Liquid Water Lake in Mars

What is the issue?

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- Scientists have recently discovered a liquid water 'lake' in Mars.
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- 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.
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- They used the Mars Advanced Radar for Subsurface and Ionosphere Sounding (MARSIS) instrument.
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- This is a low-frequency radar on board the European Space Agency’s Mars Express Orbiter.
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- The instrument beams radar pulses down to the planet's surface and measures how the waves reflect back to the spacecraft.
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- This would give information on the kind of materials, even below the surface.
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- **Findings** - The team had discovered a lake stretching for 20-km.
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- It is found 1.5 km under the southern polar ice cap of Mars.
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- Despite temperatures at about -68° C, the water remains in a liquid form.
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- 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.
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- This ensures that water would not be in liquid form, but rather, as ice or vapour.
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- So the presence of water is much beneath the surface.
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- The liquid form could be due to the heavy presence of sodium, magnesium and calcium salts.
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- This may reduce the temperature and help it retain liquid form.
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- 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.
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- 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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