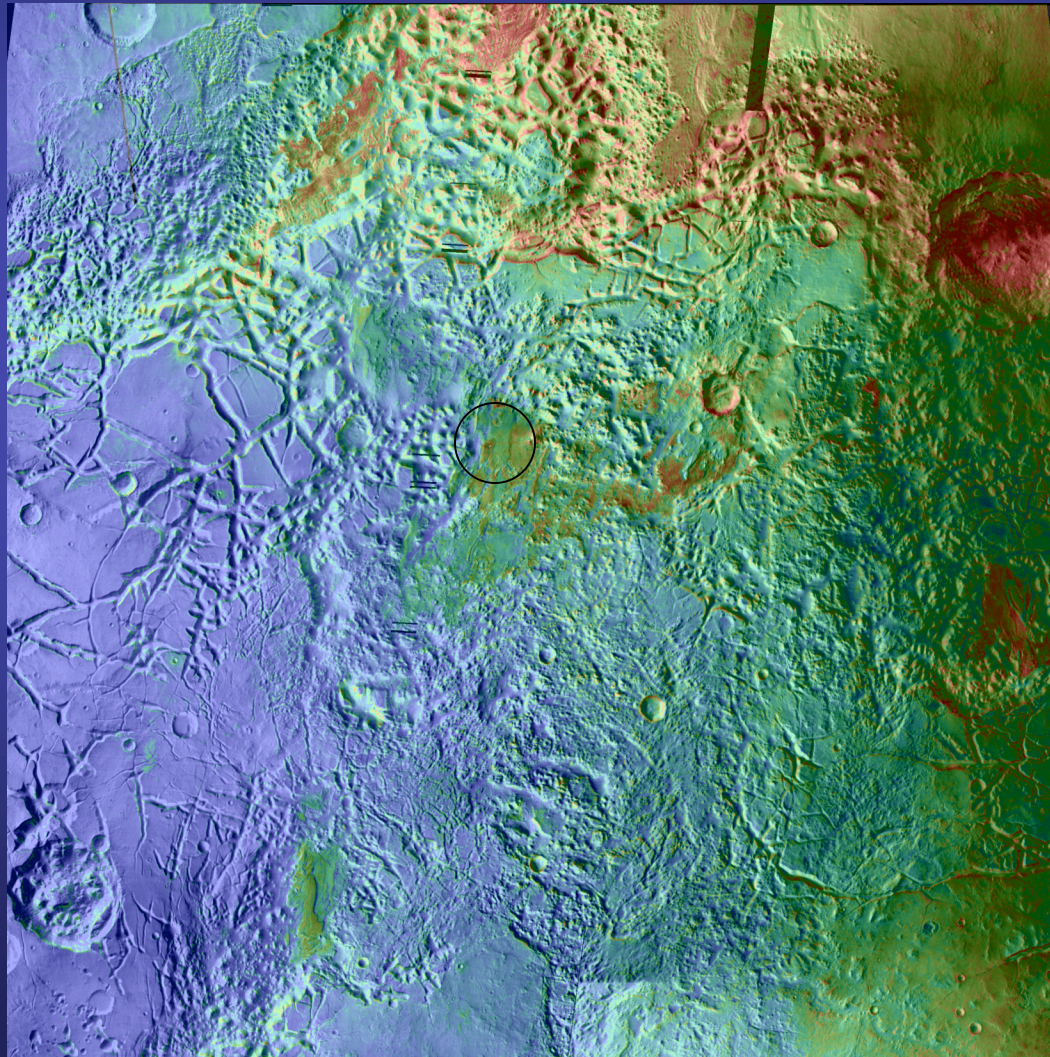
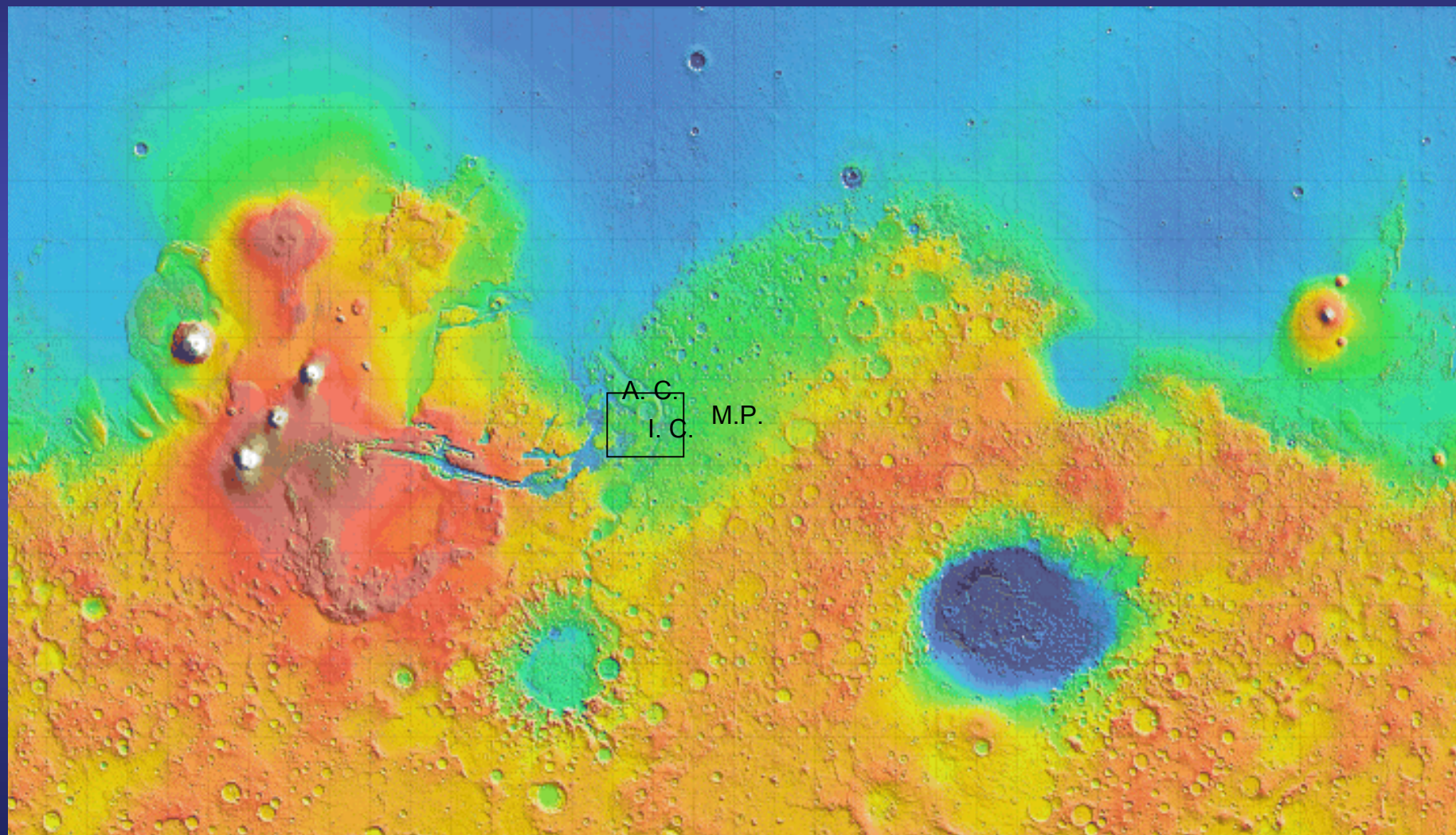


# Iani Chaos as a Landing Site for the Mars Science Laboratory

Tim Glotch, SUNY Stony Brook

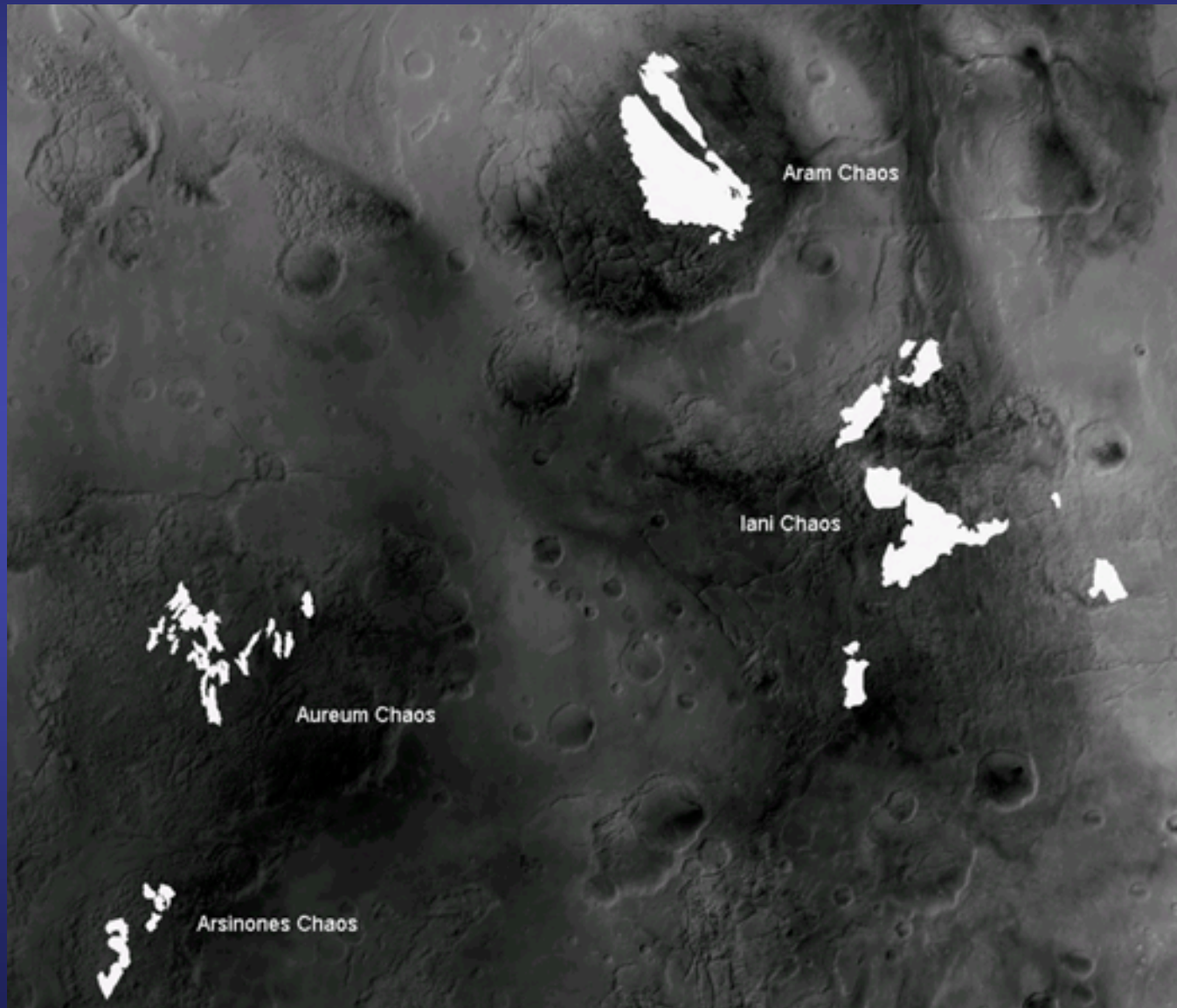






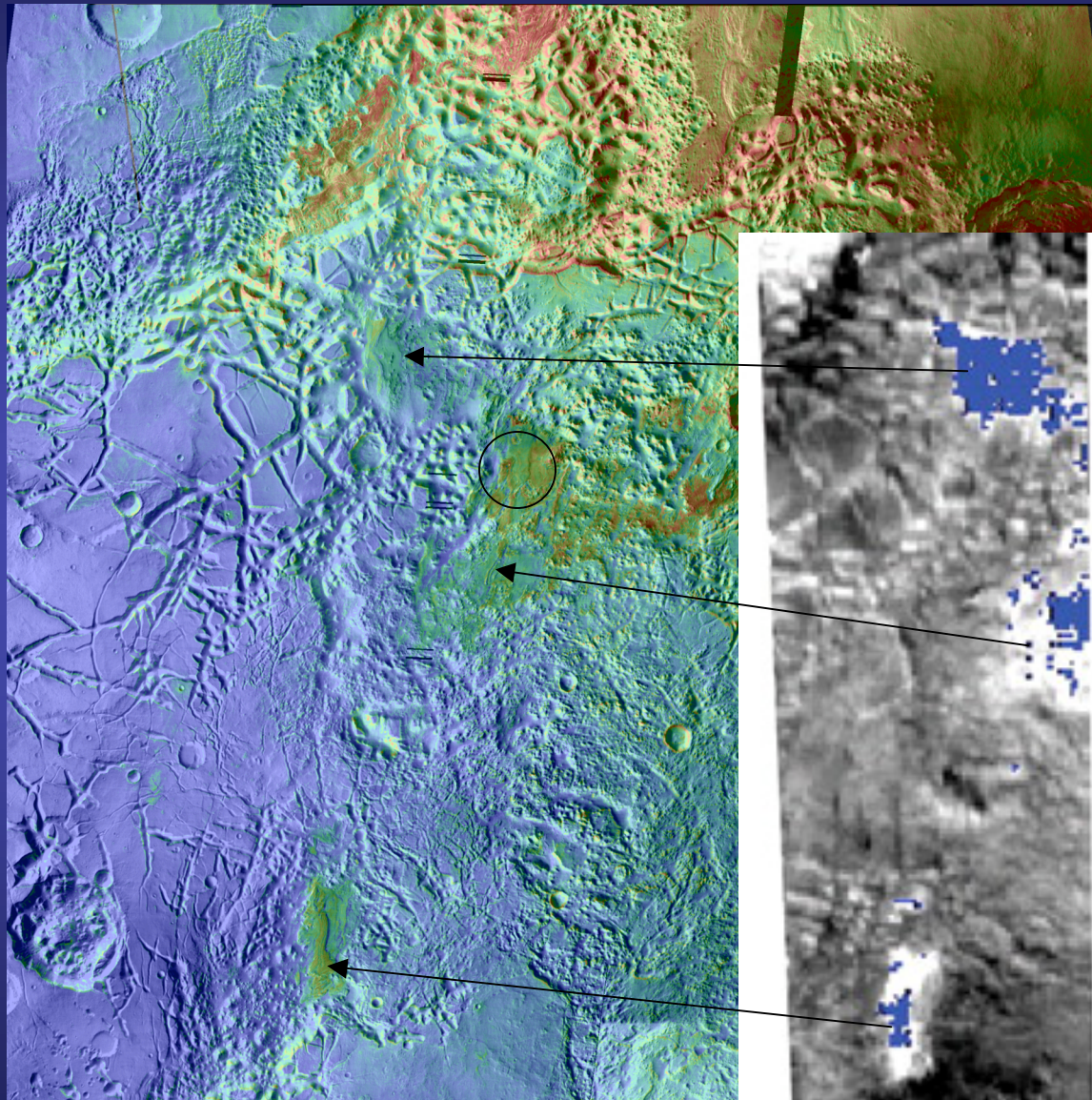


# Equatorial Light-Toned Units





# Iani Chaos



50 km

Identification of gray, crystalline hematite by TES:

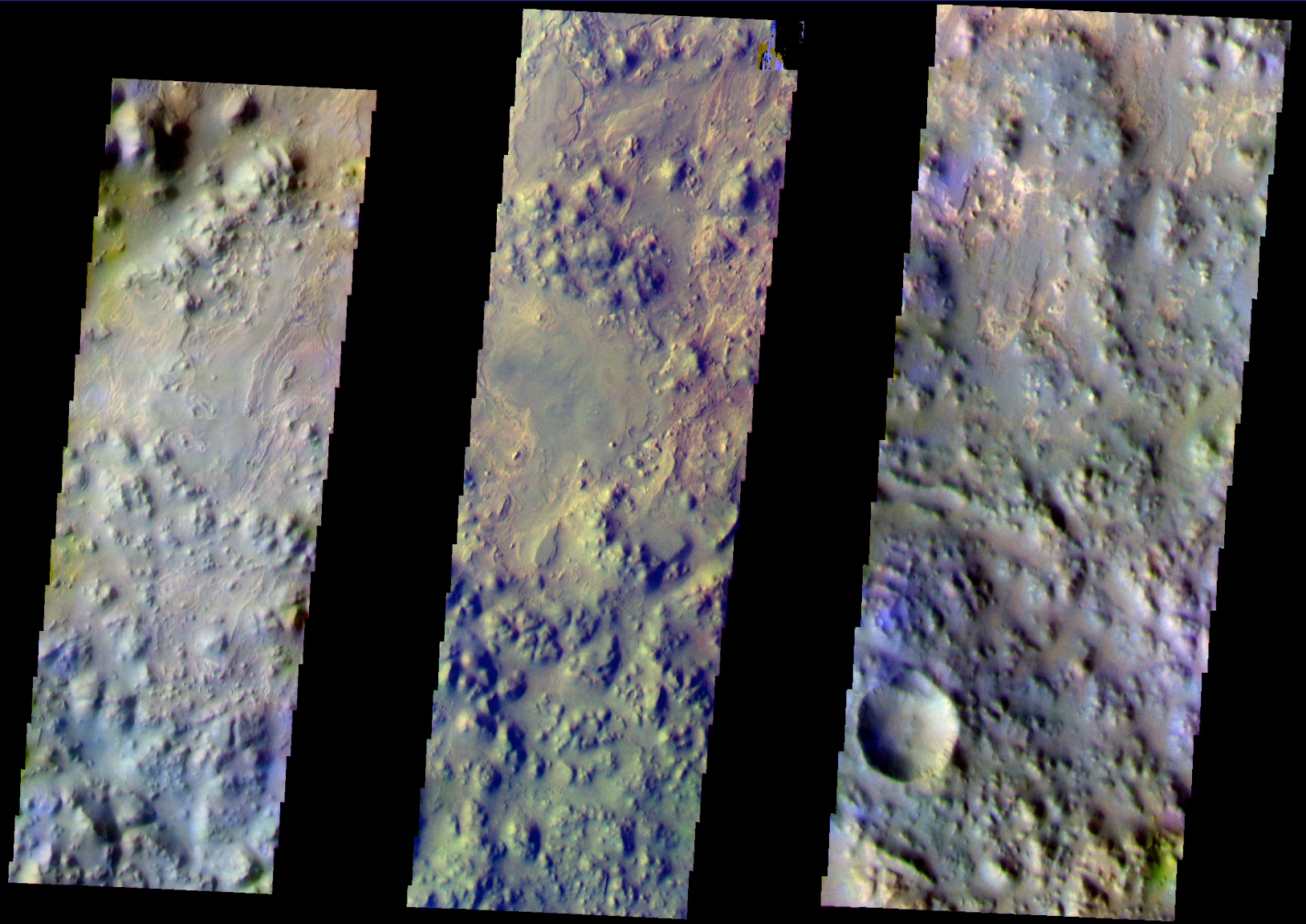
**Iani and Aureum Chaos** [Glotch and Rogers, 2007; Noe Dobrea et al., in press]

**Moderate Thermal Inertia:**  
TES TI values of  $\sim 300$ - $360$  in light-toned units

Identification of sulfate (gypsum or polyhydrated sulfates)



# THEMIS Vis Color





# Science Rationale

- Formation mechanism of chaos terrains
  - source of outflow channels
  - groundwater erupting to the surface (multiple events?)
  - ponding led to deposition of layered units



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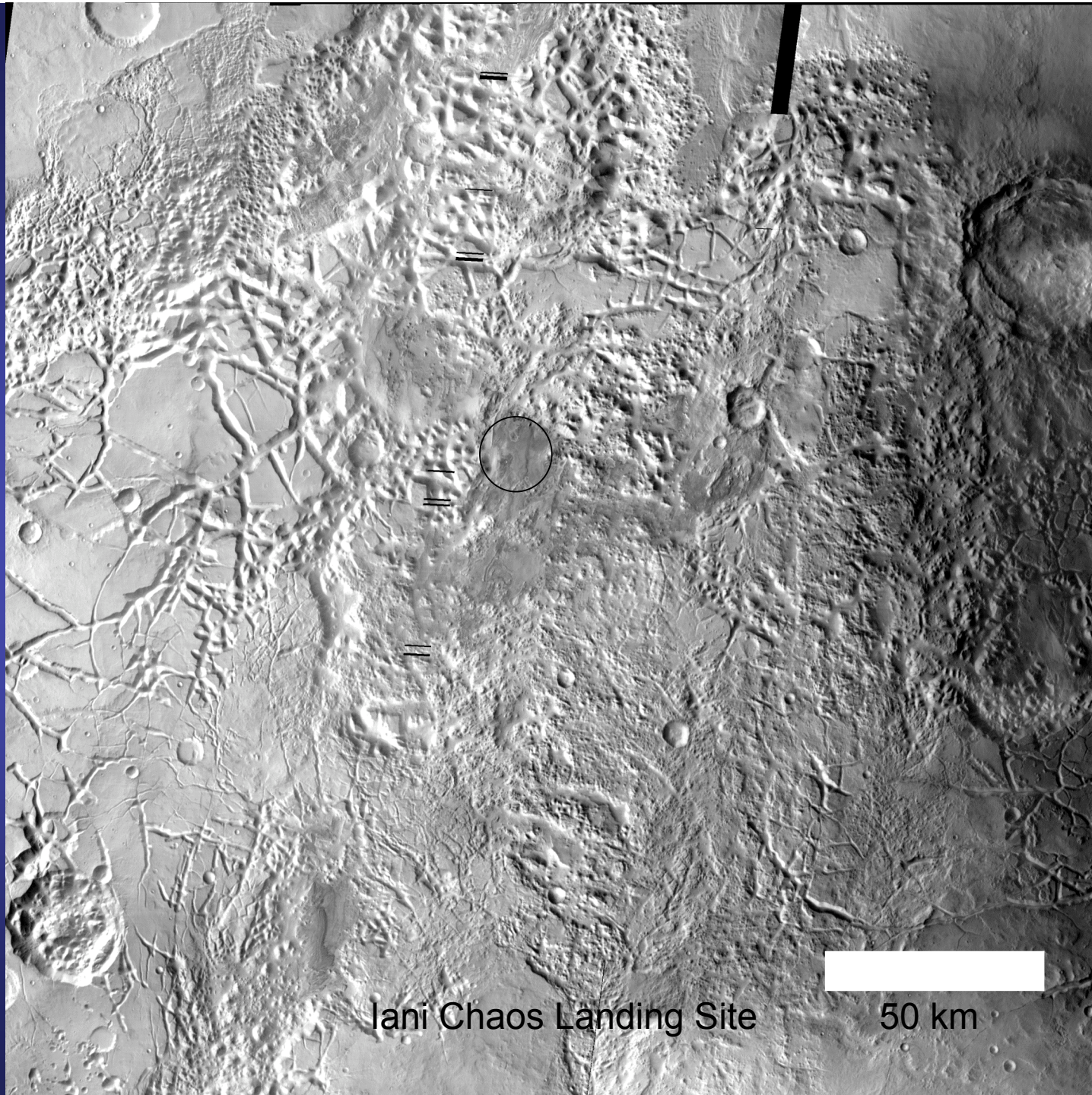
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- Evidence for Noachian and Hesperian processes
- Access to multiple layers within light-toned unit—large sed/strat section





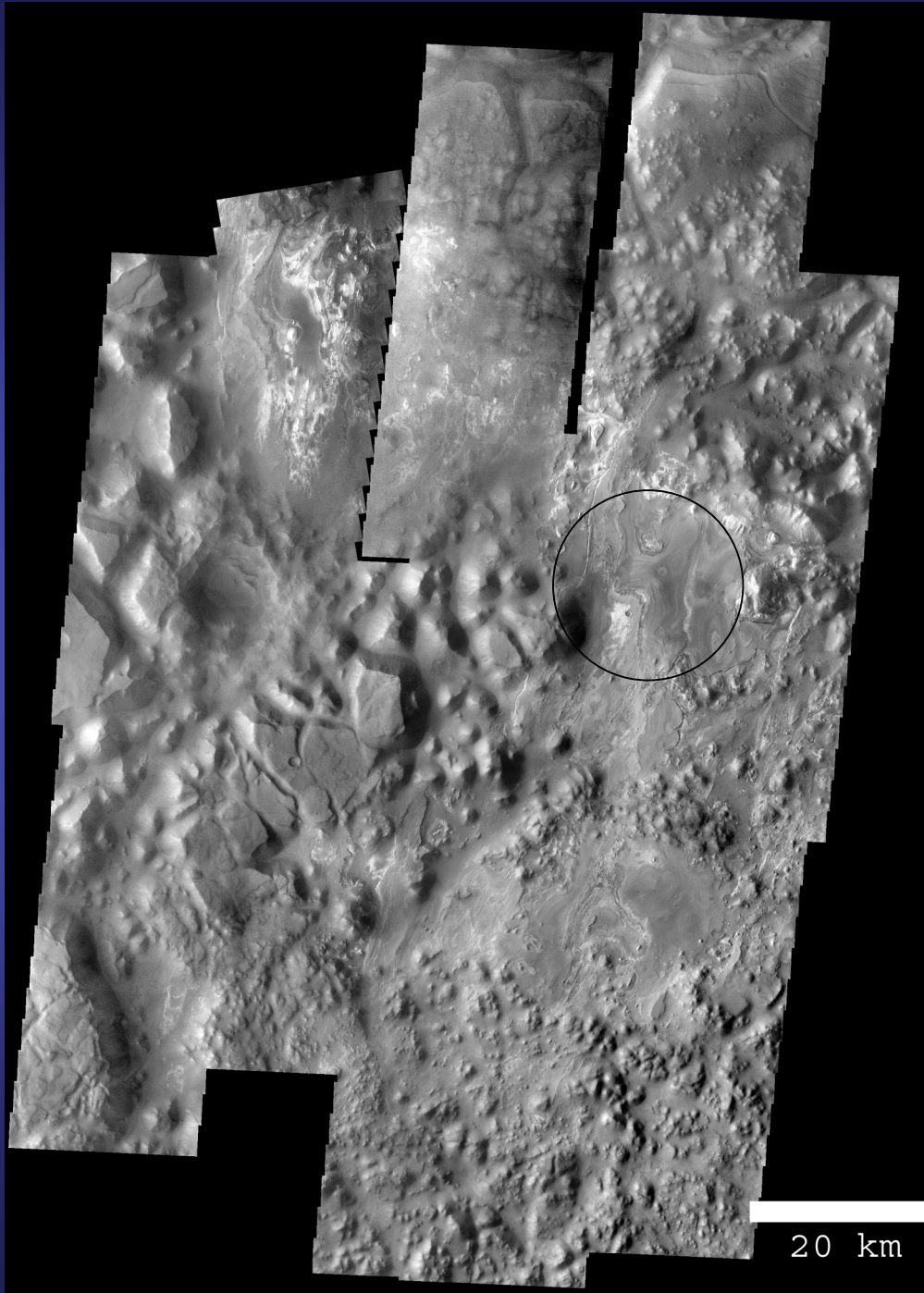
Iani Chaos Landing Site

50 km

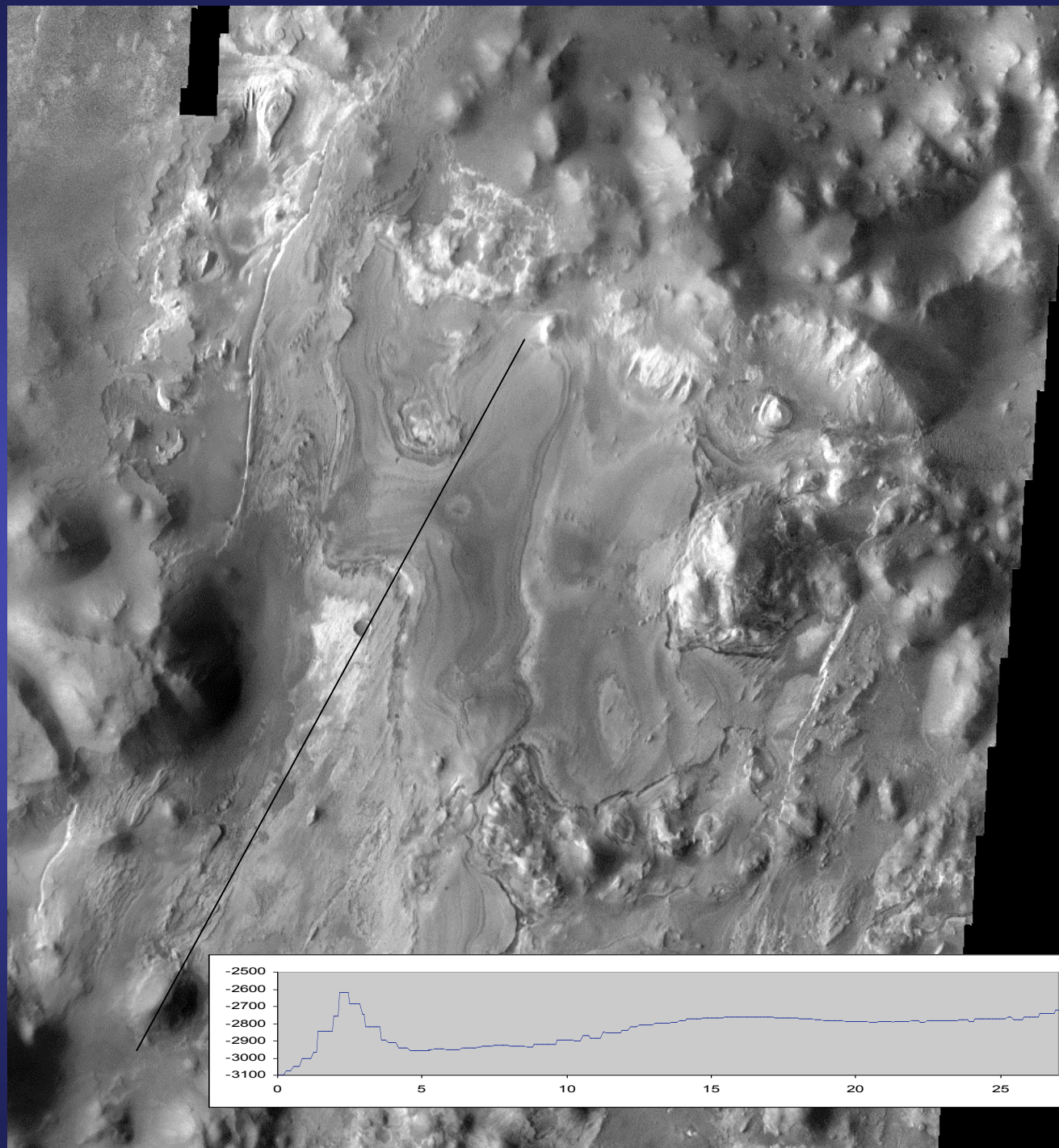


# THEMIS VIS Mosaic

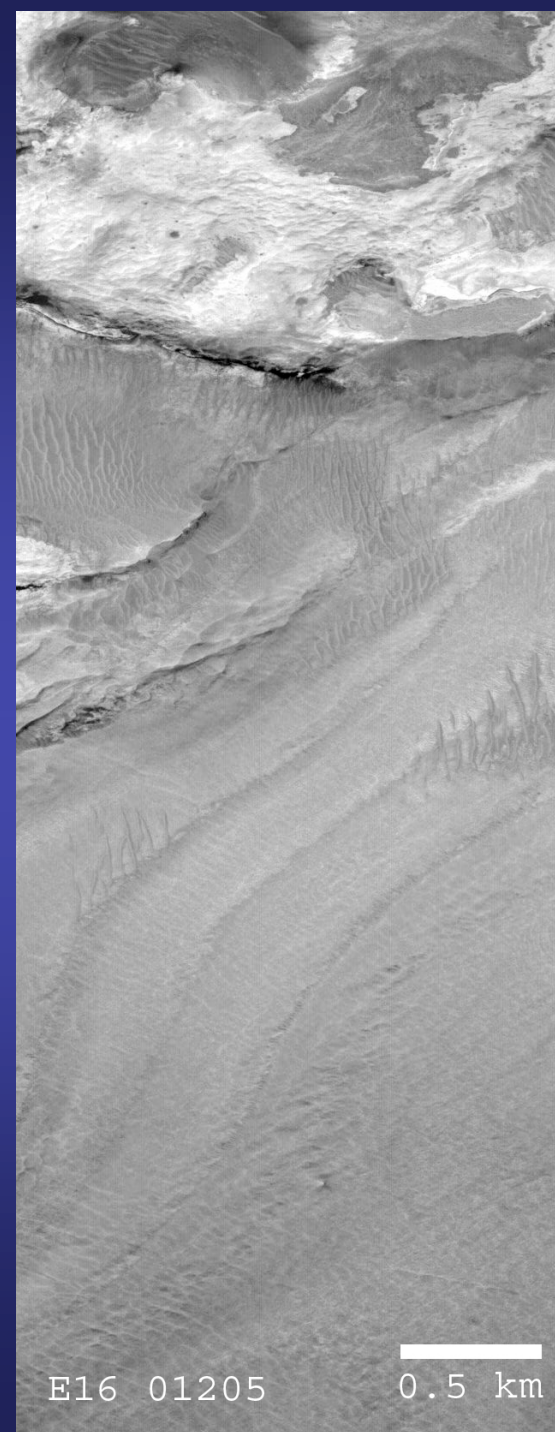
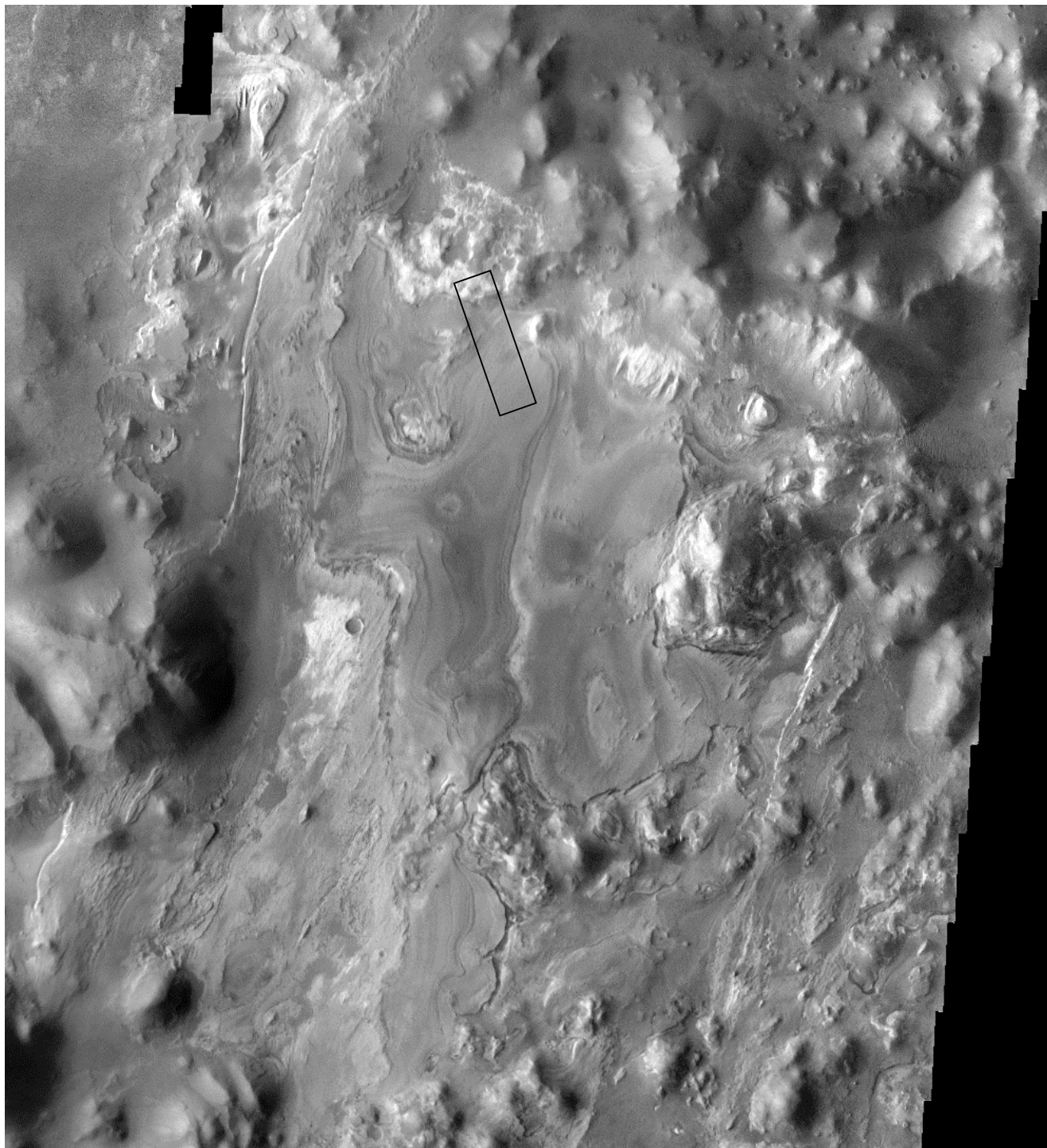
36 m/pix







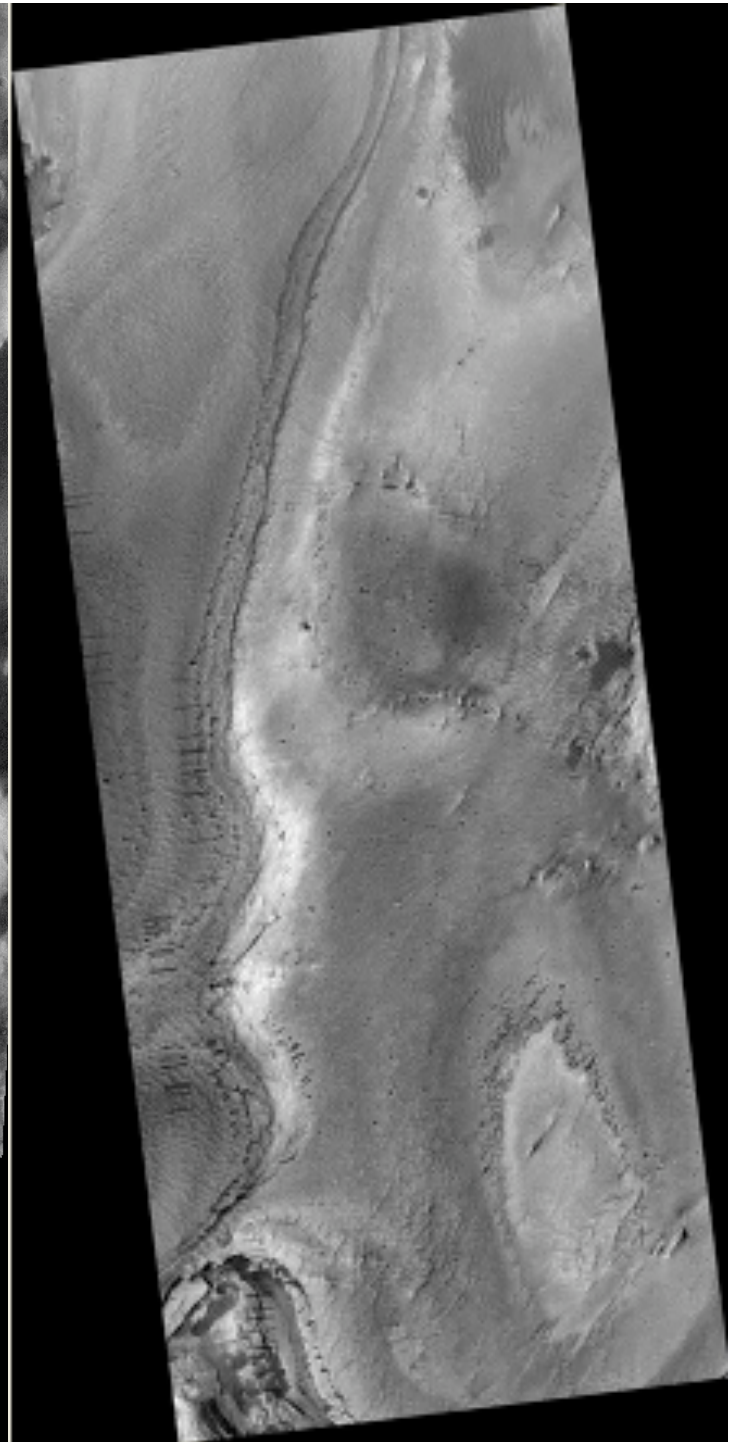
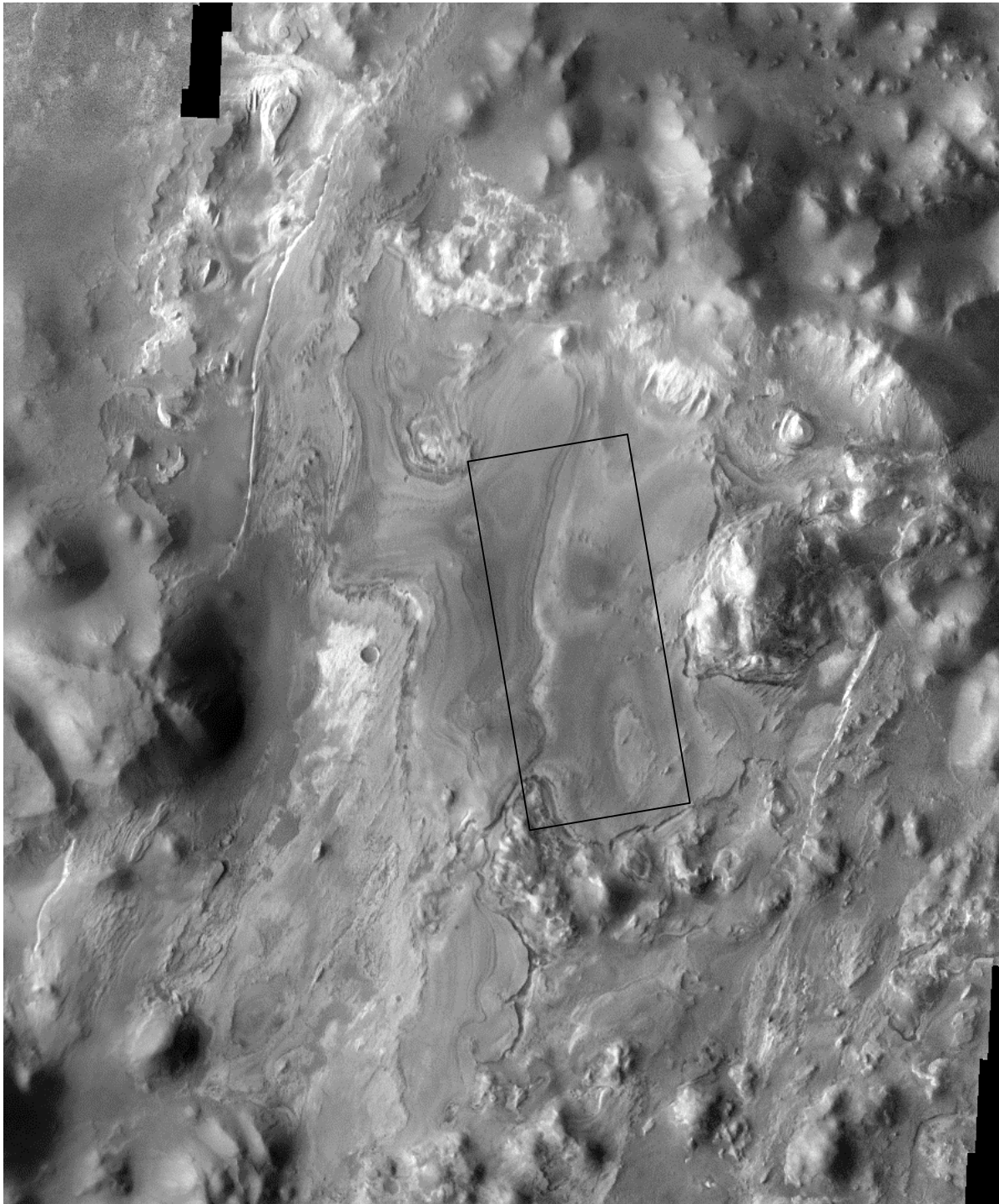




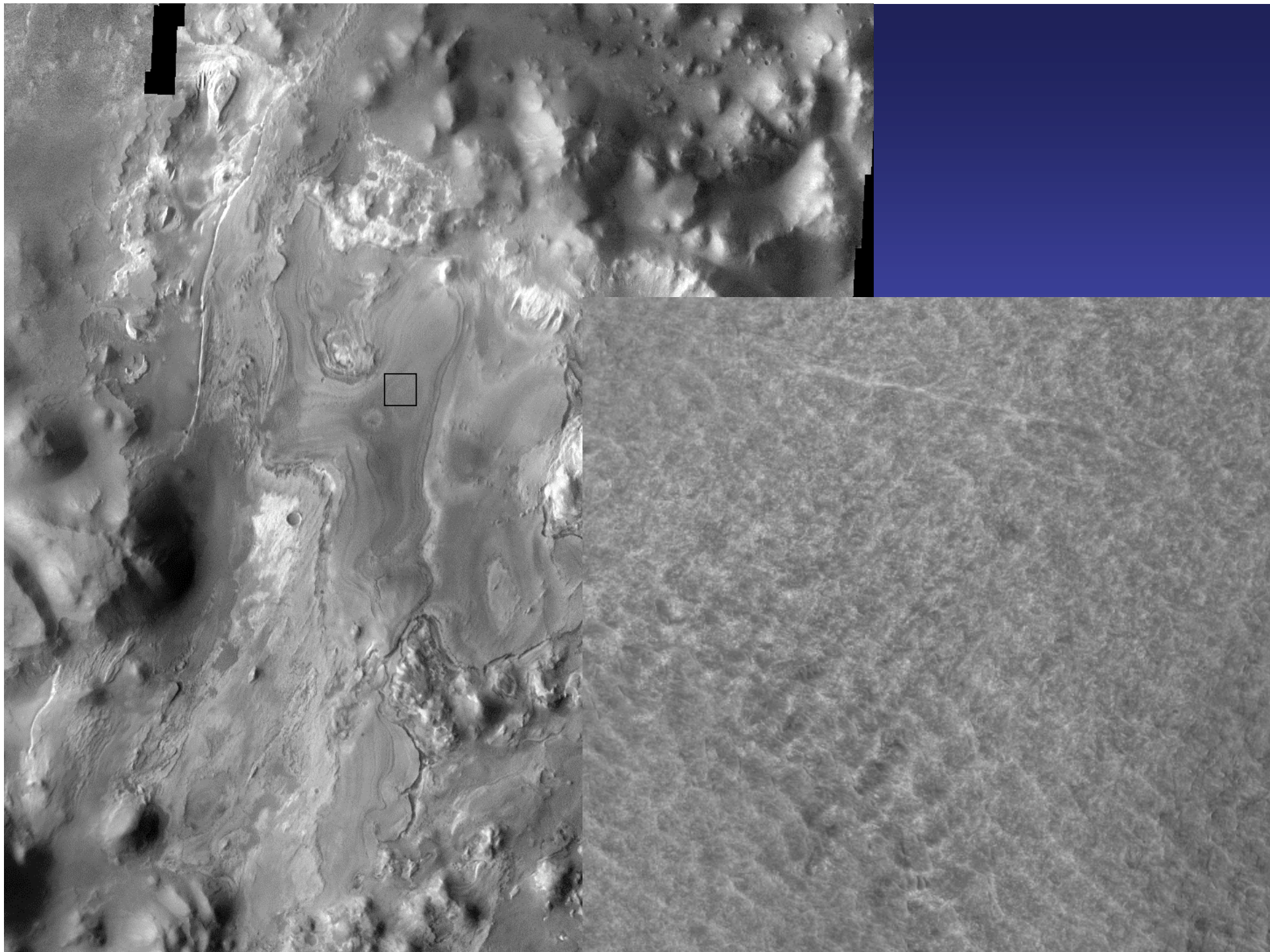
E16 01205

0.5 km



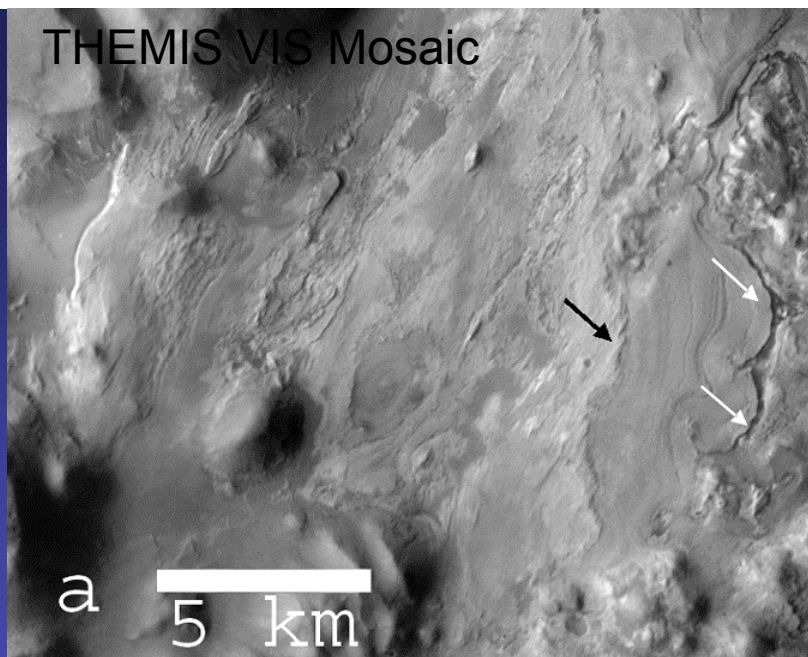




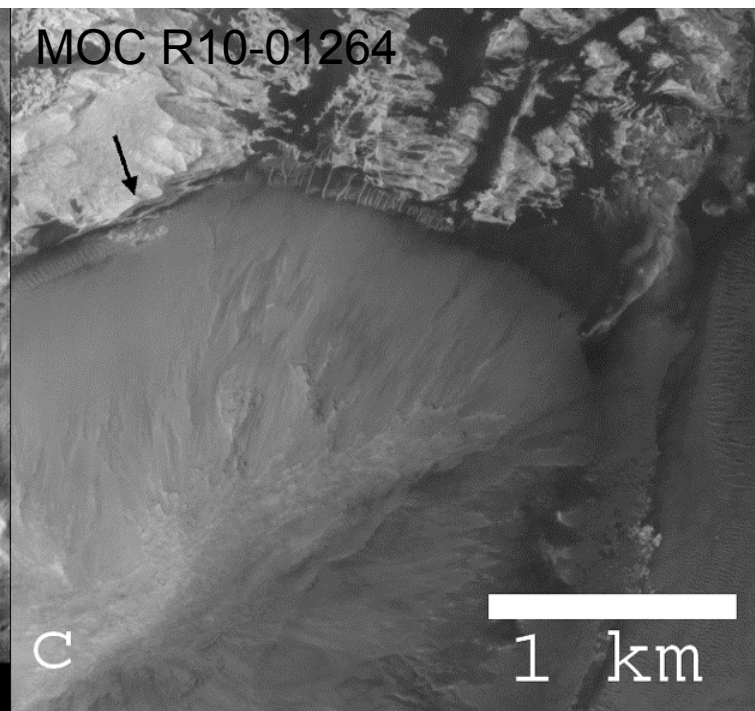




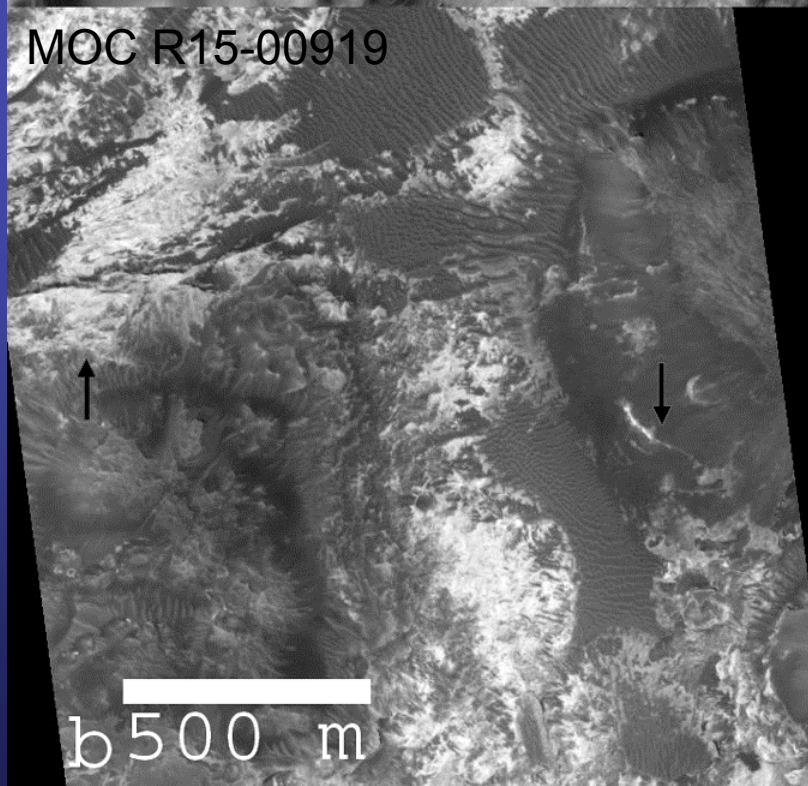
THEMIS VIS Mosaic



MOC R10-01264



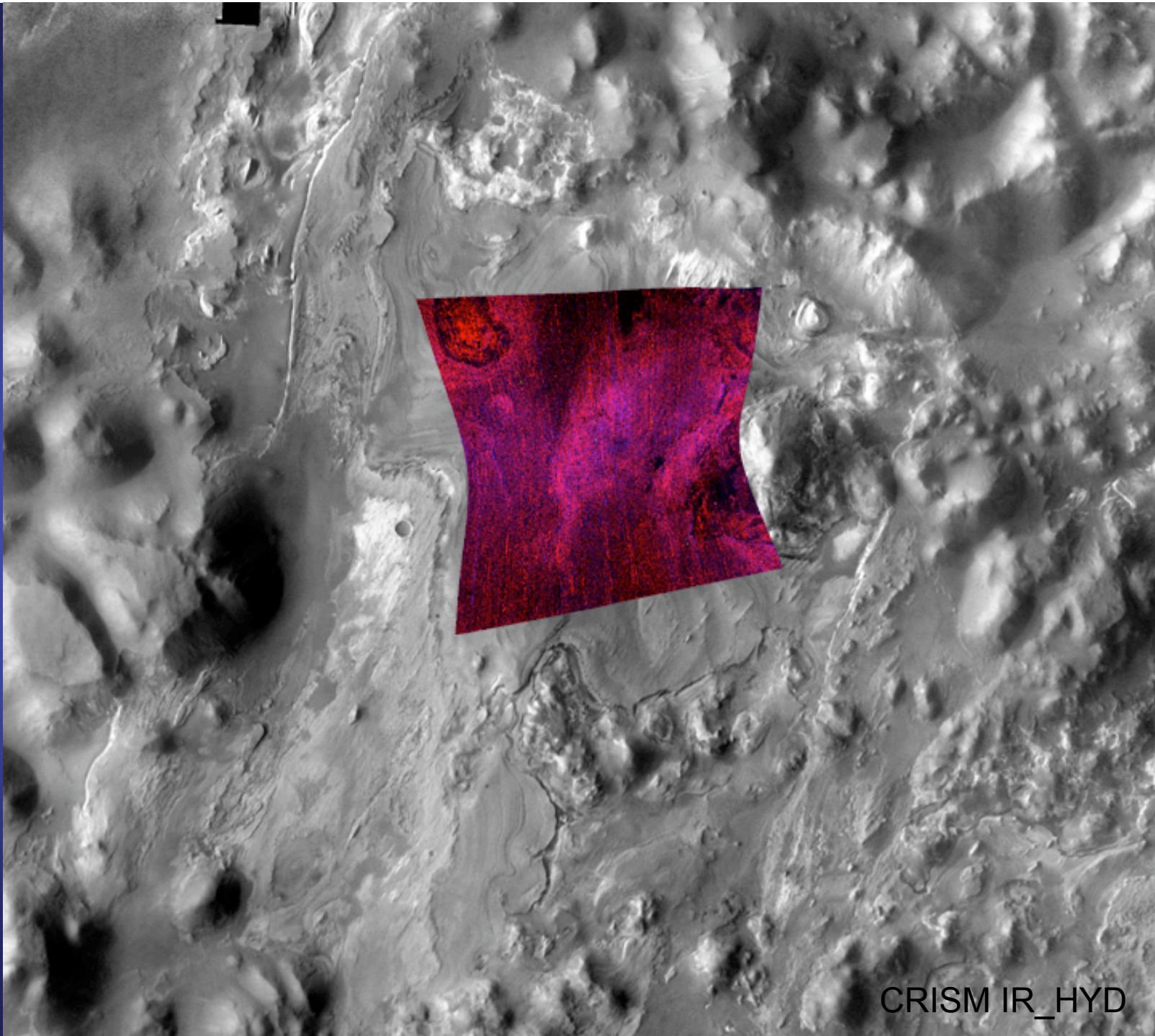
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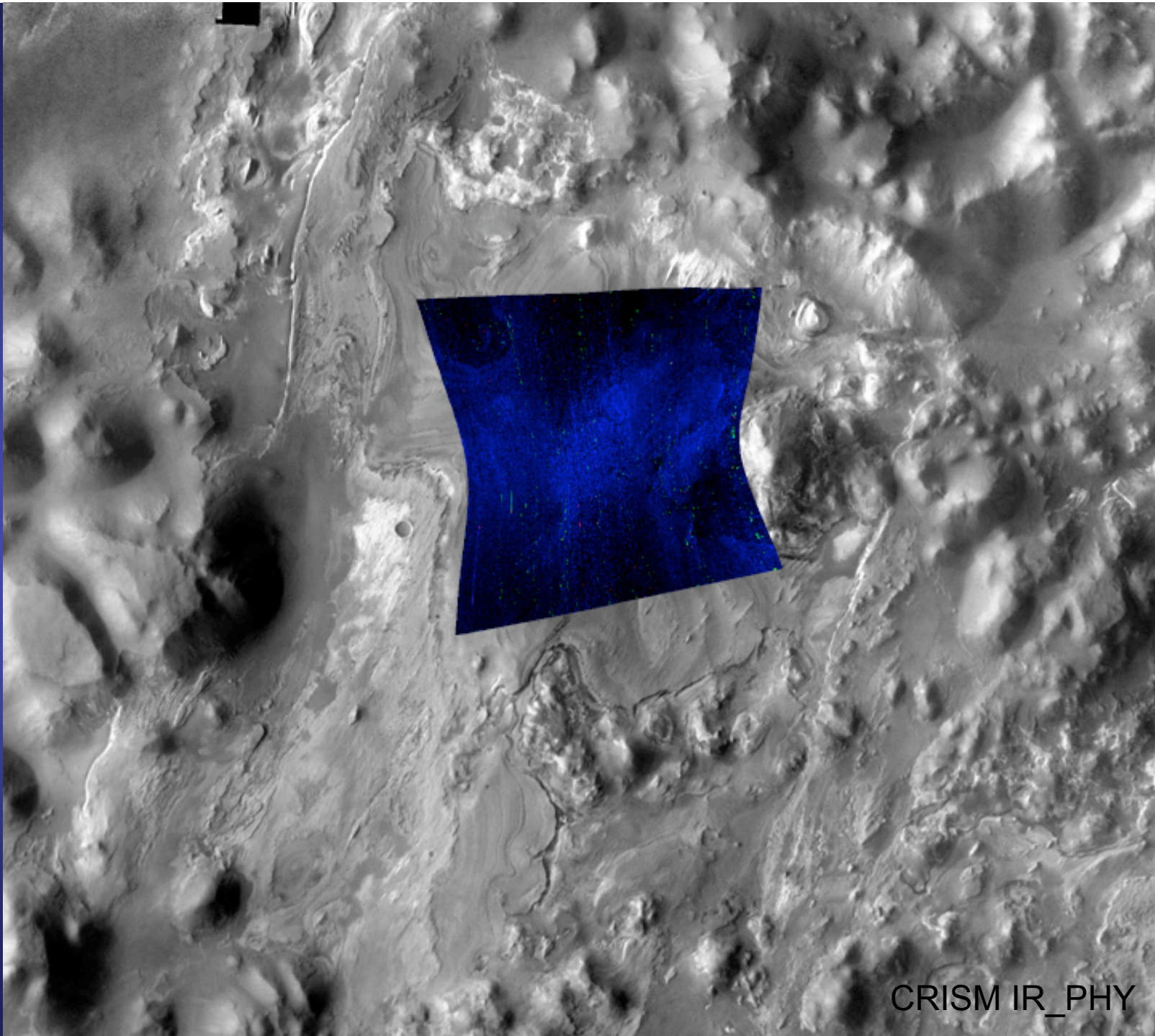
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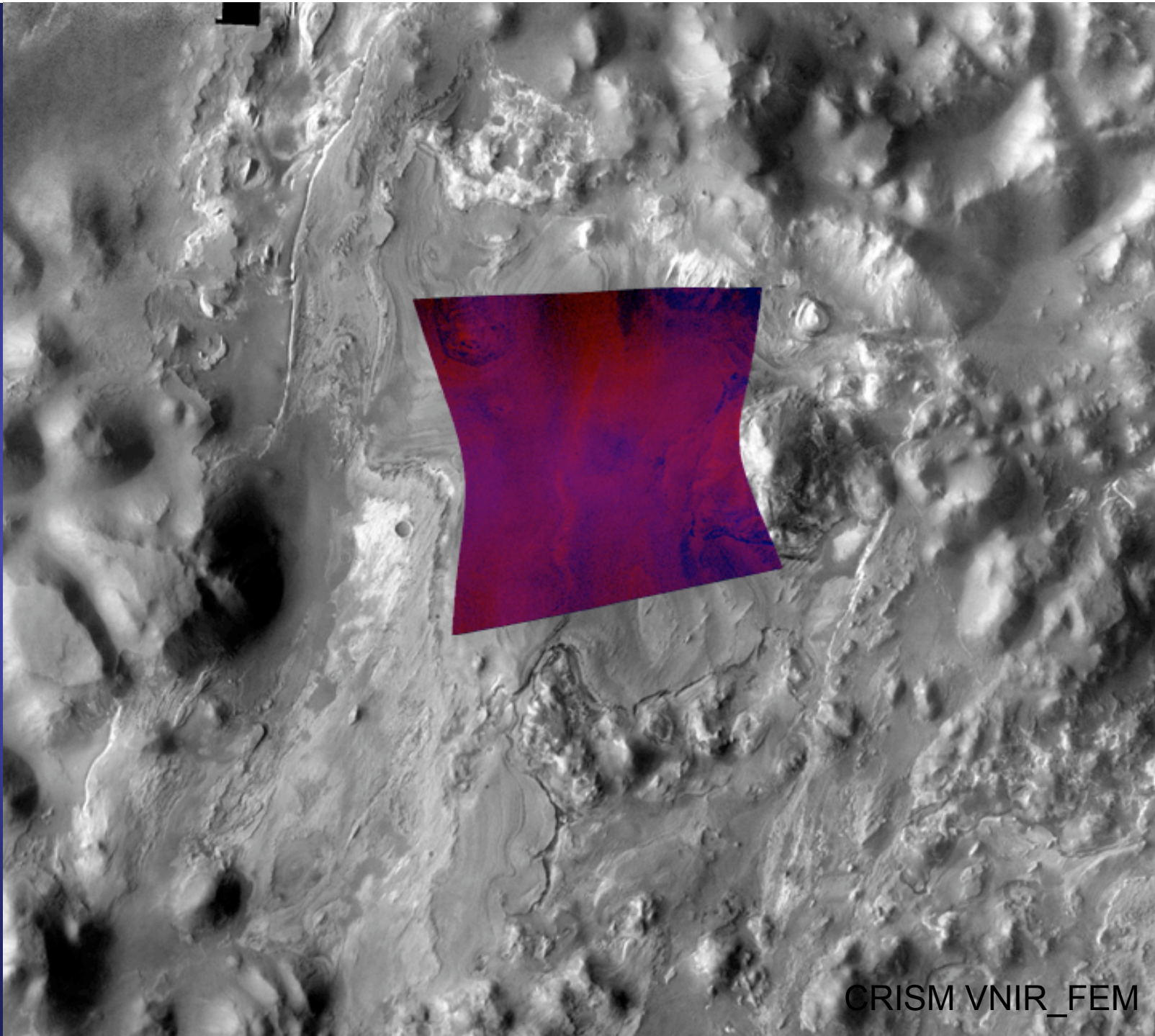


CRISM IR\_HYD

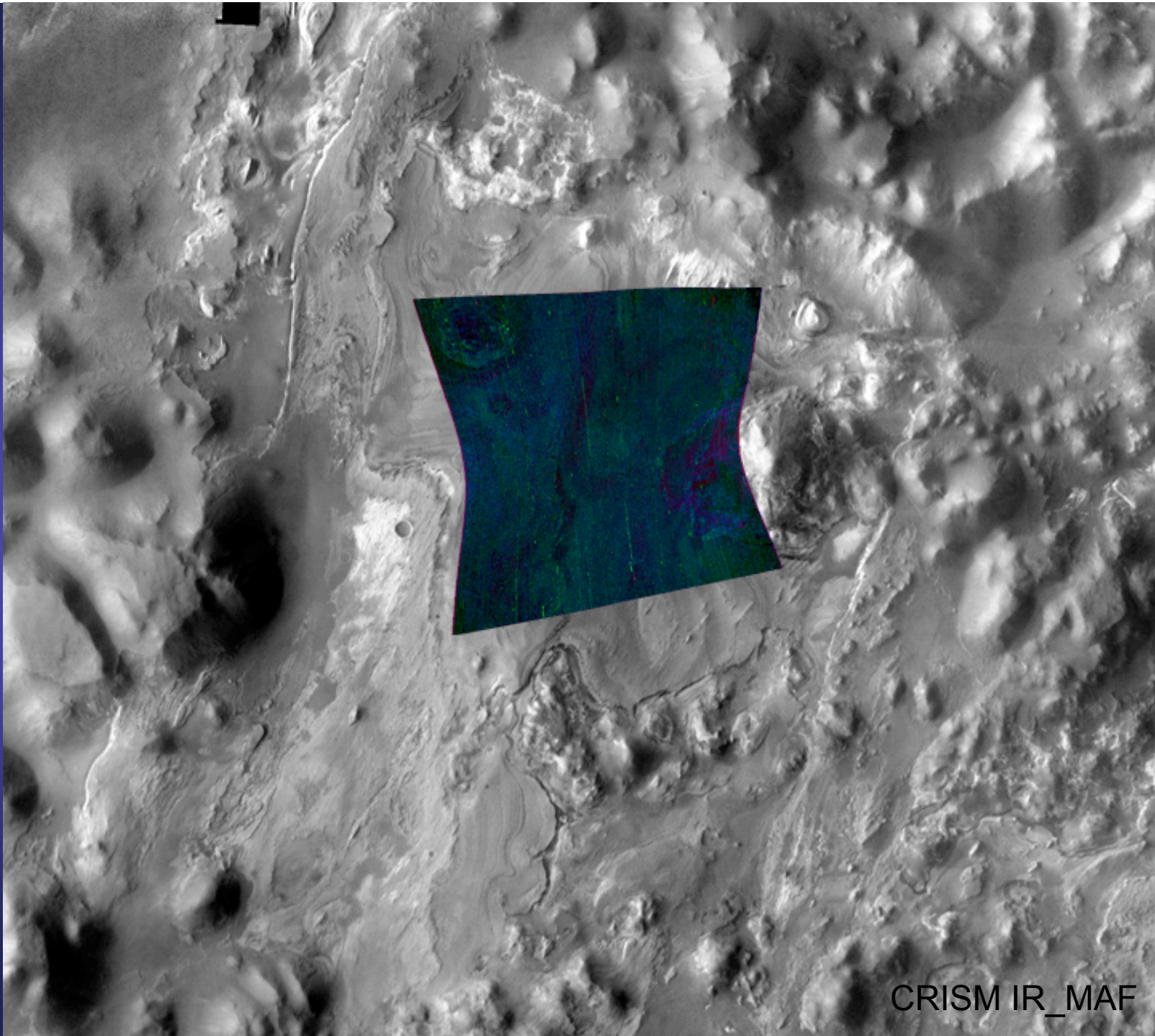


CRISM IR\_PHY





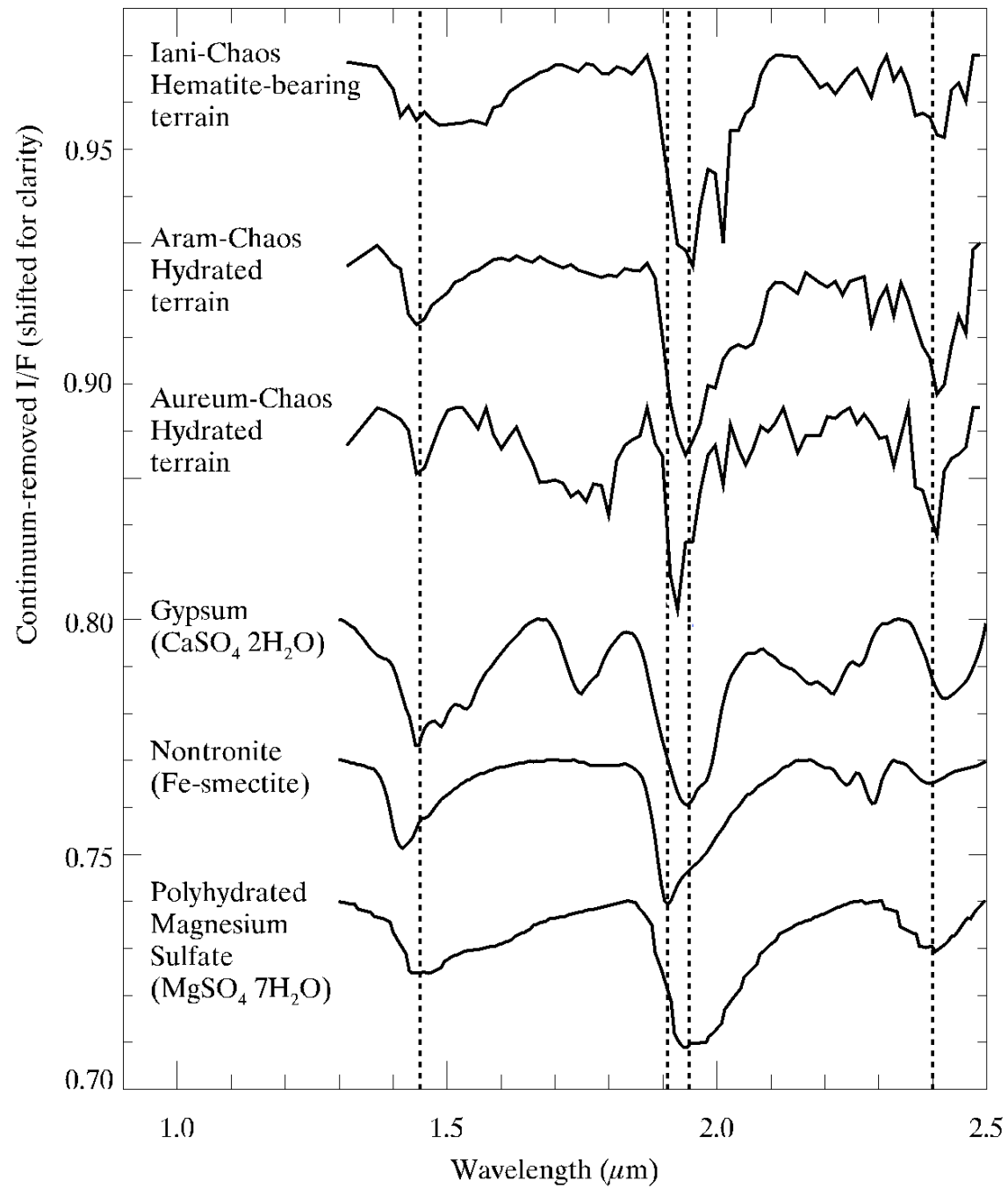
CRISM VNIR\_FEM



CRISM IR\_MAF



## Comparison spectra from hematite-bearing deposits



OMEGA Spectra

*Noe Dobrea et al.,  
In press*

# Summary

- Not a go-to site. Sulfates and hematite within the ellipse
- Light-toned layered units with distinct hematite (TES) and sulfate (OMEGA/CRISM) spectral signatures and ferric iron (THEMIS VIS/CRISM)
- 10's of individual layers accessible within landing ellipse/ROI—opportunity to sample mineralogic/chemical variability (probably better opportunity than Opportunity)
- Sustained multiple outflow/groundwater (hydrothermal?) events increases potential for habitability