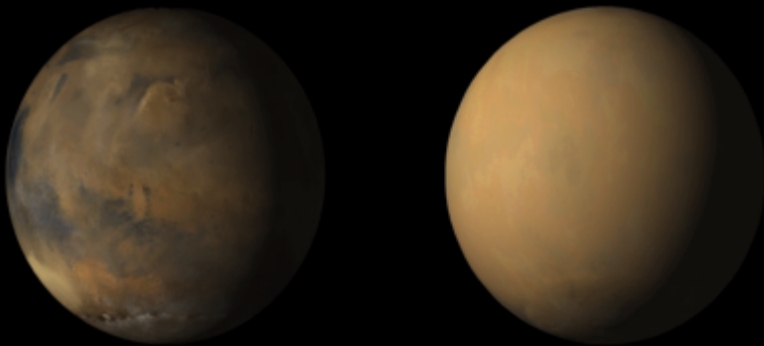
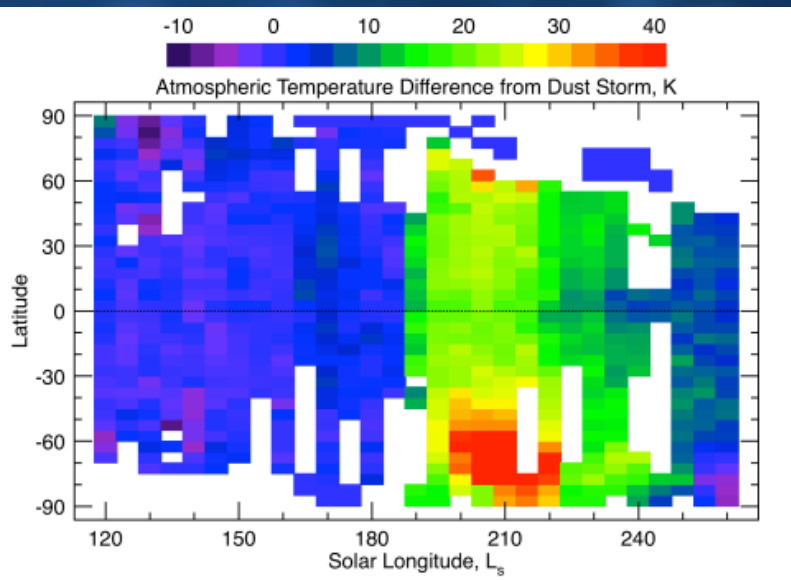


# The Great Mars Dust Storm of 2018



MRO's Mars Context Imager (MARCI) images (above) show Mars before (left) and during (right) the 2018 PEDE; Mars Odyssey's THEMIS data (below) on the atmospheric temperature difference caused by the dust.



***A planet-encircling dust event (PEDE), covered Mars for five months in 2018, and resulted in the operational loss of the Opportunity rover.***

- Multiple instruments on two orbiters obtained observations, atmospheric profiles of temperature, dust and ice during the PEDE.
- On Earth, water vapor plays the dominant role in influencing weather, with dust and other components contributing but on Mars, dust plays the *principal* role in controlling the Martian weather. PEDEs blanket all of Mars in thick dust, and tropical temperatures are significantly warmer than in regional dust storms, indicating global storms are a distinct class of events.
- During the 2018 global event, THEMIS observations showed a temperature increase of more than 40 K in some places. The 2018 PEDE was remarkably similar to the 2001 global dust event.
- Understanding the fundamental physics of mineral dust emission and transport helps inform us of its effects on Earth's climate, and better understand processes on Mars as we prepare to send human explorers.