Mineralogical diversity of the Al-bearing clay unit at Mawrth Vallis: Evidence for acidic alteration

[illegible]

[illegible]

The Goal: Understand the nature of the aluminous unit and the implications for MSL

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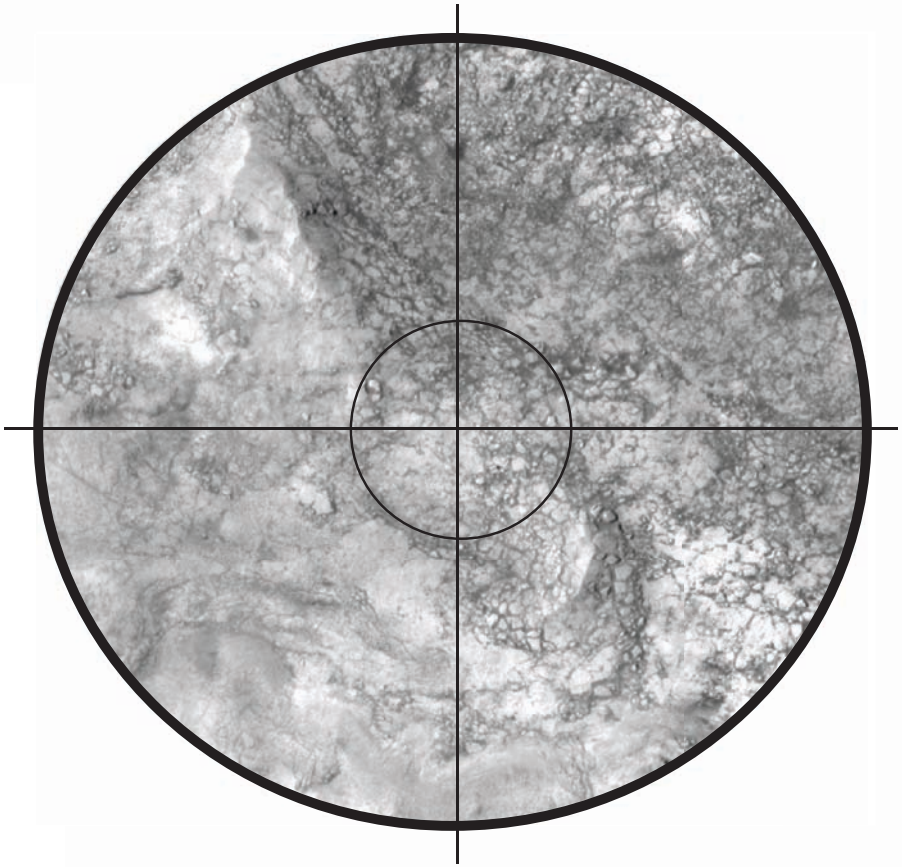
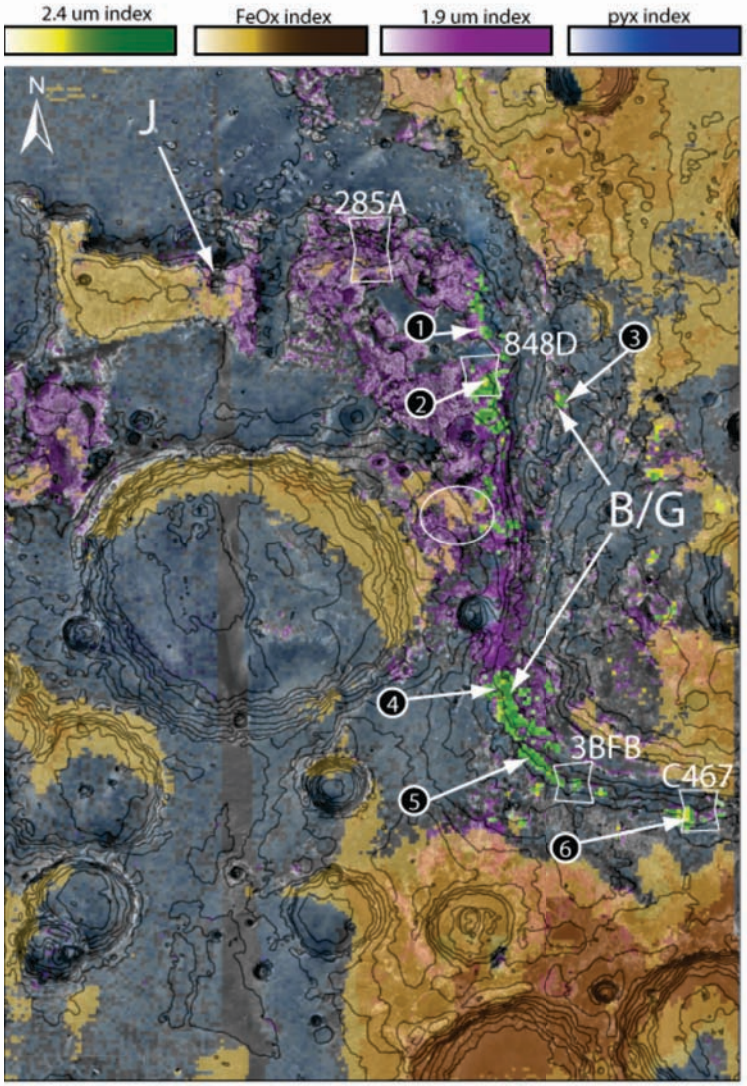
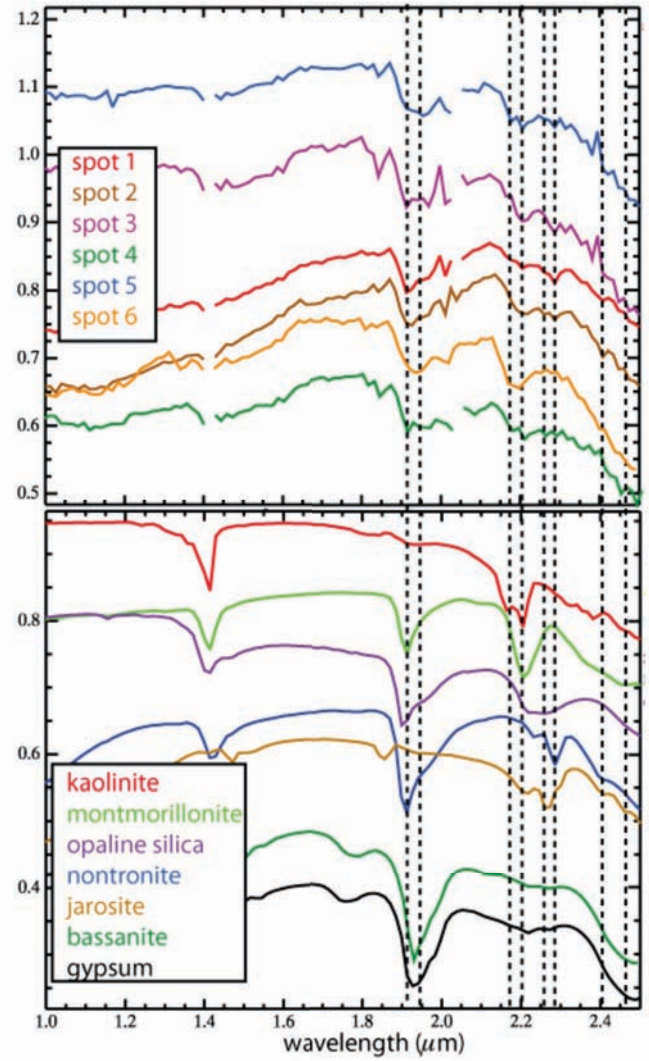


OMEGA Results





CRISM cube 467C

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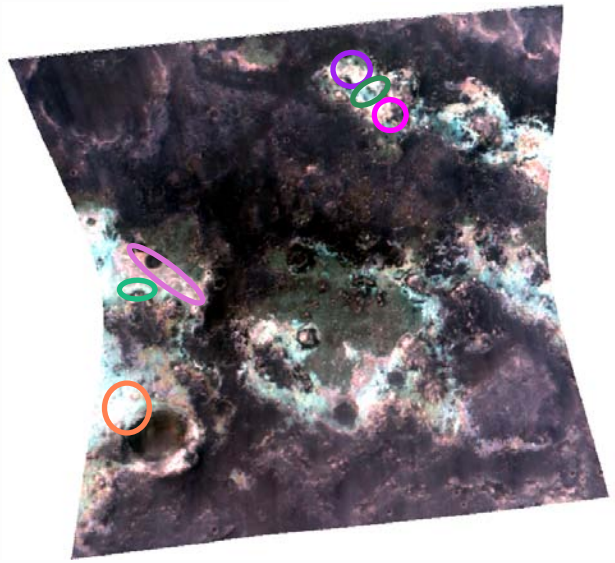

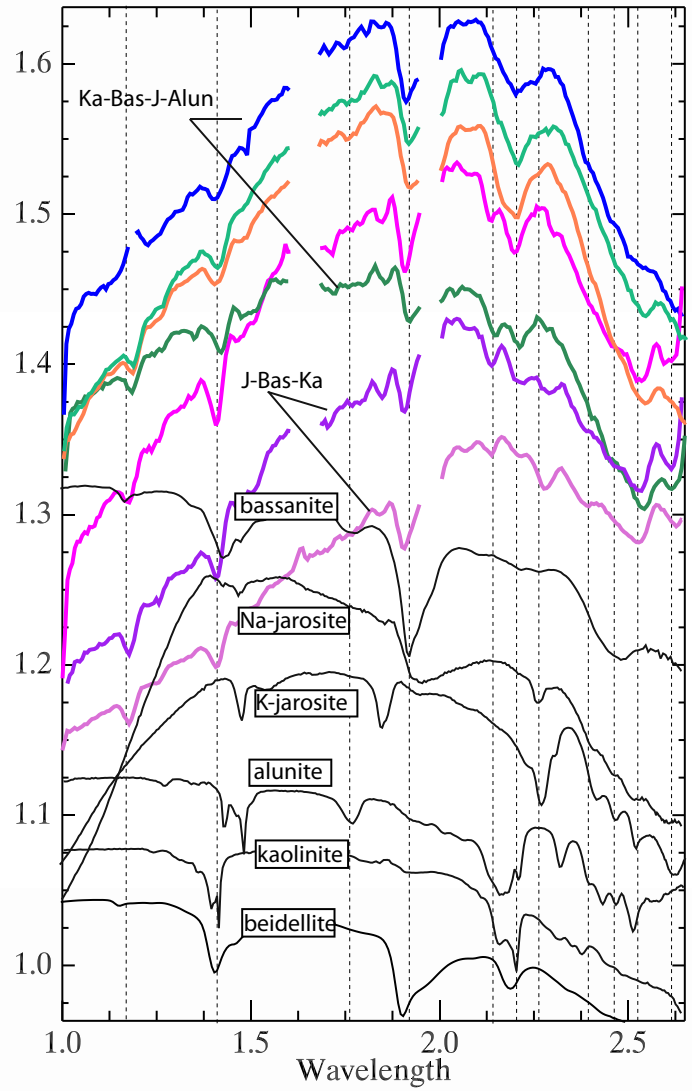

CRISM CUBE 3BFB

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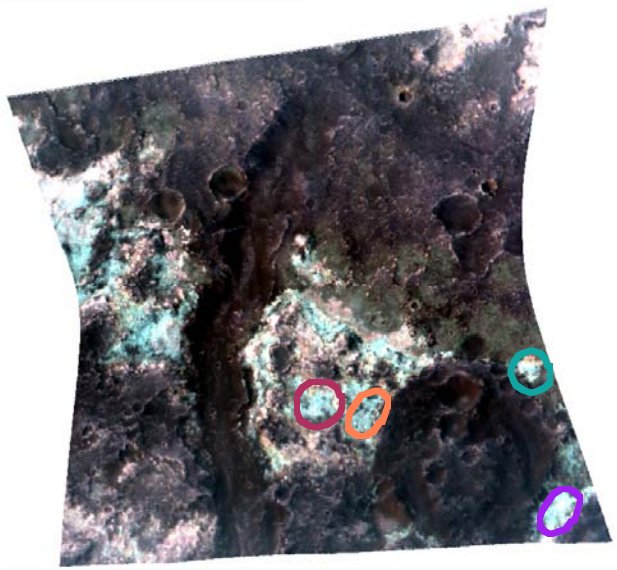

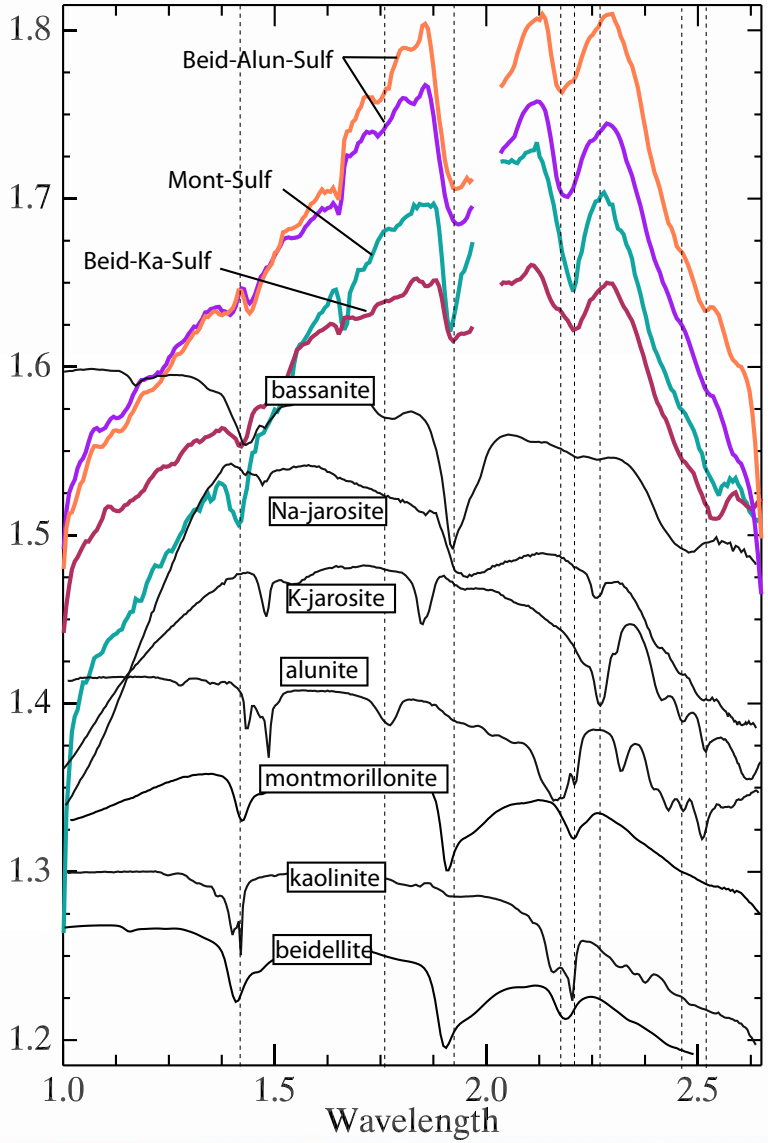

CRISM cube 285A

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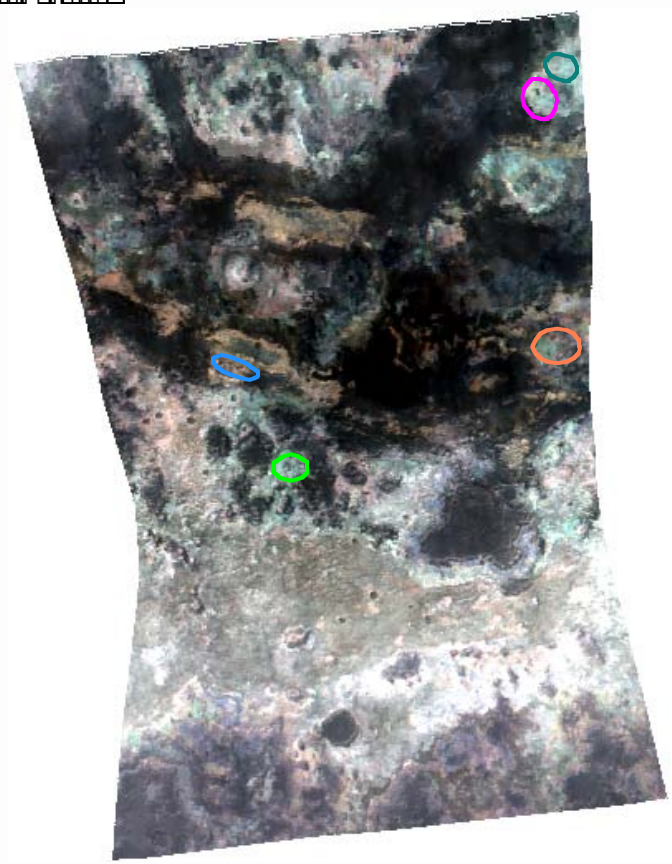
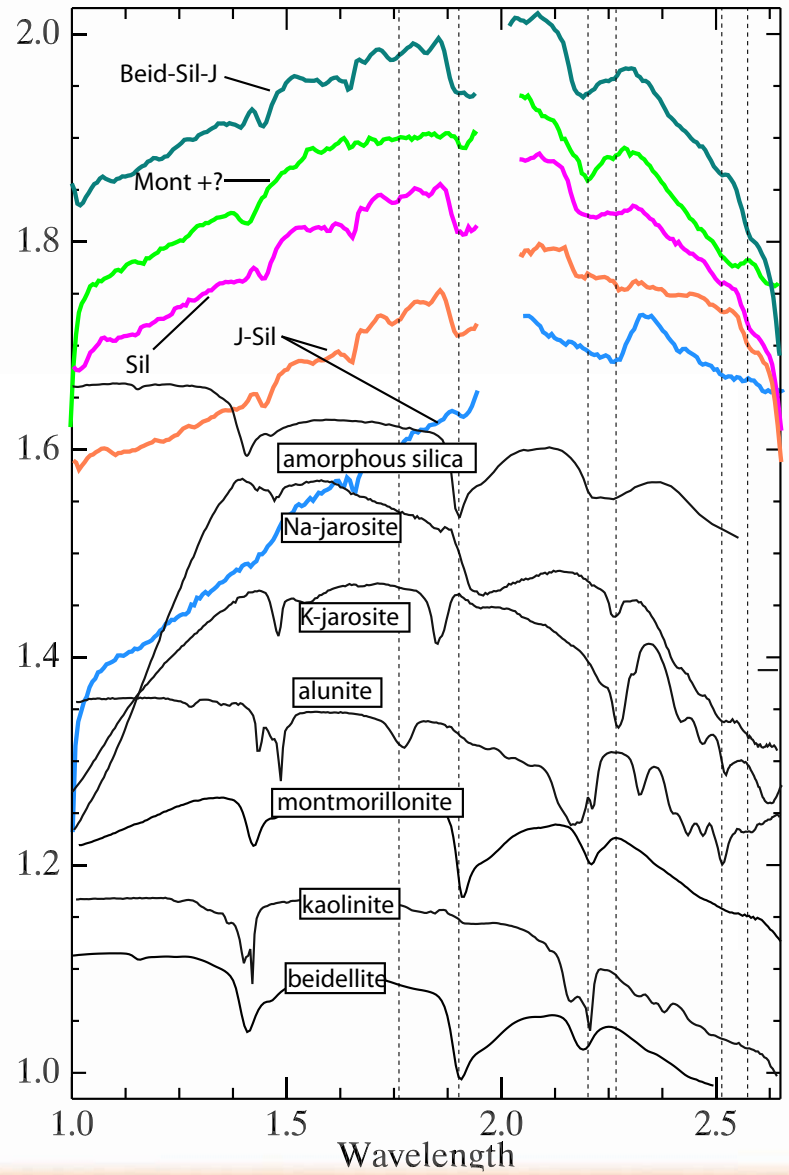
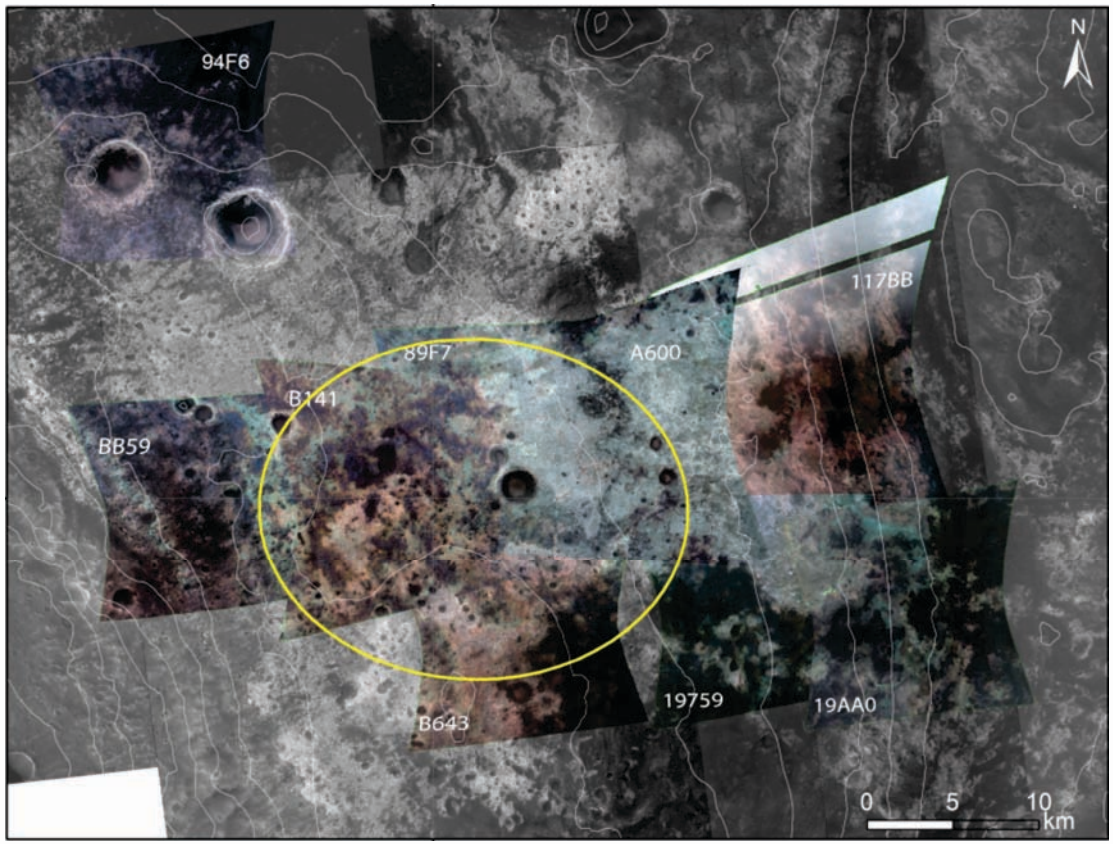
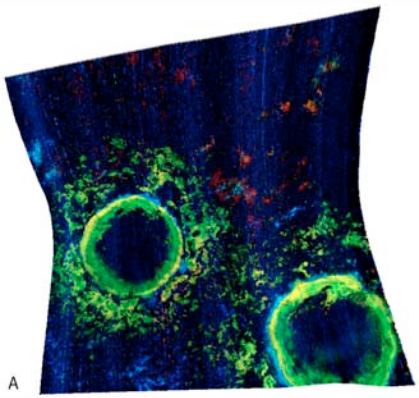




In and around the ellipse





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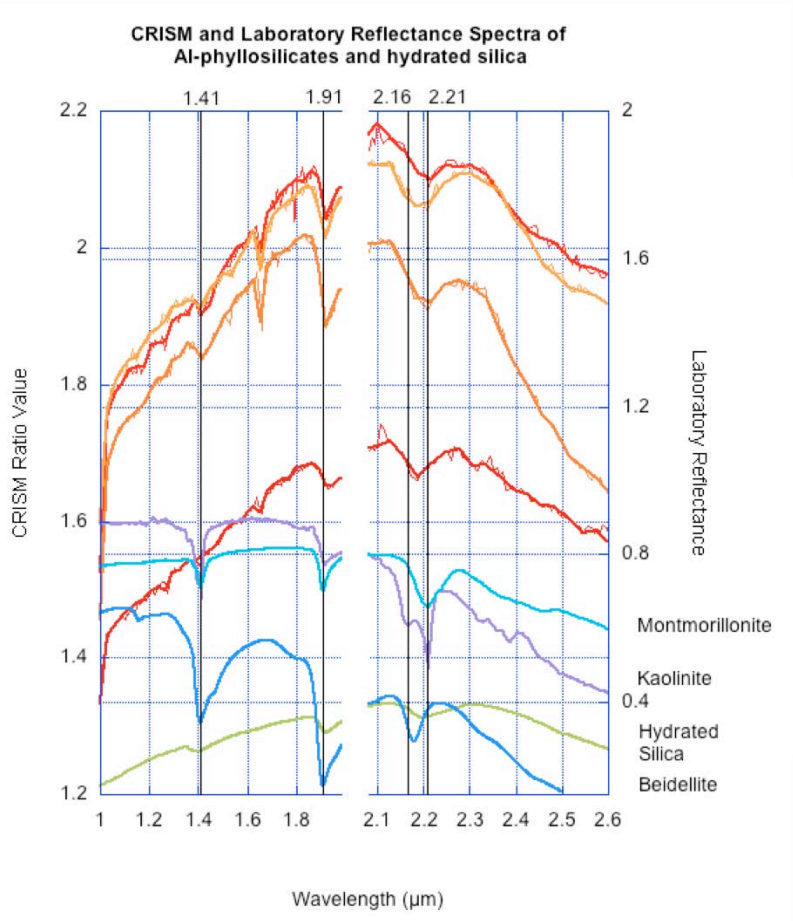
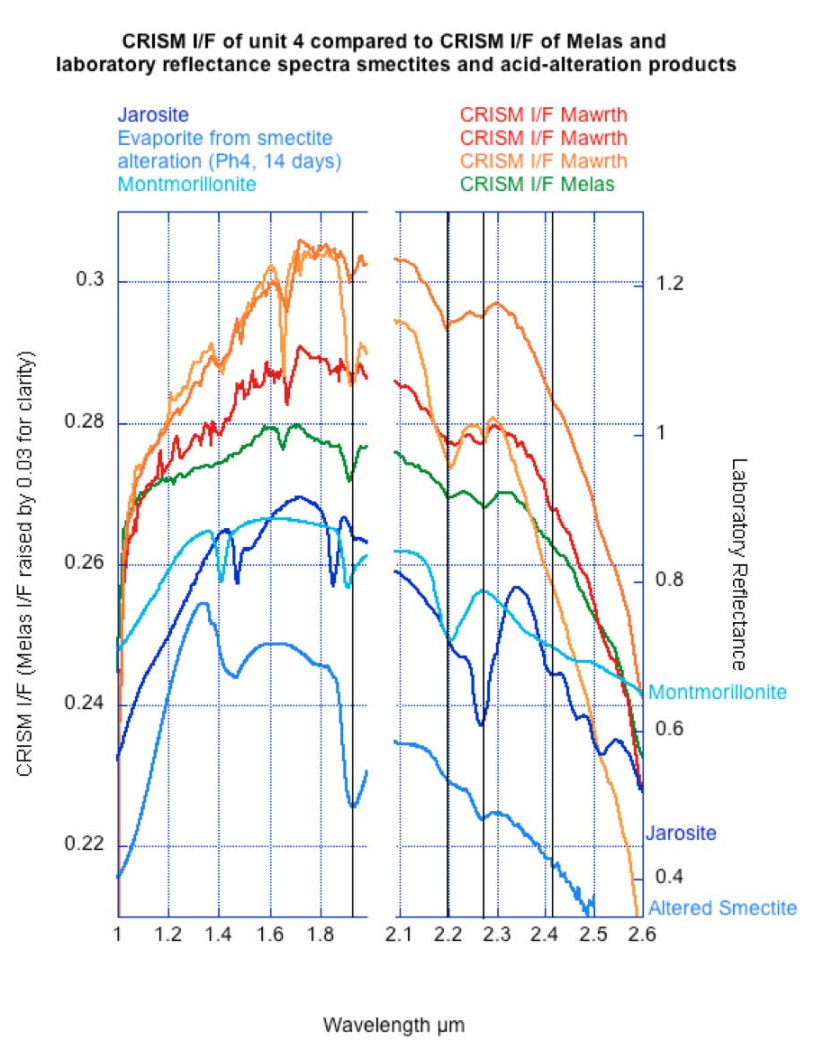
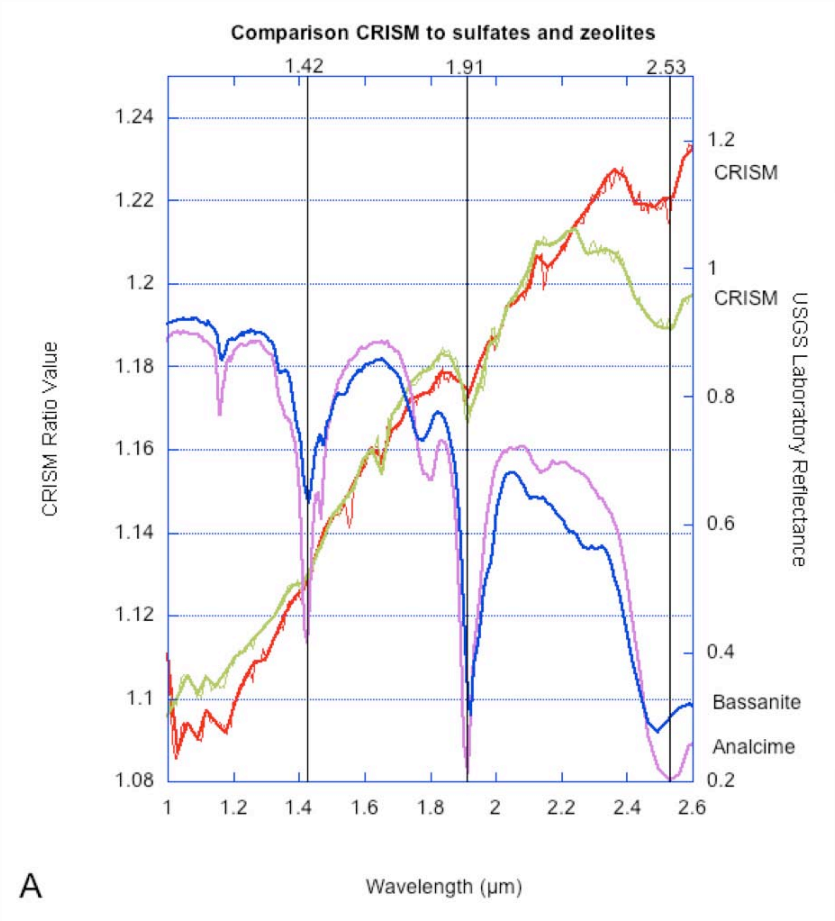
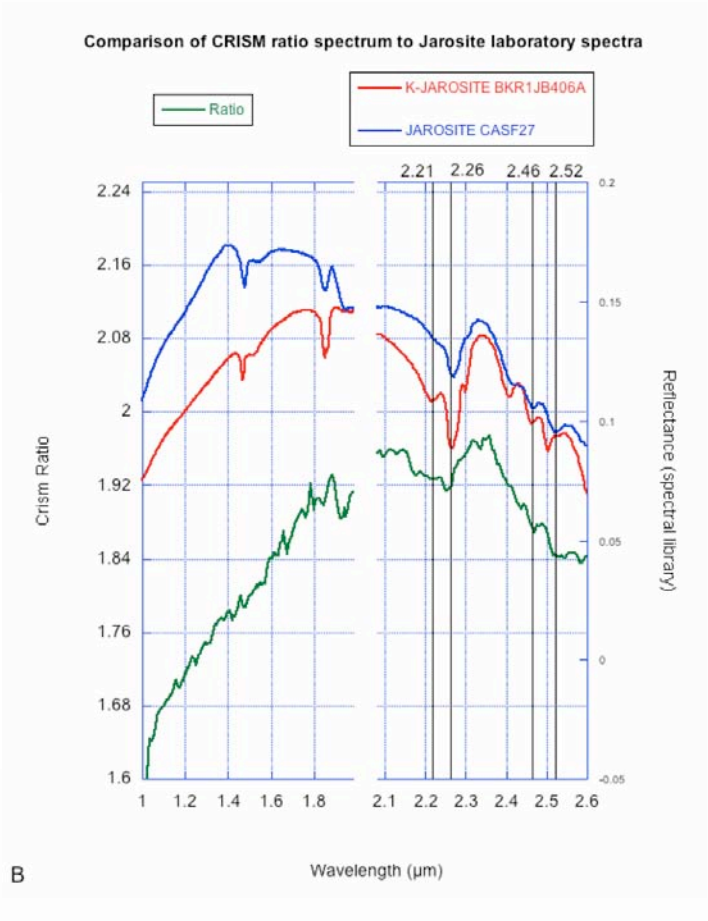
VARIABILITY OF THE ALUMINOUS UNIT?



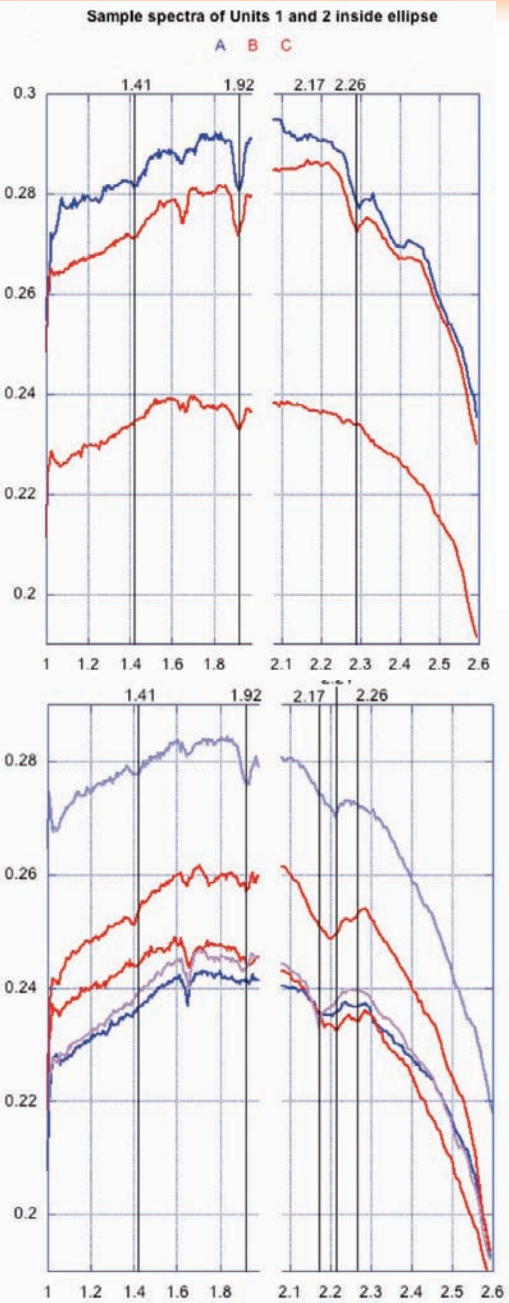


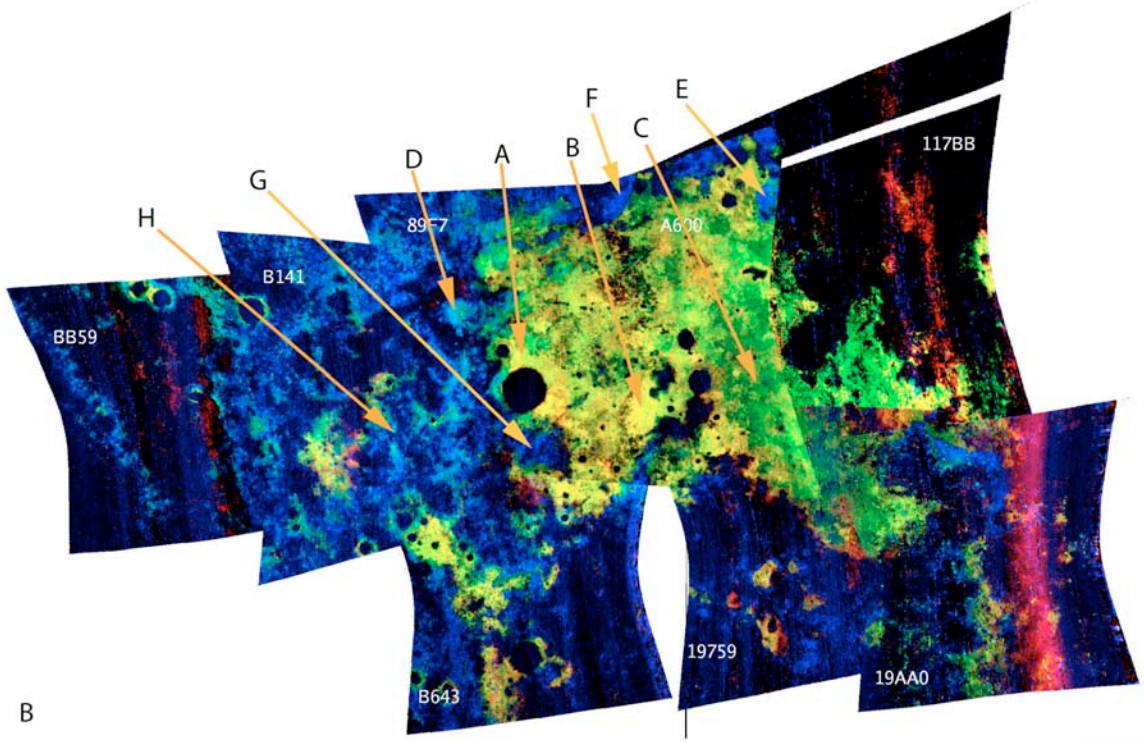
JAROSITE AND OTHER SULFATES?



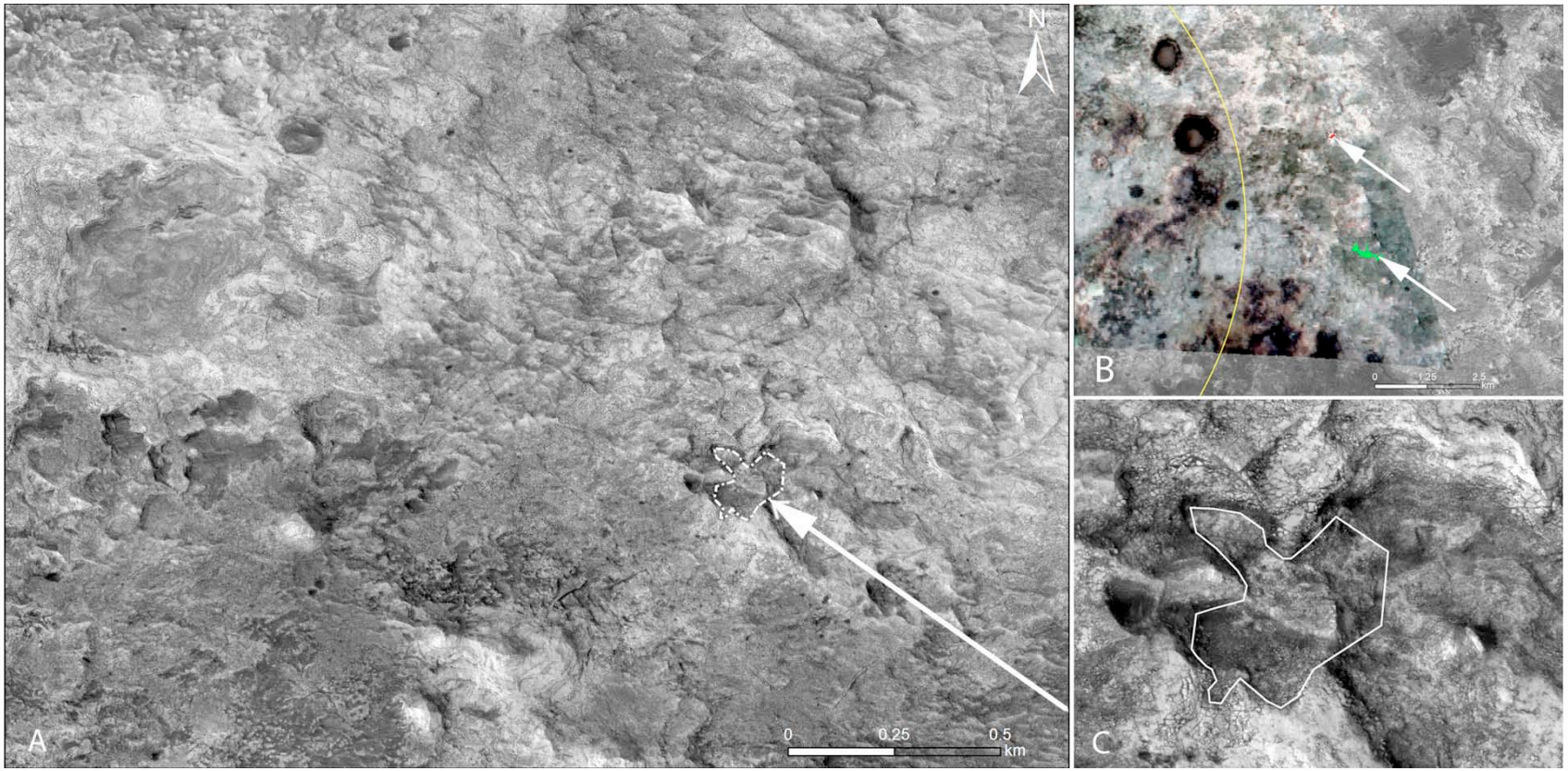


DIVERSITY IN THE ELLIPSE?





Sulfates next to the ellipse?



Multiple Aqueous Environments?

UNIT	MINERALOGY	FLUID	AGE	PROCESSES
	kaolinite beidellite silica jarosite (alunite? bassanite?) FeOx montmorillonite	neutral to strongly acidic, water-limited?	Early Hesp?	surface weathering, ice weathering, groundwater upwelling?
Process gap + time gap				
	nontronite FeOx feldspar? silica?	weakly acidic to alkaline, abundant water	Mid-Late Noachian	subsurface hydrothermal? submarine hydrothermal? surface weathering in wet, neutral conditions?

CONTEXT

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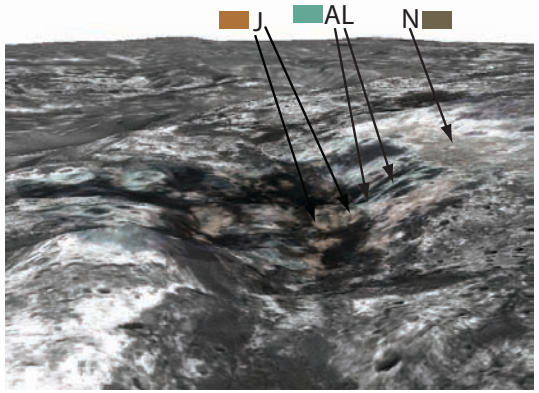

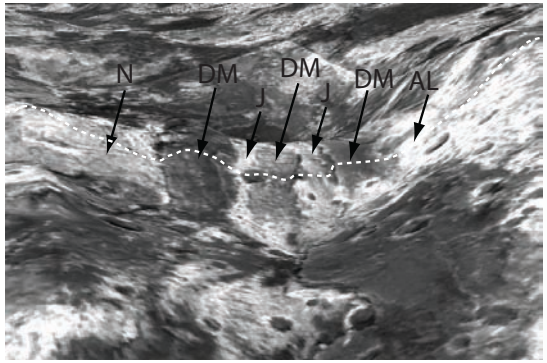

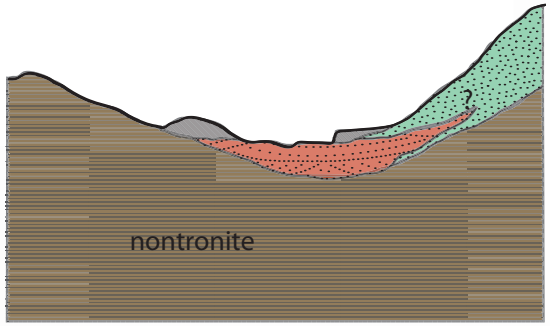
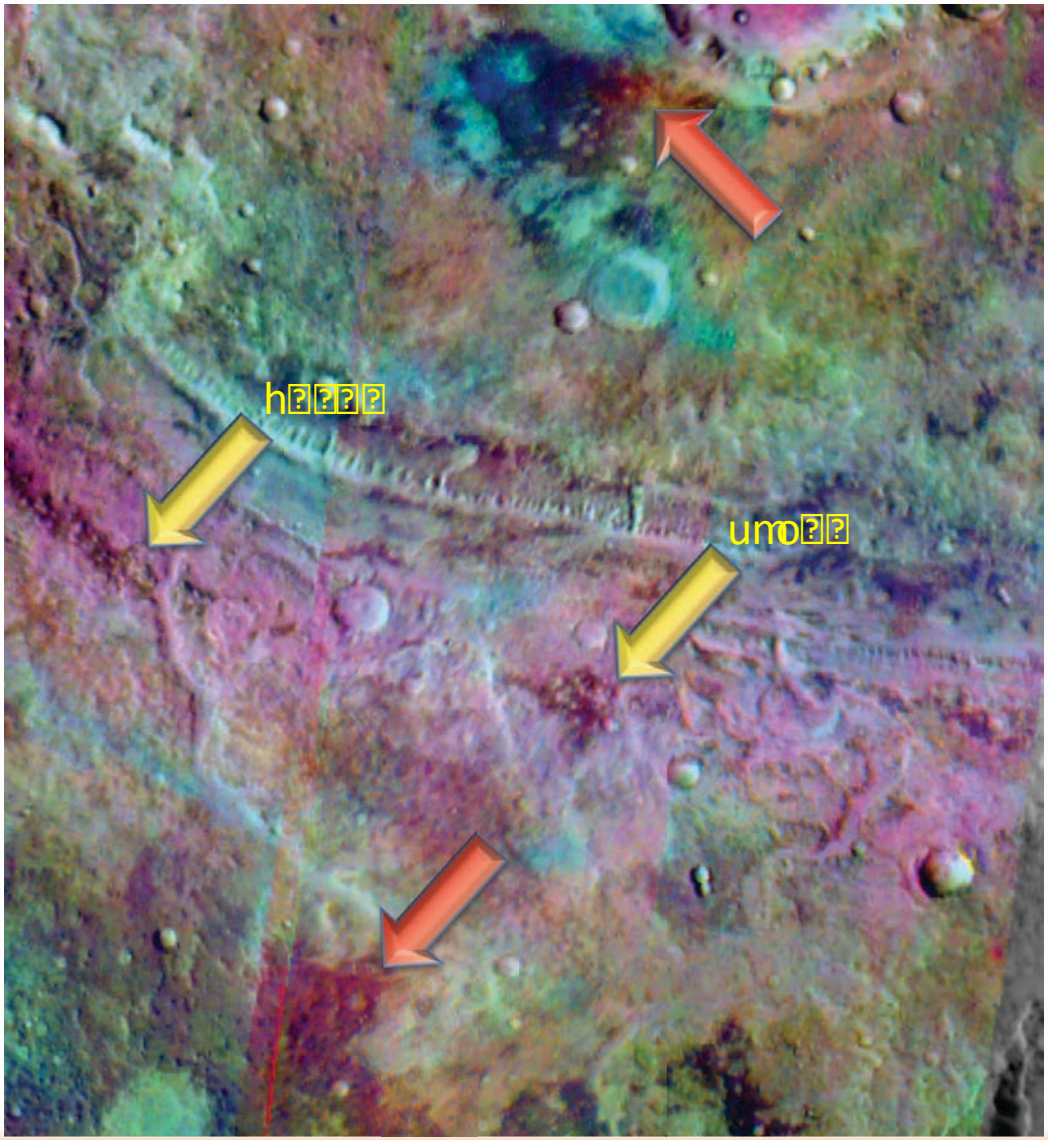
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