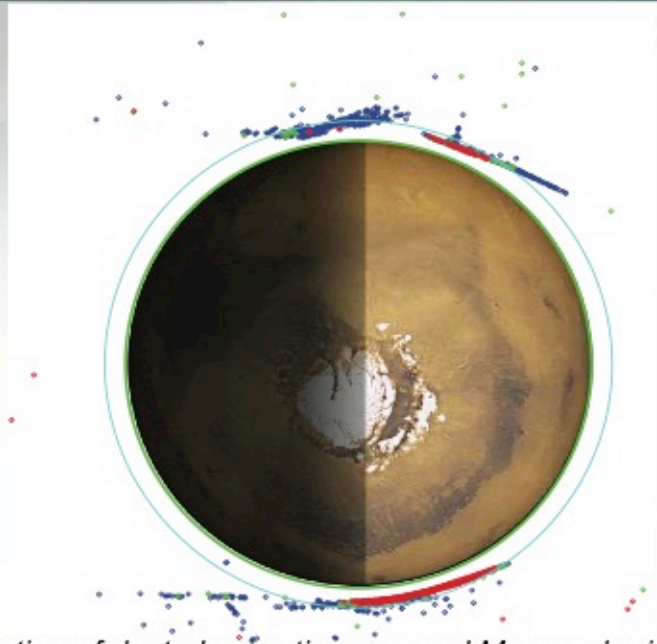
MAVEN Observes Mysterious Dust Cloud Surrounding Mars

NASA's Mars Atmosphere and Volatile Evolution (MAVEN) mission has observed an unexplained high-altitude dust cloud around Mars. The presence of the dust at orbital altitudes from about 93 miles (150 kilometers) to 190 miles (300 kilometers) above the surface was not predicted. Although the source and composition of the dust are unknown, there is no hazard to MAVEN and other spacecraft orbiting Mars.

The cloud was detected by MAVEN's Langmuir Probe and Waves (LPW) instrument, and has been present the whole time MAVEN has been in operation. It is unknown if the cloud is a temporary phenomenon or something long lasting. The cloud density is greatest at lower altitudes. However, even in the densest areas it is still very thin. So far no indication of its presence has been seen in observations from any of the other MAVEN instruments.



Distribution of dust observations around Mars; color is dust-signature amplitude – blue = weakest, red = strongest)

Possible sources for the observed dust include dust wafted up from the atmosphere; dust coming from Phobos and Deimos, the two moons of Mars; dust moving in the solar wind away from the sun; or debris orbiting the sun from comets. However, no known process on Mars can explain the appearance of this dust in the observed locations from any of these sources.