

## **1. Magellan Mission**

### **Why in News?**

- NASA Magellan spacecraft has recently captured images of Venus' surface from different orbits. A few locations, including those suspected to have volcanic activity, were observed two or three times over two years

### **Highlights**

- A study looking into decades-old radar images gave new evidence of having active volcanoes on Venus.
- A 2.2 square kilometre volcanic vent on Venus changed shape in eight months, indicating volcanic activity.
- A volcanic vent is a spot through which molten rock erupts.
- It showed signs of drained lava, the radar images indicated that the same vent had doubled in size and the lava lake seemed to have reached the rim. The vent is associated with Maat Mons.
- Maat Mons is the planet's second-highest volcano. It sits in the Atla Regio, a vast highland region near Venus' equator. These changes were likely due to lava flow escaping the vent, hinting at a possible volcanic activity.
- NASA's Magellan mission to Venus was one of the most successful deep space missions.
- It was the first spacecraft to image the entire surface of Venus and made several discoveries about the planet it was launched on May 4, 1989.
- On October 13, 1994, communication with Magellan was lost when it was instructed to descend into the atmosphere of Venus.
- The Indian Space Research Organisation is also working on Shukrayaan-1 to study Venus. The orbiter will likely study the planet's geological and volcanic activity, emissions on the ground, wind speed, cloud cover, and other planetary characteristics from an elliptical orbit
- The new study will help to identify target areas for future missions such as Europe's Envision that is scheduled to launch in 2032.
- Two missions are being planned to Venus that are NASA's VERITAS and DAVINCI are expected to observe Venus in the 2030s.