

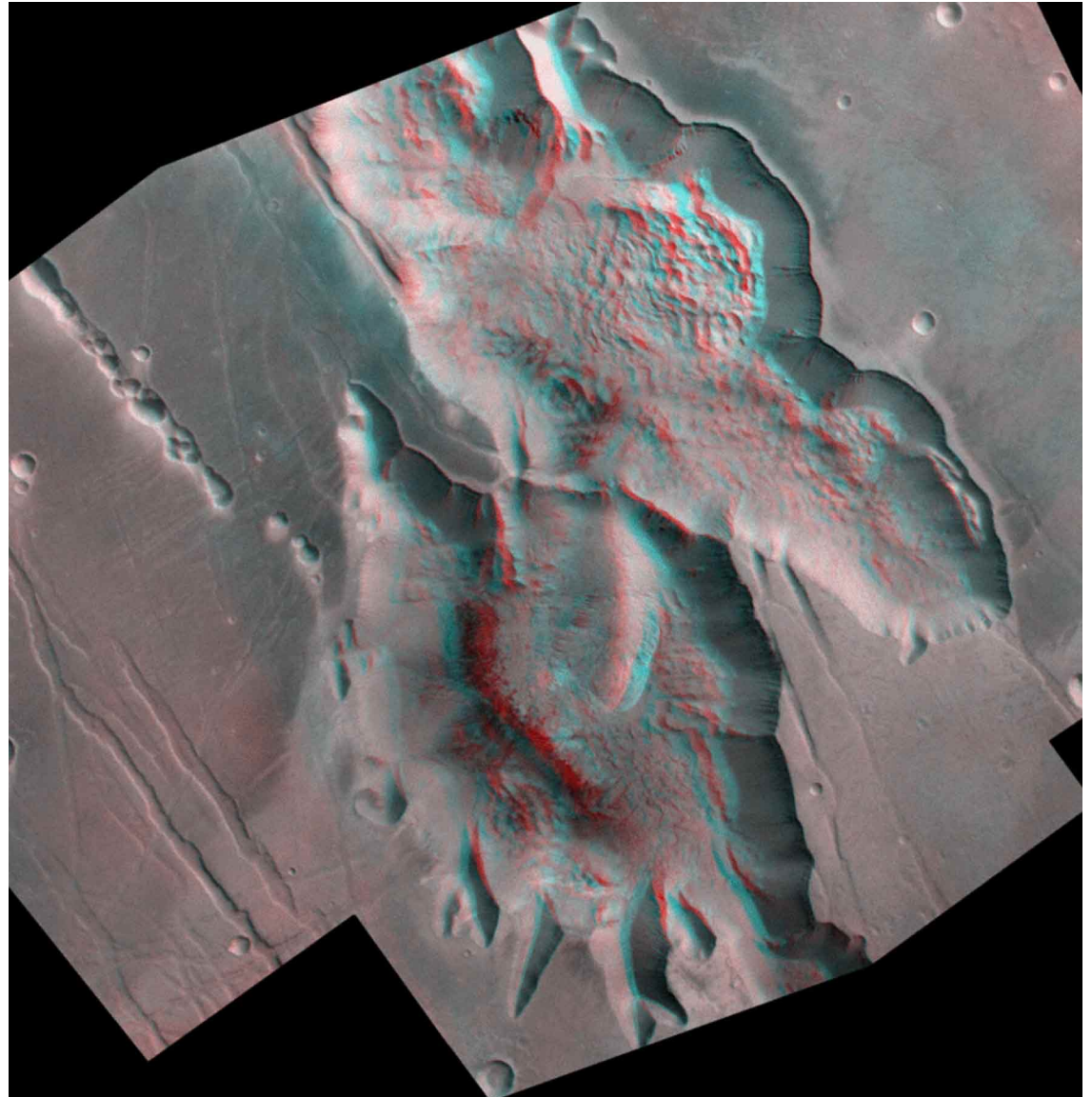
Tithonium Chasma Valles Marineris, Mars

Eastern Tithonium Chasma is one branch of the vast Valles Marineris canyon complex. Tithonium is 50 kilometers wide and over 6 kilometers deep in this area. In comparison, the Grand Canyon, one of the most impressive canyons on Earth, is only approximately 30 kilometers wide and 2 kilometers deep.

These canyons show many of the canyon-forming processes in detail. Landslides have enlarged the canyon walls and created debris deposits on canyon floors. Flowing groundwater has created numerous side canyons, and a thick layered deposit, eroded by winds, has formed in the center of the canyon. These canyons probably formed within the last 3 billion years.

The Valles Marineris canyon complex is a large rift in the martian crust. The canyons were initiated by extensional fracturing during the uplift of the Tharsis plateau. Landslides, groundwater flow, and erosion subsequently widened the canyons. The canyons were then partially filled by layered sediments, which may be lake sediments. These sediments have been eroded by winds into sculpted deposits. Limited volcanic or hydrothermal activity may have formed bright and dark deposits on the floors of some canyons.

Location: 5.5° S, 79.5° W
Quadrangle: MC-18 (Coprates)
Mission: Viking 1
Image Numbers: 063A44, 065A21



3-D Tour of the Solar System

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