

Renewing our reach to the heavens

By Mark Whalen

New tracking station in Australia begins upgrades throughout the Deep Space Network



The Canberra, Australia, Deep Space Communications Complex.

Officials gathered near Canberra, Australia, Feb. 25 for a groundbreaking ceremony to begin construction of a new Deep Space Network antenna. From left are Miguel Marina, JPL's 34-meter implementation manager; Peter Vrotsos, NASA director of network services; Badri Younes, NASA deputy associate administrator for space communications and navigation; Megan Clark, CEO of the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO); Alex Zelinsky, group executive for information services at CSIRO; Miriam Baltuck, director of the Canberra Deep Space Communications Complex; U.S. Ambassador Jeffrey Bleich; William Gerstenmaier, NASA associate administrator for space operations; Charles Elachi, director of JPL.

With a groundbreaking ceremony near Canberra, Australia, in late February, construction is now underway to replace the aging 70-meter-wide (230-foot) communication antennas of the JPL-managed Deep Space Network.

Each of the Deep Space Network complexes—Canberra; Madrid, Spain; and Goldstone, Calif., near Barstow—will have four 34-meter beam-waveguide antennas when the project is completed by 2024.

In all, six new antennas will be installed throughout the network.

The task begins at the Canberra facility, which currently houses the fewest antennas in the network, where three of the new antennas will be added by 2018. Plans call for the first of those to be completed by 2014 and operational by 2015, a challenging timeline due to a much greater percentage of flight projects being viewable in the Southern Hemisphere that year, noted Alaudin

Bhanji, manager of the Deep Space Network Project Office (920).

JPL acting task manager Miguel Marina is on site in Canberra to work with the Lab's Australian partners in getting the initial infrastructure work started.

The job includes building the infrastructure to support the antennas, their mechanical structures and electronics, and additional subsystem resources at the signal processing center.

During the construction period, no disruptions to power and capabilities are expected at the site, said Wayne Sible, acting manager of the 70M Replacement Task Office (926).

Once the Canberra antennas are successfully installed, the task will move to Madrid, where the two new structures are scheduled for completion in 2020 and 2022. Goldstone will have its new 34-meter beam-waveguide antenna in 2024.

Although more than 40 years old, the 70-meter antennas aren't going away just yet. Sible noted that their large aperture size makes them unique, for example, in supporting radar science at Goldstone, which is the largest movable aperture that can be used for near-Earth object tracking with radar.

The beam-waveguide antennas provide the flexibility needed to operate on multiple frequencies, including the wider-bandwidth Ka-band signal, required for new missions approved after 2009. An array of four of 34-meter (112-foot) antennas can supply downlink capabilities similar to a 70-meter antenna, Sible said, adding that arrays are scalable, freeing assets when the 70-meter capability is not needed.

"The design of the 34-meter beam-waveguides allows us during maintenance and upgrades to do work in the pedestal, where with the 70-meter we have to stop operating the antenna, stow

it, put people up in the cone of the antenna to do the work," Sible said. "Now we will have a more robust system, with the ability to add additional frequencies within the pedestal when they're needed. From a return on investment standpoint, the beam-waveguides give us more bang for the buck."

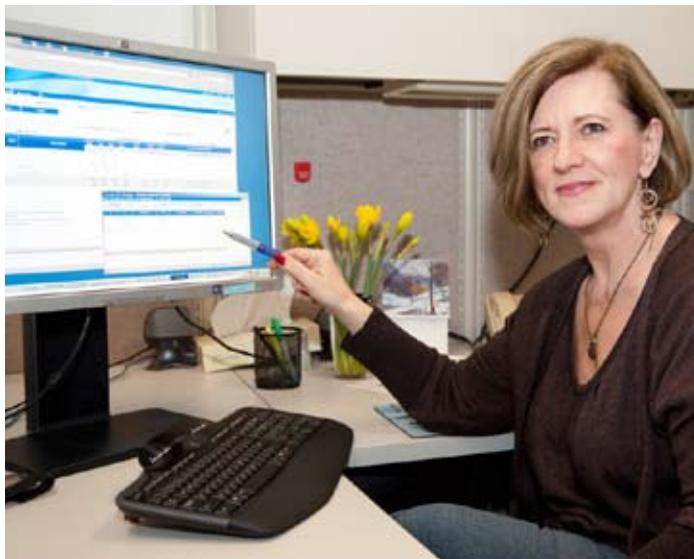
Besides JPL's missions in flight, the DSN currently supports more than 36 missions in deep space, Earth and lunar orbit for other NASA centers as well as for the European, Japanese and Indian space agencies. The network also supports six ground-based science missions.

On-Lab, JPL manages an operations control center that coordinates activities between the network stations, as well as the project's mission support area, which is contracted to ITT Industries, Systems Division. ITT also manages an operations and maintenance facility in Monrovia for JPL.

A new way of keeping time

Online timecards receive an upgrade

By Mark Whalen



Alicia Bojko of the Institutional Business Systems Division points out features of the new timekeeping system.

Dutch Slieger / JPL Photo Lab

A number of new features await JPLers when the Lab's new timekeeping system is rolled out in late April.

Driven by the critical relationship between the timekeeping system and JPL end users, the redesign project will produce a more streamlined and easier-to-use online timecard with more embedded business rules to reduce errors.

The implementation of the current Kronos timekeeping application provided JPL with the capability to accommodate the 9/80 alternate work schedule as well as the unique requirement for both a timekeeping and labor distribution system within the same application, noted project manager Alicia Bojko of the Institutional Business Systems Division. "However, employees voiced legitimate complaints about Kronos' usability," she said. "It wasn't as intuitive as we'd like, and the custom labor-distribution area proved problematic for users who had numerous charge codes."

Now, Bojko said, everything employees need to complete their timecard will be on one tab, including projects and tasks with names and numbers; accruals of personal, sick and vacation time; pay period and workweek period; and percent of allocation for weekly employees for productive effort. Employees will also be able to select specific work authorization memo (WAM) numbers for display.

Other improvements include a more user-friendly interface and the ability to add free-form comments. Also, to reduce errors on Monday mornings, weekly and hourly timecards will default to the prior week until the system locks down at 10 a.m. Mondays. Different messages will appear onscreen depending on employee type (supervisors, overtime-eligible employees, etc.).

In addition, Bojko said, supervisors will now be able to review timecards of their employees via a link on the supervisor's own timecard.

Another key savings for JPL comes in managing labor charging for work in process in the Lab's fabrication organizations. For example, the Enterprise Engineering Division 37 employs numerous cleanroom and shop technicians who don't have their own computers. For them, the timekeeping application also serves as a tracking system for work orders. But when the Kronos system came onboard, it couldn't accommodate both functions together, creating the need for separate entries.

But no longer, said Lew Soloway, the Division 37 manager, who noted an additional benefit. "We will be able to have remote reporting when our technicians go to the Cape, where they can use a PDA to accurately track their work," he said. "This will be significant when Mars Science Laboratory goes to Florida."

"We have hundreds of jobs every week, and the ability to keep track of that is very important," Soloway said. "My concern is our ability to be able to report to our customers what a job costs as quickly and as accurately as possible."

Bojko said Labwide training for the new timekeeping system will begin in April. E-mail announcements of briefings, online tutorials and hands-on training opportunities will commence in March.

"The project team has been working diligently to bring the new timecard to the JPL community," she said. "We have heard the primary challenges and believe that the new user interface will be of great value to employees."

Users will see an easy-to-use, intuitive timecard with simple interface screens and clearly identified items.

SPECIAL FEATURES

- Project/task numbers can be selected to automatically display on log-in. Users can select accounts using an insert feature or make manual entries, and can add their own descriptions and comments.
- Methods of making certain entries for those on a 9/80 schedule (such as adding the 9th hour for a holiday that displays as 8 hours) have been made simple and clear.

"Everything on One Tab"

- Everything you need to complete your timecard appears on one tab including week ending date, pay period, and accruals (vacation, sick leave, personal holiday).

For weekly employees:

- An allocation worksheet calculates percentage of effort for tasks from hour entries and percentages are automatically transferred to the timecard.
- Nonproductive effort can be selected from a dropdown menu for hour entries, and comments can be added.

For hourly employees:

- A daily in/out entry screen for the current day pops up on log-in.
- Daily totals are automatically calculated.

TIMELINE

- User acceptance testing during March/April.
- Operational readiness review in April.
- Labwide training in April includes briefings, hands-on and computer-based training; a quick reference aid will be provided.

NASA's proposed fiscal year 2011 budget includes an increase of about \$1 billion in funding for Earth science studies over the next five years. JPL Earth Science and Technology Director Diane Evans discusses the ramifications for the Laboratory.

Helping save the Earth

By Mark Whalen

Dutch Slager / JPL Photo Lab

Once Congress approves it, how will the budget play out in terms of current and new missions in Earth science?

First, the budget includes the reflight of the Orbiting Carbon Observatory, with a launch date of February 2013. Since the team that originally implemented this mission did such a fantastic job of getting us to the launch pad, everyone has been supportive of a reflight.

We're also going to see the acceleration of the development of missions recommended by the 2007 National Academy of Sciences' decadal survey. This report describes the Earth science measurement priorities for both NASA and the National Oceanic and Atmospheric Administration, which is the federal agency that focuses on the condition of the oceans and the atmosphere.

The Academy also develops decadal surveys for astronomy, planetary science, astrophysics and other areas. The 2007 decadal survey was the first one ever for Earth science.

NASA's plan includes launching four high-priority, or tier 1, decadal survey missions through 2017.

Which of those is JPL responsible for?

JPL is developing the Soil Moisture Active and Passive mission, which is targeted for launch in November 2014, and Deformation, Ecosystem Structure and Dynamics of Ice (DESDynI), to launch in 2017. Both of these are partnerships with Goddard Space Flight Center.

The new budget plan also calls for the development of a class of climate continuity missions, which will include a follow-on to our Gravity Recovery and Climate Experiment (GRACE) mission that helps us better understand how much ice is being lost from Antarctica and Greenland, and how much water is being removed from underground reservoirs. This new mission is scheduled for a 2015 launch.

Also in the climate continuity missions there may be potential additional measurements identified for development in concert with the U.S. Global Change Research

Program. We will also have expanded opportunities in the annual solicitation for Venture-class flight instruments.

In the NOAA budget we have funding for Jason 3, which continues measurements of sea level rise, ocean surface currents and heat transport.

Overall, we have a healthier program. I think JPL, our colleagues at the NASA centers and in the university community all benefit from this. We were all working toward the decadal survey, so anything that's good for the survey is good for all of us. It means we have a plan and we get to execute the plan. We're in a really good position.

People really appreciate that we need to

have views and observations of the Earth

even if some of them want to debate whether

climate change is caused by humans.

With the current capabilities getting older

and no new capabilities coming on line, we

were actually losing our capacity to monitor

the Earth at a really critical time. That was

really a wakeup call to many people.

Are you excited about these developments, or is it something you knew was coming anyway?

I've been expecting great things since the decadal survey came out in 2007, because it so clearly laid out important things to do. I'm very excited that there is now not only recognition that this is the right roadmap of what is needed, but that additional resources are being made available to get us moving down that path.

In addition to the survey, has there been higher recognition by the Obama administration, as well as Congress and the public?

Exactly. People really appreciate that we need to have views and observations of the Earth even if some of them want to debate whether climate change is caused by humans. With the current capabilities getting older and no new capabilities coming on line, we were actually losing our capacity to monitor the Earth at a really critical time. That was really a wakeup call to many people.

How might the new opportunities affect staffing at JPL? Could this mean you can hire more scientists?

Yes. We are definitely planning to hire people who are experts at comparing observations with climate models. There's a lot of uncertainty in future climate because of uncertainty in the models. So we have been working with the modeling community to make our observations more accessible to them.

There have traditionally been pure modeling experts and pure instrument experts—and there is a real need for a bridge between these two communities. That's an area that's going to grow for us.

How many will be hired?

It could be up to 10, at all levels from very experienced to fresh-outs. We'll also focus on attracting post-docs in this area.

In addition to the Aquarius mission launching in the coming months, you've outlined plans for launching four more Earth science missions in the next eight years. Is JPL up to the challenge?

Definitely. However, there may need to be a change in the mix of expertise and some targeted hiring. This is an area we'll be working on with the other directorates over the next few months.

News Briefs



John Krist



Karl Stapelfeldt

Hubble paper and images earn honors

JPL researchers John Krist and Karl Stapelfeldt are part of a team that has won a major award from the American Association for the Advancement of Science.

Krist and Stapelfeldt, both from the Origins of Stars and Planets Group in the Astrophysics and Space Sciences Section, are co-authors of a paper awarded the association's 2009 Newcomb Cleveland Prize for the most outstanding paper published in Science magazine between June 1, 2008, and May 31, 2009. The team was led by UC Berkeley astronomer Paul Kalas.

The paper, "Optical Images of an Exosolar Planet 25 Light-Years from Earth," reflected the team's work with the Hubble Space Telescope's Advanced Camera for Surveys to image the dust belt around the star Fomalhaut, which is 25 light years from Earth. The optical images, obtained in 2004 and 2006, show a belt of dust and debris surrounding the star and a Jupiter-sized planet that orbits it every 872 years and sculpts the inner edge of the belt.

The Newcomb Cleveland Prize was jointly awarded to a team led by Christian Marois of the Herzberg Institute of Astrophysics in Victoria, Canada. That team simultaneously published images of three planets or-

biting the star HR 8799. Both papers appeared online Nov. 13, 2008.



Tim Liu

Liu achievements noted

JPL senior research scientist Tim Liu has received the 2010 Verner E. Suomi Award from the American Meteorological Society, the nation's leading professional society for scientists in atmospheric and related sciences.

Liu was recognized for "research in spaceborne measurements of air-sea interactions and the water cycle, and for inspiring progress through interdisciplinary science team leadership." The Suomi Award is given to individuals in recognition of highly significant technological achievement in the atmospheric or related oceanic and hydrologic sciences. The award was presented Jan. 22 at the American

Meteorological Society's 90th annual meeting in Atlanta.

Rover operations team wins international honor

The Mars Exploration Rover Operations Team has been selected to receive the International Space Ops Award for Outstanding Achievement for 2010. The award is presented for outstanding efforts in overcoming space operations and/or support challenges, and recognizes teams whose exceptional contributions were critical to the success of one or more space missions.

The team is being honored "for remarkable success in meeting the unique and varied challenges of operating a rover on Mars and establishing a model for future in situ operations." The award is presented to only one operations team every two years.

The honor, which consists of an engraved crystal trophy, will be bestowed during the SpaceOps 2010 Conference in late April at the Von Braun Center in Huntsville, Ala. In addition, a certificate will be provided for team members Douglas Alexander, John Callas, Bradley Compton, Richard Cook, James Erickson, Daniel Hurley, Sharon Laubach, Jacob Matijevic, Steven Squyres and Peter C. Theisinger.

Founded in 1990, the International Committee on Technical Interchange for Space Mission Operations and Ground Data Systems (also known as the SpaceOps Committee) is a spacecraft operations-oriented international association consisting of representatives from most of the spacefaring nations.

Lab captures California recycling honor

For the sixth year in a row, JPL has been honored by California's Waste Reduction Awards Program for improving the environment by reducing waste.

The award is administered by the California Department of Resources Recycling and Recovery.

Taeha Goodrich of the Environmental Affairs Program Office, JPL's recycling/landfill reduction coordinator, noted that of the approximately 3.5 million pounds of waste produced annually at the Lab, 84 percent is diverted from landfills to recycling applications. Besides about 200 tons of fiber-based printer paper, this includes everything from cans and bottles to toner cartridges and lab coats, as well as a number of scrap metals from fabrication shops.

"This award again gives us recognition not only with NASA but statewide that JPL cares about the environment," she said.

Passings

Ronald Casperson, 86, a retired Deep Space Network facilities manager, died Oct. 19.

Casperson joined JPL in 1960 and retired in 1988. He was responsible for the design and construction of an 83-foot pedestal for the first deep-space tracking station at Goldstone, Calif., and oversaw tracking stations in Spain and Australia. He then served as overall facilities manager for the Deep Space Network until his retirement.

He is survived by his wife, Dorothy, son Richard, three grandchildren and six stepgrandchildren.

Retiree **Brooks Vinson**, 79, died Nov. 14.

Vinson worked at the Lab from 1962 to 1996. For the first 20 years at JPL he worked in the Deep Space Network, then moved to the Quality Assurance Section. He served as president of the Employees Recreation Club, the Associated Industrial Recreation Club and the JPL/Caltech Management Club. He also earned a NASA medal of achievement.

Vinson is survived by his wife, Alane, and son Brent. Services were held at Forest Lawn in Glendale.

Retiree **Leroy Jones**, 89, died Nov. 14.

Jones, who contributed to the Mariner and Voyager projects, worked at JPL from 1971 to 1988. He is survived by children Steven Jones, Sue Chamberlain and Ann Johnson.

William Fehlings, 77, a retired maintenance supervisor, died Dec. 1.

Fehlings joined JPL in 1962 and retired in 1991. He is survived by sons Billy and Michael, daughter Vicky, stepdaughters Natalie and Susan, and numerous grandchildren and great-grandchildren.

Retiree **John Kent Sr.**, 84, died Dec. 17.

Kent joined the Lab in 1967 and retired in 1988. He contributed to numerous projects including the Sergeant missile program, Ranger, Surveyor, Mariner (flight operations and mission control, roll axis anomaly solar sailing team), Viking (orbiter design and development and flight teams) and Voyager (attitude and articulation control, spacecraft test and flight team).

He is survived by daughters Loretta and Janet, sons Ronald, Robert and John Jr., six grandchildren and four great-grandchildren.

Services were held at Rose Hills in Whittier.

Gerald Ingle, 88, a retired carpenter, died Dec. 25.

Ingle, who joined JPL in 1956, was also an administrator for off-site facilities until his retirement in 1988. He is survived by his wife, Jean; daughter Sharon Hess and son-in-law Gary, brother Wilbur, grandson Bryan and great-grandson Ethan. Burial was at Riverside National Cemetery.

Retiree **Wesley Duryea**, 92, died Dec. 30. Duryea worked at the Lab from 1964 to 1975.

Robert Sothan, 86, a retired senior property representative in the Property Control Group, died Jan. 14.

Sothan worked at JPL from 1968 to 1988. He is survived by his wife,

Marian, and stepdaughter Carol Douglas. A celebration of life was held Feb. 6.

Ed Hagerott, 71, a retired optical engineer, died Jan. 16.

Hagerott worked at the Lab from 1991 to 2004. He contributed to the Surveyor program to the moon, which paved the way for the Apollo astronauts; as well as the repair of the Hubble Space Telescope and the Mars Exploration Rovers.

He is survived by his wife, Rosemary (also retired JPL), son Edward Jr. and daughter Katherine. Services were held at St. Rita Church and burial was at Pioneer Cemetery, both in Sierra Madre.

Letters

My wife, Katie, and I are grateful for the thoughtful kindnesses of my JPL colleagues following her father's passing. The plant is a lovely living memorial.

Guy Webster

My family and I would like to thank everyone for their support and kind words when my dad passed. We would also like to thank my colleagues and JPL for the beautiful plants. He will be hugely missed but it helps knowing that there are so many people who are there for us. Thank you!

Carla Bagdasaryan

Thank you to JPL and all of my coworkers in Section 335 for their outpouring of support on the news

of my mother's passing. My family appreciates the beautiful plant and card.

Eric Clark

My family and I would like to sincerely thank all of our friends for their support and kind words during recent illness and passing of my father. Thank all of you for the cards, notes and lovely plants. Your sympathy has been very comforting and your support during this very difficult time helped us get through.

Lloyd Keith

My family and I thank everyone for their kindness during the time leading up to and following the passing of my mother, Hripsime Dergarabedian. And thanks to the ERC for the lovely plant in memory of my mom.

Julie and Martin Ispirian

Retirees

The following JPL employees retired in February:

Bruce Conroy, 42 years, Section 333D; **Robert Irigoyen**, 37 years, Section 389F; **James Breckinridge**, 34 years, Section 740; **Eric Hines**, 32 years, Section 2731; **Thomas Wolfe**, 32 years, Section 173E; **Eric Tailor**, 31 years, Section 316H; **Susan Argenio**, 27 years, Section 2722; **Warren Martin**, 26 years, Section 252C; **Alan Stevenson**, 26 years, Section 388L; **Dung Doan**, 25 years, Section 315F; **Philip Garrison**, 25 years, Section 300.



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Universe

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WINTER
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Safety Awareness *news*

A PUBLICATION OF THE OCCUPATIONAL SAFETY PROGRAM OFFICE

JPL HUMAN FACTORS & SAFETY MANAGEMENT PROGRAM



Do you work a prolonged or unusual schedule that extends greater than 60 hours per week?

Do you work this schedule for two or more consecutive weeks?

Are you experiencing any of the following symptoms: irritability, continuous drowsiness, morning drowsiness, mental wander, performance error, attention deficit or diminished concentration?

If so, then the new JPL Human Factors Health and Safety Management Program in JPL Rules! (Doc ID 67772) may apply to you.

Human Factors (HF) is a multidisciplinary effort to acquire and categorize knowledge about people at work. HF examines the functional relationships between people, tasks, technologies and the environment with the goal of promoting safe and efficient human performance. In particular, HF addresses occupations requiring time and work commitments that may impact employees' health, safety and work quality.

The new JPL Human Factors Health and Safety Management Program is a joint venture of the Employee Assistance Program (EAP) and the Occupational Safety Program Office (OSPO). Both offices participated in the development of the guidelines on Human Factors, a process owned by OSPO. The guidelines support programs and project managers that deal with special or unique circumstances that could contribute to an environment where personnel may be subjected to Human Factors issues and concerns.

JPL gives high priority to addressing the potentially detrimental impacts of unusual or varying work times. The goal is to create a safe and healthy work environment and minimize undesirable outcomes. The JPL Human Factors Health and Safety Program applies to all employees involved in a project or a task-critical phase where workload circumstances may contribute to an environment in which personnel may be working extended hours (e.g., assembly, test and launch operations [ATLO], operational ready test [ORT], and fabrication, landing/return, Mars time).

OSPO and other involved departments are available to assist project managers in the assessment of HF needs and provide recommendations for appropriate interventions. The assessment includes such topics as stress management, early signs of fatigue impairment and evaluation of work demands. Emphasis is given to promoting vacation time as a means of recharging the mind, body and spirit after consecutive weeks of extended work shifts. Taking time off also serves as a way to reduce your accumulated vacation time below 280 hours.

For information on guidelines on how to manage fatigue and sleepiness, please visit the EAP website at <http://hr/eap/fatigue.cfm>.

For assistance with this program, please call Anthony Lopez at 354-4867 or visit the OSPO Human Factors home page at <http://safety.jpl.nasa.gov/Programs/HumanFactors>.



ONLINE SAFETY TRAINING & CHEMICAL SAFETY RESOURCES

New Hazard Communication/Chemical Safety Refresher Class Available Online

The OSPO office is happy to announce that the JPL Hazard Communication/Chemical Safety Refresher class is now available online and can be taken 24/7, 365 days of the year.

The JPL Hazard Communication/Chemical Safety Refresher class is required to be completed every two years for all personnel who order chemicals, use chemicals or work in areas where chemicals are used or stored. The link can be found on the Occupational Safety Program Office's Web page, Chemical Safety Corner, at <http://safety/ChemicalCorner/>.

OSPO's Chemical Safety Corner also contains several other chemical safety resources, such as:

- Hazard Communication/Chemical Safety initial training
- MSDS Database (Chemwatch)
- Chemical Incompatibility Chart
- Abbreviated Laboratory Safety Inspection List for Managers
- Gas Cylinder Safety Guidelines
- NFPA Hazard Ratings for Common Chemicals Used at JPL
- How to Complete NFPA Door Sign
- NFPA Door Sign Example
- NFPA Sign

BARBARA CRUZ'S CORNER



My name is Barbara Cruz and I am the new section manager for the Occupational Safety Program Office. I come to JPL with many years of Safety experience, including 9 years at Caltech as the Environmental, Health and Safety Manager.

My goals at JPL are

- Continue to develop JPL's excellent safety agenda into a world-class program.
- Work to ensure safety is integrated into all aspects of the Laboratory.
- Provide stellar customer service to everyone at JPL.

I have hit the ground running and am excited to face the challenges that only JPL can provide.

I look forward to working with everyone here at JPL. Come by and say hello, my door is always open.

PRE-OSR PROCESS MODIFICATION Addition to JPL Rules!

Subject Matter Expert Concurrence

As a result of the NASA Operations and Engineering Panel (OEP) audit in November 2009, we received an observation stating, "Pre-Operational Safety Review (Pre-OSR) documentation involving pressure systems are not concurred on by the Pressure System Manager (PSM) as stated by the PSM. The OEP suggests PSM concurrence should become part of the Pre-OSR process now."

In response to this observation, the concurrence is being extended to include additional subject matter experts (SMEs) in areas such as lasers, high voltage, radio frequency, ultraviolet, noise, hydrogen, etc. The process modification is the Pre-OSR must receive the SME's initial and date beside each hazard listed on page 1 of the Pre-OSR that necessitates the SME's expertise prior to approving a Pre-OSR. The current Pre-OSR form will not be modified to include additional lines for concurrence from the PSM or any additional SMEs. The current Pre-OSR form will continue to be used.

Extension Requests

It is understandable that there may be specific situations in which the expiration date of an existing Pre-OSR may need an extension. The justification may be spreading out the Pre-OSRs so 20 are not due in one month, or an experiment will be terminating but has a couple more months of testing. However the case, if requesting an extension, please use the specific format found at right.

NOTE: Only one extension request is allowed per experiment/operation. Extensions are not to exceed two months. Use one email per extension request.

PRE-OSR EXTENSION REQUEST FORMAT

To: OSPO Representative

Cc: Charlene.C.Paloma@jpl.nasa.gov, Barbara.B.Olivas@jpl.nasa.gov, Asdrubal.A.Lopez@jpl.nasa.gov (for laser Pre-OSRs only), and whomever else is applicable

SUBJECT: Extension Request for Pre-OSR # _____

BODY: We request the expiration date of Pre-OSR No. _____, (experiment name) _____, in _____ (Bldg. - Room) _____, to be extended to _____ (date) _____ for the purpose of _____ (state reason) _____. The current expiration date of this Pre-OSR is _____.

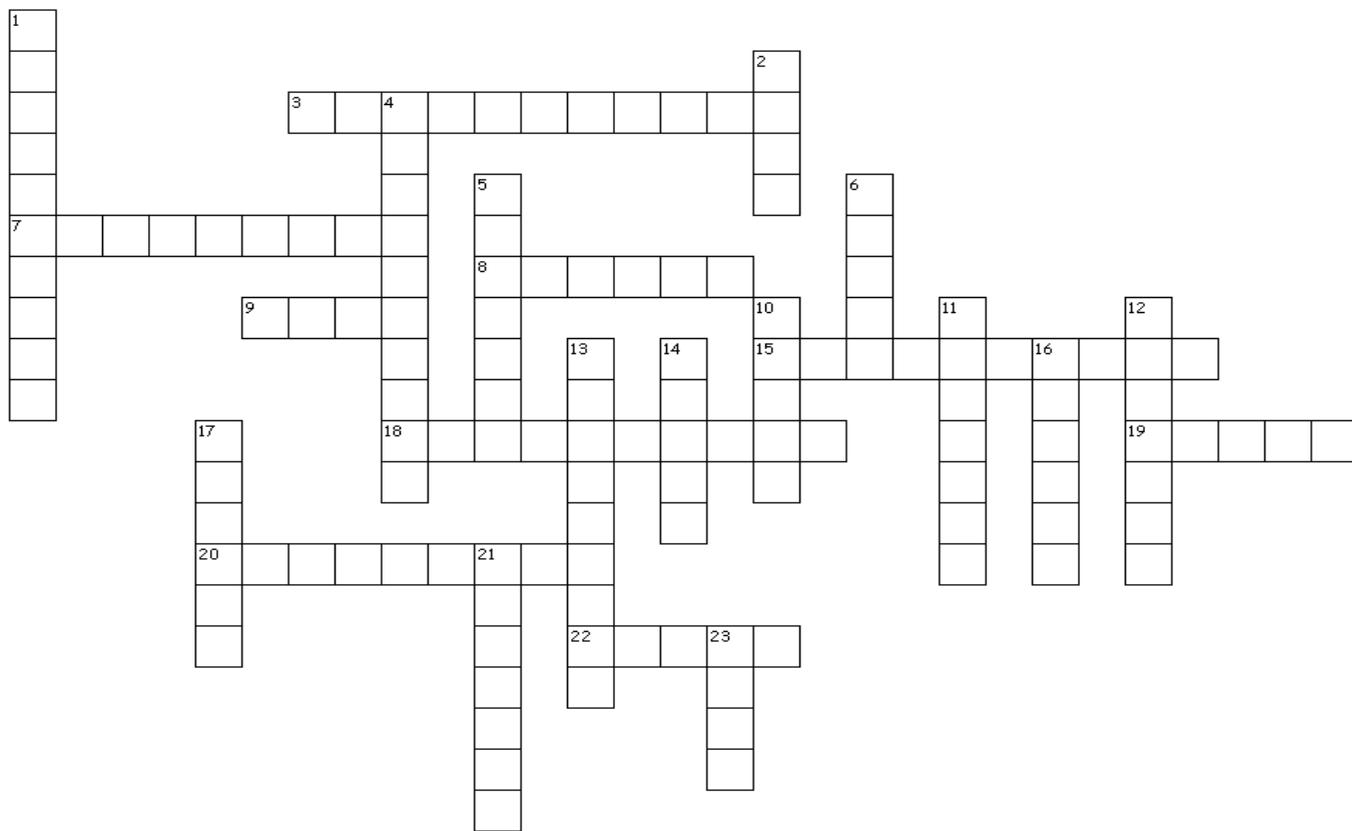
No new hazards are introduced in this operation.

If the OSPO Representative approves the extension request, they are to "Reply All" so the Pre-OSR database and hard-copy files can be properly updated to reflect this change.

Your safety does not depend on luck!!!

IT DEPENDS ON YOU!

The answers to this puzzle can be found on the JPL Safety Web site at: <http://Safety>



Across

- 3. Before starting a hazardous task, always ensure there is a Pre-____ Safety Review
- 7. Energy of pressurized fluids
- 8. Clean up ____ immediately; they cause slip hazards
- 9. An "almost" accident: a ____ miss
- 15. How chemicals get through the skin
- 18. Employees who are trained and are allowed to work on electrical equipment
- 19. Always use a ladder on a ____ surface

- 20. New employees and employees who are relocated must have an ____ evaluation
- 22. Use eye protection with all ____

Down

- 1. Used for face protection
- 2. The color on an NFPA label that signifies Health
- 4. Energy that can cause a shock
- 5. Always ____ a ladder before use
- 6. Never touch and always report exposed ____

- 10. Electricity and ____ don't mix
- 11. To operate machinery, you must be ____
- 12. Report safety hazards to the "Safety ____" 818-393-6483
- 13. Taking ____ is not following procedures
- 14. Emergency ____ must never be blocked
- 16. If a ladder is too short, get a ____ one
- 17. ____ glasses protect your eyes from flying chips
- 21. Report these to your supervisor
- 23. Use your ____ when lifting, not your back