



Global Friendship Through Space Education

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# ASTRO

## The Partner School Science Program Newsletter

### Space Shuttle Retires

[NASA](#)'s **Space Shuttle**, officially called Space Transportation System (**STS**), is the United States government's current manned launch vehicle. The winged Space Shuttle orbiter is launched vertically, usually carrying five to seven astronauts and up to 50,000 lb (22 700 kg) of payload into low earth orbit. When its mission is complete, the shuttle can independently move itself out of orbit using its Orbital Maneuvering System (it orients itself appropriately and fires its main OMS engines, thus slowing it down) and re-enter the Earth's atmosphere. During descent and landing, the orbiter acts as a re-entry vehicle and a glider, using its OMS system and flight surfaces to make adjustments.

The shuttle is the only winged manned spacecraft to achieve orbit and land, and the only reusable space vehicle that has ever made multiple flights into orbit. Its [missions](#) involve carrying large payloads to various orbits, providing crew rotation for the International Space Station, and performing service missions. The orbiter can also recover satellites and other payloads from orbit and return them to Earth, but its use in this capacity is rare. However, the shuttle has previously been used to return large payloads from the ISS to Earth, as the Russian Soyuz spacecraft has limited capacity for return payloads. Each vehicle was designed with a projected lifespan of 100 launches, or 10 years of operational life.



The program started in the late 1960s and has dominated NASA's manned operations since the mid-1970s. According to the Vision for Space Exploration, use of the space shuttle will be focused on completing assembly of the ISS by 2010, after which it will be retired from service, and eventually would be replaced by the new [Orion](#) spacecraft (now slated for cancellation).

The Space Shuttle, after nearly 30 years of duty, will be retired from the service. Four more flights left, the missions are STS-131\* (April 5), STS132 (May 14), STS134 (July 29), and STS-133(September 16). In this historic last shuttle mission, the crew will include Commander Steven Lindsey; Pilot Eric Boe; and Mission Specialists Alvin Drew, Michael Barratt, Tim Kopra, and Nicole Stott.

Discovery will deliver the Express Logistics Carrier 4 and critical spare components to the International Space Station. This will be the 134th and final shuttle flight and the 36th shuttle mission to the station.

## Space Shuttle Program Announces Commemorative Patch Contest Winner

The Space Shuttle Program has selected Mr. Blake Dumesnil's design as the winner in the Space Shuttle Program Commemorative Patch Contest. The design, coincidentally, also received the highest percentage of votes in an internal NASA People's Choice poll.

The quality of all submissions and the emotion behind the designs showed tremendous commitment and loyalty to the Space Shuttle Program. The judges were very impressed with the quality and imagination of the designs and found the task of narrowing the choices to only one to be very difficult.



### First Place:

Mr. Blake Dumesnil, Hamilton Sundstrand, Johnson Space Center

### Second Place:

Ms. Jennifer Franzo, Michoud Assembly Facility, New Orleans





### Third Place:

Mr. Tim Gagnon, Kennedy Space Center, Florida

The artwork for the winning patch will be flown and awarded to the winner in a presentation by Space Shuttle Program Manager John Shannon at the STS-130 Crew Debrief at Space Center Houston in early March. Second and third place winners are invited to receive their awards at this venue.

All entries have been manifested and will be flown aboard.

## IMAGE OF THE DAY - A Burst of Spring

Spin has sprung on Mars, bringing with it the disappearance of carbon dioxide ice (dry ice) that covers the north polar sand dunes. In spring, the sublimation of the ice (going directly from ice to gas) causes a host of uniquely Martian phenomena.

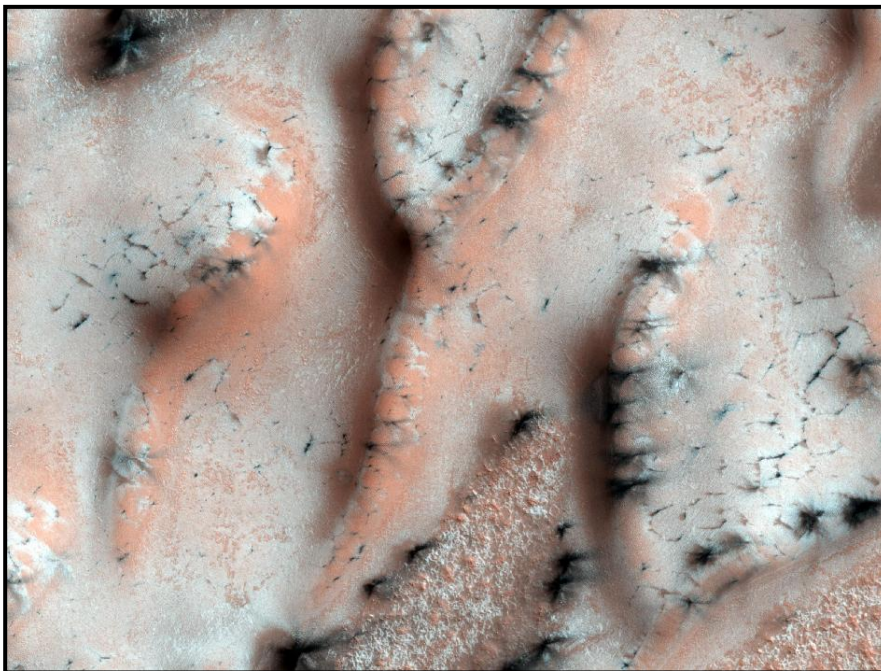


Image Credit:  
NASA/JPL-  
Caltech/University of Arizona

In this image, streaks of dark basaltic sand have been carried from below the ice layer to fan-shaped deposits on top of the seasonal ice. The similarity in the directions of the fans suggests that they formed at the same time, when the wind

direction and speed were the same. They often form along the boundary between the dune and the surface below.

*Note: Image of The Day section's aim is to create curiosity in your mind and make you want to search about the image or topic, rather than us giving full details about the image. We are expecting you to ask yourself questions and to search for information about the image of the day to get answers and learn more.*