

# 'Pack ice' suggests frozen sea on Mars

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<http://www.newscientist.com/channel/space/dn7039>

Here is a first glimpse at the embargoed papers related to this article, including images and data:

<ftp://www.lpi.usra.edu/pub/outgoing/lpsc2005/full197.pdf>

a.. 11:48 21 February 2005

a.. NewScientist.com news service

a.. Kelly Young

A frozen sea, surviving as blocks of pack ice, may lie just beneath the surface of Mars, suggest observations from Europe's Mars Express spacecraft. The sea is just 5° north of the Martian equator and would be the first discovery of a large body of water beyond the planet's polar ice caps.

Images from the High Resolution Stereo Camera on Mars Express show raft-like ground structures – dubbed "plates" – that look similar to ice formations near Earth's poles, according to an international team of scientists.

But the site of the plates, near the equator, means that sunlight should have melted any ice there. So the team suggests that a layer of volcanic ash, perhaps a few centimetres thick, may protect the structures.

"I think it's fairly plausible," says Michael Carr, an expert on Martian water at the US Geological Survey in Menlo Park, California, who was not part of the team. He says scientists had previously suspected there was a past water source north of the Elysium plates. "We know where the water came from," Carr told New Scientist. "You can trace the valleys carved by water down to this area."

He says the evidence is "compelling" for past flooding near the plates. "Maybe the ice is still there in the ground, protected by a volcanic cover, as they suggest," he says.

There is abundant evidence for the past presence of water on Mars but today it appears relatively dry, with water ice confined to the planet's polar caps. Remote observations of hydrogen atoms by NASA's Odyssey spacecraft in 2002 hinted that ice might be locked in the top metre of soil at lower latitudes. But

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the evidence was inconclusive as the signal could have come from minerals exposed to water in the past.

45 metres deep

The team of researchers, led by John Murray at the Open University, UK, estimates the submerged ice sea is about 800 by 900 kilometres in size and averages 45 metres deep. Images of the pack-ice-like plates can be seen in this PDF document, which was not embargoed when New Scientist first viewed it on 15 February.

The paper is for a presentation to be made at the Lunar and Planetary Science