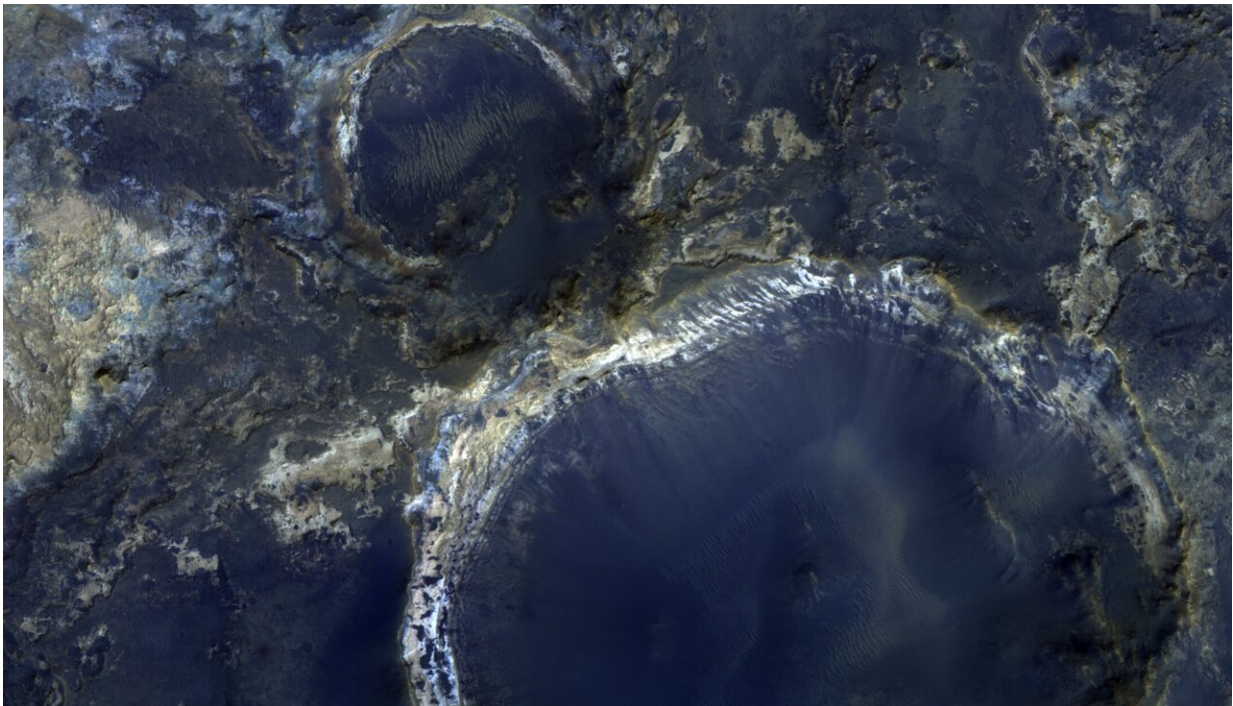


ExoMars Trace Gas Orbiter image exposes iron, magnesium and aluminum on Mars surface

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Credit: ESA/TGO/CaSSIS

Rusty in appearance and magnificent in detail, a new image of the Mawrth Vallis region on Mars reveals a world rich in iron, magnesium and aluminum.

Mars is known as the Red Planet for a reason. To the human eye, our planetary neighbor looks like a reddish dot in the night sky. The Martian surface is rich in [iron oxides](#) and minerals. The same way a bike chain sitting outside for a while gets rusty, the Martian soil and dust oxidize and turn reddish.

Cameras orbiting Mars can capture more colors than our eyes can see. The European Colour and Stereo Surface Imaging System (CaSSIS) onboard the ExoMars Trace Gas Orbiter (TGO) reveals a striking diversity of color.

This CaSSIS image exposes yellow layers containing iron and magnesium-rich clays, overlain by white and blue layers rich in aluminum. The area is draped by a dark, heavily eroded layer.

The metallic colors of this vibrant landscape tell a story of mineralogical diversity that started around 3.6 billion years ago. The area is located south of the dichotomy boundary—a ridge that encircles Mars, marking where the southern highlands meet the northern lowlands. Mawrth Vallis continues to intrigue scientists with its geological complexity. Liquid water did once run through this area, which was shortlisted as one of the most promising landing sites for the ExoMars Rosalind Franklin rover. Another region, Oxia Planum, was chosen as the spot where Rosalind Franklin will hunt for signs of life.

In the meantime, TGO keeps gathering information from orbit around Mars to understand its ancient past and potential habitability. TGO's full science mission began in 2018. The spacecraft is not only returning spectacular images, but also providing the best inventory of the planet's atmospheric gases and mapping the planet's surface for water-rich locations.

For six years, CaSSIS has been observing Mars in astonishing color,

capturing features from volcanic landscapes to active dust devils and colossal sand dunes.

Understanding the history of water on Mars and whether this once allowed life to flourish is at the heart of ESA's ExoMars missions.

Provided by European Space Agency

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