

“That’s one small step for man, one giant leap for mankind.” Neil Armstrong



ASTRO

NEWSLETTER

Volume 11, Issue 14

July 27, 2018

CONTENTS

- Blue Origin’s New Shepard Vehicle Aces Test of Crew-Escape Motor 1
- Russia Mulls Sending Two of Its FEDOR Humanoid Robots Into Space Next Year 1
- 49th Anniversary of first manned moon landing 2
- Underground Lake of Liquid Water Detected on Mars 3
- Sweet Super-Puffs: These 2 Exoplanets Have the Density of Cotton Candy 3
- Astronomy Picture of the Day 4



Russia Mulls Sending Two of Its FEDOR Humanoid Robots Into Space Next Year

The ambitious FEDOR project has received a number of upgrades in recent years, with plans to make the robots self-learning and even to use them to create colonies on the moon and fly solo space missions in the early 2020s.

A source in the Russian space and rocketry industry has told Sputnik that a team of two FEDOR (Russian acronym Final Experimental Demonstration Object Research) robots may be sent to the International Space Station on an unmanned Soyuz spacecraft next August.

According to the industry source, the flight of the FEDORs is seen as an opportunity to test them before they are sent into space aboard Russia’s new Federatsiya (Federation) spacecraft, which is currently being developed and is expected to come online in the early 2020s. spacedaily.com



Blue Origin’s New Shepard Vehicle Aces Test of Crew-Escape Motor

New Shepard flew for the ninth time on July 18, 2018. During this mission, known as Mission 9 (M9), the escape motor was fired shortly after booster separation. The Crew Capsule was pushed hard by the escape test and we stressed the rocket to test that astronauts can get away from an anomaly at any time during flight. The mission was a success for both the booster and capsule. Most importantly, astronauts would have had an exhilarating ride and safe landing.

This isn’t the first time we’ve done this type of extreme testing on New Shepard. In October of 2012, we simulated a booster failure on the launch pad and had a successful escape. Then in October of 2016, we simulated a booster failure in-flight at Max Q, which is the most physically strenuous point in the flight for the rocket, and had a completely successful escape of the capsule.

This test on M9 allowed us to finally characterize escape motor performance in the near-vacuum of space and guarantee that we can safely return our astronauts in any phase of flight.

Also on M9, New Shepard carried science and research payloads from commercial companies, universities and space agencies.

blueorigin.com

49 years after America's 'Giant Leap'

2018 marks the 49th anniversary of one of the most momentous events in American history: humankind's first landing on another celestial body. Millions around the world watched as the lunar module landed on the moon July 20, 1969. "That's one small step for (a) man, one giant leap for mankind," Neil Armstrong said as he made his descent to the surface. Apollo 11 truly marked a new frontier in space exploration.



THE HEROES OF APOLLO 11



Neil Armstrong, Commander

Apollo 11 made Armstrong the first human to step on the surface of another celestial body and an international celebrity. After retiring from NASA, he taught at the University of Cincinnati and later was Vice President of Aviation, Inc. Armstrong, married and with two children. Armstrong died on August 25, 2012 in Cincinnati, Ohio, aged 82.



Buzz Aldrin, Lunar Module Pilot

Aldrin joined Armstrong in the historic moonwalk. He is also known for devising many scientific techniques used by NASA. Since retiring, he continues to lead efforts for space exploration. Now president of Starcraft Enterprise, Aldrin is married with six children and one grandson.

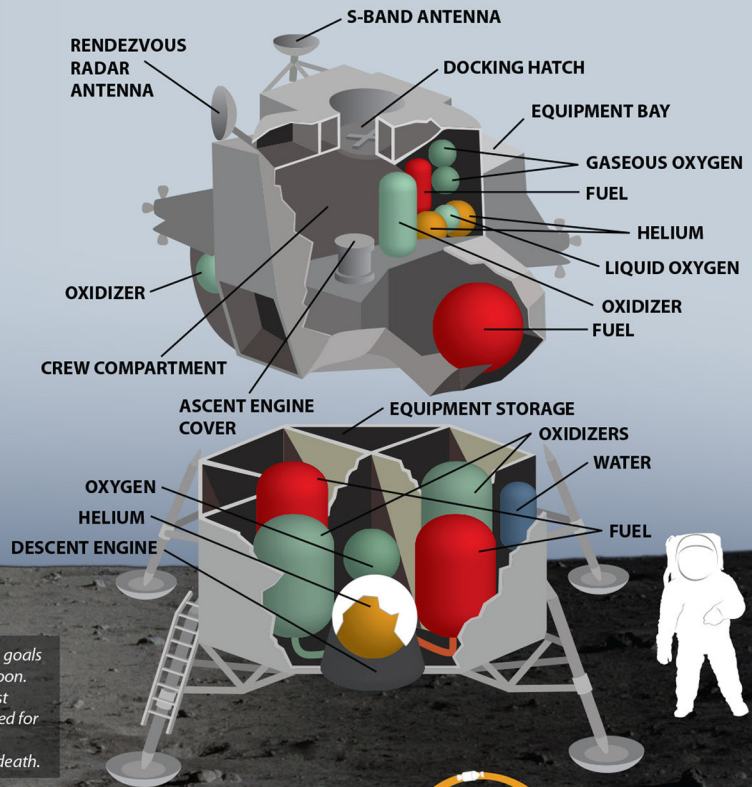


Michael Collins, Command Module Pilot

Collins remained onboard Columbia during Apollo 11's moonwalk. He later became director of the National Air and Space Museum in Washington, D.C. He retired in 1985 to start his own business. Collins is married with three grown children.

The Eagle

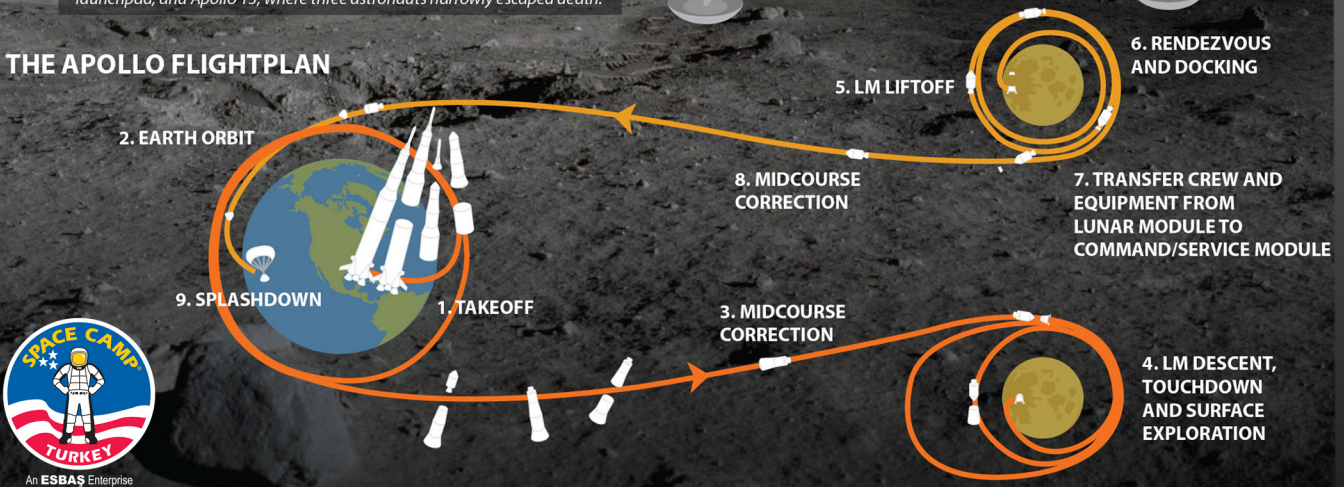
The Apollo Lunar Module was the lander portion of the Apollo spacecraft to achieve transit from orbit to the surface and back. The LM, as the module was commonly called, was designed to carry two astronauts. It consisted of two stages: the descent stage and the ascent stage.



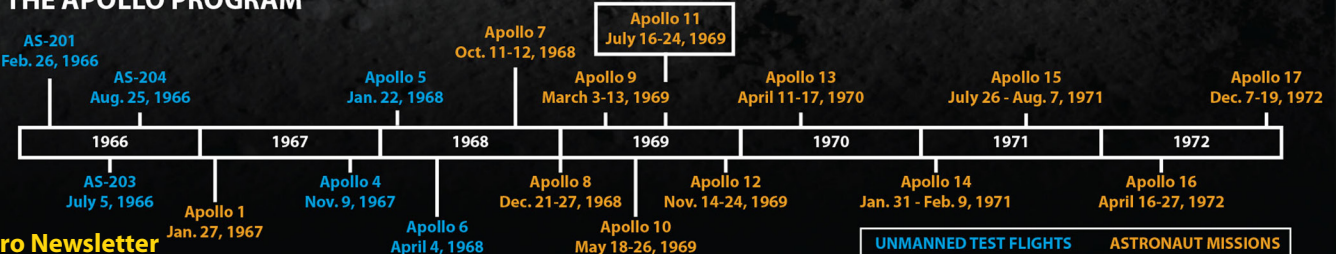
The Apollo Missions

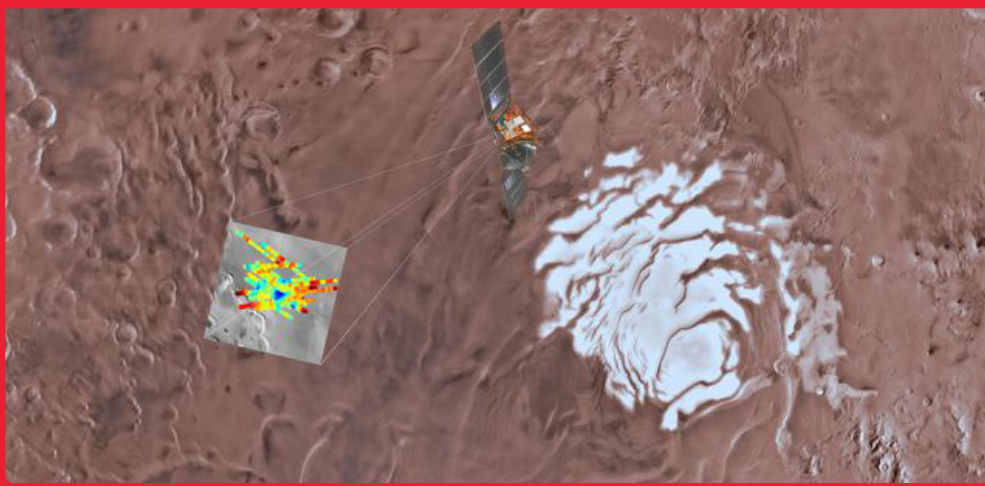
The Apollo program was NASA's third human spaceflight program. Its goals were announced by President John F. Kennedy in 1961: land on the moon. Apollo 11 accomplished this goal and what some consider the greatest achievement in human history. The Apollo program is also remembered for its failures during Apollo 1, which left three astronauts dead on the launchpad, and Apollo 13, where three astronauts narrowly escaped death.

THE APOLLO FLIGHTPLAN



THE APOLLO PROGRAM





Sweet Super-Puffs: These 2 Exoplanets Have the Density of Cotton Candy

Two worlds discovered by NASA's Kepler Space Telescope have about the same density as a package of cotton candy. The two planets, which orbit a young star only about 500 million years old, are newborn worlds nearly as wide as gas giants, though they weigh in at less than 10 times the mass of Earth.

Using NASA's Hubble Space Telescope, researchers made follow-up observations of the two "delicious" worlds, known as Kepler-51b and Kepler-51d. They found that the bloated atmospheres of the worlds most likely contained a haze stretching high above their surface. The worlds' expanded atmospheres placed them in a rare class of exoplanets, the super-puffs. Calculating the density of a planet requires a return to high school physics. The density of an object is its mass divided by its volume; the volume is determined by its radius. Hubble's precise measurements helped the researchers to better constrain the mass of the exoplanets. To find their radius — and thus their volume — scientists compare the size of the planet to its star. By revisiting what was known about the star, Roberts and her colleagues were able to determine a more precise radius.

By combining the updated mass with the revised radius, the researchers could calculate that the densities of the planets ranged from 0.03 grams to 0.06 grams per cubic centimeter. That's a tenth as dense as Saturn, the solar system's least dense planet, and one that would float in water if you could find a bathtub big enough.

space.com

Underground Lake of Liquid Water Detected on Mars

Just a mile or so beneath the surface, near the south pole of Mars, there is a reservoir of briny water sloshing and churning below layers of ice and rock.

This subglacial lake, discovered by a ground-penetrating radar on the Mars Express spacecraft, is about 20 kilometers (12.4 miles) wide and perhaps no more than a meter deep. Its discovery is the latest piece of evidence that suggests water was not only present on Mars in the past but is still flowing in some capacity today. The findings, if confirmed by future observations, would be the most significant discovery of liquid water on Mars to date.

Scientists already had little doubt that there was, at one point, liquid water on Mars, thanks to tiny spherical deposits discovered by the Opportunity rover in 2004 and the comprehensive mineralogy studies conducted by the Curiosity rover. The evidence suggests that vast lakes and rivers dominated the surface of Mars billions of years ago. What's more, tantalizing clues have continued to imply the existence of liquid water on Mars today. Condensation was measured on the Phoenix lander in 2009, and dark streaks spotted on Martian dunes may be evidence of briny water (although more recent examination suggests they could be avalanches of dry sand).

popularmechnics.com

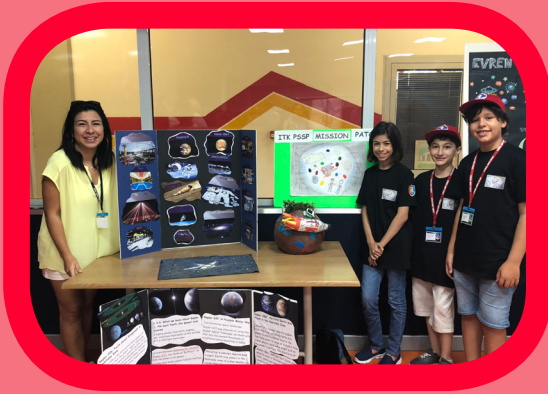
This new discovery of a subterranean water deposit, outlined in a new paper in *Science*, suggests water is indeed underneath the red sands of Mars. Perhaps the Red Planet even has entire subsurface lake systems like those beneath Antarctica.

A Breakthrough 15 Years in the Making Mars Express is a European Space Agency probe that has been orbiting the fourth planet from the sun since December 2003. A year and a half after it arrived, the craft deployed two 20-meter radar booms, forming a 40-meter antenna. The Mars Advanced Radar for Subsurface and Ionosphere Sounding (MARSIS) instrument came online. Since then, MARSIS has been studying Mars with radar signals to learn more about the planet's interior structure and composition.

A new Mars orbiter in the works might be able to solve the mystery. The 2020 Chinese Mars Mission will carry a radar sounding instrument that will operate in between the frequencies of MARSIS and SHARAD. If this Chinese mission also spots radar reflections that indicate a subglacial lake in the same location as MARSIS, the implications for possible water ecosystems beneath the surface of Mars will be profound.

E-Pal Week

“We had the E-Pal Week on July 1-7, 2018. All the campers had a wonderful time during the week and they learned a lot about space! We had participants from Armenia, Bulgaria, England, Greece, Lithuania, Poland, Romania, USA, and different provinces of Turkey! You can check out some of the photos taken during the E-Pal Week on the right side!”



Astronomy Picture of the Day

The Edge-On Spindle Galaxy

What kind of celestial object is this? A relatively normal galaxy -- but seen from its edge. Many disk galaxies are actually just as thin as NGC 5866, pictured here, but are not seen edge-on from our vantage point. A perhaps more familiar galaxy seen edge-on is our own Milky Way Galaxy. Cataloged as M102 and NGC 5866, the Spindle galaxy has numerous and complex dust lanes appearing dark and red, while many of the bright stars in the disk give it a more blue underlying hue. The blue disk of young stars can be seen extending past the dust in the extremely thin galactic plane. There is evidence that the Spindle galaxy has cannibalized smaller galaxies over the past billion years or so, including multiple streams of faint stars, dark dust that extends away from the main galactic plane, and a surrounding group of galaxies (not shown). In general, many disk galaxies become thin because the gas that forms them collides with itself as it rotates about the gravitational center. The Spindle galaxy lies about 50 million light years distant toward the constellation of the Dragon (Draco).

apod.nasa.gov



Space Camp Turkey, Aegean Free Zone 35410 Gaziemir, Izmir / Turkey

Phone : +90 232 252 35 00 Fax : +90 232 252 36 00

Email: info@spacecampturkey.com

© 2018 - SPACE CAMP TURKEY / ALL RIGHTS RESERVED - An ESBAS Enterprise

