

Health

# Thirsty rocks may contain the missing water of Mars

## Researchers put scientific modeling to the test

PARIS: What happened to all the water that once sloshed in lakes and oceans on Mars? Much of it, researchers proposed Wednesday, may be locked up in stone. Previous studies had concluded that the water was swept into space by powerful solar winds when the planet's magnetic field collapsed, while some was captured in sub-surface ice. But this did not account for all the missing water.

To try to track down the rest, an international team of researchers put scientific modeling to the test. "The results revealed that the basalt rocks on Mars can hold approximately 25 percent more water than those on Earth, and as a result drew the water from the Martian surface into its interior," said a statement from Oxford University, where scientists took part in the study.

As on Earth, chemical weathering and hydrothermal reactions can change minerals in rock from dry to water-bearing, study co-author Jon Wade of Oxford said. But Martian rock, because of a different composition, is much better at doing so. Such rocks would have reacted with the surface water on Mars, locking some of it up in their mineral structure, Wade said in an email.

"It is not liquid anymore but physically bound in the mineral," he said—which means the only way to release the water would be to melt the rock. On an infant Earth, water-bearing rocks formed in a similar way would have floated on the planet's super-hot surface until



IN SPACE: This handout picture shows Mars through time: Current Mars, red, dead and dry on the left, in contrast with the same landscape covered in water, early in the planet's history, over 3 billion years ago.—AFP

they melted, releasing water back to the surface as they did. But on Mars, not all the rock would have melted and some of the water would have remained trapped in rock that sank straight to the mantle. "In essence, Mars was doomed by its geochemistry!" Wade said.

Liquid water is a prerequisite for life as we know it. And although it is dry and dusty today, the Earth's neighbor is thought to have

been a wet planet once. In 2015, NASA said almost half of Mars's northern hemisphere had once been an ocean, reaching depths greater than 1.6 kilometers. Later that year, a study announced the discovery of "water" remaining on the fourth rock from the Sun, in the form of super-salty brine streaks running down steep slopes. The latest findings were published in the journal Nature.—AFP

Thursday. The smashup of the two ultra-dense stars observed on August 17 "confirmed several key astrophysical models, revealed a birthplace of many heavy elements, and tested the general theory of relativity as never before," said the report.

The blast, which occurred 130 million light-years away, is the kind of event that produces as much as half of the universe's gold, platinum, uranium and mercury, experts said. Shockwaves ran through the scientific community when the discovery was announced in October, after

being detected by gravitational wave sensors in the US and Europe, and some 70 telescopes and observatories around the world.

Bangalore Sathyaprakash from Cardiff University's School of Physics and Astronomy recalled the moment as "the most exciting of my scientific life." The magazine's annual rundown of the top advances of the past year also included the discovery of a new kind of orangutan, Pongo tapanuliensis, with just 800 believed to live in an isolated Indonesian forest.—AFP

## Discovery of neutron star collision is 'breakthrough' of 2017

MIAMI: The world's first-ever detection of two faraway neutron stars colliding, causing a massive blast that rippled through the fabric of space and time, was judged the scientific breakthrough of 2017, the journal Science said

## Hide holiday chocolate from your dog: Experts

PARIS: While Christmas may be a time of sweet indulgence for humans, for dogs it is a period of heightened risk of chocolate poisoning, experts warned on Thursday. With edible tree decorations, sweet-laden advent calendars and gift boxes aplenty, chocolate becomes "more accessible" meaning dog owners must be extra vigilant, a University of Liverpool research team said.

When eaten by dogs, chocolate in small doses can cause vomiting or diarrhea, and in large quantities it can lead to muscle tremors, seizures, an irregular heartbeat, internal bleeding or even heart attacks. It is responsible for about a quarter of all acute canine intoxication cases. "Chocolate ingestion has a unique seasonal pattern which merits highlighting this risk," the researchers wrote in the Vet Record journal after scrutinizing five years worth of data on chocolate poisoning from 229 British veterinary practices. Such cases increase fourfold over Christmas compared to the rest of the year, they found, while at Easter it was double. Young dogs were more likely to eat chocolate than older ones. "Sources of chocolate included bars and boxes (often gift selections) of chocolate, Easter eggs, chocolate cake, liqueurs, chocolate rabbits, Santa Claus figurines, advent calendars, and Christmas tree decorations," the research team wrote. There was "one case involving a hot chocolate drink."



BANGALORE: This file photo taken on March 23, 2016 shows an Indian dog breeder feeding chocolate to a four-month-old Korean Dosa Mastiff puppy during a press briefing.—AFP

### A garden of eggs

Reported doses were mostly small, except in one case involving "a garden of Easter eggs hidden for a large party of children," the team found. None of the cases were life-threatening. For dogs, the toxic element in chocolate is theobromine, with pet food maker Hills explaining on its website that while humans easily metabolise the substance, dogs process it much more slowly, "allowing it to build up to toxic levels in their system."

Darker chocolate contains more of the substance, and less than an ounce (28 grams) of dark chocolate is enough to poison a 22 kilogram dog. "If you are worried or suspect that your dog may have eaten a large quantity of chocolate... call your veterinarian immediately," the company advises. Chocolate is bad for cats too, but they are less likely to eat it. Unlike other mammals, they do not taste sweetness.—AFP

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