Mars Loses an Ocean But Gains the Potential for Life

By Bob King | Universe Today

It’s hard to believe it now looking at Mars’ dusty, dessicated landscape that it once possessed a vast ocean. A recent NASA study of the Red Planet using the world’s most powerful infrared telescopes clearly indicate a planet that sustained a body of water larger than the Earth’s Arctic Ocean.

If spread evenly across the Martian globe, it would have covered the entire surface to a depth of about 450 feet (137 meters). More likely, the water pooled into the low-lying plains that cover much of Mars’ northern hemisphere. In some places, it would have been nearly a mile (1.6 km) deep.

Now here’s the good part. Before taking flight molecule-by-molecule into space, waves lapped the desert shores for more than 1.5 billion years – longer than the time life needed to develop on Earth. By implication, life had enough time to get kickstarted on Mars, too.

Using the three most powerful infrared telescopes on Earth – the W. M. Keck Observatory in Hawaii, the ESO’s Very Large Telescope and NASA’s Infrared Telescope Facility – scientists at NASA’s Goddard Space Flight Center studied water molecules in the Martian atmosphere. The maps they created show the distribution and amount of two types of water – the normal H2O version we use in our coffee and HDO or heavy water, rare on

Earth but not so much on Mars as it turns out.

In heavy water, one of the hydrogen atoms contains a neutron in addition to its lone proton, forming an isotope of hydrogen called **deuterium**. Because deuterium is more massive than regular hydrogen, heavy water really is heavier than normal water just as its name implies. The new "water maps" showed how the ratio of normal to heavy water varied across the planet according to location and season. Remarkably, the new data show the polar caps, where much of Mars' current-day water is concentrated, are highly enriched in deuterium.

On Earth, the ratio of deuterium to normal hydrogen in water is 1 to 3,200, but at the Mars polar caps it's 1 to 400. Normal, lighter hydrogen is slowly lost to space once a small planet has lost its protective atmosphere envelope, concentrating the heavier form of hydrogen. Once scientists knew the deuterium to normal hydrogen ratio, they could directly determine how much water Mars must have had when it was young. The answer is A LOT!

Only 13% of the original water remains on the planet, locked up primarily in the polar regions, while 87% of the original ocean has been lost to space. The most likely place for the ocean would have been the northern plains, a vast, low-elevation region ideal for cupping huge quantities of water. Mars would have been a much more earth-like planet back then with a thicker atmosphere, providing the necessary pressure, and warmer climate to sustain the ocean below.

[Read more here]

Robert O'Leary, JD BARA, has had an abiding interest in alternative health products and modalities since the early

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