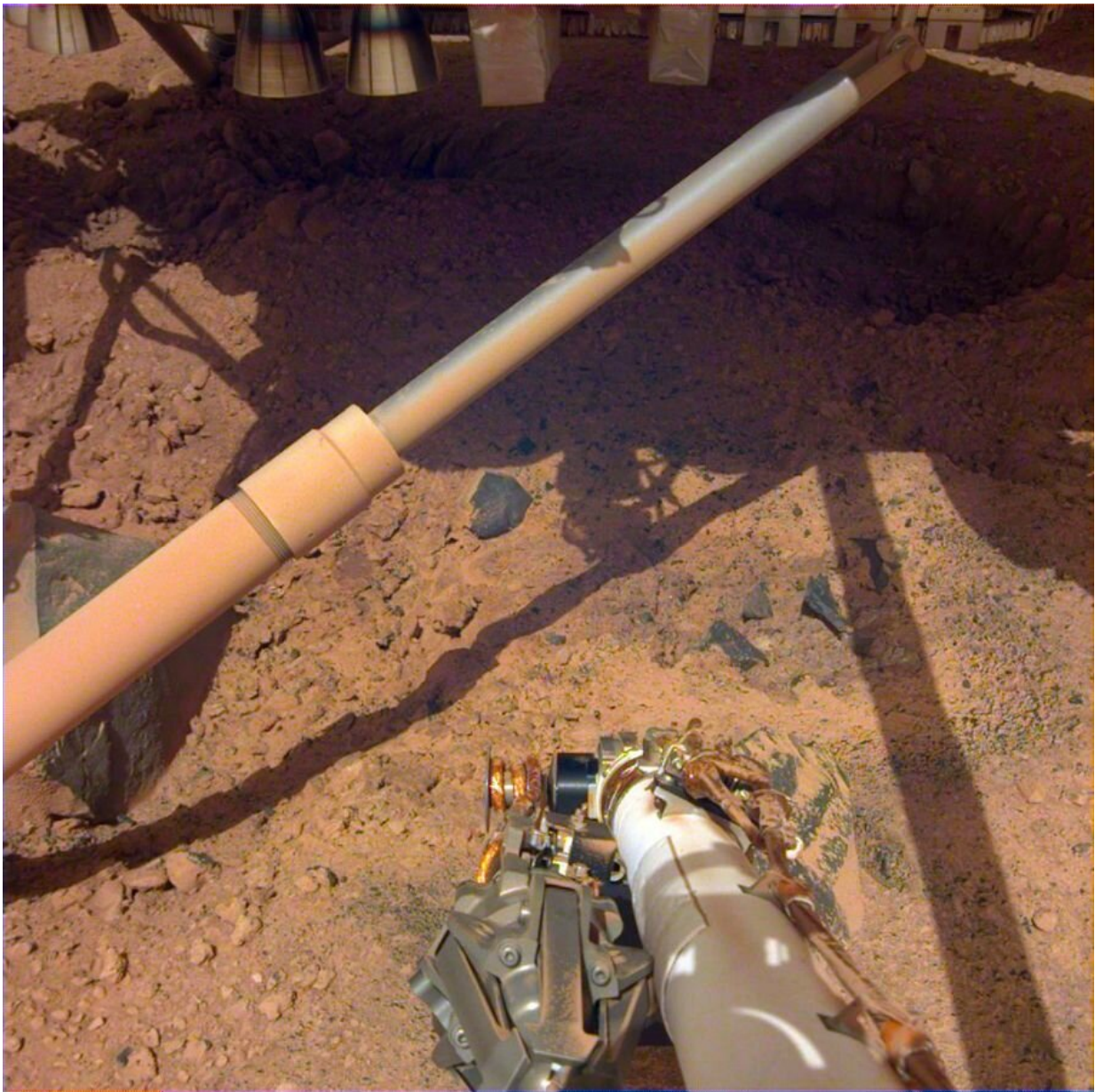


This is what the ground looked like after inSight landed on Mars

June 17 2019, by Evan Gough



Credit: NASA/JPL-Caltech

When InSight landed on Mars on Nov. 26th, 2018, it deployed a parachute to slow its descent through the thin Martian atmosphere. As it approached the surface, it fired its retro rocket to slow it even more, and then gently touched down on the surface. As it did so, its retro rockets excavated two small pits in the Martian soil.

Once InSight was settled on the smooth surface of Elysium Planitia, it took stock of its surroundings and checked out its systems. On December 14th, the 18th Martian day (sol) of the lander's projected 709 sol mission, it used its Instrument Deployment Camera (IDC) to capture this image of the gnarly Martian surface. Clearly visible are two pits excavated by the lander's rockets.

InSight's mission is to understand the internal structure of Mars. In turn, scientists will learn how Mars, and other [rocky planets](#) in the solar system, formed.

It's safe to say that InSight's primary instrument is the Heat Flow and Physical Properties Package (HP3.) HP3 has to hammer its way into the surface of Mars to do its job, and it's having [problems](#). As reported in Universe Today last week, HP3, or the Mole, as it's known, has stalled at a depth of about 30 cm (11.8 inches.)

NASA and DLR engineers are working on the problem, and they think that cavities have opened up between the Mole and the soil. Since the hammering action of the Mole relies on friction with the soil to penetrate to its required working depth, these cavities are creating problems. Engineers are going to try to use InSight's [robotic arm](#) to lift the Mole's support structure away from the probe.

Once they've lifted it away, they can get a better look into the hole and see what the problem is. They may also be able to use the arm to help the Mole work its way into the soil. The problem is, there's a risk of removing the Mole from the [soil](#). And if that happens, it's likely game over. They have no way of gripping the Mole directly and placing it somewhere else.



NASA produced this contrast-enhanced image to better show the detail of the two pits. Credit: NASA/JPL-Caltech



The Heat Flow and Physical Properties Package deployed on the Martian surface. Credit: NASA/DLR

Provided by Universe Today

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