

## Featured Stories



### JPL and friends cheer InSight touchdown

*\*\*\* Update Nov. 27: NASA's InSight has sent signals to Earth indicating that its solar panels are open and collecting sunlight on the Martian surface. NASA's Mars Odyssey orbiter relayed the signals, which were received on Earth at about 5:30 p.m. Solar array deployment ensures the spacecraft can recharge its batteries each day. Odyssey also relayed a pair of images showing InSight's landing site.*

At 11:53 a.m. Monday—nearly seven months after blasting through the fog at Vandenberg Air Force Base, traversing 300 million miles through space, and nailing its 12-degree-angled descent piercing Mars' barely-there atmosphere—InSight let the humans at JPL know the lander is alive and functioning on the planet's biggest parking lot: Elysium Planitia.

"Touchdown confirmed," Christine Szalai (313-H) pronounced, "InSight is on the surface of Mars."

The InSight team, NASA Administrator Jim Bridenstine, and JPL Director Mike Watkins cheered from a packed Mission Support Area (MSA) in Building 230, as each new piece of data was relayed to JPL via the MarCO CubeSats that launched with InSight on May 5 and followed the lander to Mars.

The landing kicks off a two-year mission to study the deep interior of Mars and learn how it and other

rocky planets, including Earth, formed. The mission was decades in the making, and a top event for NASA in terms of international cooperation.

“Not only did we go to Mars today, but we went with our German partners, French partners, and others, and people see that the United States of America can accomplish amazing things, and we’re not doing it alone,” Bridenstine told the InSight team. “This is an amazing example of American leadership.”



**Photo: The first image taken by NASA’s InSight lander on the surface of Mars, while the camera’s dust cover was still on.**

InSight, which stands for Interior Exploration using Seismic Investigations, Geodesy and Heat Transport, hit Mars’ atmosphere at 12,300 mph, and had to autonomously perform dozens of operations flawlessly for the spacecraft to touch down on Mars in one piece. And so far, all indications show that InSight did just that.

Watkins noted InSight is the fifth Martian lander he’s been a part of, and he remained nervous throughout.

“We’re just as nervous every time,” Watkins said. “The whole landing sequence, it’s a feeling of helplessness, but you always have confidence in the team, the scientists and engineers, and you leave it in their hands.”

While InSight’s X-band radio beep at 12:01 p.m. brought a wave of celebration to JPL, the team won’t fully breathe a sigh of relief until they receive confirmation later this evening that the spacecraft has successfully deployed its solar arrays. The procedure is expected to be completed about 40 minutes after landing, but the InSight team won’t know for certain until they receive a signal from the Odyssey spacecraft currently orbiting Mars.

Once they do, InSight’s team will begin planning to get the two main science instruments aboard the craft down to the planets’ surface—a burrowing heat probe known as the Heat Flow and Physical Properties Package (HP3) and an incredibly sensitive seismometer called the Seismic Experiment for Interior Structure (SEIS). Thanks to MarCO, the first image from InSight’s landing site was received just minutes after touchdown, which allows JPL’s engineering and science teams to hit the ground running on planning where InSight’s robotic arm will drop down the instruments.



**Photo: NASA Administrator Jim Bridenstine congratulates the InSight team in the Mission Support Area in Building 230.**

“We knew Odyssey couldn’t transmit data in real time, and we would have had to wait, so we embarked on the crazy idea to build these two little CubeSats, and they worked,” Watkins said. “Their sole purpose was to do the relay. They relayed the UHF signals from InSight in real time for us, and they worked just amazing, exceeding all of our wildest expectations. It’s just a great tribute to the whole MarCO team.”

From JPL’s In-Situ Instrument Laboratory, heavily bearded systems engineer Ravi Prakash explained the team’s instrumentation plans.



**Photo: After relaying live communications for InSight as it landed, the tiny MarCO-B CubeSat sent back this farewell image of the planet.**

“This is really the first time we’re using a robotic arm to deploy instruments on the surface of Mars, and it’s going to end up taking us about three months,” he said, “That sounds like a really long time, but we have to be very careful to make sure everything goes the way it’s supposed to. Unlike Earth, we can’t send a technician to make fixes, so we want to make sure it’s right.”

Prakash also explained his facial hair situation.

“There were about 10 of us on the team that decided not to shave until we landed on Mars. My little girls at home just love to pull on my beard, so I’m extra excited that we landed and I can finally put an end to that,” Prakash laughed.

After the landing, InSight Principle Investigator Bruce Banerdt put his nearly 30 years of work on the mission into perspective.

“People keep talking about my science and my mission. But this is something that we are really doing as a science team for the world. The science that we’re doing belongs to everybody, and the knowledge that we’re going to bring back belongs to everybody,” Banerdt said.



**Photo: (From left to right) Caltech President Thomas Rosenbaum, NASA Administrator Jim Bridenstine, JPL Director Mike Watkins, and InSight Project Manager Tom Hoffman cheer on the landing of InSight.**

## **JPL families and friends share in the landing**

At the Pasadena Convention Center, friends, family members and JPLers gathered in the ballroom to watch live landing coverage on four big screens. Approximately 1,100 attendees of all ages—from babies to seniors—piled into the room, many in InSight t-shirts and other space-themed gear.

For Nagin Cox, who was the InSight proposal manager for InSight, the landing brought her to tears. “It was a piece of paper and now it’s a thing on Mars,” she said.

Sue Barry, who was at JPL for 21 years and also a member of InSight’s proposal team, came out of her retirement in Houston, Texas, and traveled to Pasadena to attend today’s event.

"I wasn't in Mission Control today and it was just as nerve-wracking to sit here because you have no control over what's happening," Barry said with a laugh. But once touchdown was confirmed? "I was overjoyed," she said.

Brothers Rudi Bendig and Josh Bendig, both JPL engineers, were thrilled to witness MarCo's success. Rudi did the electronics design and testing for the CubeSats.

"It's amazing and it's a big deal," Rudi said. "I like being able to prove to people that we can do this."

Rich Lorten hadn't heard about the InSight mission at all until his friend, a ground systems engineer at JPL, invited him to the viewing party today. "I'm pretty amazed," he said. "Now I'm going to be reading up on stuff. I want to know more. Who knows what we'll find out on Mars."

Andrea Opperman, whose husband is a JPL engineer, brought along their one-year-old son, who wore a tiny blue NASA tee. "I want to get my son excited about space and I think that starts young," she said.

Ryan Ross, a group supervisor for the analysis and testing team, came with his wife to witness the landing together: "It was spectacular and inspiring to see it in real time," he said. "I'm so proud of JPL."

## Landing events across America

NASA also arranged parties around the country – including gatherings at The Los Angeles Central Library, the Adler Planetarium in Chicago and the American Museum of Natural History in New York— where people watched the landing with other Mars enthusiasts.

At the California Science Center, 150 rapt schoolkids watched InSight's landing cross-legged on the floor with their backs to the shuttle Endeavour, the museum's star attraction every day but this one.



**Photo: Mayor Eric Garcetti warmed up a crowd of elementary and middle school students gathered at the California Science Center for a live broadcast of InSight's descent. (Courtesy: Office of Los Angeles Mayor Eric Garcetti)**

Another star attraction, Los Angeles Mayor Eric Garcetti, wisely avoided competing with the live NASA TV entry, descent and landing commentary. He spoke to the kids as InSight hurtled towards the Martian atmosphere.

"We know how complicated this is. Does anyone remember how fast this lander will be going?" he asked as students yelled out their answers. "Almost 13,000 miles per hour. What do you think is the most difficult part of the landing? Slowing down, that's right. You know what percentage of missions to Mars have been successful? Only about 44 percent of them.

"But the coolest part of it is, where is all this happening? What city in the world is in control of this mission right now? Los Angeles. Technically Pasadena, but we'll absorb it as part of Los Angeles.

"Stay curious, continue to dream," he told the fifth and sixth graders before sitting among them to watch the descent.

The students, their parents and teachers had descended on the Science Center from nearby Menlo Elementary, as well as Cesar Chavez and Panorama City elementary schools and Orville Wright middle school.

Before landing, staff from JPL's Education Office and the Science Center demonstrated InSight's mission at exhibits under the shuttle. Kids jumped near a seismometer to make their own quakes, or checked their vital signs with a stethoscope as InSight will check the Red Planet's with its instruments. Once InSight had safely touched down, JPL's David Seidel hosted a Q&A session before the students streamed out to lunch.

The live broadcast also aired in dozens of libraries in the Los Angeles area and at more than 100 events from the West Coast to the jumbotron in Times Square. Down the street in Manhattan, the NASDAQ market celebrated InSight's landing at the closing bell.

## **Landing Day reactions from across the Lab**

Closer to JPL, VIPs and project families attended on-Lab landing events. One of them was in Pickering Auditorium. Nearly 400 people gathered there, including local dignitaries from La Canada, Pasadena and beyond, entertainment industry representatives, and some project members and families. The event was hosted by several JPLers, including Roger Gibbs and Dan Coulter.

As the live NASA-TV commentary played on the screen, at key moments, the room went silent with anticipation, breaking out in cheers as each milestone was achieved. Afterwards, as people left the building, it was hard to find a face that wasn't smiling broadly.

This was a return visit for Beau Willimon, producer of "The First," a Hulu series about the first humans to visit Mars. He and his team did extensive research for the show at JPL, and he, was anxious to see how well their fictionalized account matched the real deal. He said his time at JPL taught him that "thousands of hours were spent by thousands of people who had many sleepless nights to prepare for the landing."

Among the local political dignitaries was Pasadena Mayor Terry Tornek. He said, "We boast about JPL all the time. As a small city, the fact that we have JPL and Caltech is one of the things that helps give us a bigger footprint."



**Photo: VIPs and JPL project team members and families watched the Pickering Auditorium landing event, hosted by several JPLers, including Deputy Director for Mars Exploration Roger Gibbs.**

State Senator Anthony Portantino, whose district is La Canada, noted that "you could just feel the excitement here at JPL." He described the Lab as a "huge economic driver for our area, as a well as a great science driver."

Assemblymember Luz Rivas, a former STEM teacher who represents San Fernando, was impressed by the number of people attending the landing event who understand the importance of science and engineering and a STEM education. She hopes to see outreach events sharing the InSight science results from InSight with the community and student population.

La Canada Board of Education member Dan Jefferies is grateful for JPL's strong community presence. He said, " We have a lot of JPL students and parents, and incredible wealth of talent, obviously a lot of very smart kids, and we get a lot of participation in school events and career days."

Many other JPLers watched informally on cafeteria monitors and in their work areas.

About two-and-a-half hours after confirmation that InSight was safely on the surface of Mars, Mike Watkins reflected on the day's events at a post-landing news conference in von Karman. When he was asked what his dream takeaway was from the day's events, he said, "You know, my dream takeaway I think of all of these missions is just to remind us to be bold, and remind us to keep taking challenges and keep moving forward, and never to be scared of these kinds of challenges. I mean, it's what we do--you have to take these chances to go forward. We've been lucky enough recently to be very successful, but it's still a risky business. But you have to keep moving forward, and you have to keep trying these things. We try them on Mars, we try them on Europa, and we try them all around the solar system, and it's something that I think is part of human nature and it's something that, a challenge we have to keep taking."

For the latest updates on InSight, go to [mars.nasa.gov/insight](https://mars.nasa.gov/insight).

Note: Updated on 11/28/18 to correct attribution of the landing confirmation quote to Christine Szalai, and adding a quote from Mike Watkins from the post-landing news conference.



Photo: Lab Director Mike Watkins holds the Emmy award.

## State of the Lab meeting covers a pivotal year

Director Mike Watkins looked back Nov. 8 on a year marked by turning points for the Lab, including a new prime contract, several mission launches, the upcoming Mars landing of InSight, and the release of NASA's and JPL's strategic plans.

The State of the Lab all-hands meeting, held in Pickering auditorium and broadcast around Lab, offered a first look at JPL's strategic implementation plan (<https://www.jpl.nasa.gov/about/strategic-implementation-plan>). The plan will govern the Lab's direction for the next several years.

The plan rests on three priorities:

Pursue a diverse and bold portfolio of science missions

Create the "Laboratory of the Future," defined by a talented and inclusive workforce, rapid information sharing, and a culture of innovation

Strengthen our end-to-end capability while accelerating technology infusion into our missions

"Hopefully you will see yourself and your future in this document, and to me that's the most important thing," Watkins said.

JPL's plan follows from and responds to NASA's strategic plan, released earlier this year.

Watkins highlighted the visit to JPL by newly appointed NASA Administrator Jim Bridenstine in late August -- "We kind of overwhelmed him with all of the cool stuff that's going on here" -- and the signing of a new prime contract that extends the historic relationship between the agency, JPL, and Caltech through 2023.

He covered the growth in JPL's budget in the recent past and its expected tapering off in coming years, and stressed the need for flexibility in how the Lab staffs major projects.

"What we don't want to do is go into a very rigid planning system, but also define what is really a core capability here at the Lab," said Watkins, adding that he has asked the Engineering and Science Directorate to better distinguish between specialized work that should be or can only be done at JPL, and what he called "commodities" that can be handled by other vendors.

Watkins addressed the results of the midterm election less than 48 hours previously, saying, "it's too early to tell the outcome of this." But, he added, "space has always been pretty bipartisan."

Reviewing the year in missions, Watkins said, "Everything we launched is working fantastically."

InSight's spring launch and fall arrival bracketed a year of firsts, such as the MarCO CubeSats that accompanied InSight to Mars, becoming the first interplanetary spacecraft of their kind. Watkins also highlighted RainCube, based on a commercially available CubeSat modified with the addition of a radar system for measuring precipitation, "pretty amazing for a CubeSat mission."

ECOSTRESS, another low-budget mission, is returning new data about plant stress in response to drought and other conditions, and doing so at varying times of day and night because its perch on the International Space Station frees it from following an orbit synchronized to the Sun for constant solar power.

The Cold Atom Lab, also on the ISS, has allowed scientists to study supercooled condensates of atoms that last far longer than on Earth, where gravity and vibration cause them to fall apart.

Voyager 2 is about to cross the heliopause and enter interstellar space, while the Dawn mission ended this year after revealing the secrets of the dwarf planet Ceres. "It did game-changing science, telling us what Ceres is like. Clearly it's an ancient ocean world. Its science was revolutionary," Watkins said.

Upcoming launches include OCO-3, Mars 2020, Mars Helicopter, COSMIC-2, NISAR 2021, SWOT 2021, Europa Clipper 2022 and Psyche 2022.

Watkins praised the Deep Space Network for dramatic efficiency gains that enabled infrastructure improvements at its sites around the world, with new antenna dishes coming online in the next two years in Madrid and Goldstone. "They saved enough money to build a bunch of new antennas," he said.

Watkins recognized JPL's Education Office for "the largest internship program within NASA," and one increasingly successful at recruiting diverse candidates and converting them to early career hires.

He closed the meeting with a video showing the Lab's communications and outreach drive around Cassini's Grand Finale, which reached millions around the world.

"Many of us are scientists and engineers who work at the Lab because it's the world's greatest science and engineering place, and we get a lot of credit for that. I think it's fantastic for our communications group to get that same kind of recognition and to realize that they are also world leaders in covering these stories, just like we are world leaders in developing these missions," he said.

To an eruption of cheers and applause, he hoisted the Emmy recently won by NASA/JPL for Outstanding Original Interactive Program for coverage of the NASA Cassini Grand Finale at Saturn.

"Does that remind you of why you work here?" he said with a smile.



Photo: Susan Bell in her Extra 300 aircraft.

## 'Fly along' with aerobatic champ Susan Bell

When Susan Bell isn't rooted in the Earth Public Engagement group at JPL, she's headed for blue sky, where she traces precise loops, rolls, and other aerobatic figures in her Extra 300 aircraft.

"I have been practicing almost every weekend the entire year," Bell said. "I get up around 5 a.m., drive to Lancaster, prep my plane, fly to Apple Valley where my coaches are, and train."

After only three years of serious training, Bell became the 2018 U.S. Aerobatic Champion in the Sportsman category at the National Aerobatic Competition in Oshkosh, Wisconsin.

Bell hopes to build on her victory to rise to the sport's advanced level—where the top pilots are chosen to be on the U.S. Advanced Aerobatic Team and compete in world-level competitions.

The higher you go up in the levels, the more complex the figures are, with more rolls and more difficult maneuvers," Bell said.

Bell compares aerobatics to figure skating, except she's strapped into a five-point harness, often upside down, and regularly pulling six to eight g-forces. In competitions, pilots perform a series of maneuvers and are judged on everything from the "preciseness" of turns to the "roundness" of loops—all while staying within the "aerobatic box." That box measures about 3,300 feet per side and 2,000 feet in height, and is suspended 1,500 feet above ground level.

We have to do all of our figures inside the box, and kept on the X or Y axes," Bell said. "And every five degrees you're off an axis is a one-point deduction. So, if you come over the top, and your wings aren't quite level, point off. It's very challenging."

Bell got her pilot's license about six years ago, but only started to get involved in aerobatics competitions

the past three years. The exacting nature of the sport was one attraction.

“[The sport] is very precision-based,” Bell said. “Most aerobatic pilots are type-A personalities, and they are extremely precise people because you have to be.”

Another draw? The even playing field.

We compete with men on the exact same level, and it just shows that anything a man can do a woman can do, and in this case, I did it better,” Bell said with a smile.

“I’m not trying to show off, but I like to try to get women, and especially young girls and teenagers, involved in aviation,” Bell said. “It’s a really good career path for them, and women are only about six percent of all pilots in the country.”

At JPL, Bell has found a way to bring her passion for aviation to her profession, leading outreach at air shows around the country, highlighting JPL’s role in NASA’s Earth Science Airborne Program, and also takes the opportunity to talk about her aerobatic hobby.

“I think it’s been a great way to have a female presence in STEM, and also highlighting the aviation side,” Bell said.

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## Video: InSight jubilation in 360

See inside mission control at NASA’s Jet Propulsion Laboratory as signals return from the InSight mission as it lands on Mars. [Click to watch here.](#)

## Events



### **Musculoskeletal health wellness speaker on Dec. 12**

Speaker: Tere Filer, health educator and personal trainer

Wednesday, Dec. 12

11:30 a.m. - 12:30 p.m.

321 - Pickering Auditorium

Via WebEx:

Dial-in: 510-210-8882

Participant passcode: 906 056 374

<https://jpl.webex.com/join/benefits>

Join by number: 906-0560374

Musculoskeletal disorders (MSD) are injuries and disorders that affect the human body's movement or musculoskeletal system. This discussion will focus on the causes and treatments for pain from injury to bones, joints, muscles, ligaments or nerves, as well as the risks of overuse. Common disorders include carpal tunnel syndrome, tendonitis and muscle or tendon strain.

Bio:

Tere Filer has been involved in the fitness and wellness industry for more than 30 years. She has a master's degree in both nutritional sciences and public health and works as a health educator, personal trainer and corporate wellness consultant in the Los Angeles

County area. She has personal training and health fitness instructor certifications from the American College of Sports Medicine.

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## Volunteer for the Dec. 14 JPL Invention Challenge

It's the 20th Anniversary for the JPL Invention Challenge. The event needs volunteers for the challenge, to be held on Friday, Dec. 14 in front of Building 180. This year's challenge is entitled the "Upright Pipe" contest. Twenty school teams and 13 JPL teams will compete for the right to say that their device placed the pipe upright in the fastest time. To see the rules please visit <https://www.jpl.nasa.gov/events/inventionchallenge/2018/index.php>

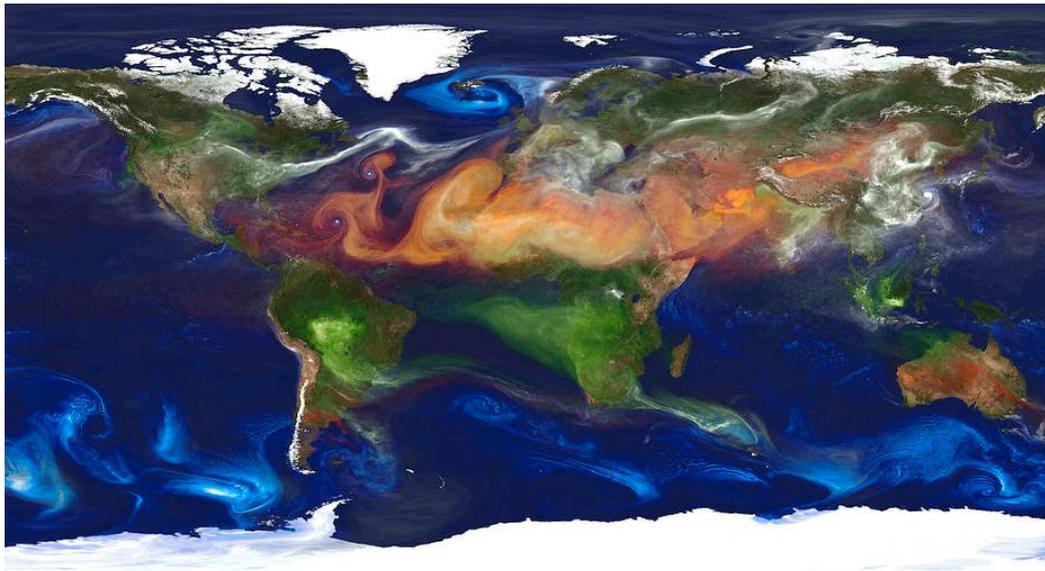
Combined with the efforts provided by the Public Service Office, the event will need a large number of volunteers to help make this event enjoyable for everyone. Starting and ending times for the volunteers vary depending on the chosen position, but the main contest starts at 11:30 a.m. and ends at 1 p.m.. Contact organizer Paul MacNeal (email: [paul.d.macneal@jpl.nasa.gov](mailto:paul.d.macneal@jpl.nasa.gov)) if you are interested in volunteering for any of the positions listed below, and let him know your contact information (email address and cell phone number) and which position(s) you would like to volunteer for. Unfortunately, contractors are not allowed to volunteer for this event. MacNeal always tried to accommodate your requests, but he fills the positions on a first-come, first-served basis.

Position	Comments
General Helper	deliver score sheets to secretaries
Assistant to organizer	help with foreign national visitors

Assistant to organizer	help with foreign national visitors
Assistant to organizer	help with foreign national visitors
Assistant to organizer	help with foreign national visitors
Assistant to organizer	help with visitors
Assistant to organizer	help with visitors
Recording Secretary	write down results and determine winners
Recording Secretary	write down results and determine winners
Check-in unmodified	Check forms for completeness and verify that school devices are unmodified
Check-in	Measure devices and record Category information
Check-in	Measure devices
Check-in	Weigh devices
Timer	measures time for the task
Timer	measures time for the task
Timer	measures time for the task
Timer	measures time for the task
Field Judge	Watch device for violations, help teams set-up
Field Judge	Watch device for violations, help teams set-up
Area Patroller	keeps visitors in the mall area
Area Patroller	keeps visitors in the mall area
Area Patroller	keeps visitors in the mall area
Area Patroller	keeps visitors in the mall area
Area Patroller	keeps visitors in the mall area
Set - up helper	set up target, set up stanchions, chalk lines

Set - up helper	set up target, set up stanchions, chalk lines
Set - up helper	set up target, set up stanchions, chalk lines
Set - up helper	set up target, set up stanchions, chalk lines
Clean up helper	take down stanchions, organize chairs, easels
Photographer	Photograph entries during their run, candid shots as well
Photographer	Photograph entries during their run, candid shots as well
Photographer	Photograph entries during their run, candid shots as well
Videographer	film the contest and create an edited movie

Specific instructions will be given later to all volunteers. Contact: Paul MacNeal  
[paul.d.macneal@jpl.nasa.gov](mailto:paul.d.macneal@jpl.nasa.gov).



## **Analysis and prediction of the Earth system**

Speaker: Steven Pawson, Global Modeling and Assimilation Office, NASA Goddard  
 Wednesday, Dec. 19  
 10 a.m. – 11 a.m.  
 180-101

Abstract:

The Goddard Earth Observing System (GEOS) global model is a flexible, modular tool that is at the center of a number of activities in the GMAO and beyond. With a “scale-aware”

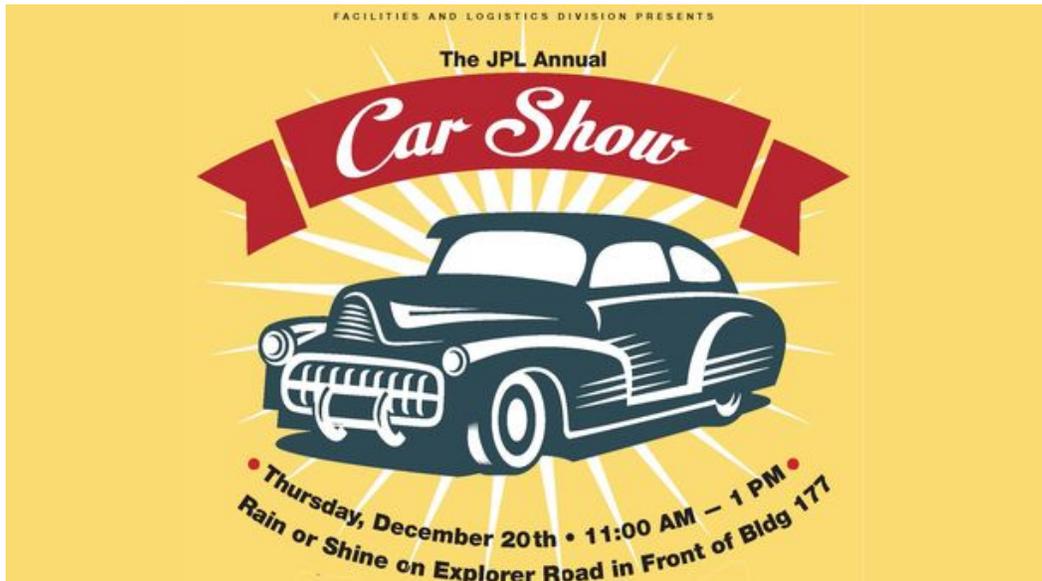
representation of parametrized processes, the GEOS model can be configured to represent spatial scales as fine as several kilometers, or it can be used at lower (tens of kilometer) resolutions and a higher degree of physical complexity, to represent different interactions in the Earth System. Alongside the model, multi-variate data assimilation schemes are used to ingest observations, to produce analyses of the atmosphere, ocean, land, and cryosphere. These analyses are focused on demonstrating the value of NASA's observations in producing high-quality analyses, as well as being a critical input to prediction across timescales ranging from weather to seasons.

This presentation will highlight several aspects of the GMAO's work. The use of all-sky radiances from the Global Precipitation Mission (GPM) in meteorological analyses, which demonstrate beneficial impacts on tropical moisture profiles and improved weather forecasts, which points to their potential value for the Nation's operational forecasting capabilities. Assimilation of atmospheric aerosols (from MODIS) and UTLS ozone profiles (from EOS-Aura MLS) were two of the major advances included in the MERRA-2 reanalysis, which are a component of the pathway from meteorological reanalyses to homogenized Earth System datasets. These advances form the basis for a new GEOS product, the "Composition Forecasting" which includes the comprehensive GEOS-Chem chemical mechanism to produce global analyses and forecasts of atmospheric constituents, including surface air quality. Another critical component of the Earth System is the ocean, for which NASA provides several unique datasets – the altimetry observations have become a standard input to oceanic analyses; this presentation will highlight the additional benefits of including sea-surface salinity from Aquarius and SMAP on both the analyses and on seasonal predictions, with the GEOS-S2S system.

These examples demonstrate the value of NASA's research-quality observations alongside the "traditional" datasets used in analyses and forecasts of weather and seasonal climate. Ability to use these observations in context of the GEOS model positions the GMAO as a unique NASA facility for model-data fusion studies, many of which will benefit from additional collaborations across the agency and with academia.

**Bio:**

Steven Pawson is chief of the Global Modeling and Assimilation Office at NASA Goddard Space Flight Center. He is responsible for guiding a team of about 100 people who develop and use the Goddard Earth Observing System (GEOS) Earth System modeling and data assimilation system. Steven has worked primarily in the atmospheric sciences, with expertise in the domain of atmospheric transport and composition. He is the author or co-author of more than 120 peer-reviewed publications. His early work focused on the stratosphere, including the ozone layer, and over time, his interests have moved to include air pollution and the carbon cycle.



## JPL Annual Holiday Car Show

The JPL Annual Car Show

Thursday, Dec. 20

11 a.m. to 1 p.m.

Explorer Road in front of Bldg. 177

It's that time of year again! The JPL Annual Holiday Car Show is always a highlight of the year-end activities on-Lab.

This year's show is scheduled for Thursday, Dec. 20 from 11 a.m. to 1 p.m. near the Transportation building (Bldg. 177). JPL employees and badged affiliates may enter their cars in the show. To participate, please email Michael Carter at [michael.a.carter@jpl.nasa.gov](mailto:michael.a.carter@jpl.nasa.gov) by Dec. 10. Even if you don't have a car to display, drop by and check out your colleagues' cars and hear live classic rock from the JPL employee band "Shop 300."

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# JPL Classifieds

Ads submitted Dec. 3

Submit an ad to: [universe@jpl.nasa.gov](mailto:universe@jpl.nasa.gov)

## For Sale

1964 ½ Mustang Convertible, 260 V8, automatic, yellow with a black top. Needs some work but runs fine. \$15,000 obo. Contact Jim at 661-877-8831.

2017 Ford Fusion Energi Plug-In Hybrid. Black/Black, 23,000 miles. 21 miles all-electric range, 520+ total range. Excellent condition inside and out. \$19,500 or lease takeover \$299/mo. Contact Daniel at 626-817-2425.

1996 Toyota Camry Sedan 4DR, great conditions, keeps up with the maintains and runs fine. It was my dad's car and only have 116,000 miles. \$3,500 obo. Contact Sirena at 818-359-5679.

2000 Jeep Cherokee 2-wheel drive, good condition runs and drives very well. Current SMOG and June registration; \$2500.00 Contact: 661-722-3000. E-mail: kc6uzn@msn.com

2002 Lexus RX300, excellent condition, low mileage (134K), recent major maintenance, \$4200 OBO. Contact 626-399-6805

2004 DODGE DURANGO, Limited, black with gray interior, third row seat, DVD system, 5.7L hemi, cold air intake, flowmaster exhaust, custom wheels, towing package (class 3 hitch and wiring), approx. 195K miles, very good condition, \$2500. For questions or photos contact: db.childs@ca.rr.com

Kendon Stand-Up Motorcycle Trailer Carries two motorcycles and plenty of tie down straps \$1,500.00 Contact: 661-722-3000. E-mail: kc6uzn@msn.com

Older Yakima Roof Rack System (round tubes). Two sets of towers with locks (1991 Honda

Accord and 2008 Honda Civic), two bicycle carriers, and skis racks. Asking \$100. Email: 5fishies@gmail.com

Vans/NASA gear collection: 1: Vans/NASA - SPACE VOYAGER COLLECTION Old Skool shoes, COLOR- White, SIZE- 9.5 Men; \$159. 2: Vans/NASA - SPACE VOYAGER COLLECTION Old Skool shoes, COLOR- Firecracker, SIZE- 9.5 Men; \$115. 3: Vans/NASA - SPACE VOYAGER COLLECTION Gride Skate Duffel Bag, COLOR- Space Orange; \$125. 4: Vans/NASA - SPACE VOYAGER COLLECTION Anorak Pull-over, COLOR- Space Orange, SIZE- Med; \$115. 5: Vans/NASA - SPACE VOYAGER COLLECTION Snag Backpack, COLOR- White; \$125. Email dmw526@mst.edu.

Early 70's vintage children's/teen French Provincial bedroom set, Dixie Furniture model 340. Dresser, hutch, desk, chair, night stand, mirror, and twin headboard (hutch fits either desk or dresser.) Overall good condition, with cosmetic damage to hutch. See [ijopics.shutterfly.com](http://ijopics.shutterfly.com) for pictures. \$600 for set. Call 805-522-2744.

4 tickets to LEGOLAND, valued at \$75-98 each! They expire 12/31/18. Open to offers! Contact Karla by text of phone at 831-234-0585.

Elliptical trainer, Sole E25, barely used, \$225. Contact 626-399-6805.

## Wanted

Space information/memorabilia from U.S. & other countries, past & present, for personal use (see <http://www.youtube.com/watch?v=S7PvjGp7mCU>). mrayman@alumni.princeton.edu, 818-790-8523, Marc Rayman.

## Free

Free dirt available in Sierra Madre. We have a large amount of clean dirt with very few rocks that we need to get rid of. Contact [brett.a.smith@gmail.com](mailto:brett.a.smith@gmail.com).

## Vacation Rentals

MAMMOTH, Snowcreek, 2 bd., 2 ba. + loft, sleeps 6-8, fully equip'd kitchen incl. microwave, D/W, cable TV, VCR, phone, balcony w/mtn. vw., Jacz., sauna, streams, fishponds, close to Mammoth

Creek, JPL discount, no pets. 626-798-9222, 626-840-3749 or [valeriee@caltech.edu](mailto:valeriee@caltech.edu).

MAMMOTH, Snowcreek, beautiful updated condo, 2 bd., 2 ba. + loft (sleeps 6-8), great location by pond/meadow, new appliances, TVs, DVD players, free wireless Internet and washer/dryer, no pets. 818-952-2696 or [BigMtnPrettySky@gmail.com](mailto:BigMtnPrettySky@gmail.com).

MAMMOTH, remodeled 2 bed/2 bath + loft, short walk to Canyon Lodge; Courchevel 6 features full kitchen, cable/Internet TV, DVD, Blu-Ray, wireless hi-speed Internet, 2-car garage, Jacuzzis, grill, pool; no pets. <http://Courchevel6.com>.

# JPL Family News

## Retirees

The following JPL employees recently announced their retirements:

William Bertch, 14 years, Section 3101; Yunjin Kim, 30 years, Section 8650; Cheryl Ortenburger, 16 years, Section 1193; Leslie White, 36 years, Section 335J; John T. Schofield (3222), 35 years; William Mogensen (393E), 18 years; Karen Boggs (398N), 25 years; Diana Burrows (252F), 23 years; Calvin Miyazono (3930), 40 years; Elsa Waters (3020), 32 years; Mark Whalen (1812), 26 years.

## Letters

Many thanks to my JPL colleagues and friends for the beautiful plant, Manhattan Fruitiers basket, and for their understanding and support following the recent passing of my mother. Your prayers and thoughts in this difficult moment are appreciated.

—Courtney Duncan

Thank you to JPL colleagues for kindness shown on the recent death of my father. It's possible that a Universe reader knew Talmage Williams of RCA at Patrick AFB, or ITT-FEC at Vandenberg in the '70s and '80s. Tal taught his young daughter how to solder, read a weather map, and use an RPN calculator, and when to shout "second stage!" at a launch.

—Angelyn Moore

## Passings

Fernando S. Mina died 5/30/18 at the age of 77. He worked at JPL for 15 years, most recently in Org. 6623, site services support, senior electrician. Spouse is Marietta Q. Mina.

## Announcements



**Photo: Michael Janssen (left) and William Langer (right).**

Two JPL astronomers—Michael Janssen and William Langer—have been named fellows of the American Association for the Advancement of Science (AAAS).

Janssen was named a fellow for "distinguished scientific contributions to the study of planets, comets, sun and cosmic microwave background radiation using ground and space-based radio techniques."

Langer was named a fellow for "exceptional contributions to understanding the physics and chemistry of the Galaxy's interstellar medium, effected through insightful theoretical modeling, novel observations and thorough interpretation."

David Reitze of Caltech—the executive director of the Laser Interferometer Gravitational-wave Observatory (LIGO) and a research professor of physics—was also named a 2018 fellow. Reitze led the team that made the first direct detection of gravitational waves, which were generated 1.3 billion years ago by the collision of two black holes.

This year, 416 AAAS members were named fellows because of their "scientifically or socially distinguished efforts to advance science or its applications." New fellows will be presented with an official certificate and a gold and blue rosette pin—representing science and engineering, respectively—on Saturday, Feb. 16 at the AAAS Fellows Forum during the 2019 AAAS Annual Meeting in Washington.

AAAS was founded in 1848 and is the world's largest general scientific society and publisher of the journal *Science*. All new fellows will be formally announced in *Science* on Nov. 29. The tradition of naming AAAS fellows began in 1874.