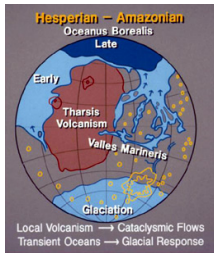


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By: Dan Talpalariu, Science Editor



Mars' ancient oceans  
spacefellowship

## [A Third of Mars May Have Been Water-Covered](#)

*New research indicates the presence of oceans on Mars in the past*

The data collected by the Gamma Ray Spectrometer (GRS) device installed aboard NASA's Mars Odyssey probe helped the international group of experts who analyzed it reach the conclusion that the red planet may have been covered by an ocean in a proportion of about 33%. This result sheds new light on the decades long controversial theory related to the presence, provenience and evolution of [water on Mars](#).

"We compared Gamma Ray Spectrometer data on potassium, thorium and iron above and below a shoreline believed to mark an ancient ocean that covered a third of Mars' surface, and an inner shoreline believed to mark a younger, smaller ocean," explained James M. Dohm, the planetary geologist from the University of Arizona who led the study, quoted by [Space Fellowship](#). "Our investigation posed the question, 'Might we see a greater concentration of these elements within the ancient shorelines because water and rock containing the elements moved from the highlands to the lowlands, where they eventually ponded as large water bodies?'"

The GRS instrument is uniquely able to depict chemical underground elements lying at a maximal depth of 0.33 meters (13 inches) via the gamma rays emitted by them. According to Dohm, the ancient volcanic activity and water conditions extracted, careened and re-sedimented materials like potassium, thorium and iron on the bottom of the past oceans and lakes. "The regions below and above the two shoreline boundaries are like cookie cutouts that can be compared to the regions above the boundaries, as well as the total region," explains the expert.

As can be seen in the picture, a larger ocean, once present on a third of Mars' surface, withdrew, forming a smaller one, the size of the North American continent, with a major impact on climate. Scientists still have a problem determining the exact shorelines for both oceans since they are not comparable to their Earth counterparts, as there's no Moon tidal influence on Mars, while the oceans on our neighboring planet may have been covered by ice, limiting the impact of wave activity.

Still, much more information is required until conclusions related to Mars' watery past can be drawn with enough certainty. "The GRS adds key information to the long-standing oceans-on-Mars controversy," stated Dohm. "But the debate is likely to continue well into the future, perhaps even when scientists can finally walk the Martian surface with instruments in hand, with a network of smarter spaceborne, airborne and ground-based robotic systems in their midst."