

# Mars Express's OMEGA uncovers possible sites for life

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By mapping minerals on the surface of Mars using the European Space Agency's Mars Express spacecraft, scientists have discovered the three ages of Martian geological history and found valuable clues as to where life might have developed.

The new work shows that large bodies of standing water might only have been present on Mars in the remote past, before four thousand million years ago, if they were present at all.

The results come from the OMEGA instrument on board Mars Express. In one Martian year (687 Earth days) of operation, OMEGA mapped 90 percent of the surface, allowing the identification of a variety of minerals and the processes by which they have been altered during the course of Martian history. The maps have allowed scientists to identify three geological eras for Mars.

The 'phyllosian' era, occurred between 4.5–4.2 thousand million years ago, the 'theikian', took place between 4.2 and 3.8 billion years ago and the 'siderikian', began sometime around 3.8–3.5 billion years ago and continues today.

The era most likely to have supported life was the phyllosian, when clay beds could have formed at the bottom of lakes and seas, providing the damp conditions in which the processes of life could begin.

After this initial period, water largely disappeared from the planet's

surface either by seeping underground or being lost into space. Except for a few localised transient water events, Mars became dry.

The full results are published in the 21 April issue of the journal *Science*.

Source: BNSC

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