

## Thriving through challenging days

By Mark Whalen



Photos by Carol Lachata, JPL Photo Lab

In a conversation with Universe, JPL Director Charles Elachi provides highlights of topics discussed at a recent Executive Council retreat.

### WHAT ARE THE MAJOR IMPLICATIONS FOR JPL IN NASA'S FISCAL YEAR 2010 BUDGET REQUEST?

With change there are always opportunities, and one of the things we need to do is capitalize on the opportunity and be relevant to what the administration has determined is a high priority for the nation. The Obama administration has said they're putting a high priority on science, climate change, technology and innovation. The budget is consistent with their statement—the administration is proposing about a 30 percent increase for Earth science, with a somewhat smaller increase in planetary science over the next five years. These are the areas where most of JPL's budget comes from, and we believe we can help the agency in accomplishing those objectives.

All of our ongoing missions are fully funded in the new budget. In addition, we will receive funding for the Soil Moisture Active and Passive mission for a launch in late 2013 or early 2014, and there is money for a start on Jason 3, and to start the definition of a Europa mission for launch around the 2020 timeframe.

Considering what's happening in the U.S. economy, I think JPL has been very fortunate that the impact here has been very minimal on employment and the kind of work we're doing.

### YOU RECENTLY ANNOUNCED THE DECISION TO FORGO MERIT INCREASES TO EMPLOYEES FOR THE UPCOMING FISCAL YEAR. WILL THE RAISES BE REINSTATED NEXT YEAR?

I understand that people will be disappointed about the lack of raises this year, but most of the people I've talked to say protecting jobs is the most important thing to do. We are hopeful that the economy will pick up and we can get back to normal next year.

Our near-term goal is to make sure we stay competitive while making sure we provide fair compensation for our employees. When you look at what's happening in the aerospace industry and in the economy, with many layoffs and high unemployment, I think we are very fortunate.

We will continue to monitor what happens in the market. If it changes significantly, we will reassess the decision.

### YOU HAVE SAID THAT THERE ARE OPPORTUNITIES TO INVEST WHEN TIMES ARE TOUGH. HOW DOES JPL PLAN TO DO THAT?

We intend to continue our investment in our employees by providing training and funding for their research efforts, as well as acquiring the technical equipment needed to do the job. We need to make sure we have the right environment for employees to be successful. We're going to do the very best we can to make that happen within our budget limitations.

The investments we do in research and technology development and developing new products really makes us more capable and therefore more competitive and successful in the long term.

With the Discovery Program, New Frontiers, Venture, Explorer and others, almost every time we compete, JPL tends to do very well, and that is a reflection of the talent we have here.

### HAS THE CURRENT HIRING FREEZE PROVEN TO BE EFFECTIVE? WHEN MIGHT THAT BE LIFTED?

First of all, the hiring freeze gives our employees first priority before considering the hiring of new employees from outside the Lab. Secondly, we have no intention of growing beyond about 5,000 employees—which is our level right now—even if we were to have more money. I think we want to have an environment where we all can continue to work on this campus and at the neighboring site on Woodbury Road.

So the fact that we will stay at 5,000 employees is almost independent of our potential future growth. The key is maintaining a family environment at JPL and keeping the right mix of in-house and outside projects.

But if we don't have the talent we need on site, there is a process to hire. Matter of fact, there is a mechanism in place now where exceptions to the freeze are considered. If we don't have the talent on Lab, we will go out and hire.

### IN THE COST-PERFORMANCE AREA, DO YOU SEE A LOT OF ROOM FOR BETTER PERFORMANCE IN THE NEAR FUTURE?

I assume you're asking me about Mars Science Lab. We have a reasonably good record in cost performance; most of our projects do very well. That is usually overlooked when there is an overrun in one area. But sometimes, particularly when we're doing things that are very, very tough and are being done for the first time, the question is how can we develop a better way to balance the scope of the mission, the risk involved and the

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budget. I don't think it will ever be perfect, but we can always strive to be better. There are lessons from Mars Science Lab and we will learn them. But no one should forget that Mars Science Lab is an extremely tough engineering challenge. That's the work we should be doing. I want people to continue to push the limit, but it always needs to be balanced with our best judgments, experience and making sure there's good communication between the implementing organizations and the projects. It's an across-the-board effort.

**NASA IS STEERING THE HUMAN SPACEFLIGHT PROGRAM IN A NEW DIRECTION. IS JPL IN A GOOD POSITION TO MAKE A SIGNIFICANT CONTRIBUTION IN THAT AREA?**

Yes. We have brought our expertise in robotics to the mix. The equivalent of about 150 full-time JPL employees are involved in the human program. This has been appreciated by Johnson Space Center and Marshall Space Flight Center as well as NASA Headquarters.

Our goal is not to be a major player but a valued, significant player. As we look to the future, by offering our area of expertise and by teaming with other centers, I think we can do a better job collectively for NASA and help the agency achieve the nation's goals in space exploration.

**WHAT IS THE FUTURE OF ORBITING CARBON OBSERVATORY? CAN THE MISSION BE REVISITED?**

We are looking at two options. One is a carbon copy of the mission that was lost. We have to remember that the failure occurred in the launch vehicle; I think the



mission would have been very successful had the launch been done successfully.

The other option is to fly the OCO instrument along with an infrared instrument being built at Goddard for the next Landsat mission in 2012. We are costing both options, and will provide the data to NASA by early June, with a decision to be made in July. Then NASA will work with Congress on funding.

If the decision were to fly a carbon copy, the earliest it could be launched would be fall 2011.

**THE NEW JOB CLASSIFICATION REDESIGN PROJECT WILL BE IN FORCE IN OCTOBER. IT SEEMS THAT MANY PEOPLE HAVE AN EMOTIONAL ATTACHMENT TO THE NEW LEVELS.**

I remember that when we were at 13 levels and then brought it down to four, there was a lot of concern. So any time you have change, not everyone is comfortable with it.

Under the new plan, employees will be slotted at levels associated with the type of work they're doing and its complexity. We have individual contributors who are doing very complicated work on projects, on research

and elsewhere, and we want to make sure they are properly recognized.

Where the angst will be felt is the fact that we are now moving from four employee-classification levels to six levels. But this change is going to be for the better. I think a few months after we go to the new system people will get accustomed to it and things will be fine.

**I UNDERSTAND YOU'VE RECEIVED SOME INTERESTING FEEDBACK ABOUT THE EXPERIENCES OF SOME OF THE EARLY CAREER HIRES ON LAB.**

Yes. Our new employees are excited about the kind of work we do and how welcoming and helpful their colleagues are. But on the other hand, many said we need to do better on how we introduce them to JPL.

We tend to forget that when we first arrive here it can be a bit intimidating. Also, the younger generation communicates a bit differently, so we have a lot of opportunities to do better. When I first came here we didn't even have personal computers, much less the Internet or wireless. Now we have the opportunity to introduce new people to the Lab by putting information on the Web and combining it with personal interaction. A group of early career hires are going to work with Cozette Hart, our human resources director, and Leslie Livesay, the engineering and science director, to see how we do that.

I look at it in a positive way. Young people are excited and engaged and come here with ideas of how to make JPL a better place. I keep emphasizing to them that JPL is their place—20 years from now they will be leading the Lab, so for now we want to make sure we have the best Lab for the current staff as well as the next generation. ■



Chris Jones



Leslie Livesay



Rick Grammier



John McNamee



David Gallagher



Roger Gibbs



Keyur Patel

## Top management changes fulfilled

Here is a roundup of recent executive management changes at JPL.

Chris Jones is the new associate director for flight projects and mission success. Previously, he was JPL's director for solar system exploration, deputy director for space science flight projects, spacecraft development manager for Cassini and manager of the Space Interferometry Mission. He also managed the Laboratory's Spacecraft Systems Engineering and Guidance and Control sections.

Leslie Livesay is the new director for engineering and science. She was previously deputy director for astronomy and physics, Kepler project manager, and manager of the Avionic Systems and Technology Division. Her other JPL positions include Deep Space 1 spacecraft manager

and telecommunication subsystem project element manager for Mars Pathfinder.

Rick Grammier was named director for solar system exploration. He was previously deputy director for solar system exploration, managed the Deep Impact mission and was project manager for Juno during its critical development through the confirmation phase. He also managed the Mission Assurance Division and was deputy project manager for Stardust.

John McNamee was named Interplanetary Network director. Most recently the deputy director for Mars exploration, McNamee has held positions in project management and line management including Mars '98 project manager, deputy director for solar system exploration, and manager of the Deep Impact and Dawn projects.

David Gallagher was named deputy director for astronomy and physics. Gallagher is currently the manager of the Advanced Optical Systems Program Office and will continue his new role as an additional duty. Previously, he was the project manager for the Space Interferometry Mission, Spitzer Space Telescope and the Starlight Project.

Roger Gibbs is the new deputy director for Mars exploration. Gibbs was most recently manager of the Autonomous Systems Division. Previously he managed the Mars Telecommunications Orbiter project and was project manager and flight system manager for Mars Odyssey.

Keyur Patel, most recently deputy director for the Office of Safety and Mission Success, was named deputy director for solar system exploration. He previously served as manager of the Dawn project and as deputy project manager for Deep Impact.

# Key roles for Lab on moon mission

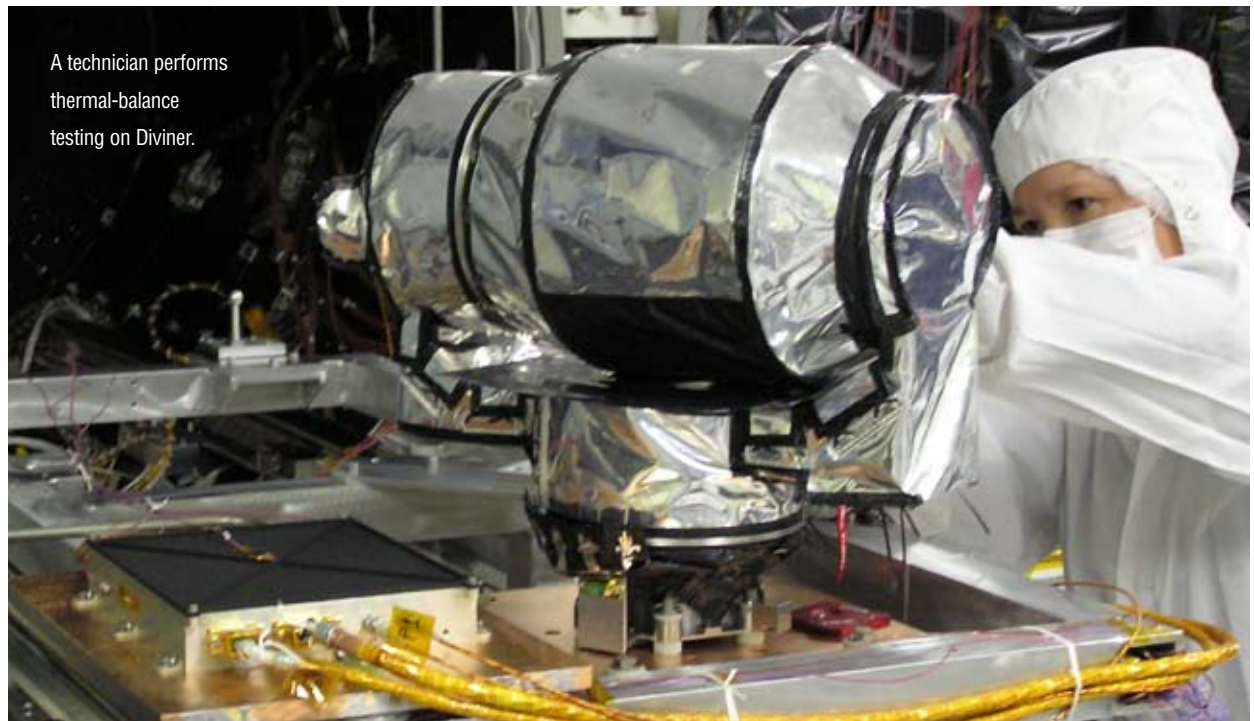
A JPL-developed instrument will play a key role in one of two upcoming missions to Earth's moon. Several other JPL employees have also contributed to the lunar mission.

The missions—scheduled to launch together aboard an Atlas V rocket no earlier than June 17 from Kennedy Space Center—are the Lunar Reconnaissance Orbiter, which focuses on the selection of safe landing sites, identification of lunar resources and the study of how lunar radiation will affect humans, and the Lunar Crater Observation and Sensing Satellite, which will impact the moon twice in its search for water ice.

JPL developed and manages the Lunar Reconnaissance Orbiter's Diviner instrument, a multi-channel solar reflectance and infrared filter radiometer whose objective is to measure lunar surface temperatures at scales that provide essential information for future surface operations and exploration.

Diviner is nearly a duplicate of Mars Climate Sounder, an instrument onboard the active Mars Reconnaissance Orbiter that was built by largely the same team in Division 38 that developed Diviner.

Wayne Hartford is the JPL project manager for Diviner. Mission operations activities will be conducted from JPL and managed by Charles Avis. Scientists at JPL involved in the data analysis include Ashwin Vasavada, who will study potential water ice deposits in the moon's polar craters; Tim Schofield, who will advise on mission operations and calibration activities; Eric de Jong and Daniel McCleese. Marc Foote of the Advanced



A technician performs thermal-balance testing on Diviner.

Instrument Concepts Group led the development of the uncooled thermopile detectors used for Diviner and also served as system engineer for the instrument.

Amanda Hendrix of the Asteroids, Comets and Satellites Group is on the science team for another Lunar Reconnaissance Orbiter instrument, the Lyman Alpha Mapping Project, which will map the entire lunar surface in the far ultraviolet. The instrument will search for surface ice and frost in the polar regions and provide images of permanently shadowed regions illuminated only by starlight. She noted that in probing and mapping the moon's composition it's vital to understand the

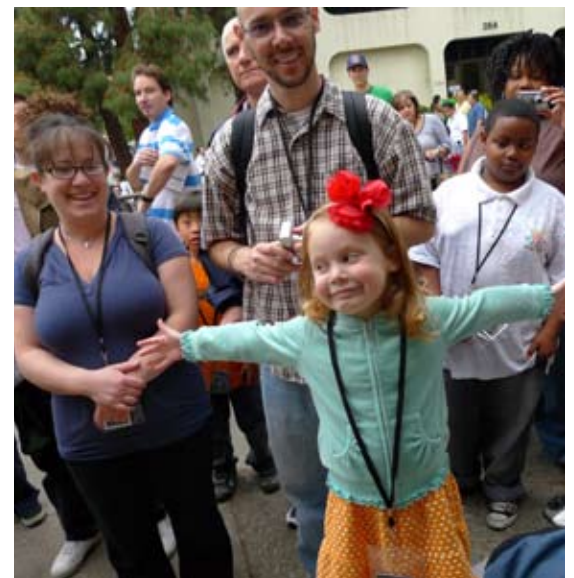
effects of weathering in order to determine the true nature of the lunar surface.

Also, retired JPL project manager and scientist Tom Duxbury, now a professor of planetary sciences at George Mason University, will lead a study that will use data from several instruments to produce the first highly accurate 3-D lunar cartographic maps; the registration and cross correlation of different payload instrument data to the precision 3-D cartographic maps to map mineralogy across the whole moon; and the characterization and assessment of future robotic and human landing sites.

For more information on the missions, visit <http://lunar.gsfc.nasa.gov>.

# 2009 Open House

About 32,000 people attended JPL's open house May 19–20 and enjoyed a wide variety of exhibits and attractions. Among the most popular were the Robo-Dome, a pair of 700-pound robots in a high-tech arena under artificial stars in Building 199 as part of the Universe theme area, and Mars exhibits on JPL's past, present and future rovers and orbiters.



Photos by Brad Graverson for JPL

# News Briefs



Erik Conway, left, receives award from NASA Historian Steve Dick.

## Kudos to historian Conway

For his pathbreaking work on space history, ranging from aeronautics to Earth and space science, JPL historian Erik Conway has won the 2009 NASA Headquarters History Award.

The award was bestowed for Conway's two most recent books: *High-Speed Dreams: NASA and the Technopolitics of Supersonic Transportation, 1945-1999* (2005), a sophisticated study of politics, economics and nationalism in the context of a complex technological enterprise; and *Atmospheric Science at NASA: A History* (2008), a revealing account of NASA's role in understanding the Earth's atmosphere, in part through studying planetary atmospheres and the Earth itself from space.

NASA Chief Historian Steven Dick presented the award April 28 at the agency's annual history review at Ames Research Center.

Conway joined JPL in 2004 after working as a historian at Langley Research Center. In addition to research and writing, his duties include conducting oral histories and contributing to the Lab's historical collections.

## About time for Prestige honors

John Prestage, project scientist in the Quantum Sciences and Technology Group (332J), has been honored for his research by a society of the Institute of Electrical and Electronics Engineers.

The Ultrasonics, Ferroelectrics and Frequency Control Society named Prestage to receive the 2009 Rabi Award, which recognizes outstanding contributions related to the fields of atomic and molecular frequency standards, and time transfer and dissemination.

The award credited Prestage "for seminal work on the time variation of fundamental constants and outstanding contributions to trapped ion clocks." He received the honor at the Joint International Frequency Control Symposium and the European Frequency and Time Forum, held in April in Besançon, France.



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# Universe

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## Research studies awarded

Five JPL researchers were recently named principal investigators for proposals selected for funding under NASA's Definition and Development Program.

Mark Anderson of the 3538 Analytical Chemistry and Materials Development Group will lead a study on nano-chromatography, with a goal of developing a revolutionary new form of miniaturized liquid chromatography using atomic force microscope technology. Rapid nano-chromatography benefits a broad range of in-situ planetary missions that include Europa, Titan and Mars.

Robert Carlson of the Planetary Ices Group will lead "A Combined Infrared Interferometric Spectrometer for Compositional and Thermal Studies of Moons, Comets and Asteroids." The study will assess how Fourier transform spectrometers can provide wider spectral coverage, such that an entire spectral region can be measured by one instrument with high sensitivity and imaging spectrometer capability.

Pin Chen of the Advanced Instrumentation and Spectroscopy Group will lead "Massively Parallel, Cavity-Enhanced, Laser Spectroscopy for Planetary and Lunar Exploration." The study proposes to develop a powerful new tool for understanding the origin and evolution of the solar system and its habitability—as well as discovery of resources for future human explorers—by providing a miniature, low-cost and low-power instrument for in-situ measurements of trace-gas and stable-isotope compositions on planetary bodies and returned Martian, lunar and cometary samples.

Michael Hoenk of the Nano and Micro Systems Group will lead "Delta-Doped Electron Multiplying CCDs for Particle Imaging and Photon Counting," which proposes to develop, test and validate the devices as a unique and enabling component technology for planetary and heliophysics missions and instruments. The proposed detectors will enable energy-resolved particle imaging and photon counting from the extreme ultraviolet through the near infrared.

tems Section, which included research and development in telerobotics and microgravity flight experiments. His participation in the planning for the Office of Aeronautics and Space Technology telerobotics program earned him a NASA Exceptional Service Medal. He also headed the Analytic Instruments and Flight Attitude and Articulation Control Subsystem sections.

Szirmay is survived by his wife, Helen, sons Stephen and Robert, daughter Elizabeth and grandchildren Jenica, Philip, Leah and Zachary.

**James Fuhrman**, 58, a help-desk computer consultant, died April 6.

Fuhrman worked at JPL from 1972 to 1999, when illness forced him to long-term disability status. He is survived by sister Judith and brother Randy. The family urges donations in his memory to the National Multiple Sclerosis Society, c/o Judith Fuhrman, 316 Marie St., Medford, OR 97504.

Soon Sam Kim of the Analytical Chemistry and Materials Development Group will lead "Miniature Nuclear Magnetic Resonance for Planetary Iron-Nickel Mineralogy," which proposes to develop a miniature, zero-field nuclear magnetic resonance spectrometer that can characterize both iron- and nickel-bearing magnetic phase minerals without application of an external magnetic field. The unit can be deployed for Discovery-class asteroid lander missions as well as various New Frontiers missions and a Mars sample return mission.

JPL was also selected to lead a study for NASA's Planetary Mission Data Analysis program.

James Bauer of the Asteroids, Comets and Satellites Group is principal investigator for "Archiving of the NEAT Database (1996-2007) for Scientific and Mission Support," a study that proposes to archive Near-Earth Asteroid Tracking data in the Planetary Data System repository with all photometric calibrations to enable the

planetary community to accomplish a wide array of investigations, including the study of outburst activity on comets and transitional objects; precocity investigations; and the study of the dynamical processes of near-Earth objects and Kuiper belt objects.

## Don't throw it away

If you've ever wondered what to do with old items around the office that you no longer need—but you know shouldn't be thrown in the trash—then a new page on the Environmental Affairs Program Office website will be of help.

The site's recycling page, which includes a section titled "How do I get rid of old stuff?," includes easy-to-find solutions for dealing with recycling bins, stations and temporary containers, as well as what to do with newspapers, toner cartridges and excess trash. Visit the site at <http://eapo/recycling.html>. For more information, call Taeha Goodrich, ext. 4-1973.

## Magellan's 20th anniversary



Tony Spear, right, and next to him Doug Griffith, both former project managers for the Magellan mission to Venus, were joined by program engineer David Okerson and his wife Barbara at JPL ceremonies in May where veterans of the project chatted about old times.

## Letters

I greatly appreciate the thoughtful expressions of sympathy from my friends and colleagues on Dawn and in Division 31 upon the death of my father. I also am grateful for everyone's understanding and support in accommodating my absence. Thank you very much as well to JPL for the lovely orchid.

Marc Rayman

My family has been overwhelmed by the outpouring of kindness and sympathy from our friends and colleagues at JPL following the many recent losses we have endured. Losing my father and uncle and Elizabeth's two uncles in rapid succession has been difficult at best; the support we have received has been tremendous. We thank all of you deeply for caring; we also thank Susanne Tutt and JPL for the lovely basket of azaleas. Our best to you all.

Sunjay and Elizabeth Moorthy

I would like to thank my JPL colleagues for the sympathy card and lovely plant on the recent passing of my father. Your support during this difficult time was much appreciated.

Robert Bonitz

Fae and I would like to express our sincere thanks to everyone who joined in the send-off for Jim's retirement, both at JPL and at the party. The incredible support and camaraderie expressed was a major indicator of just how well the JPL family works. Your support, and all the hard work of my ex-staff to make it happen, is greatly appreciated. It has been great being a part of the JPL family for over four incredible decades.

Jim and Fae Lumsden

Sincere thanks to all my dear friends and colleagues for your cards, kind words and support on the passing of my mother. Your thoughtfulness during these past weeks was deeply appreciated. Also, thank you JPL for the lovely plant.

Suzanne Sinclair

## Retirees

The following JPL employees retired in May:

**Robert Freeland**, 49 years, Section 3550; **Robert J. Wilson**, 40 years, Section 389F; **Karen Callum**, 25 years, Section 3410; **Richard Shope**, 15 years, Section 3223.