This Week at NASA...

So what can a planetary rover do with a year on Mars? All NASA's Curiosity rover did was beam back over 190 gigabits of data, more than 36-thousand images and zap 75-thousand-plus laser shots at science targets ... and oh by the way, it also completed the mission's main science goal by finding evidence that life was possible on Mars in the past.

The agency celebrated the one year anniversary of Curiosity's landing on Mars with live events from the Jet Propulsion Laboratory -- featuring rover team members.

"Forever, you know, people are just always mentioning the seven minutes of terror. In fact, people were tweeting, 'thanks for the terror'; hashtag, thanks for terror, so that's been phenomenal."

"What a fantastic job that the group at JPL did with this rover and again, just fascinated by what an impact it had over the entire world."
Curiosity has also found evidence that Mars
lost most of its original atmosphere through processes that occurred near the top of the planet's atmosphere.

NASA's next mission to Mars, the Mars Atmosphere and Volatile Evolution or MAVEN, will study the Red Planet's upper atmosphere for clues about what existed there before the atmospheric loss occurred. The MAVEN spacecraft arrived at Kennedy Space Center recently for processing in advance of its November launch to Mars.

After four years as NASA's Deputy Administrator, Lori Garver is leaving the agency to become General Manager of the Air Line Pilots Association. In a statement, Administrator Charlie Bolden called Garver, "an indispensable partner in our efforts to keep NASA on a trajectory of progress and innovation."

Garver led the way on many of the Obama Administration's space priorities, including NASA's commercial crew and cargo programs, the re-establishment
of a space technology mission directorate,

00:02:16.549 --> 00:02:23.290
NASA's use of challenges and prizes, and an
unwavering commitment to diversity and inclusion.

00:02:23.289 --> 00:02:28.328
Garver will leave her NASA post on September 6.

00:02:28.329 --> 00:02:33.430
A fireball from a kilonova, a new kind of
stellar blast, spotted by the Hubble Space

00:02:33.430 --> 00:02:39.120
Telescope in a galaxy almost 4 billion light-years
from Earth, is the strongest evidence yet

00:02:39.120 --> 00:02:44.359
that short-duration gamma ray bursts happen
when two small, super-dense stellar objects

00:02:44.359 --> 00:02:48.139
come together.
A kilonova comes from the energy released

00:02:48.139 --> 00:02:53.230
by the collision of two compact objects. It
had been predicted that kilonovas accompany

00:02:53.229 --> 00:03:00.418
short-duration GRBs, but this is the first
time it's been seen.

00:03:00.419 --> 00:03:05.730
Six days after launching from the Tanegashima
Space Center in Japan, the automated Kounotori4

00:03:05.729 --> 00:03:11.828
H-II Transfer Vehicle or HTV-4, met up with
The International Space Station, was captured

00:03:11.829 --> 00:03:17.379
with the station's robotic arm by the Expedition
36 crew aboard the ISS and was installed on
the station's Harmony module. HTV-4 delivered about 3 ½ tons of cargo and experiments to

the orbital laboratory.

NASA Administrator Charlie Bolden recently toured Orbital Sciences Corporation's Satellite Manufacturing Facility near Phoenix, Arizona to check out The Orbiting Carbon Observatory

-2 or OCO-2 satellite. A carbon copy of a satellite lost to a mishap in 2009, OCO-2 is designed to take precise measurements of carbon dioxide in Earth's atmosphere.

"Orbital continues its record of performance of producing satellites that help us understand our earth as a system. The climate, what's happening to it? What are we doing? What's happening naturally? And just data we absolutely have to have."

The Observatory will be launched from California's Vandenberg Air Force Base in July 2014.

The first completed liquid hydrogen tank barrel segment for the core stage of NASA's Space Launch System has been rolled
off the production line at the Michoud Assembly Facility in New Orleans.

The 22-foot structure validates the vertical weld center and friction stir welding process, which uses frictional heating and forging pressure to produce high-strength bonds virtually free of defects. The SLS core stage liquid hydrogen tank will be more than 200 feet tall when completed.

NASA's SOFIA airborne observatory has returned to Palmdale, California from a two-and-a-half week campaign to study celestial objects from a vantage point in the southern hemisphere. The modified 747 flew nine astronomical science flights from Christchurch, New Zealand -- demonstrating its capability to fly back-to-back missions with high reliability.

And that's This Week @NASA.

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