



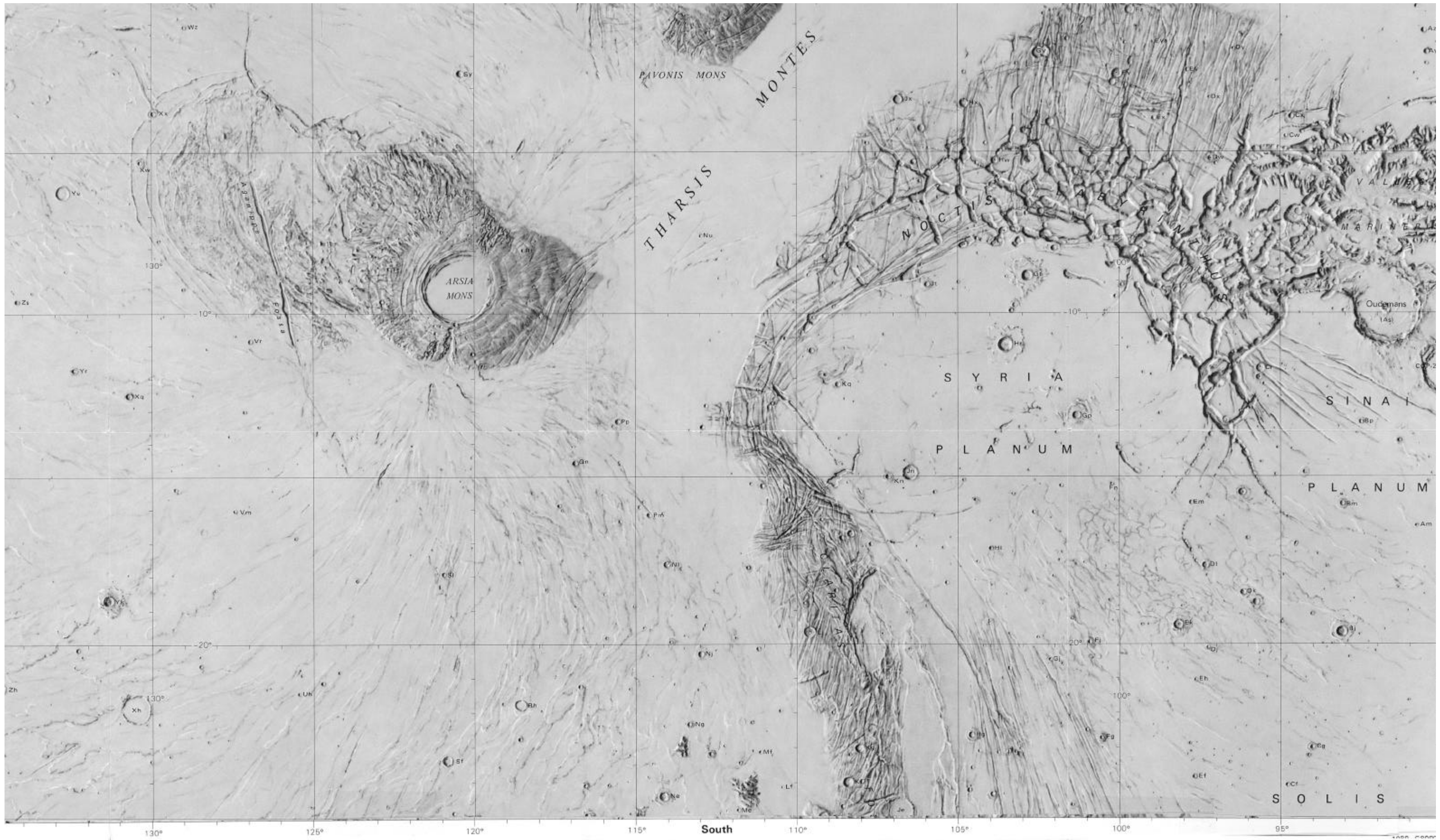
# Mars Exploration



The Grand Canyon of Mars  
and How It Formed

## IMAGE SET

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**ATLAS OF MARS**  
**100,000 TOPOGRAPHIC SERIES**  
**ENICIS LACUS QUADRANGLE**  
**M 5M - 15/112 DN 1000**

SCALE 1:5 000 000 (1mm = 5km) AT 0° LATITUDE  
 MERCATOR PROJECTION



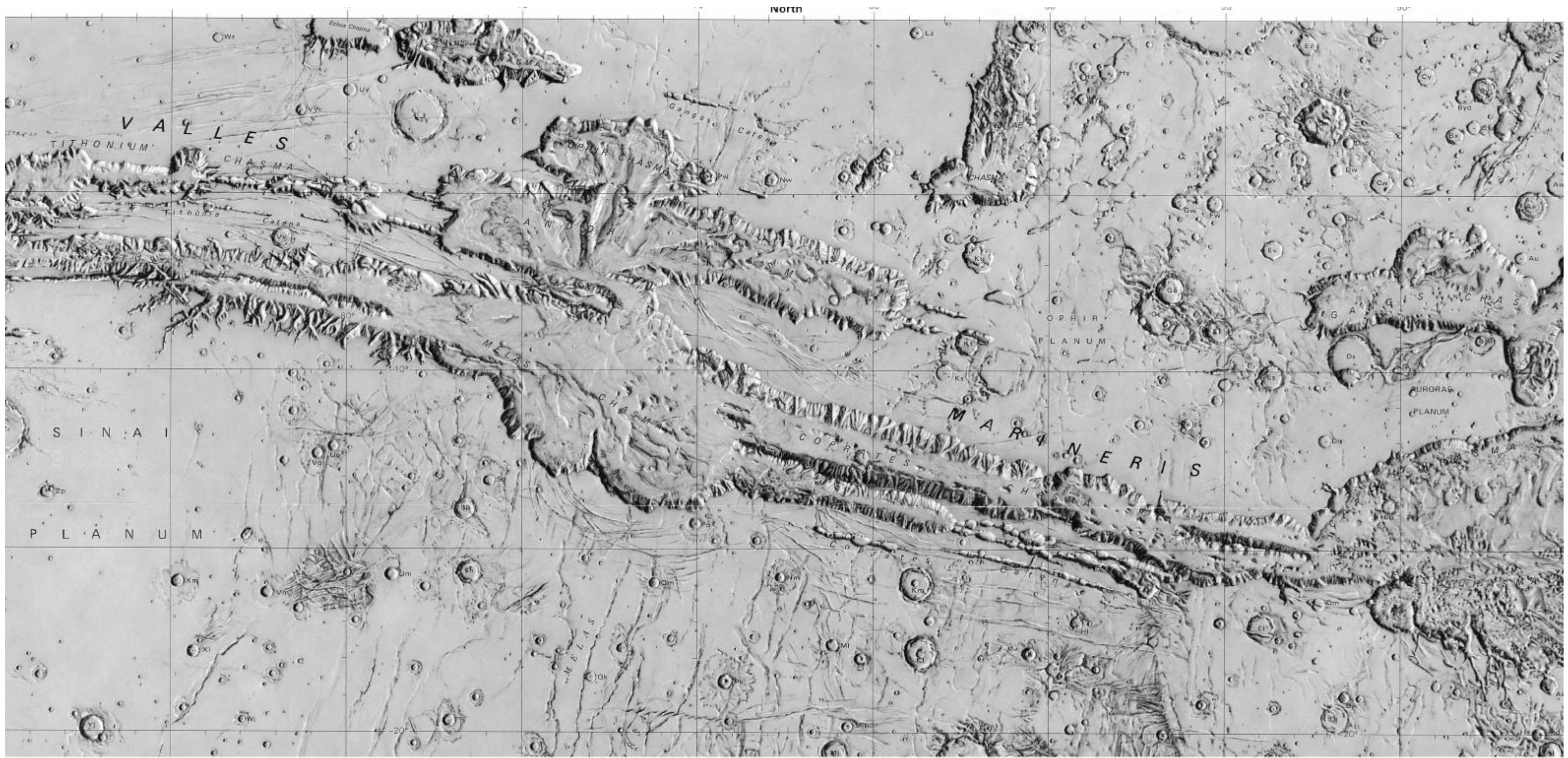
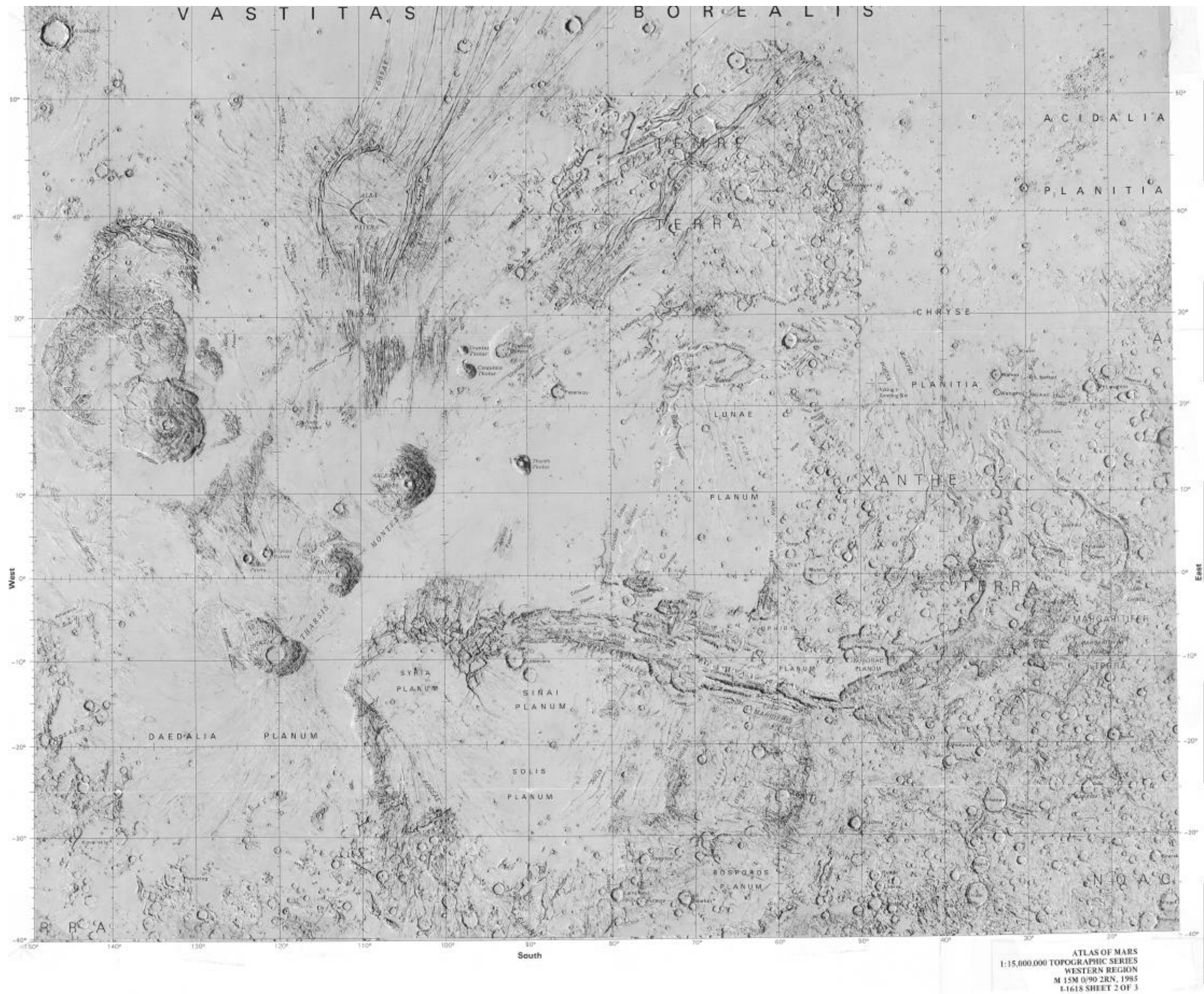
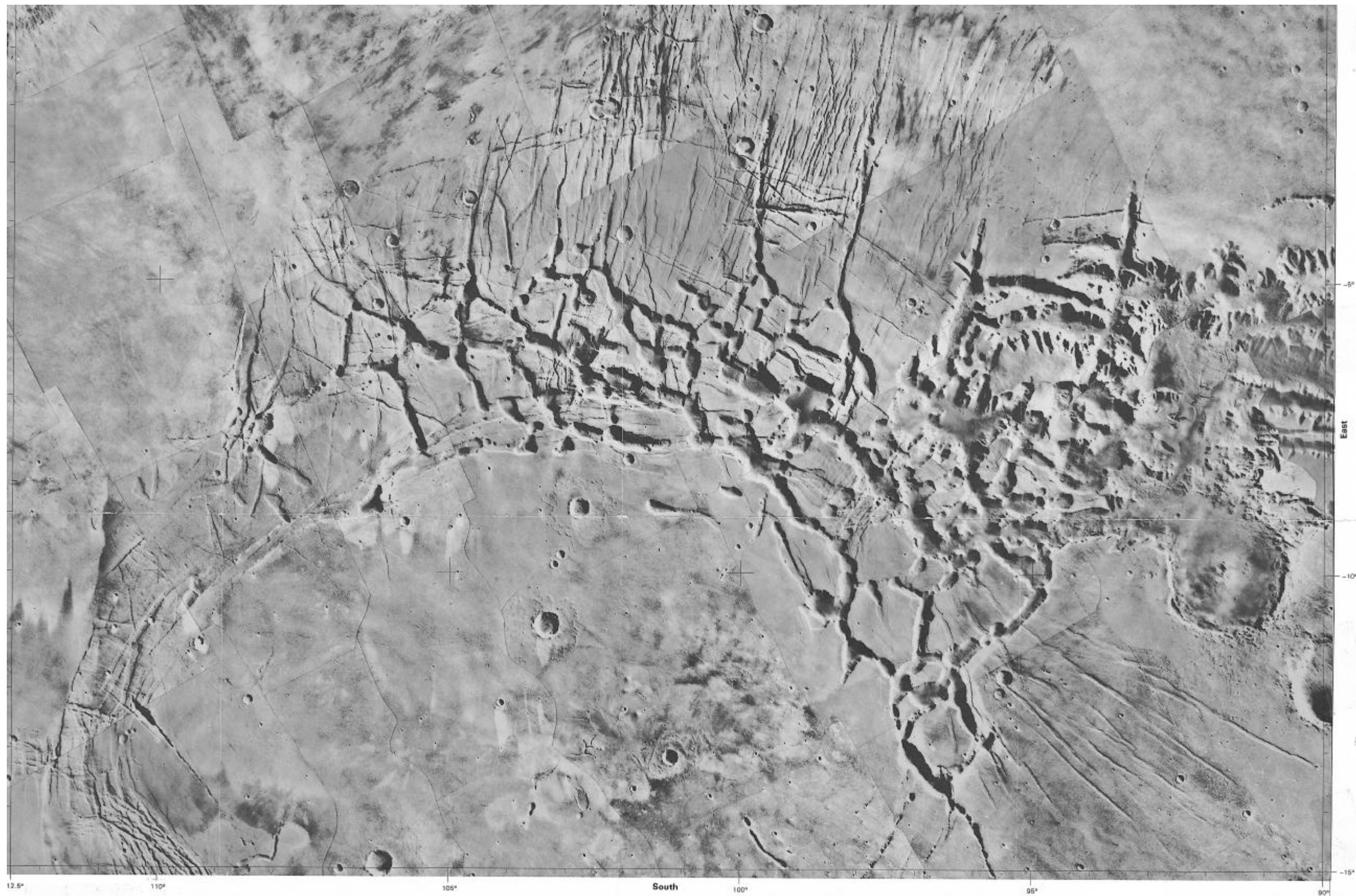


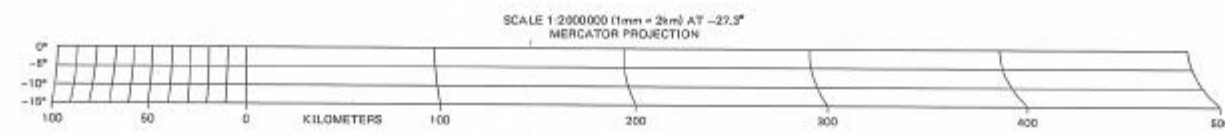
Image 2 The central and eastern canyons of Valles Marineris. This map adjoins Image 1.



**Image 3** An overview of Valles Marineris and the surrounding region. Note the volcanoes to the west and the channels that flow from the chaotic terrain at the eastern end of Valles Marineris to the low-lying Chryse Planitia (Chryse plain).  
 What evidence for uplift is shown?



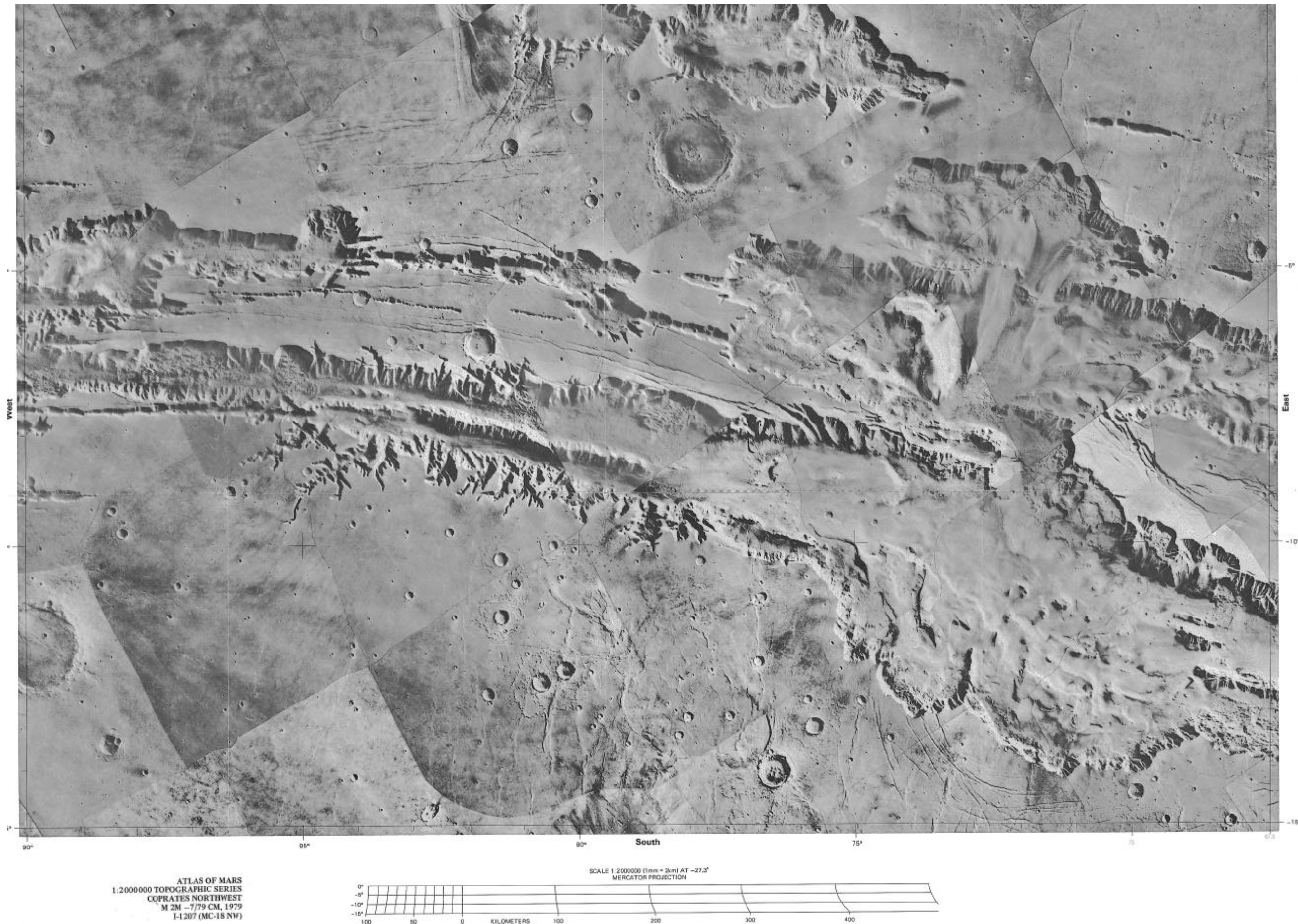
ATLAS OF MARS  
 1:2000000 TOPOGRAPHIC SERIES  
 PHOENICIS LACUS NORTHEAST  
 M 2M -7/101 CM, 1979  
 I-1206 (MC-17 NE)



**Image 4** Photomosaic (i.e., using many small images to create one large image) of Noctis Labyrinthus and the transition to the western canyons of Valles Marineris. This photomosaic adjoins Image 6.



Image 5 Photomosaic of the Ophir Chasma (Ophir chasm or canyon) of Valles Marineris.



**Image 6** Photomosaic of central Valles Marineris showing the Tithonium, Ius, Ophir, Candor, Melas, and Hebes Chasmas. This photomosaic adjoins Images 4 and 8.

Tithonium Chasma and Ius Chasma as viewed from 15° above  
zenith. This perspective was achieved by three-dimensional  
digital elevation model superimposed on Viking 1 Orbiter frame

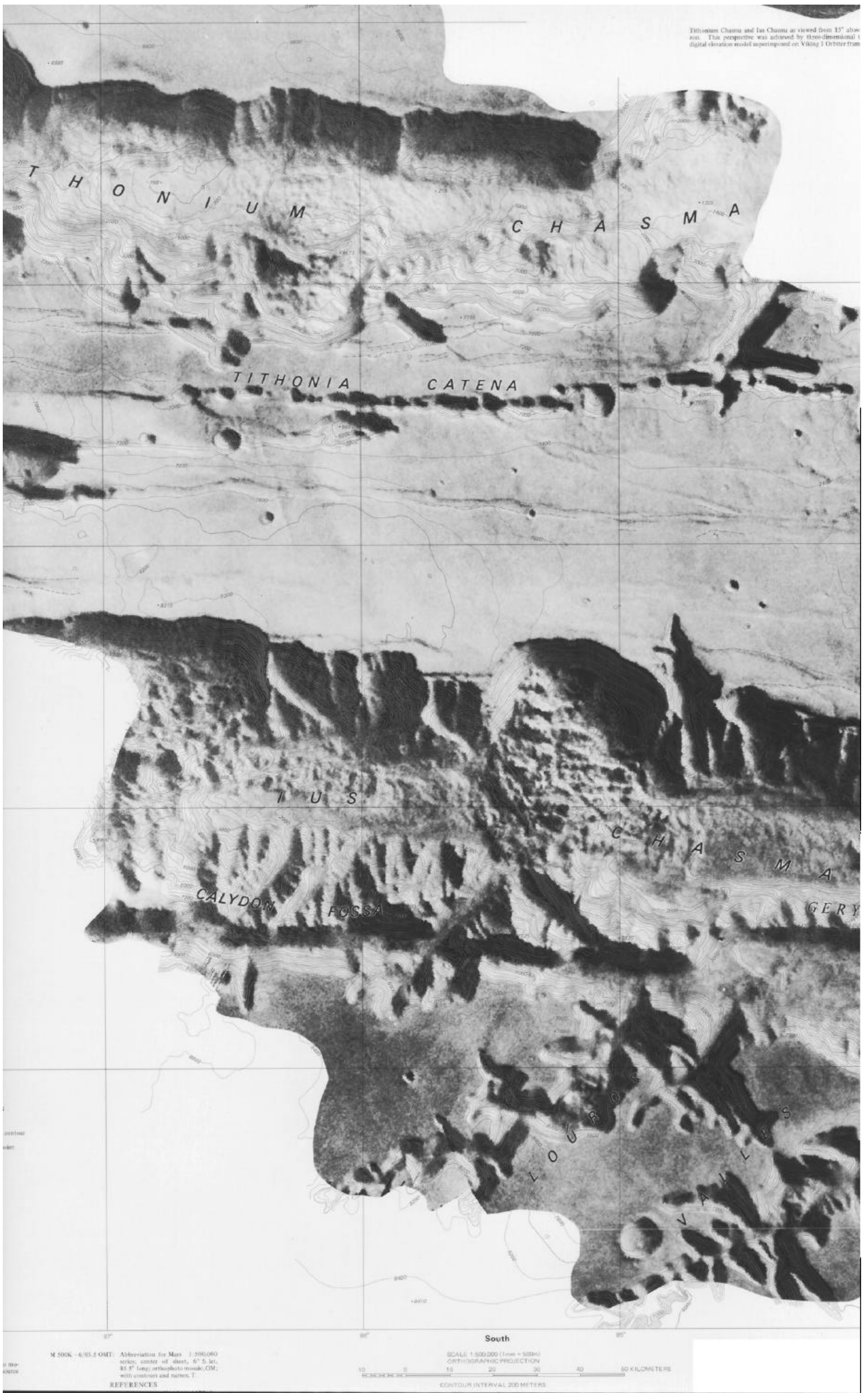


Image 7 A topographic map of a section of the Tithonium and Ius Chasmas.





65

60

South

55

50

ATLAS OF MARS  
1:200000 TOPOGRAPHIC SERIES  
COPRATES SOUTHEAST  
W 24 - 2256 CM, 1979  
S 1184 (MC-18 SE)

ATLAS OF MARS  
1:200000 TOPOGRAPHIC SERIES  
COPRATES NORTHEAST  
W 24 - 756 CM, 1979  
S 1208 (MC-18 NE)

**Image 8** Photomosaic of central and eastern Valles Marineris showing the Coprates, Eos, Capri, Juventae, and Ganges Chasmas. Note the transition to chaotic terrain. This photomosaic adjoins Images 6 and 11.



**Image 9** Detail of Ophir Chasma. Frame width approximately 210 km (130 mi) and the canyon walls are approximately 5 km (3 mi) tall. North is toward the top. (NASA image #P-40383)