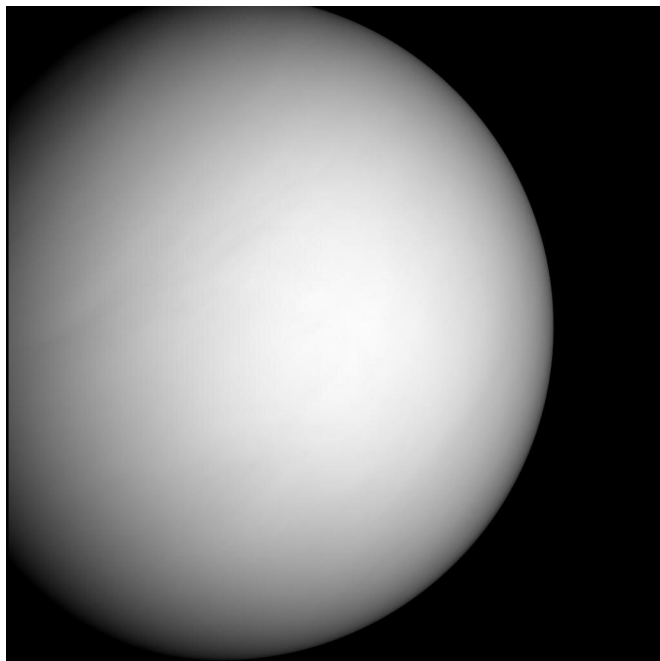


Venus plots a comeback

31 March 2021



Venus as captured by NASA's MESSENGER spacecraft on June 5, 2007. On the same day, MESSENGER's neutron spectrometer collected data about neutrons emitting from Venus' atmosphere, which scientists later realized could reveal details about nitrogen concentrations in the atmosphere. Credit: NASA/Johns Hopkins APL/Carnegie Institution of Washington

In terms of space exploration, Mars is all the rage these days. This has left our closest neighbor, Venus—previously the most attractive planet to study because of its proximity and similar atmosphere to Earth—in the lurch. A new article in *Chemical & Engineering News*, the weekly newsmagazine of the American Chemical Society, highlights how scientists and space agencies are turning their eyes back toward Venus to learn more about its atmosphere and geology.

From the 1950s to the late 1980s, Venus was a favored planet for scientists to study, writes Associate Editor Sam Lemonick. From our vantage

point here on Earth, its atmosphere looks similar to our own, but closer examinations from USSR and NASA missions revealed that the surface of Venus is over 450 C with an atmospheric pressure nearly 100 times that of Earth. This led researchers to pivot away from studying our closest planetary neighbor until the turn of the century. In more recent years, missions led by the European Union and Japan have revealed that Venus has much more complex atmospheric chemistry than previously thought. These findings have generated renewed interest from scientists, who believe further study of Venus could provide insights about the chemistry of planets far beyond our reach.

These new revelations have led [space](#) agencies to plan their next missions to Venus. The Indian Space Research Organization (ISRO) is planning an orbiter launch in 2024, and Russia's Roscosmos is aiming for a lander [mission](#) in 2029. NASA, the European Space Agency, China and a private company are also mulling plans for their own trips. These missions will likely focus on the geology of Venus rather than its atmosphere, as modern technology will allow for greater insight into the surface of the planet. ISRO's planned mission will use radar and infrared spectrometry to gather data over a four-year period. NASA's two proposed missions would study Venus's atmospheric chemistry and geochemistry, respectively. Experts advocating for renewed Venus missions say that the efforts will help scientists better understand planets in our own solar system and beyond, and could provide insights into the prevalence of life in the universe.

More information: "What can we learn from Venus?", cen.acs.org/physical-chemistry/...rn-from-Venus/99/i11

Provided by American Chemical Society

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