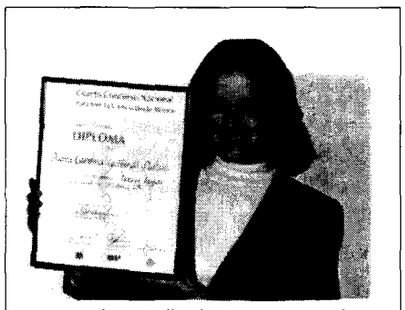
The newly discovered pulsar establishes a link between fast-spinning pulsars with relatively weak magnetic fields and slow-spinning ones with strong fields which suggests that there may be a natural continuum between the two known types. The discovery was made by NASA's Rossi X-ray Timing Explorer (RXTE) which examined X-ray emissions from the star.

NASA Scientist Helps Mexican Student Reach for the Stars

By Mary Fenton, NASA Headquarters

Because it is in the space business, NASA gets letters every day from students who dream of becoming astronauts, engineers or scientists. While it is not possible to respond to every young person who writes to the Agency, the following story describes the difference one NASA scientist made in the life of a student.

Back in 1992, a thirteen-year old student from Mexico named Aurea Carolina Gallardo Patino wrote a letter to NASA about her dream of becoming an astronomer. Because she so much reminded Ed Weiler, Director of NASA's Origins Program, of himself when he was young and aspiring to be an astronomer, he responded to her with a letter of encouragement. They became good friends and have been corresponding for nearly five years.



Carolina Gallardo Patino pictured with her Science Award

Today, it is quite apparent that Carolina's desire to become an astronomer has not waned. At 18, she is working hard to make her dream a reality, graduating from high school with honors and winning a national science prize for an essay she wrote on quasars. She is studying English in college and is hoping to obtain a scholarship to attend college in the U.S. Carolina will be the first one to say that it was Dr. Weiler's encouragement that first made her believe a career in astronomy was possible.

The two met for the first time this winter, and Dr. Weiler arranged for her to tour Goddard's 10-story clean room. On the day of the tour which would be taped by the Hispanic cable network, Univision, Goddard's ***Craig Coltharp and Mark San Sebastion*** took a very excited Carolina dressed in the required white "bunny" suit through the building 29 facility. Carolina displayed a keen interest in the huge pieces of Hubble hardware, later telling Dr. Weiler, "It was fascinating. It was great. I can see my dream of being a scientist like you turning into a reality and a challenge in my life."

Carolina's family is poor; she doesn't even have a phone at home, so it's difficult for her to believe the opportunities she's had recently. "But when you meet her and see her determination, you know she has a very good chance of reaching her goals," said Ed. Weiler "the goal of exploring what she calls 'the great treasure where we live, an infinite universe, beautiful in all of its splendor.'"

Clip-n-Save Clip-n-Save Clip-n-Save Clip-n-Save

Upcoming Activities for Black History Month

- "So Many Voices" Bldg. 8 Aud. Feb. 3
  Pastor Shelton Kilby III (11:30 - 1:30)
- "Dr. King's Dream Through Education" Feb. 9
  Mayor Schmoke (Bldg. 3 Aud.) (2:00 - 3:00)
- Training on Diversity - Dr. Waren Farrell Feb. 18
  Bldg. 3 Aud. (12:00 - 4:00)
- Bowie State University Gospel Chorus Feb. 26
  Performing in Bldg. 8 Aud. (11:30 - 1:00)

Volcanoes and Climate: Past and Present

By Lynn Chandler, Office of Public Affairs

Have you ever wondered why some winters, or even some summers, are exceptionally cold? The fact is that most of this strange weather is due to natural climate variability. On occasion, though, a volcano explodes and, to our consternation, the weather becomes even chillier than during the normal downturns. Do you recall the cold weather that occurred in much of North America the year following the 1991 eruption of Mount Pinatubo in the Philippines?

In powerful eruptions like that of Mount Pinatubo, ash particles and sulfur gases are violently discharged by the volcano into the stratosphere, the region of the atmosphere lying above the layers where our familiar weather takes place. Because of their weight, the ash particles settle to the ground in a matter of days, but the sulfur gases combine with traces of water vapor to form tiny sulfuric acid aerosols. These droplets are so small that many of them can stay aloft for several years. As efficient reflectors of sunlight, they prevent some of the sun's energy from reaching the ground. Although the winds in the stratosphere carry the aerosols rapidly around the globe in either an easterly or westerly direction, the movement of aerosols north and south is always much slower. In the case of an eruption at high latitudes, most of the aerosols simply remain confined to a wide zone surrounding the polar cap for several years.

Volcanoes erupt in one of two basic styles: lava outflows from fissures in the ground and ash explosions from vents on top of volcanic mountains. During the past eleven centuries, the world has seen two enormous fissure eruptions: the Eldgjá (Fire Chasm) eruption in 934 and the Laki, or Skaftareldar (Skaftar Fires), eruption in 1783, both in southern Iceland. Such older eruptions have been investigated by using various research techniques. Scientists measure the visible lava and ash exposures in the field. Sulfuric acid fallout over polar areas can be detected in deeply drilled ice cores having clearly marked annual layers of ice. The anomalous cooling appears in stunted annual growth rings of north temperate trees and, much more importantly, in contemporary reports compiled by competent witnesses. For the oldest historic eruptions, however, these compilers may not be scientifically trained or even first-hand witnesses. Using published historical documents, ***Richard Stothers*** at GISS has traced the climatic and demographic consequences of the great Eldgjá and Laki eruptions. In both eruptions, the cloud of aerosols from the eruption traversed northern Europe on the prevailing westerly winds, and dimmed and reddened the sun. This continued for months. King Henry of Saxony noted the ominous presence of the thick dry fog in 934, and Benjamin Franklin observed it scientifically in France in 1783. Both eruptions were followed by a very cold winter, poor harvests the next summer, severe famine, and a widespread disease epidemic. Conditions remained bad for 5 to 8 years after Eldgjá, but only for 2 to 3 years after Laki. The Eldgjá eruption, though slightly smaller than Laki, injected far more aerosols into the middle stratosphere, where they persisted for a longer time than did Laki's aerosols at lower layers of the atmosphere. The climatic aftereffects of the largest historic eruptions are very important for verifying our knowledge of the aftereffects of the smaller, though better documented, modern eruptions.

CORRECTION:

Last week, Goddard News erroneously stated that Mr. George Morrow has recently been appointed as **Deputy Project Manager** of the EOS PM Project. The article is corrected to reflect Mr. Morrow's appointment of **Project Manager** of the EOS PM Poject.

staff

Subscription Information:
GSFC & WFF Mailing List
Offsite, Commercial Subscriptions
Retiree Subscriptions

Contact:
Gweny Durrah, Code 239
Darlene Ahalt Code 130
Bob Wilson 301•422•8334