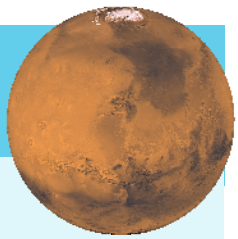
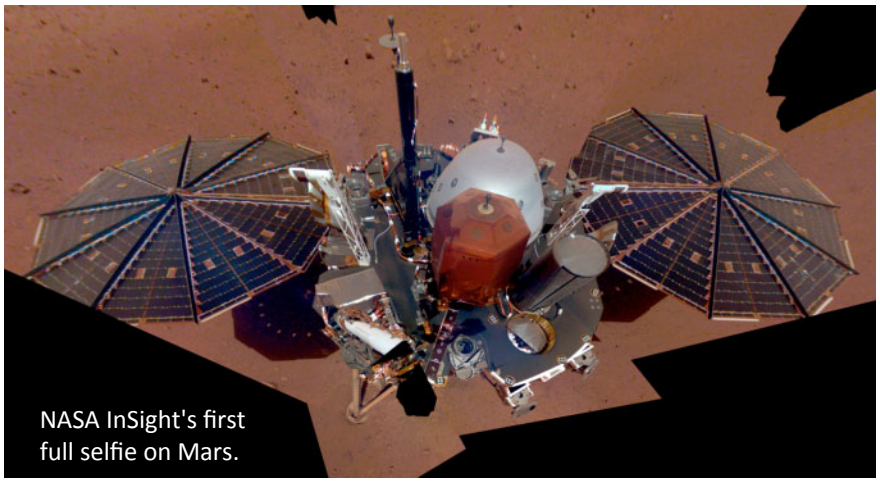


NASA's Insight

Mars Lander has landed on Mars!



NASA InSight's first full selfie on Mars.

Images and text courtesy of NASA

NASA has successfully landed the InSight robot on Mars. It is the first mission to focus on examining the deep interior of Mars and the information gathered will help scientists understand how rocky planets formed, including Earth.

Pre-Launch

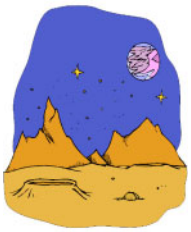
InSight was assembled and tested in Denver, Colorado and then transported to California for launching.

Launch

The lander launched on an Atlas V-401 rocket. It is one of the biggest rockets available for interplanetary flight.

Cruise

The trip to Mars took six months, a journey of about 485 million km, travelling at approximately 10,000 km/hour. Mission navigators kept track of the spacecraft almost continuously once it launched. The team adjusted its flight path several times during the cruise to make sure it flew at the right speed and in the right direction. It also carried out other checks, maintenance, monitoring and adjustments. These checks ensured that everything was working just as it should. During the cruise the lander was tucked inside its protective aeroshell.



Approach

To ensure a successful entry, descent, and landing, engineers began intensive preparations during the approach phase, about 60 days before and until the spacecraft entered the Martian atmosphere.

Landing

The lander plunged through the thin Martian atmosphere, heatshield first, and used a parachute to slow down. It fired its retro rockets to slowly descend to the surface of Mars, and land on the smooth plains of Elysium Planitia.

Surface Ops

InSight's goal is to study the interior of Mars and take the planet's vital signs, its pulse, and temperature. To look deep into Mars, the lander must be at a place where it can stay still and quiet for its entire mission. That's why scientists chose Elysium Planitia as InSight's home.

The InSight lander began surface operations the minute it landed at Elysium Planitiaon Mars, but science data collection doesn't start fully until about 10 weeks after landing. That's because InSight's science goals and instruments are very different from other Mars landers or rovers that have gone before. In some ways, InSight's science activities are more like a marathon than a sprint. The lander team must carefully select where to place the precious science instruments, which will be the first to study the interior of Mars.

The dust from landing settled about 15 minutes after InSight made it to the surface. After this, the solar array motors warmed up and prepared to unfurl the solar panels. This is an important activity that ensured that the lander has all the power it needs to get to work on Mars.

Key Facts:

Launched: 5th May 2018 (4.05am Pacific Time/7.05am ET)

Launch Vehicle: Atlas V-401

Launch Location: Vandenberg Air Force Base, California, USA

Landed: 26th November 2018 at 11:52:50 am PT (2:52:59 pm ET)

Landing Site: Elysium Planitia, Mars

Mission Duration: A little over 1 Mars year (2 Earth years); 709 Sols (Mars days), or 728 Earth days