

All are welcome

By Mark Whalen



Tom Wynne / JPL Photolab

Committee ensures JPLers' many perspectives are heard

To help strengthen JPL's commitment to a diverse and inclusive workplace, last year the Laboratory created the Diversity and Inclusion Oversight Committee. Human Resources Director Cozette Hart discusses the committee's goals and progress.

Q: WHY WAS IT FELT THE COMMITTEE WAS NEEDED AT JPL?

JPL has a rich history of diversity. Our affinity groups—the Advisory Council for Women, African American Resource Team, Amigos Unidos, Asian American Council and Spectrum—are very well established. JPL was on the leading edge in the development of affinity groups. Our groups have been focusing on diversity for 30 years or more.

We wanted to build on the work of the affinity groups, integrate their efforts and have the group help address institutional goals. We believe we can leverage the work of the affinity groups to help us in that regard.

Q: WHO IS ON THE COMMITTEE?

In addition to representation from the affinity groups, it was also important to have Executive Council representation to develop the objectives that would have an institutional perspective.

Right now the committee comprises 15 members. Chris Jones and Bob Ibaven are the co-chairs, and there are nine positional members representing the Executive Council and the affinity groups. There are also four members at large.

Q: HOW IS THE WORK OF THE COMMITTEE ORGANIZED?

We prioritized the issues the committee felt were important to the Lab. Once we identified those priorities, we set up subcommittees to develop action-oriented goals to address those issues. Each subcommittee has one specific, major goal they're working to accomplish for the year.

The six subcommittees focus on hiring and onboarding; training; career development; heritage events and outreach activities; communications; and work/life balance, which strives for a more family-friendly work environment.

Q: WHAT HAS BEEN ACCOMPLISHED THUS FAR?

For 2007, we had two new, major deliverables: 1) to develop a common diversity and inclusion website (<http://hr.jpl.nasa.gov/diversity>) to communicate the activities of the oversight committee and subcommittees as well as advertise and support affinity group activities; and 2) develop a Labwide computer-based training for diversity and inclusion awareness.

In addition, we put on the 27th annual heritage day event, developed a strategic diversity recruitment plan, held lunchtime seminars target toward women, and added diversity and inclusion language to Employee Contribution and Planning forms for exempt employees and supervisors, to introduce measurement of a diverse and inclusive work environment.

We want to establish a work environment that is accepting of diversity in its broadest sense: people with different educational backgrounds, people who come from all parts of the world, from different cultures. If you think about the number of cultures and nationalities that are represented here on Lab, we are very diverse. For example, we have about 400 foreign nationals working at JPL.

Also, we have multiple generations of employees here, so multigenerational diversity is one of our biggest issues. We have people who have been here from the start of space exploration working with people in their 20s, who are coming into the work environment with very different learning, using different tools, a different approach to technology and work style with the desire for flexibility and potentially a very different idea about commitment to an employer.

Q: HIRING AND RETENTION ISSUES WERE FORMERLY HANDLED OUT OF OTHER PARTS OF THE HUMAN RESOURCES ORGANIZATION. HAS THIS CHANGED TO A DIVERSITY AND INCLUSION ISSUE?

If you look at diversity in the broadest sense, we are in a talent war. Demographics indicate that we're going to have increased difficulty in finding and retaining talent to replace our older workers as they retire. We need to adapt our work environment, policies and procedures to continue to attract the new generation of talent.

We're ready to expand the definition of diversity in the traditional sense to diversity that "values the many." Everybody has an important perspective to share, and we need to create an environment where different perspectives flourish. Different generations and people of different backgrounds may approach issues differently, but even when a colleague doesn't look like us or think like us or come from the same place we do, we still need to reach out and get their ideas on the table.

We want to create that open environment where we're making sure all are comfortable participating.

For example, there has historically been a particular emphasis on women at JPL. Top universities are attracting more women into engineering, and we want to make sure that our environment is conducive to women in the workplace.

Q: WHAT IS BEING DONE TO ACCOMPLISH THIS?

That's where the input the Advisory Council for Women and the work/life balance subcommittee come in. How can we better manage careers and family? Are there policies, benefits or services that we could offer that make that situation more manageable? It's an issue for men, too, and is also multigenerational—as varying age groups may have different needs for flexibility.

This is a good example of how we use these groups to help shape Human Resources policies and procedures.

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Diversity

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One initiative that has worked out well for a lot of people is the 9/80 alternate workweek schedule. Early on, the impetus for 9/80 came out of the diversity and inclusion arena, then was solidified by JPLers' strong show of support for the idea in the 2005 employee survey, when employees voted that three-day weekends every other week would be their number 1 choice in benefits that we could provide.

Q: WHAT OTHER BENEFITS ARE UNDER CONSIDERATION RIGHT NOW?

The next thing we're going to be doing is rolling out a Labwide survey on dependent care. For the first time we will address the needs of people who might have elder-care issues. We're the "sandwich generation," dealing with kids as well as aging parents and trying to manage a fulltime job.

Historically we've supported childcare issues, whether through the Child Educational Center or reimbursing people for childcare expenses. Part of our growing awareness and sensitivity to the employee population is that more and more employees have to deal with elder-care issues. There are organizations that will provide emergency backup elder care, for example, that we could sponsor or offer to our employees.

This could be a new benefit for the part of the JPL population that doesn't have childcare issues but may have elder-care issues—we could offer a service that would help them manage that so they could remain productive employees.

We'll see if this idea is something employees might want. Do we want to change the mix in terms of offering less childcare services and more elder care? It's really about looking at the balance of the things we offer and trying to best meet the needs of employees.

Q: IS IT THE COMMITTEE'S RESPONSIBILITY TO KEEP ITS EYE ON THE AFFIRMATIVE ACTION PLAN?

That's not our focus. We're trying to broaden the definition of diversity and inclusion beyond what has historically been viewed as the affirmative action plan—which is very much regulatory- and compliance-driven—to creating a work environment that values the input of all employees. That's a real shift in the ways we're thinking about diversity and inclusion. Every employee can feel like they belong to this initiative.

This is about meeting the needs of the future and how we position the Lab to best compete for talent and creating that work environment through policies, procedures and practices that we have here at the Lab that will really help attract, motivate and retain the future talent.

Q: AN ONLINE TRAINING SESSION HAS BEEN DEVELOPED FOR ALL EMPLOYEES. HOW DID THAT COME ABOUT?

At the committee's first brainstorming session what emerged loud and clear was that we needed to offer more in-depth sensitivity training about diversity. We wanted it to be JPL-specific, so we worked with a vendor to customize it to JPL's needs and environment.

This one-time mandatory training has just recently been rolled out to all regular employees and should be taken before the end of the calendar year. It's available at <http://hr.jpl.nasa.gov/diversity/resources/training.cfm>. To date, more than 1,900 employees have completed the course. We will gather input from employees in a survey at the end of the training to help us think about follow-on training that will build on this awareness training.

[Editor's note: please see the accompanying interview with Training Subcommittee member Alfonso Feria.]

The next thing we may look into is how to make diversity and inclusion part of leadership training for supervisors and managers.

Q: AN AFFINITY GROUP MEMBERSHIP DRIVE WAS HELD IN MID OCTOBER; HOW DID THAT GO?

I think this was the first time this was done at the Lab. It was really about building awareness. The feedback I received was that some employees didn't know we had affinity groups; for some it was the first time they had heard about the committee. This was a first effort to inform employees if this is an area of interest and they want to become involved.

I would also encourage employees to visit our website if they want to become involved. We would like employees to express interest in helping the subcommittees, which are always looking for enthusiastic employees to volunteer.

Q: WHEN POTENTIAL EMPLOYEES ARE CONSIDERING JPL, WHAT DO THEY SEE ABOUT OUR OUTLOOK ON DIVERSITY?

Valuing employees is a differentiating factor that job candidates look for. It creates a competitive advantage for us as an employer that we do focus on diversity. ■

Online training a key element of diversity effort

Alfonso Feria, a member of the training subcommittee, discusses the new diversity and inclusion online training.

WHEN DID THE ONLINE TRAINING BEGIN? HAVE YOU BEEN ABLE TO SEE ANY TRENDS YET FROM THE RESULTS?

The Diversity and Inclusion Training Subcommittee has been working diligently on preparing this particular training for more than a year. In order to ensure that we had a good course, we ran three pilots where we were able to gather very good information that was fed back to our vendor to come up with our final course. After approval from the Executive Council, the final version of the course was deployed to all regular JPL employees on Sept. 17 of this year as a one-time mandatory training.

We are very happy to see that people really have liked the course. From our post-course survey we know that almost three-quarters of the respondents reported that they are more knowledgeable about the topic of diversity and inclusion and that they will act with greater awareness around the workplace. Also, people are starting to realize the importance of having an inclusive organization. We have also received several good comments and compliments regarding the course.

PLEASE DESCRIBE HOW IT WORKS. ARE THERE "RIGHT" AND "WRONG" ANSWERS?

The course is web-based and it starts with a very nice video clip from Dr. Elachi. There are also a few basic definitions and then several study cases. After each study

case there is a question where the employee is asked to pick the most appropriate answer or, in many cases, several answers. There is really not a "right" or "wrong" answer, but the course will show the best answer or answers for each of the questions. It will also explain the rationale behind the statements.

WHY IS IT IMPORTANT THAT EVERY JPL EMPLOYEE TAKE THIS TRAINING?

We envision this training as a first step. This is a basic training that will help create a good starting point for all employees by leveling the playing field. Employees learn the language and several definitions related to inclusion and diversity. Additional training and events are being planned to create a deeper knowledge of inclusion and diversity concepts, so providing this training will help create a strong foundation.

WHAT WOULD YOU SAY TO EMPLOYEES WHO FEEL THEY DON'T NEED THIS, THAT THEIR RELATIONSHIP WITH ALL THEIR CO-WORKERS IS JUST FINE, ETC.?

The course is intended to improve awareness and sensitivity at both management and employee levels regarding the importance of inclusion and diversity. I have heard comments from people saying that the Laboratory is very

diverse. The course explores several dimensions on diversity and people are starting to realize that by diversity we do not only mean ethnic differences, but really any differences including cultural background, education, gender, or even more complex issues such as family structure, economic status, values, etc.

But besides diversity, it is also very important to emphasize the importance of inclusion. The course teaches how to appreciate our differences and to be more conscious about the people we interact with. Let them be an active part of the work environment, and recognizing and appreciating every individual's unique contribution.

THE TRAINING WILL RUN THROUGH DEC. 31. WHAT HAPPENS AFTER THAT? WILL JPL MANAGEMENT REQUIRE THAT EMPLOYEES TAKE SPECIFIC ACTIONS BASED ON WHAT IS LEARNED?

We would like all regular employees to be able to complete the course by the end of the calendar year. The course will continue to be offered to new employees as they come on board. Additional learning events are being considered, including noontime seminars, brown bag lunch discussions and consultant presentations, among others.

I believe it is up to all JPL employees to embrace diversity and consider the benefits of having an inclusive workforce. These are the main objectives of the course. ■

‘Curious’

about smart robots

Documentary to air in
mid-November

By Janna Brancolini

Mark Maimone, who worked on flight software development for the Mars Exploration Rovers, is featured in the documentary.

Photo courtesy of Thirteen/WNET New York

Four JPLers are featured in an upcoming Public Broadcasting System documentary series called “Curious,” set to air in November, that focuses on Caltech and JPL research that is changing lives and expanding scientific horizons.

The show’s creators say they aim to look at “science that’s important—not self-important”—and reach a broader audience than most science shows.

Episode 1, titled “Mind, Brain, Machine,” probes whether scientists can learn enough about the human brain to build an artificial one. It examines what robots are currently capable of, what scientists are learning about the brain and how the two bodies of knowledge can be combined in the future. In the process, the show introduces the viewer to JPL rovers old and new, including the Mars Exploration Rovers and the newer All-Terrain Hex-Limbed Extra-Terrestrial Explorer (Athlete).

Ashley Stroupe, the first female to drive solo on another planet, was interviewed for her work with the Mars Exploration Rovers. She currently drives both Spirit and Opportunity a couple of days a week in addition to pursuing other research interests.

“It’s not like driving a remote-controlled car,” she said. “You send up commands for the next day or two and wait for hours or days for the result. It can be tense—especially with Spirit, which has a broken wheel that makes driving difficult.”

Stroupe said that despite the stress, driving the rovers is a rewarding experience.

“It’s amazing to be enabling all of these science discoveries. It’s pretty overwhelming to be a part of that,” she said.

Stroupe explained that the rover can identify terrain characteristics, but it can’t really think about them in the sense that a person can.

“The rovers can do a lot of things on their own, but what they can do is exactly predetermined by us,” she said. “It’s an adaptable program, but not a learning program.”

For example, the rover knows not to go over a hill that’s too steep, a rock that’s too tall or a surface that’s too rough. The robot is not capable of defining the word “too,” though. That job is still strictly reserved for the engineers and the software they produce.

Stroupe also has expanded her work past the Mars Exploration Rovers, and currently does research that focuses on teams of robots. She is involved in the Cliffbot project, which is supporting the astrobiology program by designing a team of three robots that can climb a cliff.

“Half the time when you have a problem in robotics, nature has already solved it. Nature has been solving these problems a lot longer than we have,” she explained. “We do a lot of bio-inspired work, which means modeling approaches on how nature solves complex problems rather than exactly copying solutions. Human senses are implemented quite differently than robotic senses, but the processes for using sensory information can be similar.”

Mark Maimone, who worked on flight software development for the Mars Exploration Rovers, is also featured in the documentary. He helped develop the aforementioned safety software that the rovers use to evaluate their surroundings.

“It’s not just a safety backup, but a capability that allows us to drive the rover safely even where scientists cannot see,” he said. “It lets us go beyond what the images show—what’s over the hill.”

Maimone is currently working on Mars Science Laboratory, making sure that the mobility system has enough sensing and perception to drive safely.

A third JPLer featured in “Curious,” Norman Ahmad, works on the Athlete team doing both mechanical design and structural analysis.

Athlete is basically an incredibly flexible rover that consists of a large hexagonal

ring placed on six limbs. It is taller than an average person, and the hexagon is wide enough to hold large cargo.

“It can walk, drive, use tools,” Ahmad said. “You can lock the wheel actuators and let it climb or traverse over rough terrain. You can decide whether or not you want it to walk or drive, and you can conserve energy by driving unless you absolutely have to have it walk.”

Athlete can drive up to 6 mph, and Ahmad explained that while it takes days for the Mars Exploration Rovers to drive around something that is too tall for them to go over, Athlete could simply climb right over an object that is too tall for driving. It has a stereo camera on each face, giving it a 360-degree view that allows scientists to evaluate its surroundings.

Athlete is currently undergoing testing to see if it can survive a harsh lunar landing. Ahmad looks at whether certain structural components will fail under various loading conditions, and how mechanisms can be streamlined to make sure they don’t break.

He also designed a docking mechanism that allows multiple robots to connect together and carry a heavier load. Given the hexagonal shape, an infinite number of robots could potentially dock together. This design creates the potential of one day building a mobile lunar base.

Ahmad also designed a mechanism that allows the robot to grip various tools, including ones that can drill, scoop, grip and do coordinated robot work.

“From first appearance one wouldn’t think that the limbs could grip a tool,” Ahmad said. “In a sense we’ve created a robot that has both mobility and manipulation capability.”

The fourth JPLer interviewed in the show is Andrew Howard, a senior member of the Computer Vision Group in the Mobility and Robotic Systems Section. He could not be reached for comment.

“Curious” looks at the potential of applying concepts learned about the human brain to mechanical brains in order to make robots more functional and intelligent. It inevitably reaches the question: Could robots become smarter than humans?

The JPLers are skeptical at best.

“Yes, the rovers can see geometric shapes with stereo vision,” Maimone said. “But they don’t understand what they’re looking at. If I built a trap by putting a blanket over a hole, the rovers would happily drive into it because they don’t know what lies beyond what they can see.”

Stroupe considers it unlikely that the technology to make robots smarter than humans will one day exist—but even it were, there wouldn’t be any convincing reason to use it.

“First of all, we don’t know how we [humans] do problem-solving most of the time. We can have robots do calculations faster than we can, but it has to be very specific,” she said. “Even if we had human-like capability, I wouldn’t feel compelled to use it. Robots are tools—I believe in making tools fit the job.”

She added that the more progress scientists make with robots, the more work they have left to do.

“It just really reinforces my appreciation for what phenomenal machines we humans are. Every time we try to reproduce it, we fall so short,” she said.

Although the spotlight that “Curious” shines on the Mars Exploration Rovers and Athlete teams is standard for some team members and a new experience for others, they agreed that interest in their work is always appreciated.

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News Briefs



Photo courtesy of Tournament of Roses

Katie Merrill



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Universe

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JPLer wins double awards

Ashitey Trebi-Ollennu of the Mobility and Robotics Systems Section 347 has been named a recipient of the Sir Monty Finniston Achievement Medal, bestowed by the Institution of Engineering and Technology, United Kingdom, "for outstanding technical contribution to the Mars Exploration Rovers extended mission."

Trebi-Ollennu has also been named a recipient of the Institute of Electrical and Electronics Engineers' 2007 Outstanding Engineer Award for exceptional technical leadership in diagnosing the Mars Exploration Rover Opportunity robotic arm anomaly and exceptional service to the institute as a guest editor in organizing and publishing a special issue of Robotics & Automation Magazine on Mars Exploration Rovers, June 2006.

The award was given by the institute's Region 6, which covers 12 western states.

Trebi-Ollennu joined JPL in 1999 to work on the Fido rover task and distributed mobile robotics research.

JPLer's daughter is princess

When the 2008 Tournament of Roses Parade makes its way through Pasadena on New Year's Day, the festivities will include more contributions from the JPL family besides the JPL/Caltech float.

That's because in early October 17-year-old Katie Merrill of Sierra Madre was named as one of the seven members of the tournament's Royal Court. Annette Merrill, an administrator in the Enterprise Computing and Networking Section, is Katie's mother.

"It's been overwhelming," Annette said. "Now she's trying to do two jobs—a fulltime student and a fulltime princess."

Just a month before the selection process, Katie was one of about 1,100 people who tried out for the court.

Her interest peaked when she heard a talk by former Pasadena High School classmate and 2007 Rose Parade princess Danielle Vine. Katie and some friends then decided to try out.

At the initial audition, contestants considered the question "Why do you want to be on the Rose Court?" Each had 15 seconds to make an impression, and Katie successfully moved on. The initial throng was then narrowed down to 250 people, then 75, and finally the 33 finalists from which the seven princesses were selected.

The court's whirlwind reign got quickly underway, with approximately 120 appearances—including service club engagements, grocery store openings and other civic events—scheduled before New Year's Day.

"For me, the best part is watching my daughter behave as an adult with people she doesn't even know," Merrill said. "Especially since I'm a single parent, she had to grow up to be responsible, to do a lot of things herself; there was no choice."

"It's also fun to see the interest my co-workers are showing," she added.

Poster session coming up

JPL's latest advances in science and technology will be presented by Laboratory principal investigators at a research and technology development poster session Nov. 14.

Posters will be on display between 8 a.m. and 4 p.m., with strategic area initiatives and topic area posters displayed on the mall, and spontaneous concepts and Lew Allen awards displayed in von Karman. Principal investigators will be available at their posters between 11 a.m. and 2 p.m. to discuss their work.

At 11:30 a.m., Chief Scientist Dan McCleese and Chief Technologist Paul Dimotakis will make introductory remarks. JPL Director Charles Elachi will

speak on the importance of internal investment in developing new science and technology capabilities. Refreshments will be provided in von Karman.

The poster session is an excellent opportunity for employees to explore potential collaborations with JPL investigators. Past experience has shown that this event is very well attended, and the session is open to the Caltech community.

JPL's Research and Technology Development Program is internal-fund

administered by the offices of the chief scientist and chief technologist. The program's primary purpose is to enhance JPL's ability to address the objectives of future JPL and NASA missions. Initiated in 2001, this investment program now represents approximately 3% of the Laboratory's business base. The program funds proposals in the areas of basic research, applied research, development, systems and other concept formulation studies.

Curious *Continued from page 3*

"This being my first full-time job, it's cool to get that kind of recognition for something I've worked on. It's cool to know people are interested in what you're working on," Ahmad said.

Stroupe, who is used to talking about her work both in presentations and interviews, said she likes to be visible because she hopes to be a role model and show others that the most important thing is doing something you love and being dedicated to it. She added that she especially wants to show girls that math and science are options for them, no matter what their other interests are.

"It's always exciting and fun when other people are interested in what you're doing," Stroupe said. "I have what I think is the best job in the world. I enjoy sharing that interest with other people. Maybe they'll see what I'm doing and realize it's what they want to do too, or that they can follow their dreams."

Curious is scheduled for broadcast Thursday, Nov. 15, from 9 to 11 p.m. on KCET.

A sneak preview of the documentary will be available to Caltech and JPL staff from noon to 1 p.m. Nov. 15 in Ramo Auditorium.

The free campus preview will include viewing clips from the program and a panel discussion with the director, Mark Mannucci, and producers Tara Thomas and Jared Lipworth, from Thirteen/WNET New York, as well as chemistry professor Nate Lewis, senior research fellow in psychology Lynn Paul, and bioengineering grad student Gwyneth Card, who are featured in the program along with about 20 other Caltech and JPL researchers.

Pizza, soda and cookies will be served at the conclusion of the event. ■

Passings

Robert Gerardo, 75, retired from Section 645, died Aug. 4.

He worked at the Lab from 1975 to 1990.

Ethel Aicher, 88 a retired secretary in Property Management, Section 633, died Aug. 13.

Aicher worked at JPL from 1970 to 1985. She is survived by children Elaine, Jean, Bob and Joyce.

Her ashes will be scattered on the Pacific.

Irvin Gulick, 82, retired from Section 343, died Aug. 24.

He worked at the Lab from 1977 to 1993.

Joseph Macri, 86, a retired carpenter from Section 6622, died Aug. 27.

Macri worked at JPL from 1978 to 1996. He is survived by daughters Christine and Jeanine, son Steven, four grandchildren and a great grandchildson.

Services were held Sept. 8 at Assumption Church in Pasadena.

Ronald Lamont, 84, a retired senior staff assistant in Section 660, died Sept. 16.

Lamont worked at JPL from 1958 to 1987. He is survived by his wife, Loretta; children Peter, Mike and Sue and their spouses; eight grandchildren and 18 great grandchildren.

James McGregor, 70, a retired engineer from Section 351, died Sept. 29.

McGregor joined JPL in 1979 and retired in 2000. He is survived by his wife, sister, two daughters, nine grandchildren and two great grandchildren. Services were held in Hot Springs Village, Ark.

Henry "Hank" Levy, 81, retired from Section 374, died Oct. 9.

Levy was the station manager of JPL's Eastern Launch Site Office from 1957 until his retirement in 1990. He is survived by his wife, Patricia, four children and seven grandchildren.

Letters

I would like to express my deep appreciation for all of the cards, flowers, gift basket, gift card and plants I received from the OCIO, Section 172, 173, IBS and the ERC. Your support, thoughts and prayers have meant so much to me during the difficult time of my father, Jim McGregor's, passing.

Melissa English

My family and I would like to express our gratitude for your wonderful support and concerns for the recent passing of my father. We would also like to thank JPL for the beautiful and vibrant plant. Thank you all again for your kindness during this difficult period.

Aylin Yu and family

I would like to thank everyone at JPL who sent cards and expressed kind words of sympathy after the passing of my mother. I also appreciate the beautiful plant that will remind me of my mother's love for life.

Earl Scott

Retirees

The following JPL employees retired in November:

Joe Waters, 34 years, Section 328; **Roger Hickok**, 32 years, Section 286; **Chin-Po Kuo**, 29 years, Section 352; **Gary McCutcheon**, 29 years, Section 501; **Henrik Gronroos**, 27 years, Section 313E; **Linda Hart**, 18 years, Section 1611; **James Hauge**, 18 years, Section 315; **Nancy Feagans**, 12 years, Section 172.

Correction

A News Brief item in the October issue of Universe on Barbara Wilson's recent honor by the U.S. Air Force requires correction.

Wilson should have been referred to as the chief technologist for JPL's Exploration Systems and Technology Office. On the board, she chaired the external review of the Air Force's entire science and technology program.

Wilson also served as chief technologist of the Air Force Science and Technology Program under an Intergovernmental Personnel Act agreement with the Air Force Research Laboratory.