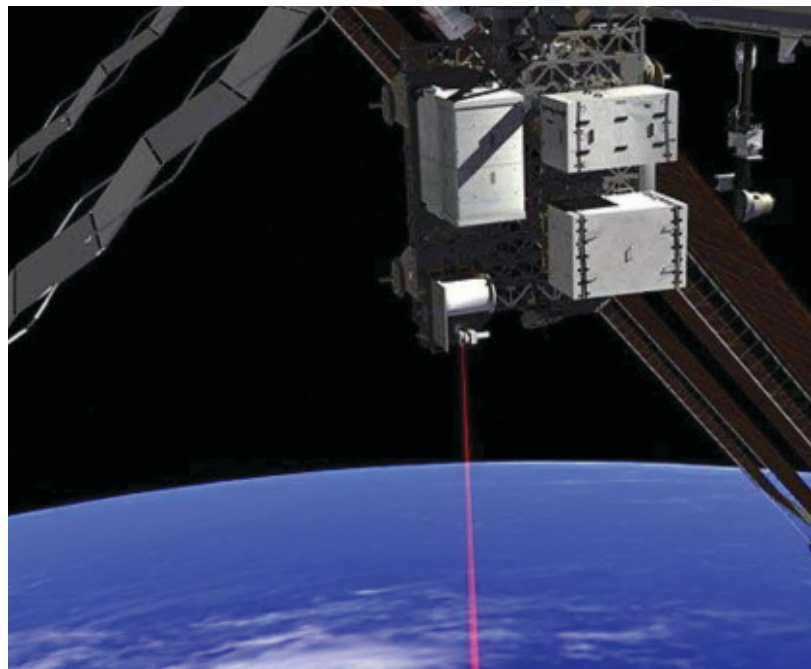


## Home planet focus in 2014

Three Earth mission launches are scheduled

By Mark Whalen



OPALS



RapidScat

Before its three Earth science mission launches commence this year, JPL will take a trip to the International Space Station for a key demonstration that could improve data rates for communications with future spacecraft by a factor of 10 to 100.

An experiment conducted between NASA's orbiting lab and JPL's Table Mountain observatory near Wrightwood, the Optical Payload for Lasercomm Science, or

OPALS, is due for liftoff as early as Feb. 22. The JPL-built instrument is scheduled to fly aboard a SpaceX Dragon vehicle for eventual mounting on the outside of the station.

Video data from the orbiting payload will be transferred to a receiver at JPL's Optical Communications Telescope Laboratory at Table Mountain. During the 90-day mission, opportunities for downlink demonstra-

tions are expected once every three days on average. OPALS is part of the JPL Phaeton early career employee hands-on training program.

Also targeted for the International Space Station will be RapidScat, a follow-on to JPL's QuikScat mission, which monitored ocean winds to provide key measurements used in weather predictions, including hurricane tracking. The instrument is due for launch

*Continued on page 2*

## Federal budget deal 'good news' for JPL

By Franklin O'Donnell

A bipartisan deal reached in December setting federal spending levels for the next two years is good news for NASA and JPL, and should enable the space agency to maintain stable funding for missions currently flying or being built, according to lab leaders.

Negotiated by Sen. Patty Murray (D-Wash.) and Rep. Paul Ryan (R-Wisc.), the agreement sets overall federal spending at \$1.012 trillion for fiscal year 2014, and \$1.014 trillion for FY15. If the deal hadn't been reached, automatic spending cuts called sequestration would have set the federal budget at \$967 billion for FY14 and \$996 billion for FY15, requiring reductions across agencies including NASA.

"This is very good news for NASA and JPL," said

Rich O'Toole, executive manager of JPL's Office of Legislative Affairs. Assuming that NASA gets a proportional share of the increase to discretionary spending, the pact should enable the Mars 2020 rover and InSight Mars lander to continue targeting their planned launches, and provide stable funding for ongoing missions such as Cassini, he added.

Congress now must pass final spending bills by Jan. 15, when a continuing resolution keeping federal spending at last year's levels will expire. The Senate and House of Representatives also will need to reconcile their markups of funding for various agencies.

"We don't know exactly how much NASA will receive, but if it's prorated as compared to the government-

wide numbers, it should be about \$17.3 billion," said O'Toole. That would be about \$700 million, or 4 percent, above the level set by sequestration. The sequestration cuts were triggered by a 2011 law when Congress failed to develop a bipartisan plan for deficit reduction.

In addition to enabling missions currently operating or under development, O'Toole said the lab leadership hopes that when the final budget emerges it will support ongoing studies for a mission to Jupiter's moon Europa. He noted that both the House and Senate increased funding for planetary exploration above the White House's request when each marked up NASA's budget earlier this year.



Orbiting Carbon Observatory 2

from Kennedy Space Center June 6.

QuikScat ended in 2009, and ISS-RapidScat represents a quick and cost-effective replacement. The JPL-built payload includes a flight spare of a SeaWinds scatterometer instrument and engineering model hardware. RapidScat will cross the orbits of QuikScat and other scatterometers, which will allow a unique cross-calibration between instruments.

A new antenna, structure, digital interface and other elements will adapt it to the space station.

Orbiting Carbon Observatory 2, which will study atmospheric carbon dioxide and provide scientists with a better idea of its impacts on climate change, is being prepared for a July 1 launch from Vandenberg Air Force Base.

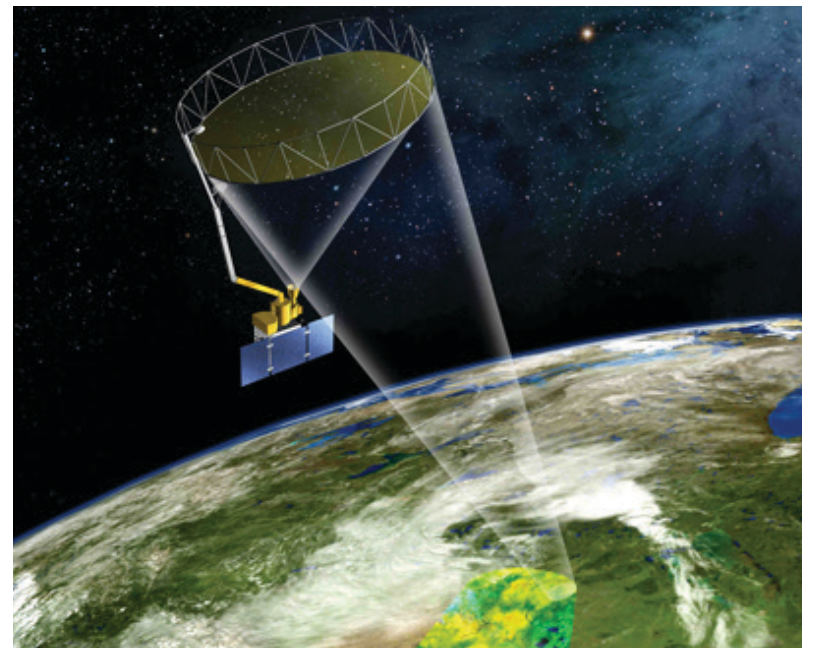
The two-year mission will use a replica of the original Orbiting Carbon Observatory satellite that was lost in 2009 due to a launch vehicle failure. The new satellite will provide the first global measurements of carbon di-

oxide from space and revolutionize understanding of the global carbon cycle.

The new JPL-built instrument will enable scientists to map natural and human-made processes that regulate the exchange of carbon dioxide between Earth's surface and the atmosphere on regional to continental scales. These measurements will enable more reliable forecasts of the atmospheric carbon dioxide abundance and its impact on Earth's climate.

The Soil Moisture Active Passive mission—which will extend the capabilities of models that predict weather and climate—is due to launch Nov. 5 from Vandenberg.

The three-year mission will provide a capability for global mapping of Earth's soil moisture and freeze/thaw state with unprecedented accuracy, resolution and coverage. The satellite will be able to see beneath clouds, vegetation and other features, helping improve flood predictions and drought monitoring. Data from the mission will also play a role in understanding changes in



Soil Moisture Active Passive

water availability, food production and other impacts of climate change.

The instrument's radar and mechanical structure were developed at JPL, as was the spacecraft. Mission operations and science data processing will also be conducted at JPL.

Although 2014's focus will be Earth science mission launches, JPL will begin the year with a long-distance wakeup call to a satellite asleep for two and a half years.

The European Space Agency's Rosetta spacecraft, launched in 2004, is programmed to autonomously wake up Jan. 20 to begin orbit around comet 67P/Churyumov-Gerasimenko. The JPL-built Microwave Instrument for the Rosetta Orbiter, or MIRO, will study gases given off by the comet. The JPL team includes 10 science investigators.

As the year progresses, Rosetta will draw nearer to the comet. Next fall, it will become the first mission to deploy a lander on a space rock. [Please see story on page 3.]

## A streamlined, better aligned JPL Rules for the new year

As the years go by, rules for the workplace come and go. While it's important to recognize that a strong set of policies and procedures set the tone for positive decision-making by employees, it's just as critical to keep the flexibility to adapt to changing times.

So in order for JPL to better adapt to the way work is performed today, changes are coming in 2014 to JPL Rules, the organization's repository for institutional and governing documents.

In order to better align institutional rules with work performance, a new look to the JPL Rules home page (<http://rules>) in January will coincide with changes to the way institutional documentation is managed. The overall goal is to achieve better alignment of JPL's governance structure, documentation and work expectations.

The new plan calls for a shift in the assignment of documents from a process-based structure to one that is organization based, said Engineering and Science Deputy Director René Fradet. The approach seeks to align JPL organizations' responsibility with accountability for the

way work is performed, and in the process, streamline JPL Rules documents and provide better accuracy.

In the new process, the two key roles will be approval authorities and document owners. Approval authorities

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**There will be tighter connection between overseeing how work is done and how the rules are affecting that.**

— Bill Weber

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will oversee the creation and release of documents, while document owners—the content experts—will be responsible for monitoring requirements compliance and assuring accurate and effective documentation.

The phased approach to tackling mismatches between

JPL's documented procedures and its practices includes replacing JPL Rules with a commercial, off-the-shelf system in fiscal year 2015.

In the meantime, streamlining has been underway since February 2012 and, according to Logistics and Technical Information Division Manager Willis Chapman, the number of JPL Rules documents has been reduced from 2,072 to 1,138 as of October 2013.

Employees will notice fewer rules as well as clearer and more effective ones, noted Bill Weber, acting manager of the Office of the Management System. "In this new organizational-based system, there will be tighter connection between overseeing how work is being done and how the rules are affecting that," said Weber. "It all fits together. It's got a high chance of success in the sense that it's helping JPL get its work done on time and on budget. That's what the customer is interested in."

For more information, please call Lora Mitchell, supervisor of the JPL Rules Information System, at ext. 4-6295.

# The inside scoop on comets

JPL-teamed Rosetta to wake up in January | By Mark Whalen

The mysteries of comets have eluded astronomers for eons. Just what are those icy bright streaks in the night sky made of?

We may know more soon. Next summer, the European Space Agency's Rosetta spacecraft will go into orbit around comet 67P/Churyumov-Gerasimenko. JPL contributed a key instrument that may help uncover many of the elusive details of the role comets played in the formation of the solar system.

On Jan. 20, the spacecraft will be awakened from a hibernation state it has been in for the past 2-1/2 years of its decade-long flight. After orbit insertion at the comet Aug. 6, Rosetta will deploy a small lander in November.

The JPL-built Microwave Instrument for the Rosetta Or-

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**We will be able to see the comet evolve right before our eyes.**

**— Claudia Alexander**

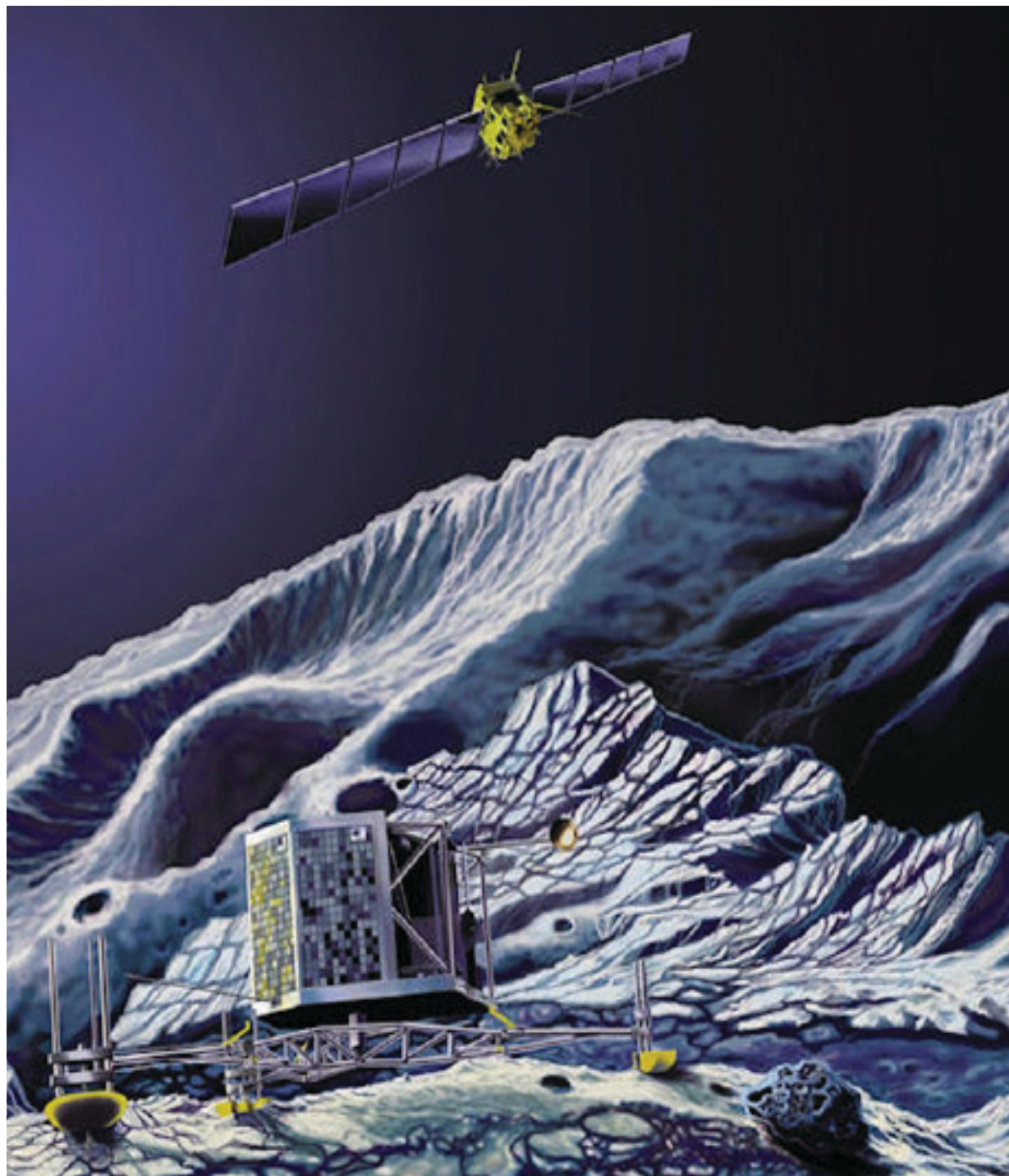
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biter, or MIRO, will study gases given off by the comet. Ten of the 23 science investigators on the MIRO team are from JPL, including Principal Investigator Samuel Gulkis.

"Rosetta is a once-in-a-lifetime experience and I am full of excitement about what we will find when we visit Comet Churyumov-Gerasimenko up close," Gulkis said. He added that his team will look at "the nature of the cometary nucleus, outgassing from the nucleus, and development of the cometary coma as strongly interrelated aspects of cometary physics. A secondary objective is to understand better the relationship between comets and asteroids."

MIRO is slated to get into action in April, when it will begin observations to measure the global gas production of water from the comet. The instrument is expected to have measured the temperature of the comet nucleus by early August, Gulkis added. By this time, the distance from the comet to the spacecraft will have decreased to 100 kilometers.

JPL's Essam Heggy, also on the science team, is responsible for modeling the comet based on variations in properties such as density, temperature, dust-to-ice ratio and ice type. His model will be used to interpret data from the Comet Nucleus Sounding Experiment by Radiowave Transmission, or CONCERT, which will probe the internal



structure of the comet nucleus.

"We will have for the first time a measure of the three-dimensional distribution of the physical properties inside a comet, which will greatly improve our understanding of how they form and evolve," Heggy said.

Claudia Alexander, who leads the U.S. science team, has served on two of JPL's bellwether missions, Galileo and Cassini. She considers Rosetta among the most historic as well.

"We will be able to see the comet evolve right before our eyes," she said. Small bodies such as comets are tricky to orbit because of the lack of gravity, she noted.

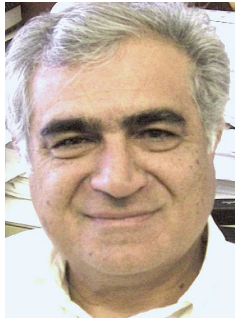
"This mission has broken new ground and will result in important steppingstones in our knowledge of comets," she said. "There's no doubt that Galileo and Cas-

sini completely changed our ideas about the planets they explored; Rosetta is yet another step up in our capability to stay at the forefront of exploration."

The Rosetta mission is named after the Rosetta Stone, which provided the key to deciphering Egyptian hieroglyphs. To that end, JPL Project Manager Art Chmielewski noted that the mission has sparked the interest of a Navajo tribe in Arizona that is participating in an outreach activity where Rosetta science can be translated to their native language.

"Rosetta will also give us the key to the first building blocks of the solar system," he added. "Like the hieroglyphs in tombs, these first molecules are still frozen in comets and we want to reveal them."

# News Briefs



Dariush  
Divsalar

## Communications honor to Divsalar

JPL Senior Research Scientist Dariush Divsalar has been named a winner of the Institute of Electrical and Electronics Engineers' Alexander Graham Bell Medal in honor of his exceptional contributions to the advancement of communications sciences and engineering.

Divsalar was honored "for fundamental contributions to the theory and practice of channel codes that transformed deep space and other forms of wireless communications."

Divsalar, who has been with JPL since 1978, has won NASA's Exceptional Engineering Achievement Medal as well as six NASA Group Achievement Awards.

## Retirees group dissolves

Due to a lack of officers and board members, the Associated Retirees of Caltech/JPL has disbanded.

The group's final scheduled event, a New Year's luncheon at the Women's City Club in Pasadena on Jan. 21, will continue as planned. Reservations are due Jan. 7.

For more information, contact Warren Moore, 818-790-4576 or [arcwkmoo@aol.com](mailto:arcwkmoo@aol.com).

## Passings

**Szabolcs "Mike" deGyurky**, 75, a retired technical manager, died Nov. 3.

After serving in the U.S. Army for 20 years, de Gyurky in 1979 joined JPL as Voyager general science data team chief. He went on to build telemetry, command and communications systems for multiple spacecraft.

Among his leadership positions were technical group supervisor of the Satellite Data Systems Group, the Network and Control Center Development Group, the Deep Space Network Project Operations Center Development Group, and the Training and Simulation Systems Engineering Group. He also served as project element manager of the telemetry, command and communication subsystems for the Jason 1 and Topex/Poseidon satellites.

He retired in 2004.

De Gyurky is survived by his wife, JPL employee Cheryl de Gyurky. Services were held Nov. 8 in Hartford, Wis.



Mike  
deGyurky

**Harris "Bud" Schurmeier**, 89, who was the first Voyager project manager and also led several other JPL pioneering missions, died Nov. 23.

After earning engineering degrees from Caltech, Schurmeier joined JPL in 1949. He held numerous positions of increasing responsibility, including chief of the Aerodynamics and Systems divisions and the Wind Tunnel Section, before being named project manager for the Ranger lunar landings from 1962 to 1965.

Later, he was project manager for Mariner Mars 1969, a series of Mars flybys. In 1976, he became Assistant Lab Director for Civil Systems, a new office at JPL. Schurmeier was project manager when the twin Voyagers launched in 1977.

His honors included the NASA Medal for Exceptional Scientific Achievement, which was awarded by President Lyndon Johnson in March 1965, following the successful Ranger 9 lunar mission.

After his 1985 JPL retirement, Schurmeier served as project manager for Mars Balloon in the 1980s and Mars Rover in the 1990s, two major projects of the Planetary Society.

Preceded in death by his son Alan and



Bud Schurmeier, left, accepts the NASA Medal for Exceptional Scientific Achievement from President Lyndon Johnson and NASA Administrator James Webb, right, in 1965.

wife Betty Jo, Schurmeier is survived by his children Harris Schurmeier (Laurie), Sydne Luebe (Troy) and Dennis Schurmeier (Sherry); brothers Ben and Robert; sister Betty Lou Christensen; and grandchildren Harris "Mac," Lindsey, Jenna, Bryce, Lauren, Jake and

Brenden.

Schurmeier's family requests that donations in his name be considered to the California Surf Museum, Planetary Society or the Soaring Society of America.



Murray  
Geller

**Murray "Mo" Geller**, 79, a retired research scientist, died Nov. 27.

During his 35-year JPL career, Geller worked in the Chemistry and Planetary Atmospheres sections, conducting research in theoretical chemistry, quantum mechanics, spectroscopy and math. He was deputy leader of the International Halley Watch, supervising a global team of scientists devoted to the return of Halley's Comet in 1986.

Geller is survived by his wife, Barbara; son David; daughter Esther; grandchildren Ben, Jack and Vera; and sister Anita. Services were held in Las Vegas.

**Helen Benedict**, 96, a retired secretary, died Dec. 2.

Benedict worked in JPL's executive offices during a 27-year career that began in the 1950s. She is survived by sister-in-law Margaret MacLaughlin and brother-in-law Joseph Innamorati. Private services were held in Clinton, Mass. A celebration of life will be held in Pasadena at a later date.

**Tim Scheck**, 76, a retired JPL business operations manager, died Dec. 4.

Scheck worked at JPL from 1964 to 2002. A graduate of the Stanford University Graduate School of Business, he served as a business office manager for several programmatic directorates between 1980 and 1994; managed the NASA Space Flight Awareness Program for JPL; and served as a member of the ELAN team to develop JPL's first institutionally wide business system. He retired as a member of the Interplanetary Network Directorate.

Scheck is survived by his wife, Carol; daughters, Anne (John McAlearney) and

Gayle (John Northrop); and grandchildren Fiona, Zach and Blake; brother Chris and sister Sally. In lieu of flowers, donations can be made in Scheck's name to the Crescenta-Canada YMCA, AM Kiwanis, or Henry J. Reilly Navy Scholarship fund.

In particular, I am grateful to my project team for their overwhelming support during his last months that allowed me to assist with his care. For this I am indebted to them. Thank you, too, for the beautiful plant that we received in his memory.

John Cucchissi



Tim Scheck

My family and I sincerely thank my JPL family for the plants, cards, condolences and support following the passing of our beloved mother. We truly appreciate the outpouring of love.

Alden Jenkins

Our families would like to thank our friends at JPL for their sympathy over the passing of Miki's brother, Gary Moreno. The kind words, cards and plants were greatly appreciated during this difficult time.

Bryan and Michele (Miki) Bell

## Letters

My family and I would like to thank the many JPL colleagues for their help and concern during my father's illness and passing this fall. His frequent visits to the laboratory and the graciousness with which you all received him were deeply appreciated.

Tom Painter

Thank you to my friends and co-workers at JPL for their kind and supportive thoughts on the loss of my grandmother, Catherine Wagstaff. She was an amazing woman with a bright wit and an enormous capacity for love who served as an RN at Utah Valley Hospital in Provo. She loved genealogy, mountain vistas and sunflowers. Her love of learning has inspired me throughout my life. I also want to thank JPL for the beautiful pair of plants I received. My grandmother would have loved their cheery glow. Thank you.

Kiri Wagstaff

My family and I wish to thank my many JPL friends and colleagues for their kind thoughts and condolences on the recent death of my beloved father.

We would like to thank our JPL friends and for their condolences after the loss of our grandson in August, and thank you for the very nice potted plant. This was a very difficult time for us, and we really appreciated the support.

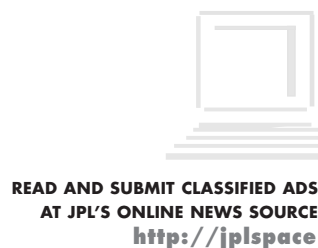
Tom and Elaine Livermore

I would like to thank all my friends and colleagues at JPL who supported me with their condolences and good wishes following the recent passing of my mother. Your sympathy has been a great comfort and has helped me through this difficult time. And thanks to JPL and to colleagues in the exoplanet program for the beautiful plants I received.

Stephen Unwin

## Retirees

The following employees retired in December: **Ranty Liang**, 35 years, Section 8114; **Robert Leland**, 33 years, Section 382H; **Kim Gostelow**, 25 years, Section 349C.



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<http://jplspace>

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