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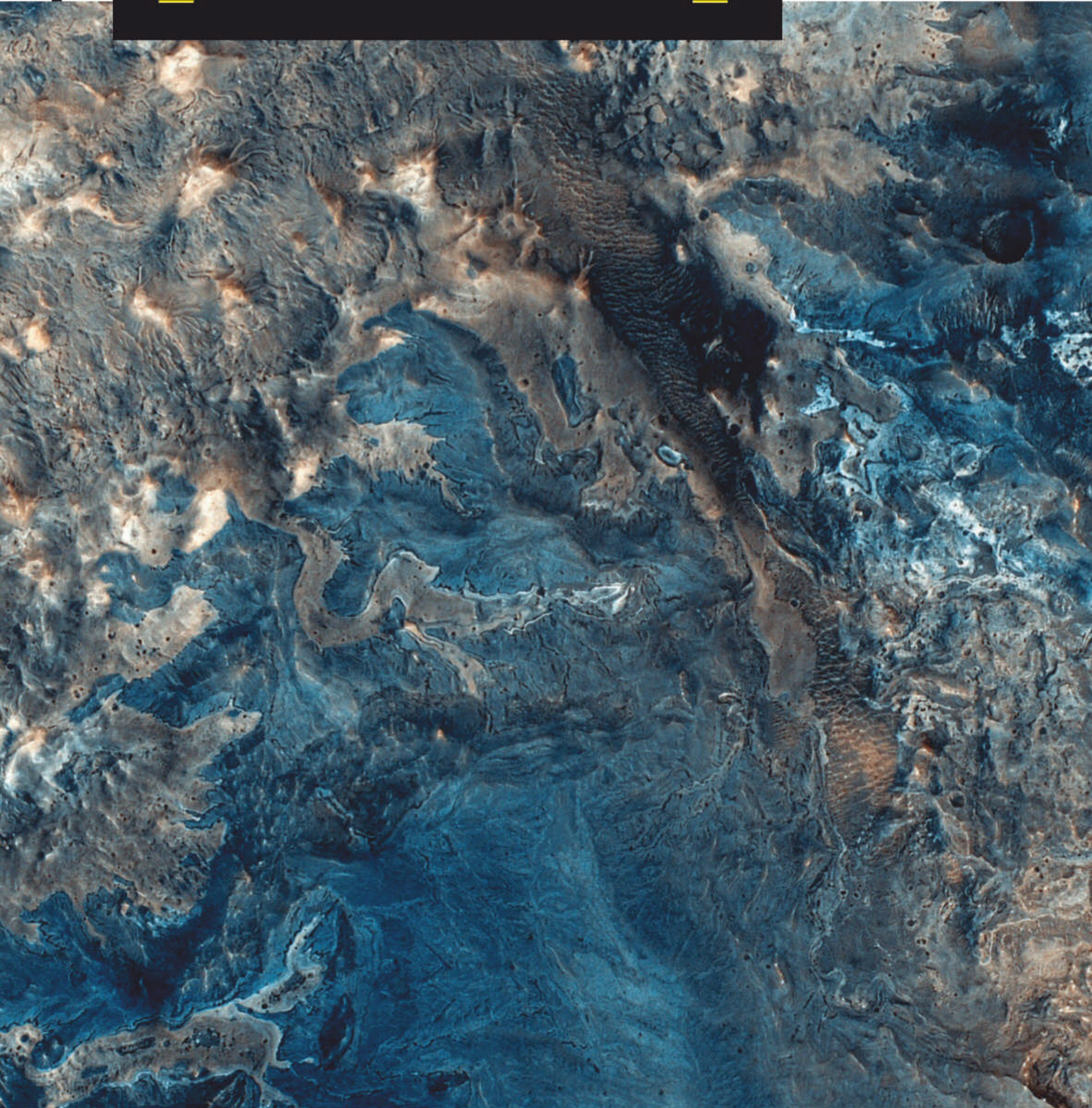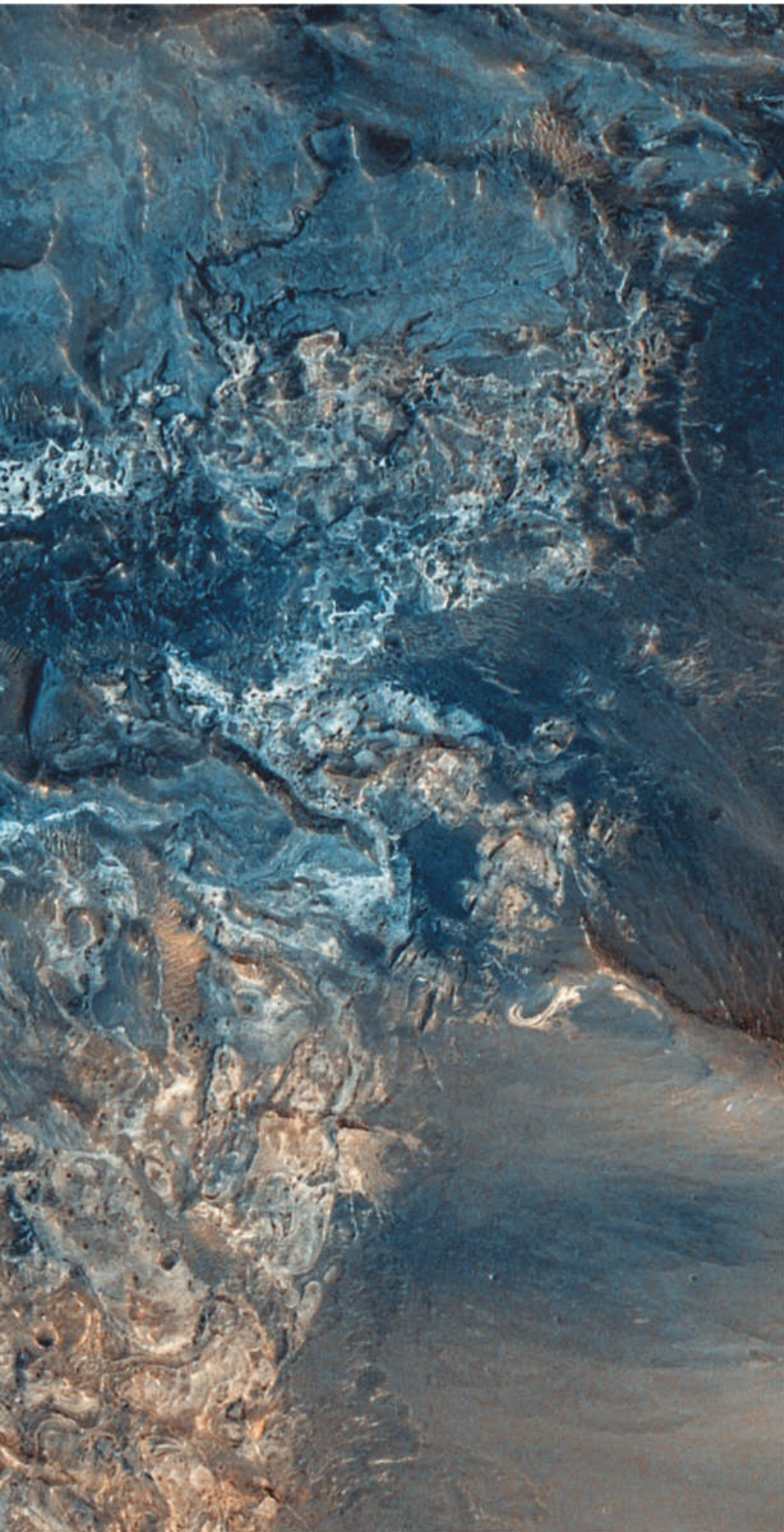
Springtime on Mars

Orbiting Mars since October 2016, the European Space Agency's ExoMars spacecraft has made a startling discovery: Mars is lovely in spring. The orbiter's camera has captured images such as ice receding from the southern highlands, an impact crater encompassing black dune fields surrounded by red soil, and this one—taken on May 5, 2020, just as Mars passed its spring equinox—which shows a part of the floor of the Ius Chasma canyon.

Ius Chasma is located in the western part of the Valles Marineris canyon system, which spans nearly a quarter of the circumference of Mars and is the largest known canyon in the solar system. But Ius Chasma itself is no slacker, measuring about 1,000 kilometers (621 miles) long and up to 8 kilometers (5 miles) deep, more than twice as long and four times as deep as Arizona's Grand Canyon. The varying colors on the canyon floor indicate different types of rock. Geologists believe that the lighter rocks are salts left behind after an ancient lake evaporated. By studying the role that water played in the formation of the canyon, researchers hope to develop a more precise timeline for climate change on ancient Mars.

The ExoMars orbiter is part one of a two-part mission, a collaboration between ESA and the Russian Space Agency Roskosmos. The orbiter's main task is to find out what the Martian atmosphere is made of. The camera that produces these spectacular landscape images is being used to produce detailed surface maps that could help scientists trace gases back to their source. ExoMars part two will get an even closer look at the red planet's surface in 2022, when a Russian-built lander will deploy the *Rosalind Franker* rover, which will search for further signs of life on scenic Mars.