



## Lab rates 'excellent' in NASA annual evaluation

JPL's scores in its fiscal year 2010 Award Fee Final Performance Evaluation (also known as the NASA report card) resulted in improvement in each of the four categories assessed. The Lab's overall score is the highest since 2004, when the Mars Exploration Rovers landed on the Red Planet.

The annual evaluation of the Laboratory's performance is used to determine the amount of an award fee paid to Caltech. In turn, some of that money is given to JPL for use at its discretion.

"Caltech salutes and congratulates JPL staff for their technical excellence, hard work and dedication over the past year that has resulted in this very positive assessment from NASA," noted Caltech President Dr. Jean-Lou Chameau. "It's a source of great pride for the Caltech community."

"What's most important is that JPL showed uniform improvement in practically all areas," noted Gene

Trinh, head of the NASA Management Office at JPL. "The Lab had great success in overcoming many technical challenges and also had good progress in managing cost."

Trinh in particular lauded the past year's technical performance on the Lab's four missions that are preparing for launch in 2011—Aquarius, Grail, Juno and Mars Science Laboratory. He noted that, in general, increased oversight led to greater attention to containing costs. "NASA is encouraging JPL management to continue to maintain vigilance," Trinh said.

JPL received scores of more than 90 out of a possible 100 in each category—Programmatic, Institutional Management, Engineering/Mission Assurance and Outreach—for a total weighted score of 94.2, more than two points higher than in fiscal year 2009.

In the Programmatic category (worth 50 percent of the overall score), JPL received a score of 93, three

points higher than in FY '09. In Institutional Management (20 percent), the Laboratory earned 93.5 points, a half point more than the year before. Engineering/Mission Assurance (20 percent) earned a score of 98.5, two and a half above last year. Outreach (10 percent) scored 93, two points higher than last year. In the award fee scoring criteria, a score of 91 or above is considered "excellent" if it is determined to be "Of exceptional merit; exemplary performance in a timely, efficient and economical manner; very minor (if any) deficiencies with no adverse effect on overall performance."

Trinh said the overall rating of 94.2 is also the second-highest score JPL has achieved since the current assessment system started in 1994. The score will translate to an award fee of about \$20.7 million for Caltech, he said.

## Five awarded JPL Fellow designation

Five JPLers have been selected as JPL Fellows, representing the highest career level given by the Laboratory to individual contributors and recognizing those who have made extraordinary technical contributions to JPL over an extended period of time.

The honorees:

Calvin Chambers, manager of the Cost Management Implementation Office: For his exceptional business expertise relative to program and project business processes and systems, and his key leadership in the field of Earned Value Management System implementation throughout NASA and industry. Chambers has been with the Laboratory since 1992 after working for the Lockheed Aeronautical Systems Company.

Fred Hadaegh, technical group supervisor, Guidance and Control Analysis Group 3443: For his distinguished leadership and achievements in spacecraft guidance and control, resulting in new and revolutionary notions enhancing JPL's outstanding stature for its unparalleled capabilities in this field. Hadaegh, who also currently manages the Distributed Technology



JPL Director Charles Elachi, left, and Deputy Director Eugene Tattini, right, join the newly named JPL Fellows honorees at a recent Caltech ceremony. From left are Michael Watkins, Steven Macenka, Calvin Chambers, Donald Yeomans and Fred Hadaegh.

Program Office, joined JPL in 1984.

Steve Macenka, manager of the Optics Section 383: For his in-depth, expert knowledge and outstanding distinguished leadership in interferometry and advanced optical systems, resulting in novel concept design and implementation of outstanding optical programs for NASA and JPL. Macenka joined the Laboratory in 1978 and previously served as technical group supervisor for the Astrophysics and Planetary Optics Group.

Michael Watkins, mission system manager for Mars Science Laboratory and project scientist and data system manager for the Gravity Recovery and

Climate Experiment: For his versatility across many science and engineering disciplines, including demonstrated achievements and outstanding leadership in space navigation, gravity science and space geodesy. Watkins, who joined JPL in 1993, previously managed the Pre-Projects and Advanced Studies Office and the Navigation and Mission Design Section.

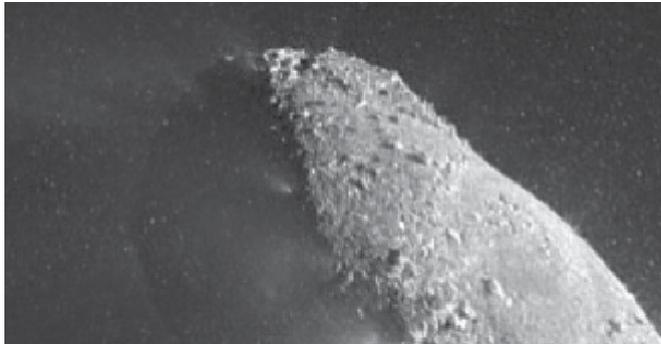
Donald Yeomans, manager of the NASA Near-Earth Object Program Office and technical supervisor of the Solar System Dynamics Group: For his outstanding distinguished leadership, achievements and outreach in the areas of physical and dynamical modeling

of comets and asteroids, resulting in a significant body of work impacting JPL, NASA and the field of near-Earth objects. Yeomans, with JPL since 1976, has provided accurate predictions for numerous missions to asteroids and comets and was U.S. project scientist for the NASA/Japan Hayabusa asteroid sample return mission.

Fellows are sought out for advice on strategic technical decisions, and contribute in establishing the course for the Laboratory's future. Fellows are named by the Laboratory director on review of Fellow Board recommendations in the areas of engineering, research, business administration and computer science.

# EPOXI REVEALS COMETARY SNOWSTORM

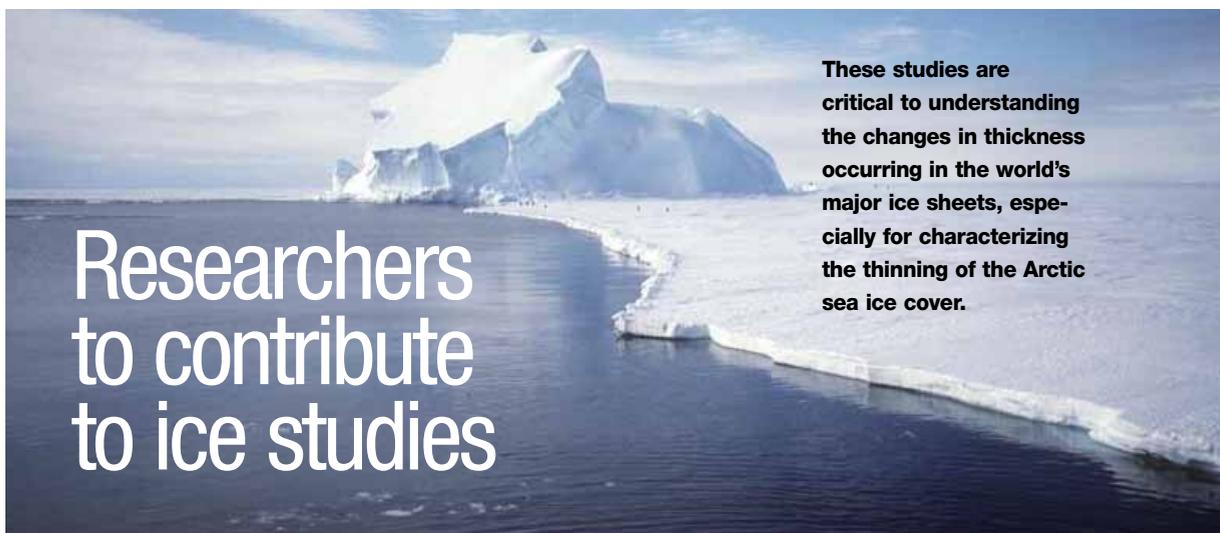
**In-flight Deep Impact spacecraft has provided the most extensive comet observations in history**



Clockwise from left: An image from the Epoxi mission's Nov. 4 flyby of comet Hartley 2 shows jets of dust and gas blasting out water ice from rough areas of the comet, resulting in a cloud of ice and snow; Project Manager Tim Larson (left) and Deputy Project Manager Donald Sweetnam celebrate the successful encounter; spacecraft chief Steve Wissler; Caltech President Jean-Lou Chameau (left) and JPL Director Charles Elachi with comet discoverer Malcolm Hartley; Epoxi lead propulsion engineer Elizabeth Sholes and propulsion engineer Todd Barber.



Dutch Steiger / JPL Photo Lab



## Researchers to contribute to ice studies

**These studies are critical to understanding the changes in thickness occurring in the world's major ice sheets, especially for characterizing the thinning of the Arctic sea ice cover.**

Proposals from three JPL researchers have been selected for NASA's IceBridge program, which will provide studies critical to understanding the changes in thickness occurring in the world's major ice sheets.

Under IceBridge, data is collected using NASA aircraft. While the program does not have nearly the coverage of satellites, it does allow for monitoring of key areas using NASA lidar systems and also utilizes the aircraft platform to collect ancillary data critical to understanding changes occurring in the ice.

Ronald Kwok of the Radar Science and Engineering Section is principal investigator for "Airborne Remote

Sensing of Polar Sea Ice: Bridging the Gap Between Satellite Missions." Kwok will use the acquired data in the understanding of changes in the Arctic and Antarctic sea ice covers. The proposed work is of value to the United States and international scientific community because it provides cross-validation of airborne and satellite sea ice data sets and establishes the confidence of these data sets for assessing long-term changes in the Arctic and southern oceans.

Eric Larour of the Mission and Technology Development Group will lead "IceBridge Scientific Guidance

Using Ice Sheet System Model." This JPL-developed model is a massively parallel, 3-D finite element software capable of computing ice flow at the continental scale (Greenland, Antarctica), using high-resolution elements (from 20 kilometers in the ice sheet interior down to 1.5-kilometer resolution in fast ice flow areas). The project should improve capabilities to constrain ice flow models, using targeted data measurements that optimize return on science.

Eric Rignot of the Radar Science and Engineering Section will lead "A Glacier Dynamics and Ice-Ocean Interactions Perspective for Icebridge Science," a proposal to provide scientific expertise in ice motion mapping, analysis of glacier dynamics, estimation of ice sheet mass balance from the mass budget method and contribution to sea level rise. Also provided will be expertise in low-frequency radio-echo sounding to address the challenges of measuring bed topography as well as collective expertise with JPL collaborators on the remote-sensing observations and numerical modeling of ice-ocean interactions on floating ice shelves and tidewater glaciers.

The proposals were among 22 selected out of 44 submitted for a NASA Research Announcement last year. The program is designed to fill the gap in altimetry observations left by the demise of ICESat in the latter part of 2009 until the launch of ICESat-2 in 2015.

# CREDIT WHERE CREDIT IS DUE

By Mark Whalen

**Cinzia Zuffada, the Laboratory's Associate Chief Scientist, is leading an effort to ensure that JPL researchers are properly credited for their work. She spoke with Universe about the new Guidelines for Ethics in Research being put in place to assure that all who contribute to research on behalf of the Lab are given their due.**

## WHAT ARE THE MAJOR CONCERNS BEHIND THIS EFFORT?

The core subject behind the publication of the new guidelines is giving appropriate credit for research contributions. If you look at what is currently in JPL Rules, it talks about research misconduct, how we handle allegations that are brought up, and the processes we use to dispose of them, such as assessment, inquiry and possibly investigation. The written material so far has focused on what not to do, and what happens to you if you do something wrong. Dan McCleese and I feel strongly that a positive approach was needed.

In our day-to-day work, we don't have a description in one place of what is good practice. One of the reasons we don't have it is because it's difficult to develop such a document. We cannot write a recipe book that would cover all possibilities, but at the same time we realize that knowledge of good practices in research is not uniform across the JPL community. As an institution we want to live by our core values, and help the community understand what the values are.

## THIS SOUNDS LIKE AN ISSUE HAS BUILT UP OVER THE YEARS; WHY ADDRESS IT NOW?

The Office of the Chief Scientist has the institutional responsibility to assess all allegations of research misconduct. So, our office is often consulted when people contact the Ethics Office, not solely for allegations of research misconduct, but even on issues of disagreements on authorship and intellectual contributions, due to the lack of clarity as to what constitutes good research practices, in terms of properly recognizing researchers' contributions.

We are aware that sometimes researchers do not know where to turn in cases of differences of opinion or disagreements, and the absence of guidelines for a respectful dialogue can lead to deteriorated work environment.

## IS THIS BECAUSE MANY RESEARCHERS ARE UNAWARE OF THEIR RESPONSIBILITIES AND THE RIGHT THING TO DO?

In a way, JPL has some unique characteristics in terms of issues of this nature because it is a place where scientists, technologists and engineers work together, in different collaborative modes, ranging from small teams to large ones, associated with flight projects. Flight project teams have formalized roles and a great degree of self-organization. A number of projects have developed their own "rules of the road" that the

science team follows—regulating how recognition is given—in some cases including the role of the principal investigator on papers. These practices are established by dialogue among the members.

On the other hand, in the area of the individual research, the rules are not clearly defined. Additionally, in communities like ours, there is no single answer on how and when to recognize technology or engineering contributions to science papers, and vice versa. The decision might be made by the principal investigator or task manager; the guidelines advocate that there should be a transparent process whereby contributions and authorship are discussed in the context of work responsibilities.

The new guidelines represent a unification of information, developed by a large team of JPL researchers from the science and technology communities, working together to identify some shared principles that help inform our thinking. For instance, the guidelines describe how to identify a significant contribution in various cases. We hope that they will help the community understand how they should approach issues that revolve around authorship, acknowledgments, references in publications and proposals as well as the rules for communications.

## HAVE THERE BEEN A LOT OF CASES OF MISCONDUCT, OR IS IT JUST A FEW PEOPLE WHO HAVE SPOILED IT FOR THE OTHERS?

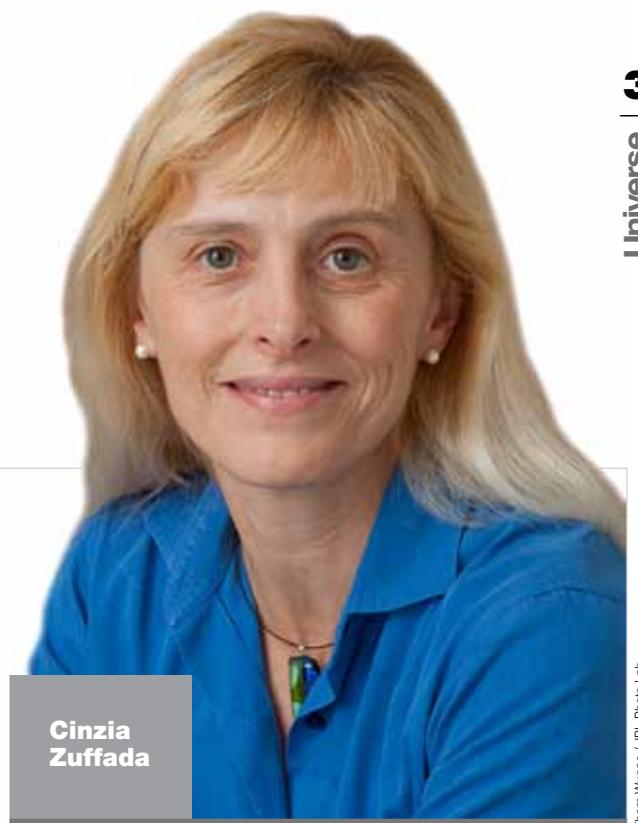
Just to make it clear: The need to develop these ethics guidelines did not come about because our community is unethical or because we have a serious problem of research misconduct on Lab.

Think about the institution's core values—integrity, openness, quality and innovation—how do we infuse these values in what we do? This document is a tool that helps in that respect and it's the main reason for developing the guidelines. This tool will help our newer, younger researchers who might be just starting and don't necessarily know all these practices.

Management also should be considering what to do if employees go to them and say, "Hey look, I have contributed to this piece of work, but there is a paper there and my contribution is not acknowledged. Why not?"

## HOW MANY JPLERS WILL BE AFFECTED BY THE NEW GUIDELINES, AND WHERE WILL THEY FIND THEM?

By some measures, at least 1,000 employees are involved in publishable research. The guidelines will be easily available on the websites for Science and Tech-



Cinzia Zuffada

Thom Wynne / JPL Photo Lab

nology (<http://technology.jpl.nasa.gov>), and the Office of the Chief Scientist and Chief Technologist (<http://technology.jpl.nasa.gov/ocsct>), and there will be a link in JPL Rules under "Ethics in Research." This material will be used for new modules of ethics training.

Also, starting Dec. 12, there will be a new page for author submissions to the Unlimited Release System of document review that will remind the authors what it means to behave ethically with respect to acknowledging contributions and good scholarship.

The intent is for authors, as they develop the paper well before submitting it for document review, to be thinking about whether they're abiding by high professional research standards, and properly crediting the people who contributed to the work.

## HOW CAN PEOPLE ASSURE THAT THEY ARE PROPERLY CREDITED?

A person who has a concern should approach the lead author or any of the co-authors when they know a paper is being developed and discuss what they feel about their contribution. At the same time the lead author should be open to debate whether a contribution belongs in the paper in question. Additionally, line or project management should help mediate the conversations, and help identify alternative avenues for recognition of particular contributions in dispute, based on their knowledge and as appropriate.

## WHAT IF THE PAPER WAS ALREADY PUBLISHED WHEN THE INAPPROPRIATE CREDITING WAS DISCOVERED?

We have few of these cases. Many times, an omission is not intentional but is the result of hasty work, and sometimes corrections can be made by contacting the editor. In other cases, it's been due to intentional negligence or lack of professionalism; this may be research misconduct.

So by providing these guidelines and having our community of authors think through these steps—these are obligations of an author—we hope to minimize confusion and misunderstanding.

# News Briefs



Goutam Chattopadhyay

## Engineering institute honors JPLer

Goutam Chattopadhyay, a senior engineer in the Submillimeter Wave Advanced Technology Group, has been named a fellow in the Institute of Electrical and Electronics Engineers.

Chattopadhyay, who is also a visiting associate at the Division of Physics, Mathematics, and Astronomy at Caltech, is being recognized for contributions to development of sources, sensors and coupling structures at terahertz frequencies.

Fellow is the highest grade of membership in the institute, which has 385,000 members in 160 countries.

## Three JPLers named associate fellow

Three JPL employees have been named associate fellows in the American Institute of Aeronautics and Astronautics.

Jim Graf, Earth Science and Technology deputy director; Jon Sims, supervisor of the Outer Planet Mission Analysis Group; and Randii Wessen, deputy manager of the Program Formulation Support Office (154), will be honored at the association's Aerospace Sciences Meeting Jan. 4 in Orlando, Fla.

## Lab thanked for ridesharing efforts

JPL in November received a certificate of appreciation from the South Coast Air Quality Management District for contributing to clean air by encouraging employees to rideshare via carpool, vanpool, bus and other efforts.

The district congratulated JPL management and staff for achieving an average vehicle ridership of 1.56, which exceeds the target average for the area of 1.5 per vehicle.

The South Coast Air Quality Management District's jurisdiction includes Los Angeles, Orange, Riverside and San Bernardino Counties.

## Mission formulation improvements noted

JPL has introduced a number of improvements to help pre-phase A concept, proposal and pre-project teams develop and plan missions that have high science value and are implementable for their committed costs.

These new resources can be found at the Frontline web portal (<http://frontline>), which provides online access to current information, templates and standards for study teams, proposal teams and pre-projects.

Here are some highlights:

**Pre-phase A lifecycle:** Detailed templates map out sub-phases, gates and reviews for competed and assigned missions.

**Concept maturity levels:** A consistent approach measures maturity of mission and instrument concepts.

**Cost risksubfactors:** An algorithm estimates appropriate cost reserve posture very early in a project lifecycle, based on influence coefficients extracted from recent flight projects.

**Cost and schedule profile rules of thumb:** Guidelines establish schedule and cost profiles as a function of mission class, based on historical data.

**Formulation support team:** Institutional experts join all pre-projects to assure tailored support.

**Pre-project principles and practices:** Detailed guidelines and requirements clarify concept development expectations in each Pre-Phase A lifecycle sub-phase.

**Mission development workshop:** A weeklong class that provides in-depth discussion of techniques for concept development, competition and proposal preparation, cost estimating, and early formulation planning.

**Senior management attention:** The position of JPL associate Laboratory director for project formulation and strategy coordinates Labwide policy through the Office of Strategic Plan-

ning and Project Formulation.

"These measures have noticeably improved the quality, consistency and efficiency of mission concepts, reviews and proposals," noted Randii

Wessen, deputy manager of the Program Formulation Office within Office 150. "Reaction by JPL implementers, program managers and sponsors has been very favorable."

## Machinist garners major award



Tom Wynne / JPL Photo Lab

Peter Bruneau holds the trophy he won for machining a delicate glass part for Orbiting Carbon Observatory, shown beside him.

For his meticulous and precise work in shaping a delicate non-metal part for Orbiting Carbon Observatory, JPL machinist Peter Bruneau has won a major award from a leading machine manufacturer.

In the 2010 Innovation of the Americas competition sponsored by DMG/Mori Seiki USA, Bruneau was honored for machining a grating substrate mirror, which is made of glass, for the orbiter. The part is considered extremely difficult to machine due to its critical features and the material being prone to chipping.

DMG/Mori Seiki holds the annual competition among individuals and organizations in North, Central and South America that use computer

numerical control machine tools. Bruneau won first place for aerospace parts, one of four categories in the competition.

Richard Cournoyer, supervisor of the Prototype and Research and Development Machining Services Group (3756), noted that Bruneau mastered a newly acquired ultrasonic machine for non-metals, giving JPL a unique capability that will also come in handy for missions such as Advanced Mirror Development. Cournoyer praised Bruneau's efforts "to consistently machine ultra-precision components from some very exotic material, just another example of his exceptional contributions to this new science and providing JPL scientists with the precision they require."



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# Universe

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## Passings

**Stefan Suszko**, 81, a senior engineering associate in the Electronic Parts Engineering Section, died Sept. 18.

His work included deconstructing and analyzing integrated circuit components. In 1986 he patented his development of a method of examining microcircuit patterns.

Suszko worked at JPL from 1984 to 1996. He is survived by daughter Stefanie Kennell.

Cremation services were held Oct. 22 off Santa Barbara.

**Oliver Petway**, 70, retired press-room lead at JPL's former Foothill printing plant, died Sept. 24.

Petway joined JPL in 1971 and retired in 1997. He is survived by his wife, Joyce, and seven children.

**Lynn Robert Stavert**, 64, a retired programmer analyst, died Sept. 30.

Stavert, who had joined JPL in 1973, developed multimission soft-



Bob Stavert

ware for many spaceflight missions, including Cassini.

He is survived by his wife, Jane. Remembrances in his name may be made to Pasadena Community Orchestra, P.O. Box 92917, Pasadena, CA 91109-2912.

**Hugh Burns**, retired from the former Telecommunications Science and Engineering Division, died Oct. 14.

Burns worked at the Lab from 1967 to 1987. He is survived by his wife, Rosemary, and eight children.

## Letters

During this time of Thanksgiving, I am especially grateful to my friends and colleagues for their expressions of love and support before and after the death of my husband Michael. The encouraging words and cards, the stories of empathy, the generous monetary gifts and lovely plant are sincerely appreciated from the bottom of my heart. My family and I were touched too for those able to attend Mike's Life Celebration. A big hug and a humble thank you to each of you. I'm missing Mike terribly but I will get through this time, thanks to the help of family and friends.

Laura Dunn

I wish to express my heartfelt gratitude to my friends and colleagues for their support with the recent passing of my mother. She was, truly, a great woman, friend and confidant. Most sincerely,

Karl Strauss, Section 345

I would like to say "thank you" to dear friends and co-workers for your thoughtfulness and support during the very difficult time of my brother's short illness and sudden passing. Your support is sincerely appreciated. A sincere thanks also to JPL for the beautiful plant.

Jan Magee, Section 355

## Retirees

The following JPL employees retired in November:

**Ron Dotson**, 33 years, Section 3442; **Samad Hayati**, 32 years, Section 6000; **Candice Hansen**, 31 years, Section 3227; **Tom Radey**, 24 years, Section 389F; **Carol Stanley**, 19 years, Section 388L.

Diane Montini