

# The Launch Pad

April - June 2011



**Above:** Thousands of NASA Kennedy Space Center employees form an outline of a space shuttle orbiter to honor the Space Shuttle Program's 30-year legacy.

## NASA to Retire Space Shuttle Program

The Space Shuttle Program's first flight was on April 12, 1981, and after 30 years of service, NASA will retire its remaining shuttle fleet after the final shuttle mission scheduled for Summer 2011. Below are the approved target dates for the remaining shuttle launches in NASA's Space Shuttle Program:

- ◆ **STS-134:** April 29, 2011. Space Shuttle Endeavour will deliver the Express Logistics Carrier-3 and the Alpha Magnetic Spectrometer to the International Space Station (ISS). This will be the 36th shuttle mission to the ISS, the 134th shuttle mission, and the 25th and final flight of Endeavour.
- ◆ **STS-135:** June 28, 2011. Space Shuttle Atlantis will carry the Raffaello module to deliver supplies and spare parts to the ISS. This will be the 37th shuttle mission to the ISS and the 135th and final scheduled space shuttle flight.



**Above:** NASA Johnson Space Center Aerospace Engineer, Blake Dumesnil, designed this patch to celebrate the 30th anniversary and retirement of the Space Shuttle Program.



## The NSSC Celebrates 5th Anniversary

On March 17, 2011, employees at the NASA

Shared Services Center (NSSC) celebrated five years of providing services to all NASA Centers. From March 1, 2006, through February 28, 2011, here are a few accomplishments:

- ◆ The NSSC's Customer Contact Center received 394,258 customer inquiries;
- ◆ The NSSC processed 211,610 accounts payable transactions; 386,901 travel vouchers; 79,222 personnel actions; 9,099 grants; and 16,043 grant supplements.

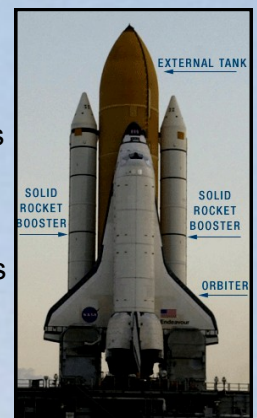
The goal of the NSSC is to free Agency resources that can be redirected to NASA's mission to pioneer the future of space exploration, scientific discovery, and aeronautics research.

For more info about the NSSC, visit:

[www.nssc.nasa.gov](http://www.nssc.nasa.gov)

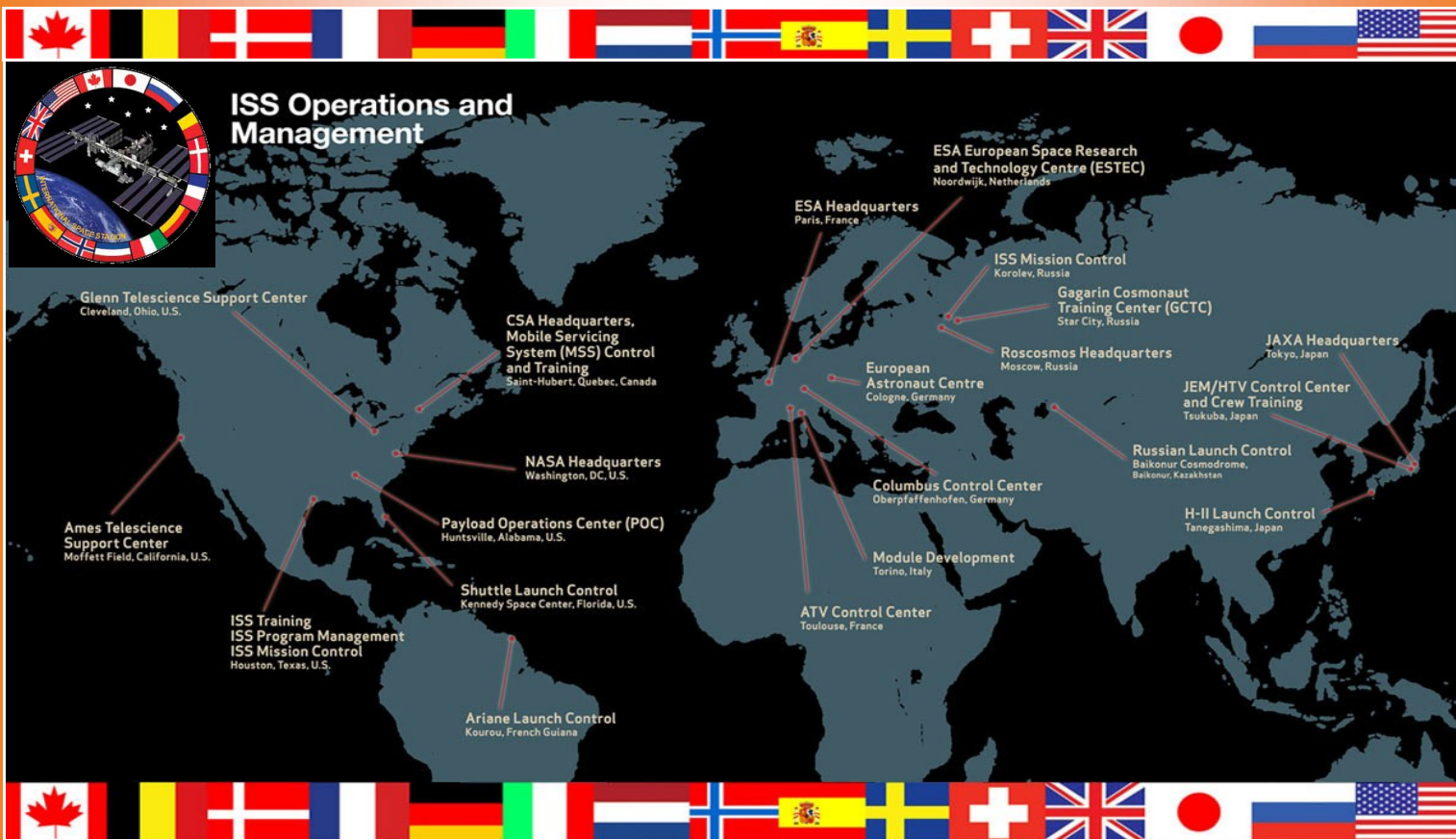
## Space Shuttle Facts

- ◆ NASA named its shuttles after famous exploration sailing ships
- ◆ A fully assembled shuttle and its boosters are the same height as the Statue of Liberty, but weigh almost three times as much
- ◆ The main engine on the shuttle weighs as much as a train locomotive, but puts out as much horse power as 39 locomotives
- ◆ The cargo bay is large enough to fit a school bus
- ◆ Liftoff weight is 4.5 million pounds
- ◆ It takes only eight minutes for the shuttle to accelerate to a speed of more than 17,000 miles per hour
- ◆ A typical shuttle mission lasts 10 days to two weeks
- ◆ The longest the shuttle has stayed in orbit is 17.5 days
- ◆ While in orbit, the shuttle circles the planet at some 17,500 miles per hour, which means that the crew sees a sunrise or sunset every 45 minutes
- ◆ The shuttle launches like a rocket, maneuvers in Earth orbit like a spacecraft, and lands like an airplane



For more info about the Space Shuttle, visit:

[http://www.nasa.gov/mission\\_pages/shuttle/main/index.html](http://www.nasa.gov/mission_pages/shuttle/main/index.html)



## International Space Station (ISS) Partners

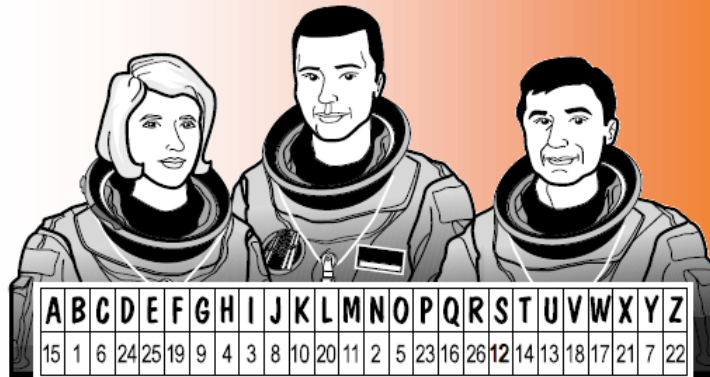
Facilities around the world support the operation and management of the ISS. The principals are the space agencies of the United States, Russia, Europe, Japan, and Canada. Each partner has the primary responsibility to manage and run the hardware it provides. Construction, assembly, and operation of the ISS requires the support of facilities on the Earth managed by all of the international partner agencies and countries involved.

## Interesting ISS Facts

- ◆ The ISS effort involves more than 100,000 people in space agencies, at 500 contractor facilities, and in 37 U.S. states. That's almost half of the entire population of the U.S. state of North Dakota.
- ◆ As of June 2006, the number of crewmembers and visitors who have traveled to the ISS includes 116 different people from 10 countries.
- ◆ Living and working on the ISS is like building one room of a house, moving in a family of three, and asking them to finish building the house while working full time from home.
- ◆ Crews have eaten about 23,000 meals and 20,000 snacks, which equals 40,000 pounds of food.
- ◆ The ISS travels an equivalent distance to the Moon and back in about a day. That's equivalent to crossing the North American continent about 135 times every day.



## A Cryptogram From the Crew



14 4 25    6 26 25 17    5 19    14 4 25  
 3 2 14 25 26 2 15 14 3 5 2 15 20    12 23 15 6 25  
 12 14 15 14 3 5 2    4 5 23 25 12    7 5 13    15 26 25  
 4 15 18 3 2 9    15    9 5 5 24    24 15 7

## Did You Know?



You can see the ISS in the night sky. When is the ISS flying over your house?

Find the answer to this question and more about the ISS at <http://www.jsc.nasa.gov/sightings/index.html>

# Where Innovation Begins

By Susie Satellite



Howdy Space Cadets! Today finds me wandering the Procurement Office at the NASA Shared Services Center (NSSC). I'm learning that procurement is all about buying goods and services for the government. I watch as the Small Business and Innovative Research Team works tirelessly to award money to small companies with big ideas. NASA gives these companies a chance to perfect new inventions, because these advancements could one day help NASA to achieve its goals in space. Not only do these companies help NASA, but they also improve your life here on Earth.



Above: NSSC employee, Eric Johnsen (SGT), works on the Small Business and Innovative Research Team of the Procurement Office.



From improvements to air conditioning, wind turbines, and robotics, to airline safety, the work that begins with the NSSC Procurement Office is literally changing the world in surprising ways. For example, a company that developed a water purification cell for space travel was able to use that same solution in cleaning up spilled oil in the Gulf of Mexico. Another company is developing parachutes that can be used by an entire airplane in case of an emergency (246 lives have been saved already due to this innovation!). Another company, seeking to improve engine components, also managed to develop improvements to hip implants!



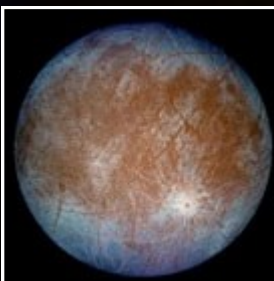
The NSSC awards hundreds of these contracts each year, so the possibilities are endless. A team of scientists and experts across NASA reviews the proposals and determines what ideas are worthy of NASA money. From there, the NSSC works to get the contracts signed so exciting work can begin. The NSSC team is made up of contract specialists with a wide range of backgrounds in various business fields. Remember kids— a successful NASA requires many talents! If you want to help, the important thing is to study and be passionate about what you do.

Learn more about how NASA contracts have an impact on you: <http://spinoff.nasa.gov/>

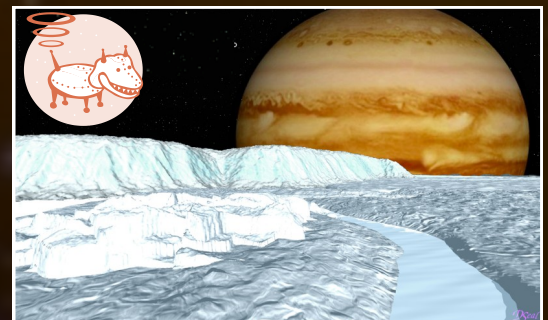
Susie Satellite is constantly visiting the NSSC and is always eager to report on the exciting things she sees. She reminds you that you can build your own NASA scientist and mission at: <http://www.jpl.nasa.gov/education/uildMissionGame.cfm>

## Europa's Frozen Ocean

By Sirius



This Spring, I set sail for Europa, one of Jupiter's icy moons. This was the first moon (besides our own) discovered by Earthlings. It's a little bit smaller than Earth's moon, but it is covered by one giant frozen ocean. Even though it's ice, I can smell the salt. Yes, its ocean has salt, too! I hear a loud and constant cracking. Europa has tidal forces due to the mass of the giant gas



planet it circles. The tidal forces raise and lower the sea beneath the ice causing loud noises and creating the surface cracks that have been observed by NASA. The tides on Europa cause a natural warming that may create conditions that would allow for the survival of simple organisms in the water.



Scientists believe that, like Earth, Europa has an iron core and a rocky mantle. If, like on Earth, heat also escapes through the mantle to the ocean floor, then an intriguing possibility of life exists. On Earth, organisms have been discovered at great depths of the ocean. This life depends on the warmth provided by the vents on the ocean's floor. Could similar beings exist on Europa? To answer that question, NASA hopes to one day send a probe to Europa that would penetrate the icy surface and explore the ocean below (the picture on the left is an artist's drawing of this exploration).

Learn about Europa: <http://solarsystem.nasa.gov>

Sirius, the robotic dog, travels to exciting places in our Solar System. He frequently sends reports back to the NSSC in exchange for treats and a scratch behind the ear.

# Ever Wonder What it's Like to See a Shuttle Launch?



NASA's "Taking Up Space" blog is made up of stories about people just like you—and sometimes stories about people who used to be just like you—the engineers, scientists, astronauts, and many others who now work at NASA.

The blog is written by NASA Education Writer Heather Smith, who gives readers a behind-the-scenes look at what it is like to be a part of NASA. Recently, her readers were treated to an intimate view of the launch of STS-133. The excerpt below is from her post:

"It was a gorgeous day in Florida. But a perfect Florida day doesn't necessarily mean a perfect launch day so I didn't want to let the beautiful weather fool me. NASA was saying weather conditions were at 90 percent "go." A couple of us even commented that we couldn't recall ever seeing it that high.

Earlier in the day, we used folding chairs to stake out a place on the pier, and the kind folks around us helped secure our spot. We all got in place with the kids in our group up close to the pier, the adults standing behind them and all eyes looking east toward the launch pad.

A couple of us hovered around a two-way radio listening to mission control updates. In one of the updates it was announced that there was a problem. The STS-133 launch blog reported: "The Range Safety Officer reports the Eastern Range is 'no-go' due to problems with its central command computer. Standby to see if the issue is resolved."

The decision was made to come out of the nine-minute hold but to stop the clock again at T-minus five minutes to give the range more time to fix the problem.

More time, it turns out, was a little more than two minutes.

Two minutes?!? No pressure or anything, right?

We, on the pier, and as I can imagine all who were watching live and on NASATV, were on pins and needles! Finally the call came through. The Range Safety Officer had given the green light for launch. Discovery was going to launch! Yea!!"

To read the entire blog post visit: [http://blogs.nasa.gov/cm/blog/takingupspace/posts/post\\_1299090425859.html](http://blogs.nasa.gov/cm/blog/takingupspace/posts/post_1299090425859.html)

## The Launch Pad

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Submit Questions/Comments to:  
NSSC Customer Satisfaction and Communication Team  
Attn: The Launch Pad  
Mail Code: XB000  
Stennis Space Center, MS 39529  
Or call 228-813-6154

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# So, You Want to Work for NASA?

We don't blame you! After all, it was reading things like "Taking Up Space" that inspired us to do the things that we do everyday. It doesn't matter if you are inspired by science, technology, history, math, or the arts—it only matters that you are inspired!



Here are a few resources to begin exploring your future NASA career:

### ◆ Career Fact Sheets and Trading Cards:

[http://astroventure.arc.nasa.gov/teachers/fact\\_sheets.html#generic](http://astroventure.arc.nasa.gov/teachers/fact_sheets.html#generic)

### ◆ Student Employment Resources:

<http://nasajobs.nasa.gov/studentops/employment/default.htm>

### ◆ Profiles of Successful NASA Women:

<http://women.nasa.gov/>

### ◆ NASA Students on Facebook:

<http://www.facebook.com/group.php?gid=34760681199>



## Meet a NASA Astronaut

Mark E. Kelly  
(CAPTAIN, USN)  
NASA Astronaut

### Background:

- ◆ Age: 47
- ◆ Hometown: West Orange, New Jersey
- ◆ Married with two children
- ◆ Assigned to command the crew of STS-134 to the International Space Station in April 2011
- ◆ Selected as a NASA astronaut in April 1996
- ◆ This will be his fourth spaceflight
- ◆ Logged over 5,000 flight hours in more than 50 different aircraft and has over 375 carrier landings
- ◆ Flew 39 combat missions in Operation Desert Storm
- ◆ Logged 38 days in space
- ◆ Graduated from Mountain High School, West Orange, New Jersey, in 1982
- ◆ Received bachelor of science degrees in marine engineering and marine transportation from the U.S. Merchant Marine Academy in 1986
- ◆ Received a master of science degree in aeronautical engineering from the U.S. Naval Postgraduate School in 1994