

## Liquid Water Lake in Mars

### What is the issue?

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- Scientists have recently discovered a liquid water 'lake' in Mars.
- This is expected to facilitate a better understanding on the likely presence of life on Mars.

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### What is the recent finding?

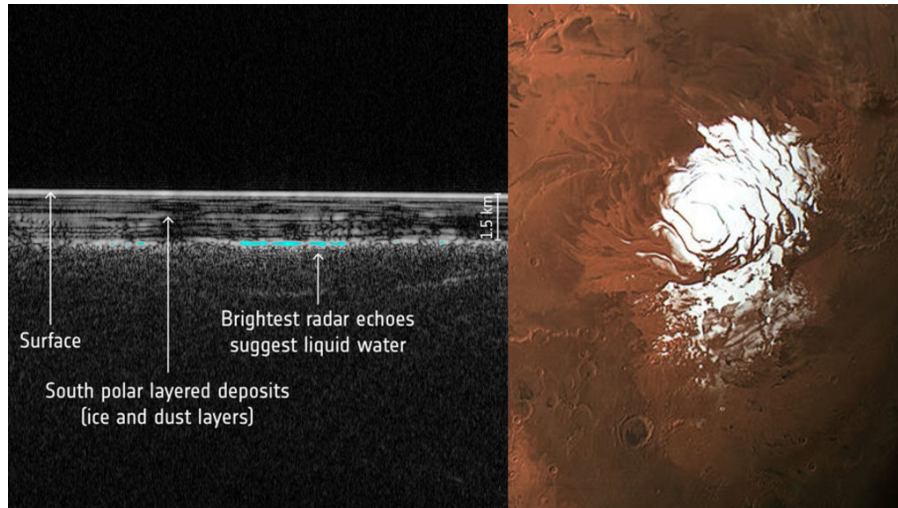
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- **Mission** - An 11-member Italian team of researchers surveyed the Planum Australe region, or the southern polar plains of Mars.
- They used the Mars Advanced Radar for Subsurface and Ionosphere Sounding (MARSIS) instrument.
- This is a low-frequency radar on board the European Space Agency's Mars Express Orbiter.
- The instrument beams radar pulses down to the planet's surface and measures how the waves reflect back to the spacecraft.
- This would give information on the kind of materials, even below the surface.
- **Findings** - The team had discovered a lake stretching for 20-km.
- It is found 1.5 km under the southern polar ice cap of Mars.
- Despite temperatures at about  $-68^{\circ}$  C, the water remains in a liquid form.
- The radar profile of the lake closely matches those of subglacial lakes on Earth, beneath the ice sheets of Greenland and Antarctica.

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## How in liquid form?

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- Atmospheric pressure on the Martian surface is almost a hundred times less than on Earth.
- This ensures that water would not be in liquid form, but rather, as ice or vapour.
- So the presence of water is much beneath the surface.
- The liquid form could be due to the heavy presence of sodium, magnesium and calcium salts.
- This may reduce the temperature and help it retain liquid form.
- This, along with the immense pressure of the ice from above, lowers the freezing point.

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## What is the significance?

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- The majority of modern Mars is dry and barren.
- But plenty of evidence has been found that the Red Planet used to be a much

wetter place.

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- However, any liquid water was believed to be transitional, in short-lived pools or flowing down hillsides in the Martian summer.

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- So the discovery of a large, stable, stagnant lake on Mars is significant.

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- It offers new potential targets for future missions and places, to search for signs of past or present microbial life.

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- However, the sheer saltiness of the spot raises doubts to this belief.

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**Source: Indian Express, NewAtlas**

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