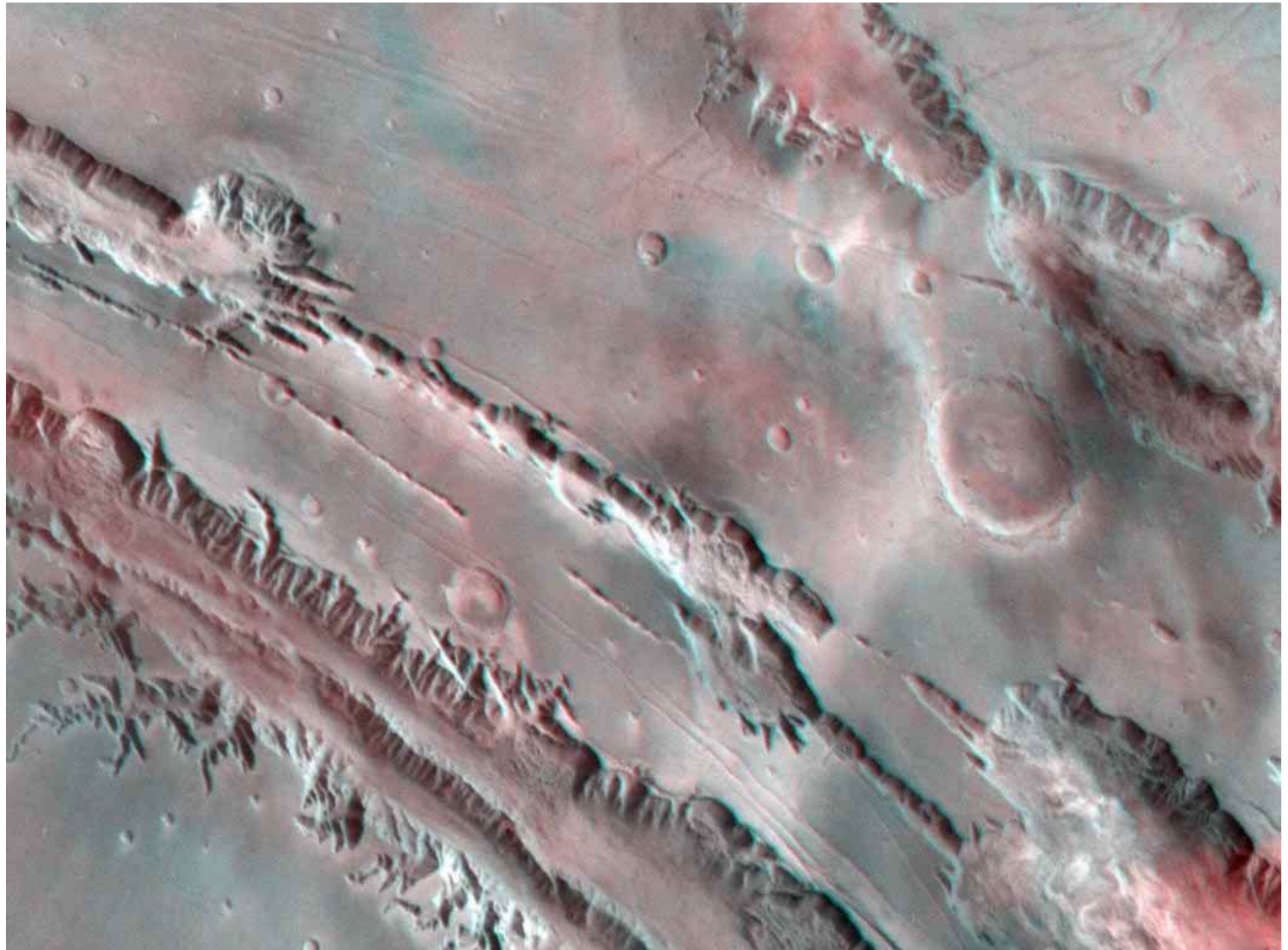


# Valles Marineris, Tharsis Region, Mars

The canyons of the Valles Marineris form a long series of parallel troughs up to 10 kilometers deep. Together, they are long enough to span the United States. This scene features an overview of the western fourth of the Valles Marineris from Tithonium and Ius Chasma to western Candor Chasma.

These canyons have a complex history. The canyons formed within the volcanic plains of the Tharsis Montes plateau. Fault scarps within the canyons indicate that tensional stresses fractured the crust in a radial pattern centered on the Tharsis plateau. The canyons were subsequently enlarged by several mechanisms, including landslides. Flowing groundwater probably produced the numerous side canyons, some of which are large enough to swallow the Grand Canyon.

The canyons were later partially filled by layered sediments. Layering suggests that these materials may have been deposited in lakebeds. These sediments have been eroded by winds into sculpted deposits. Volcanic or hydrothermal activity may have formed bright and dark deposits on the floors of some canyons. The high-resolution view of eastern Tithonium Chasma shows many of these features in detail.



*Use 3-D glasses to view image*

Location: 4.0° S, 81.5° W  
Mission: Viking  
Image Numbers: 040A45, 013A11

**3-D Tour of the Solar System**  
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