

New evidence hints at volcanic activity within Venuses' Idunn Mons

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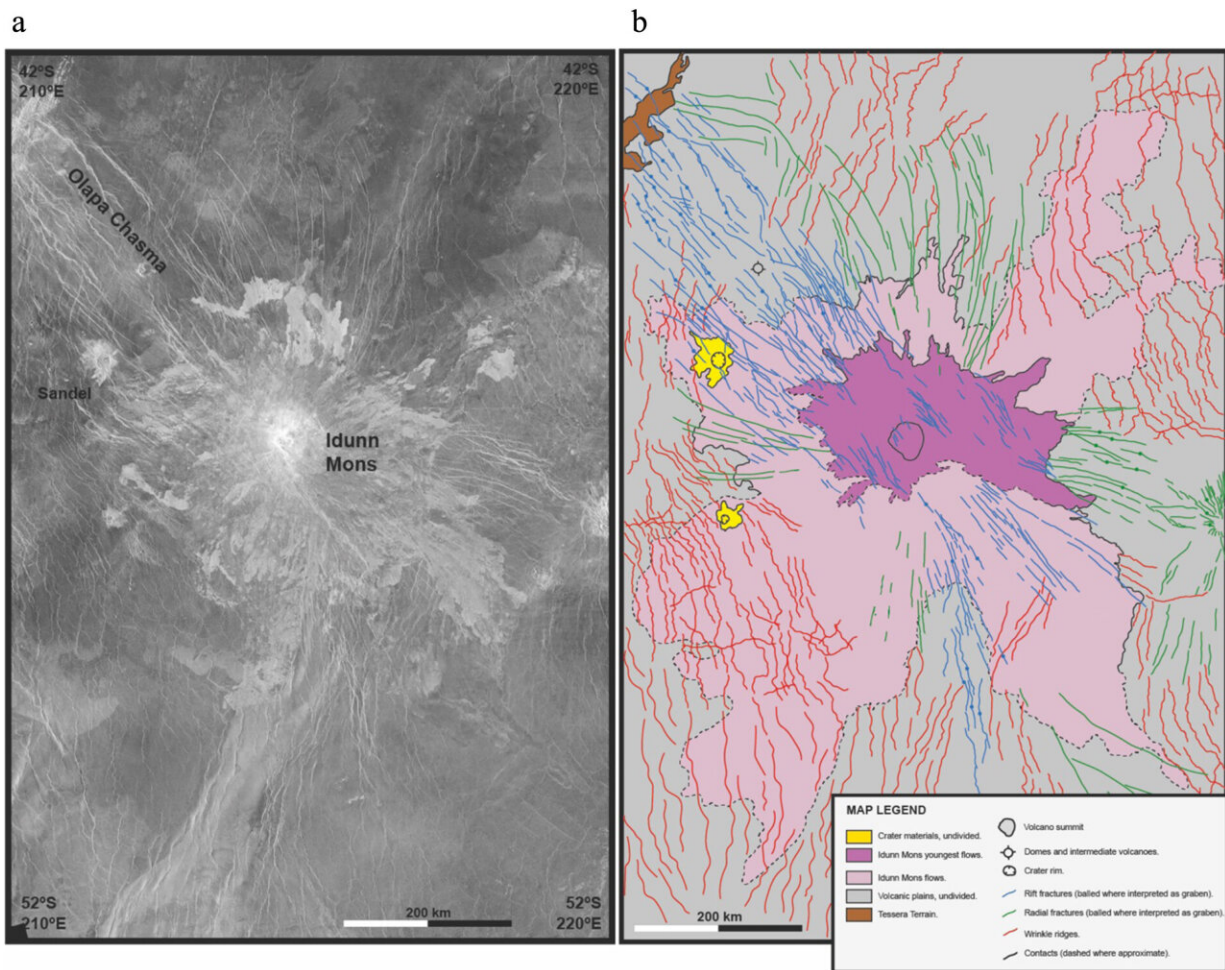


Figure 1. (a) Left-looking Magellan radar image of Olapa Chasma, Idunn Mons, and Sandel crater. (b) Simplified geologic map of the Olapa Chasma–Idunn Mons volcano-tectonic system. Credit: DOI: 10.3847/PSJ/ac2258

An international team of researchers has found evidence that suggests possible volcanic activity involving Venuses' Idunn Mons. In their paper published in *The Planetary Science Journal*, the group describes the evidence they found, but also note that their theories cannot be confirmed until new spacecraft are sent to Venus.

Prior research has found Venus to be an inhospitable place. Roughly the size of Earth, it has a very dense atmosphere made mostly of [carbon dioxide](#) filled with sulfuric acid clouds. It also has extreme atmospheric pressure and is very hot. Surface temperatures average 464 degrees Celsius. Prior research has also hinted at the possibility of widespread volcanic [activity](#) but to date, no direct evidence of it has been found. In this new effort, the researchers tied together separate pieces of data to support the case of volcanic activity involving Idunn Mons—a volcano situated on the Imbr Regio area, approximately 2.4 kilometers high and covering over 200 kilometers of [surface](#) area.

The researchers began with data from the Venus Express orbiter, which circled the planet from 2006 to 2014. It showed what looked like lava flows around Idunn Mons. The researchers noted that recent work by another team showed that lava on the surface of Venus would degrade faster than previously thought—so fast that any [lava](#) on the surface would have originated within the past 1,000 years. They also found that winds around Idunn Mons were being disrupted, possibly due to heat emanating from the volcano, suggesting it is still active. The researchers also note that there have been thus far unexplainable signals coming from Idunn Mons, which, they suggest, could very well be due to volcanic activity.

The researchers acknowledge that all of their evidence is circumstantial, which means that they have not found direct evidence of volcanic activity on Venus. But they also point out that there are two planned missions that involve sending probes to Venus in the near

future—VERITAS and DAVINCI+—either of which could send back data that might confirm what they have suspected all along—that Venus is rife with volcanic activity. If such a finding is made, it might also explain how Venus lost its oceans and became so inhospitable.

More information: P. D'Incecco et al, Idunn Mons: Evidence for Ongoing Volcano-tectonic Activity and Atmospheric Implications on Venus, *The Planetary Science Journal* (2021). [DOI: 10.3847/PSJ/ac2258](https://doi.org/10.3847/PSJ/ac2258)

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