



## InSight on Mars

After a seven-month journey, Nasa's Mars InSight probe has reached its destination and touched down near the red planet's equator.

- InSight (Interior Exploration using Seismic Investigations, Geodesy and Heat Transport) is on a 24-month mission.
- InSight will **study the interior of Mars**.
- The landing site is **Elysium Planitia** (a flat-smooth plain just north of the equator considered to be the perfect location from which to study the deep Martian interior), where InSight can stay still and quiet all through.
- It is NASA's first attempt to touchdown on Mars since the **Curiosity rover** arrived in 2012.
- More than half of 43 attempts to reach Mars with rovers, orbiters, and probes by space agencies from around the world have failed. For example, in October 2016, the European Space Agency lost its ExoMars Schiaparelli craft during an attempted Mars landing.
- From Earth, NASA team will be monitoring radio signals using a variety of spacecraft — and even radio telescopes on Earth.

### Significance

- Mars InSight's goal is to listen for **quakes and tremors** as a way to unveil the Red Planet's inner mysteries.
- The mission seeks to answer critical questions about **rocky planet formation in the early days of the solar system**.
- The InSight mission will bring several martian "firsts" to interplanetary science, including the first **seismometer** situated on the surface, **to detect and analyze waves** created by "marsquakes"
- Measuring Marsquakes will give **information on Mars' internal structure** and reveal more information like the smaller size and lesser density of Mars as compared to Earth and Venus.
- With InSight, **scientists hope to compare Earth to Mars**, and better understand how a planet's starting materials make it more or less likely to support life.
- Mission scientists will use antennas on the lander to track its position to **deduce how much Mars wobbles on its axis**. The amount of wobble reflects the size of the planet's core and whether it is molten or solid.
- Earth's rotating iron core generates the magnetic field which prevents the atmosphere from being stripped away by high-energy particles in the solar wind, thereby shielding life from harmful radiation,
- However, Mars lost its magnetic field and much of its atmosphere, causing temperatures to drop and exposing the surface to intense radiation. InSight may help explain this anomaly.
- The stationary lander also carries a six-foot **robotic arm** and a self-hammering "nail" instrument that will burrow itself 16 feet into the ground **to study heat transfer**.