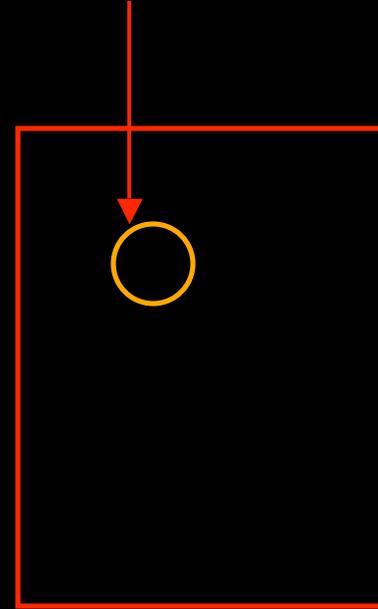


East Nili Fossae site

Mangold, Poulet, Bibring, Mustard

Based on OMEGA detection of alteration material
with landing ellipse inside this material over a smooth surface

Site Mustard

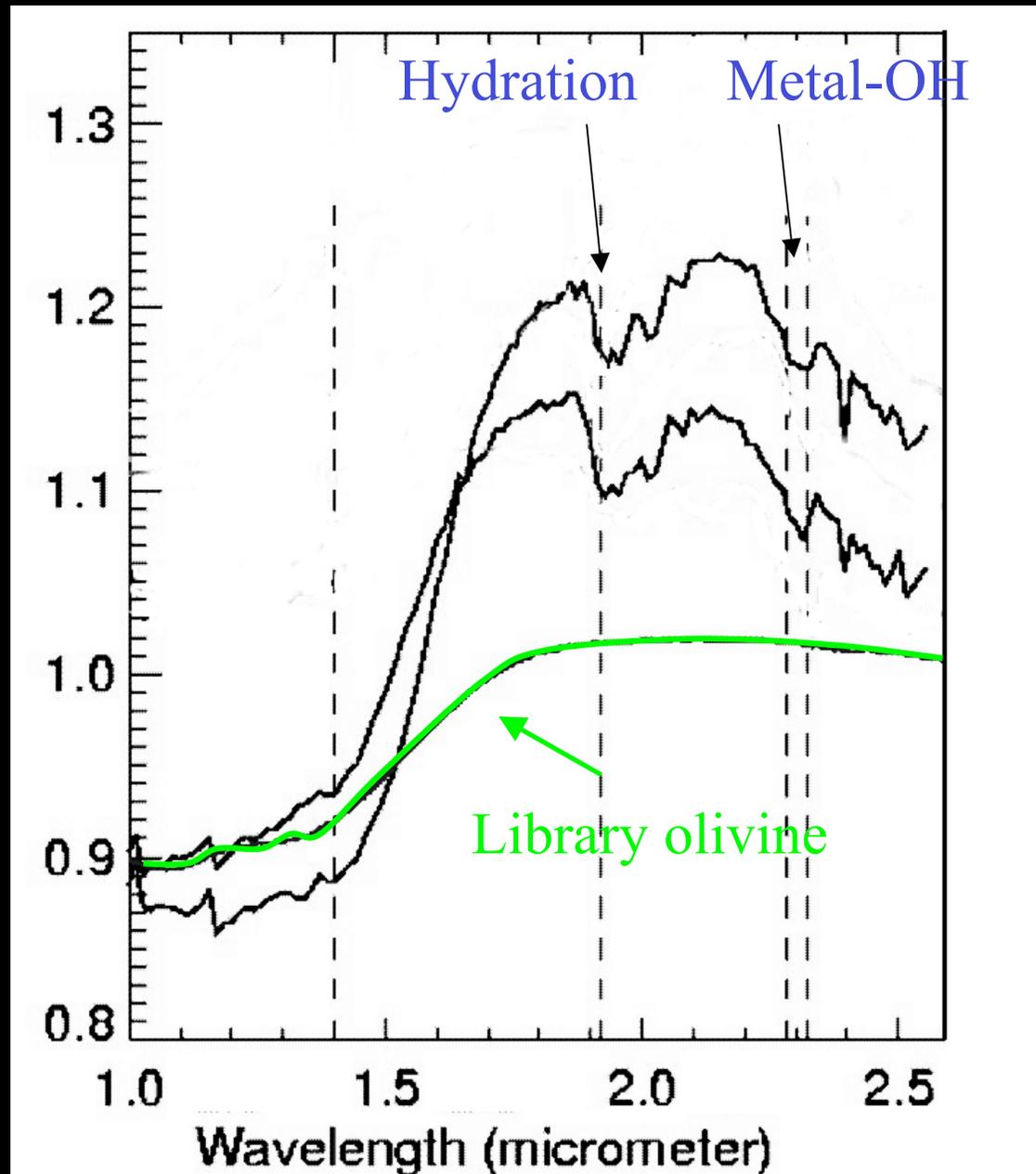


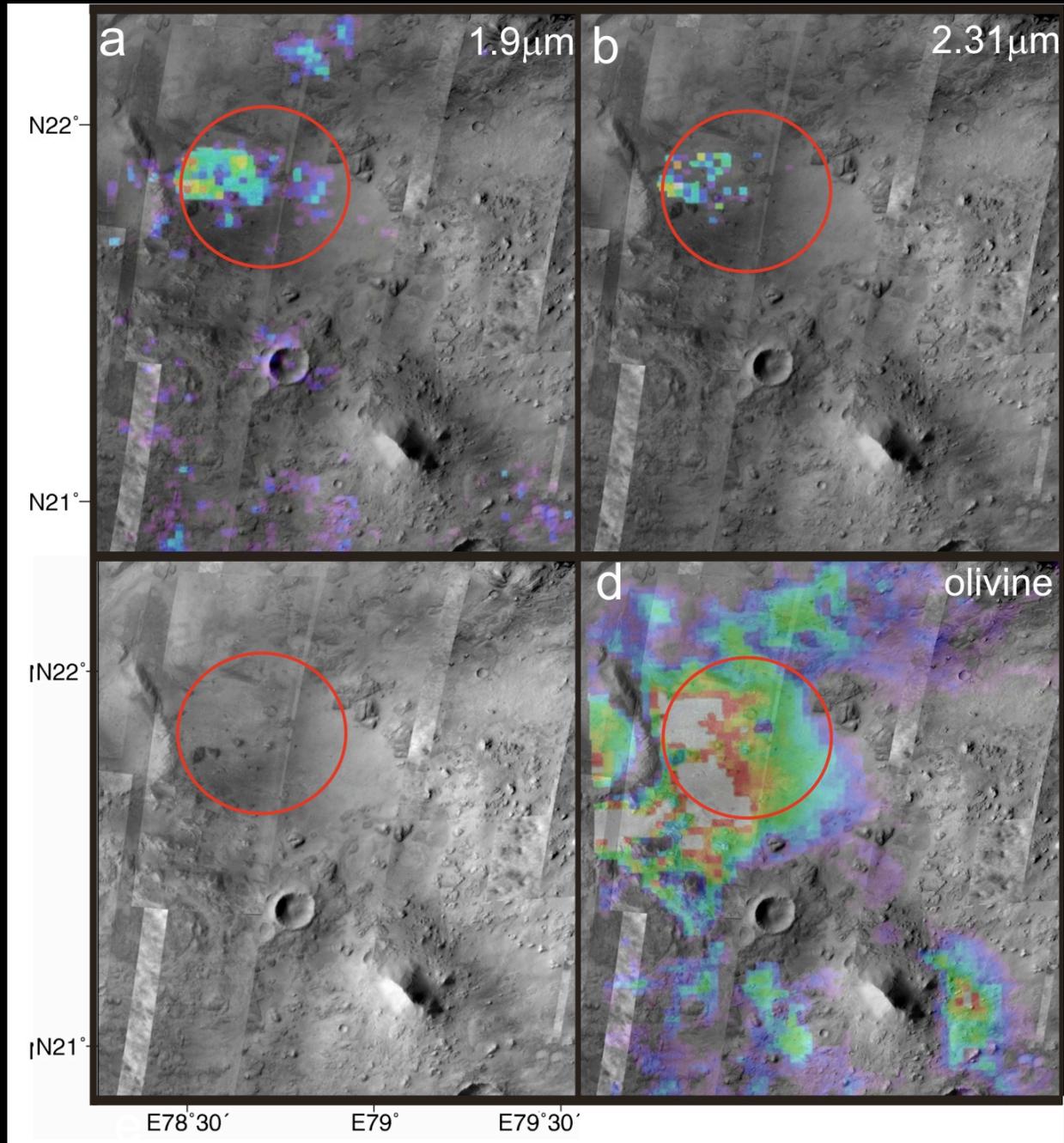
Red=2.3 μm band
Blue=1.93 μm band
Green: olivine

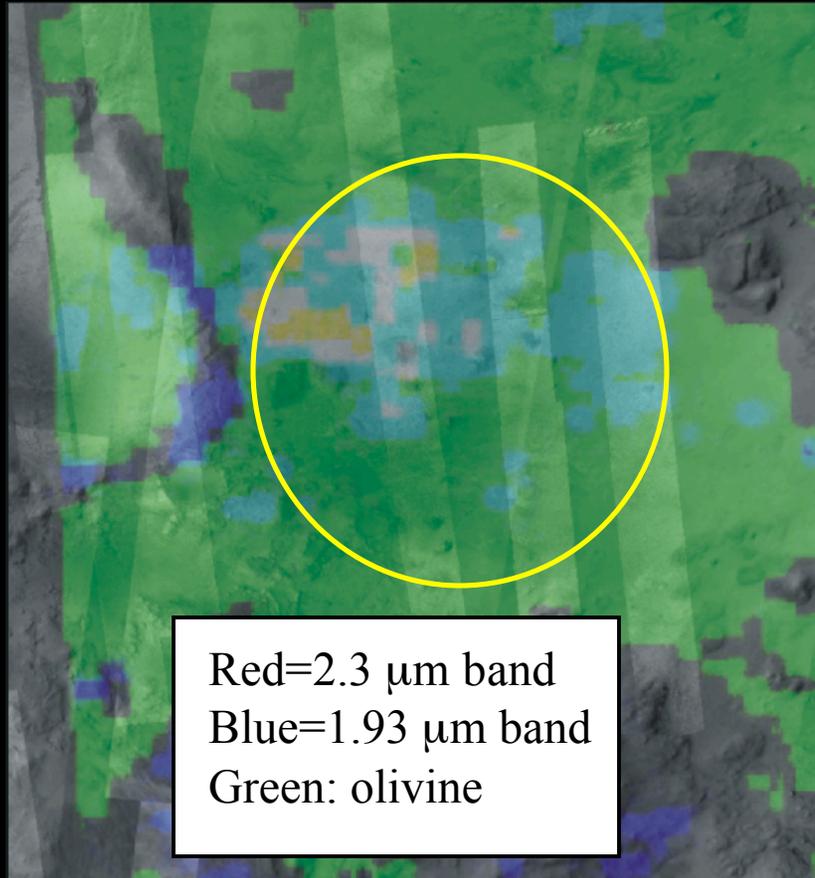
2 examples of olivine + hydration

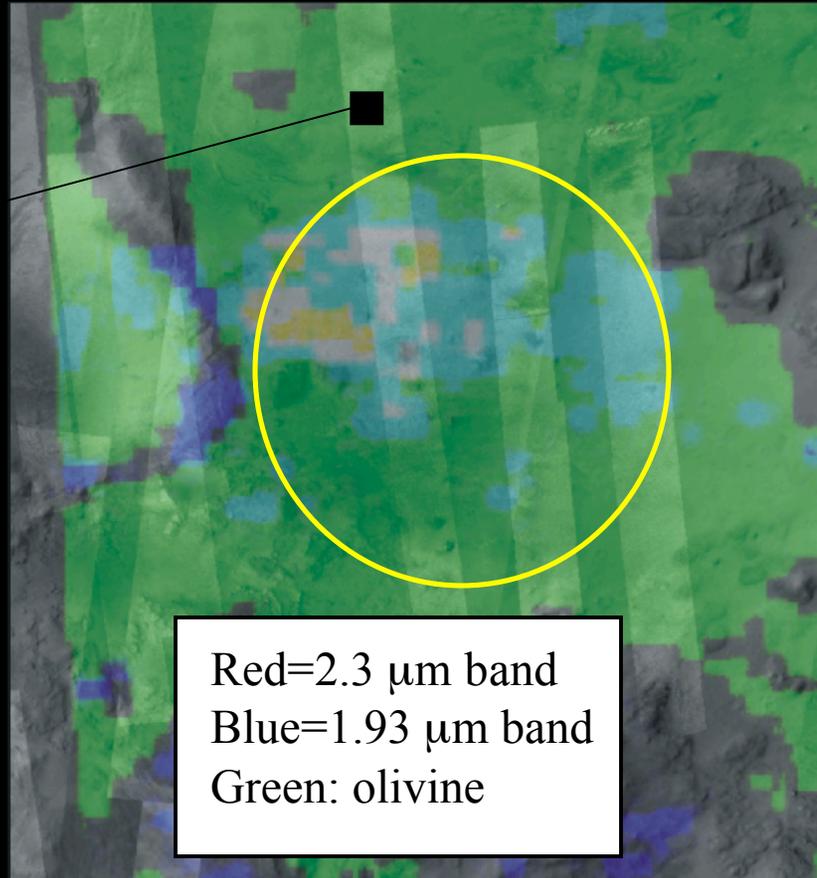
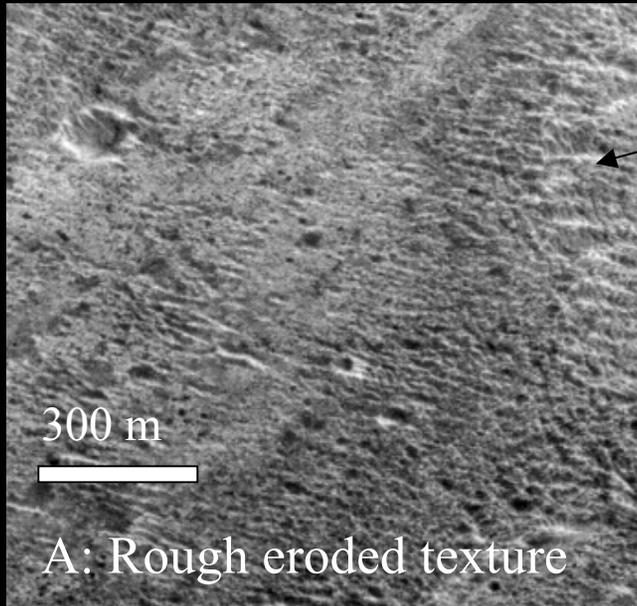
Identification of an olivine-rich unit with hydration bands

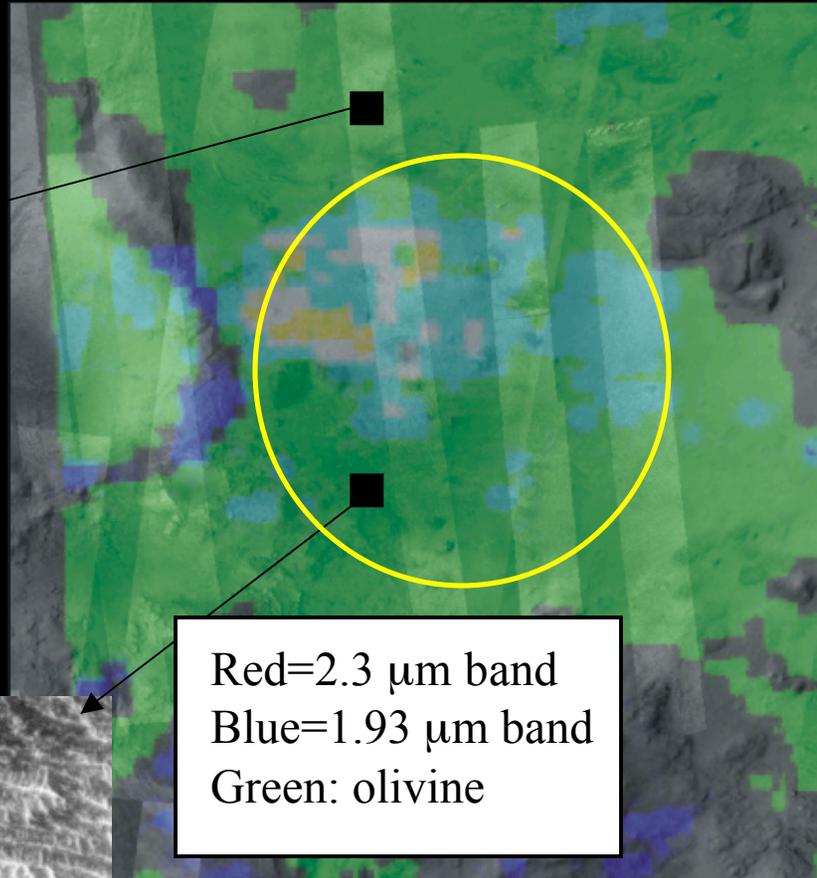
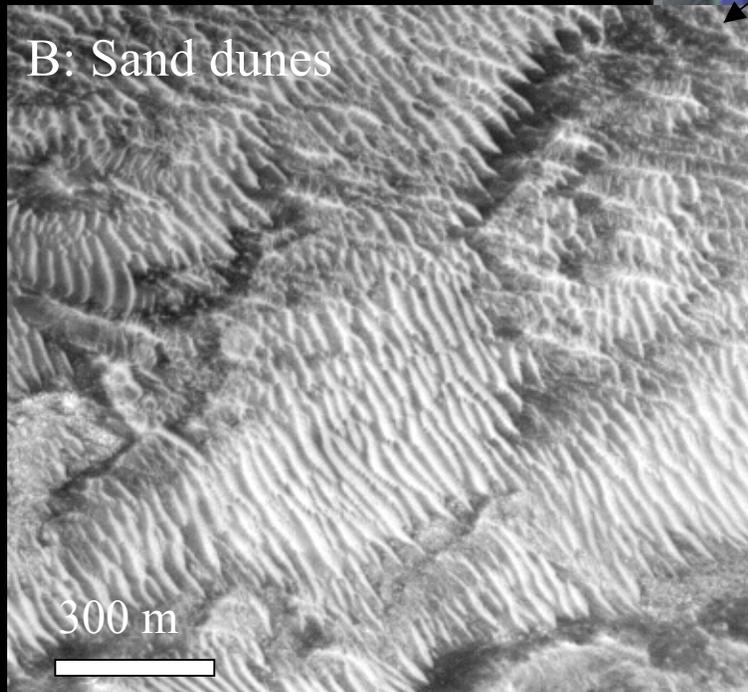
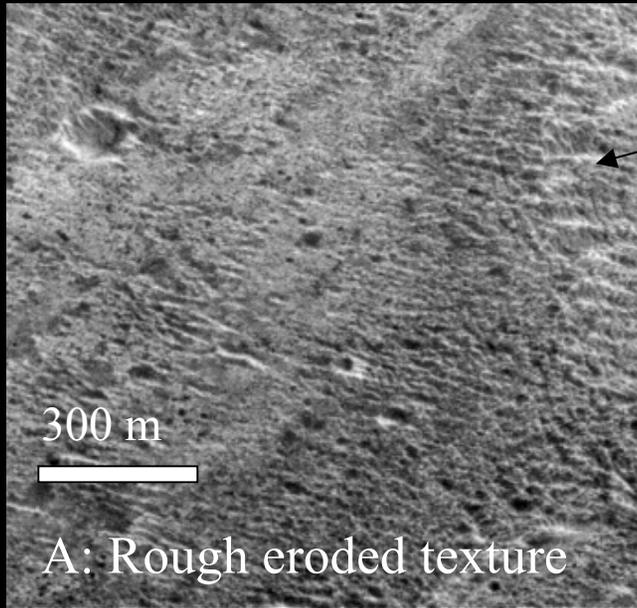
- Olivine
- Hydration typical of clays (1.93+2.30 band)
 - ⇒ Iddingsite?
 - ⇒ Mixing of both types
- Serpentine ?
Not exact spectra

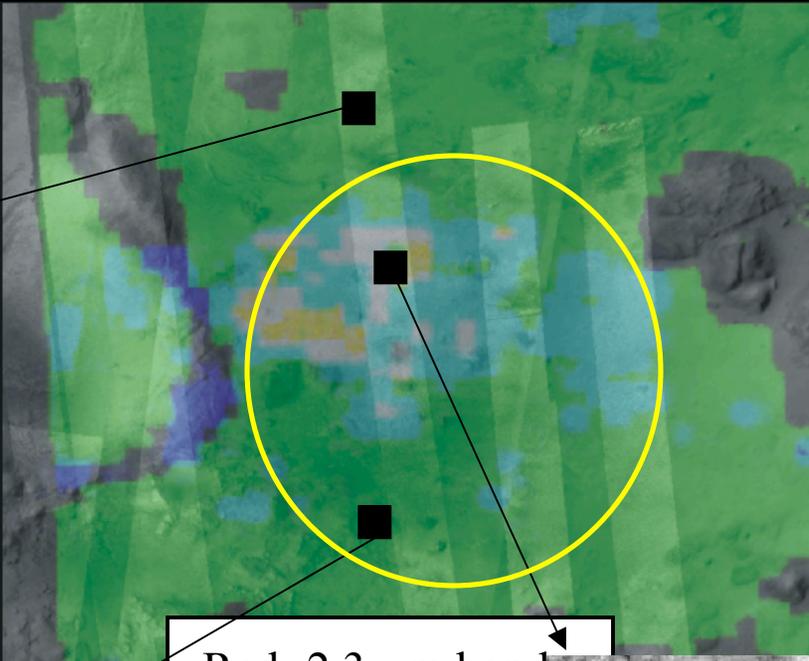
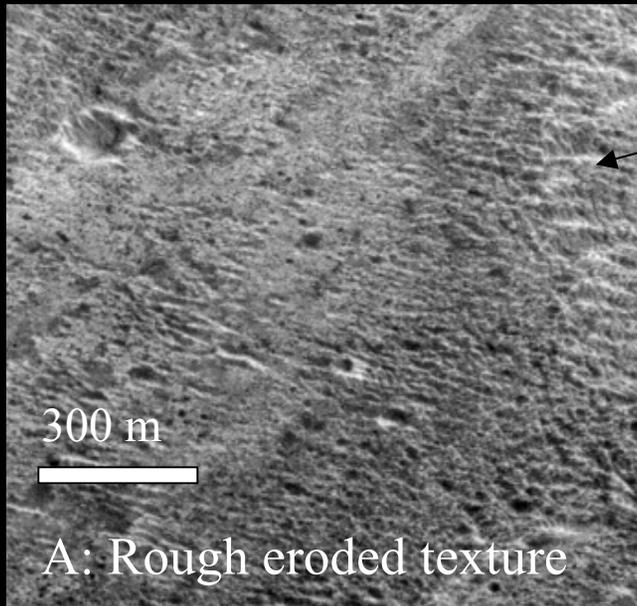






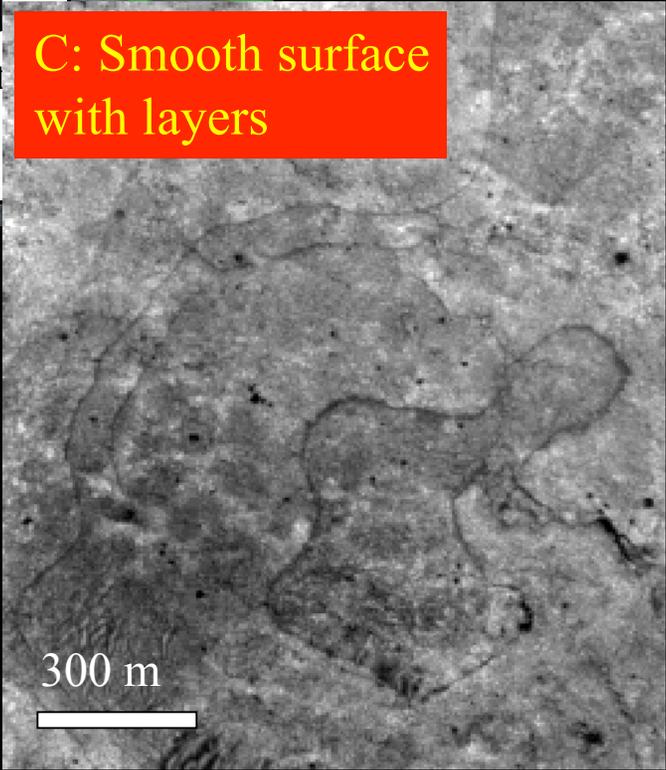
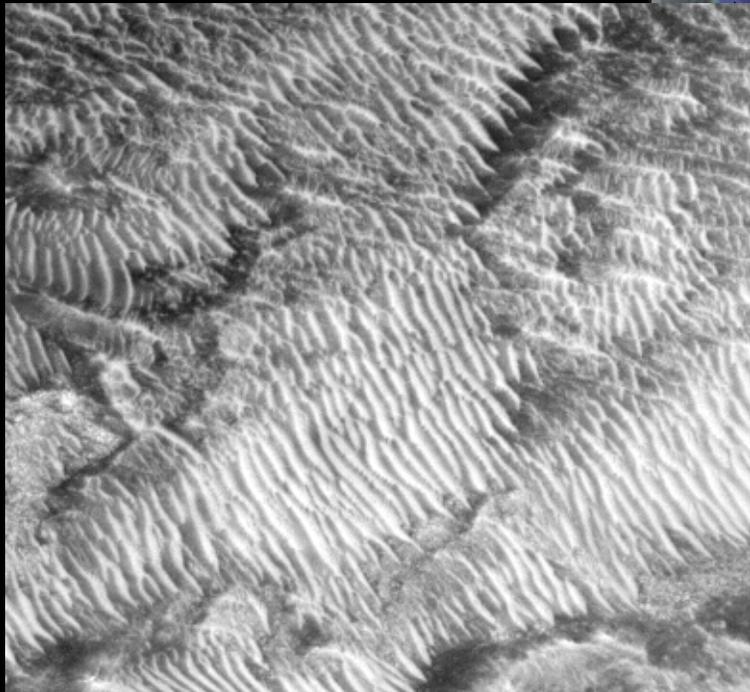






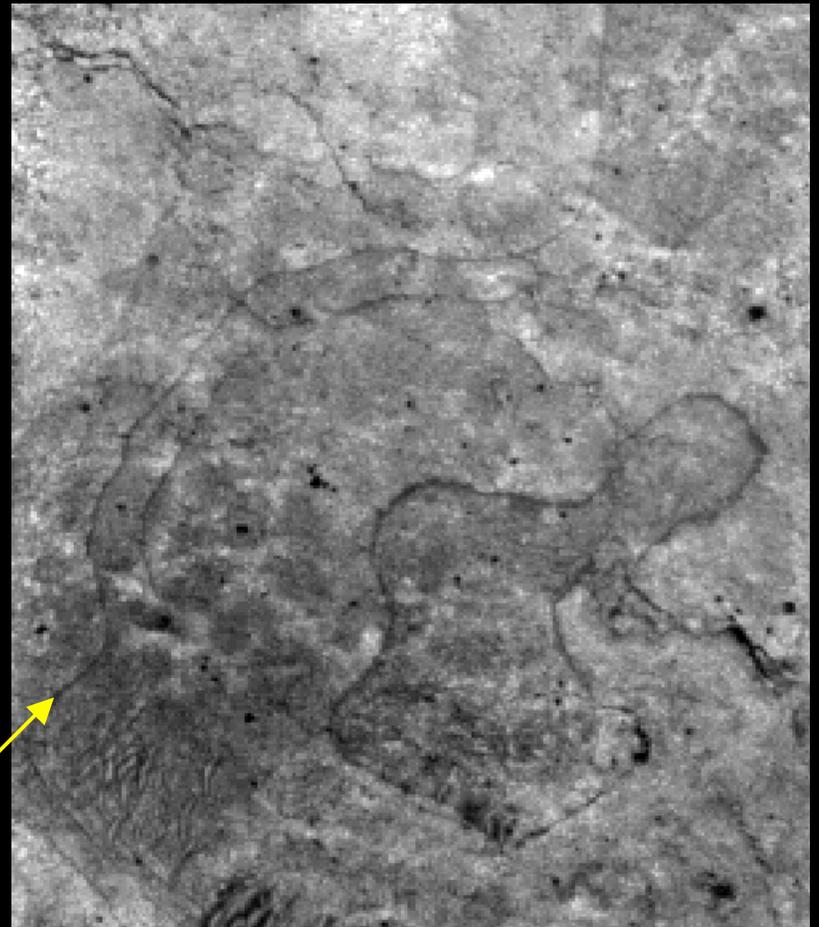
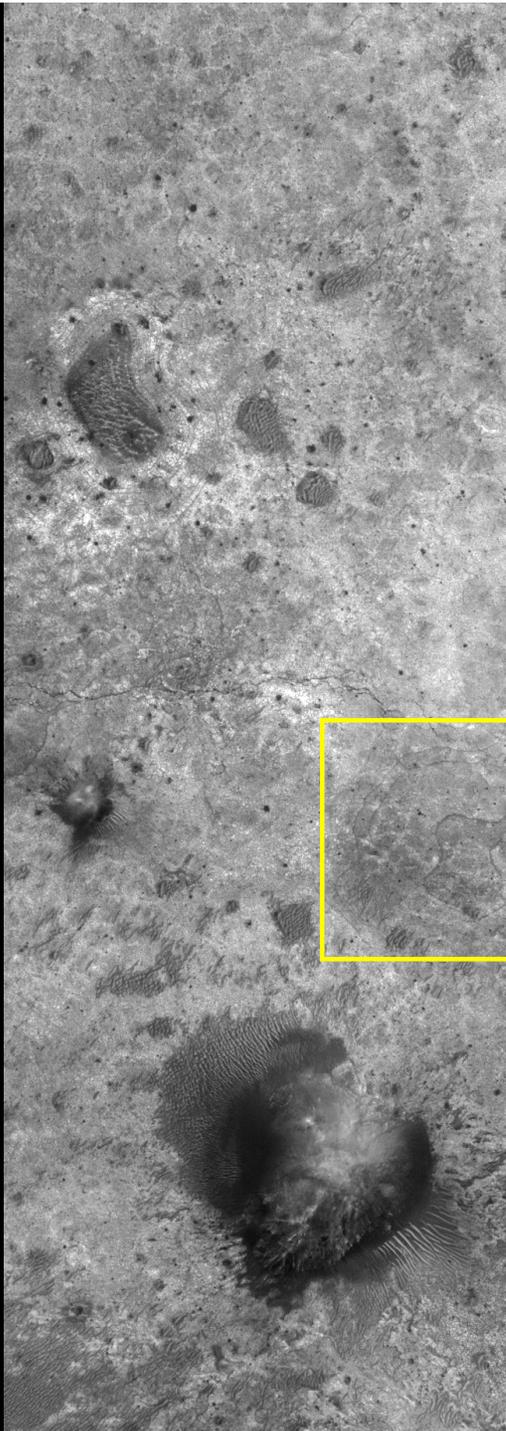
Red=2.3 μm band
Blue=1.93 μm band
Green: olivine

C: Smooth surface with layers



At MOC scale:

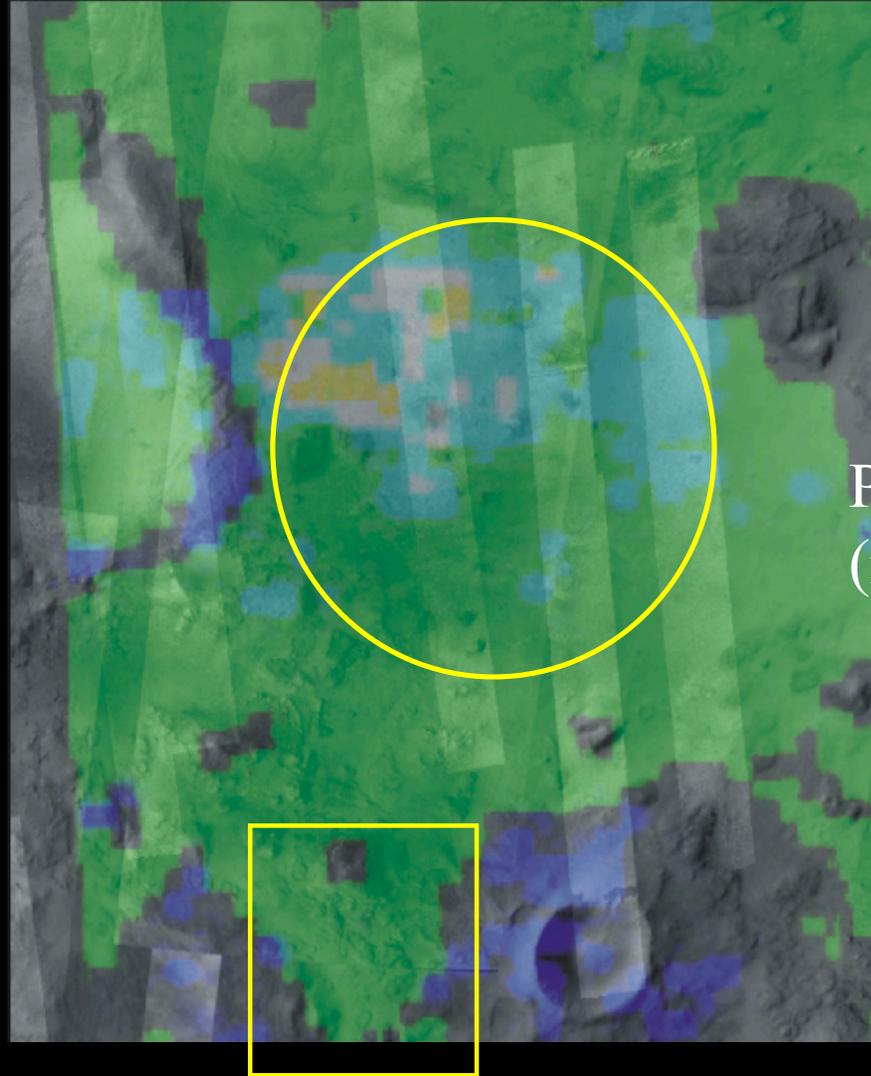
- Layering visible
- Rocks outcrops
- Smooth terrains at MOC scale



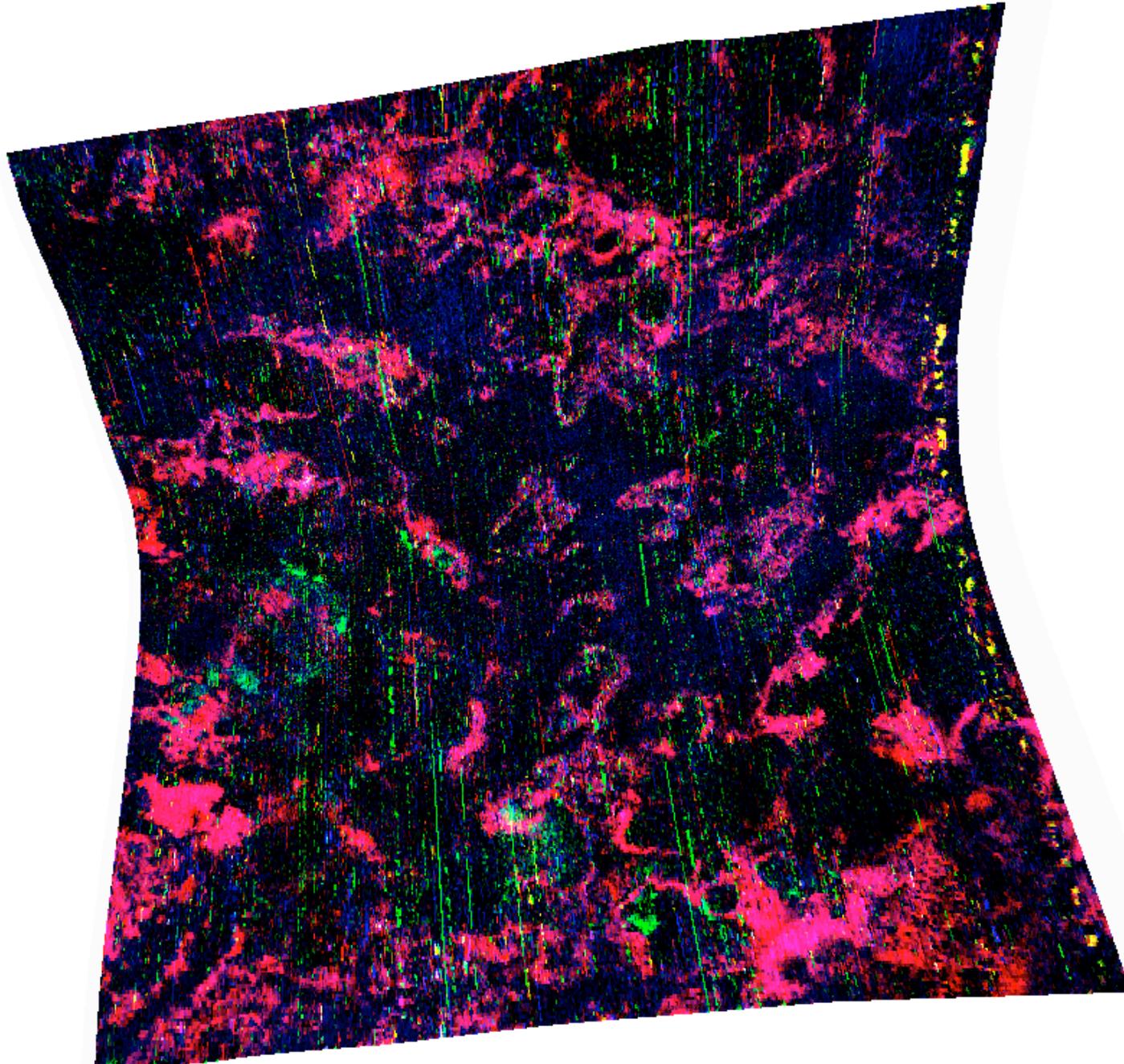
No HiRISE yet to clarify nature of layering

CRISM data?

Mafic: Red=olivine



Phyllosilicates
(red=2.3 blue=)1.9)



CRISM

Smectites
together
olivine

Kaolinite
might be
present
(Ehlmann;
Mustard)

Interpretation:

1st hypothesis:

Olivine rich material with local or partial alteration

⇒ More hydrothermal than sedimentary cases

⇒ Alteration as coating or veins alteration possible

2nd hypothesis:

Spatial mixing of smectites with olivine sand

⇒ then upper part of the altered basement described by Jack

In both cases:

Diversity of material

Access to more than one unit

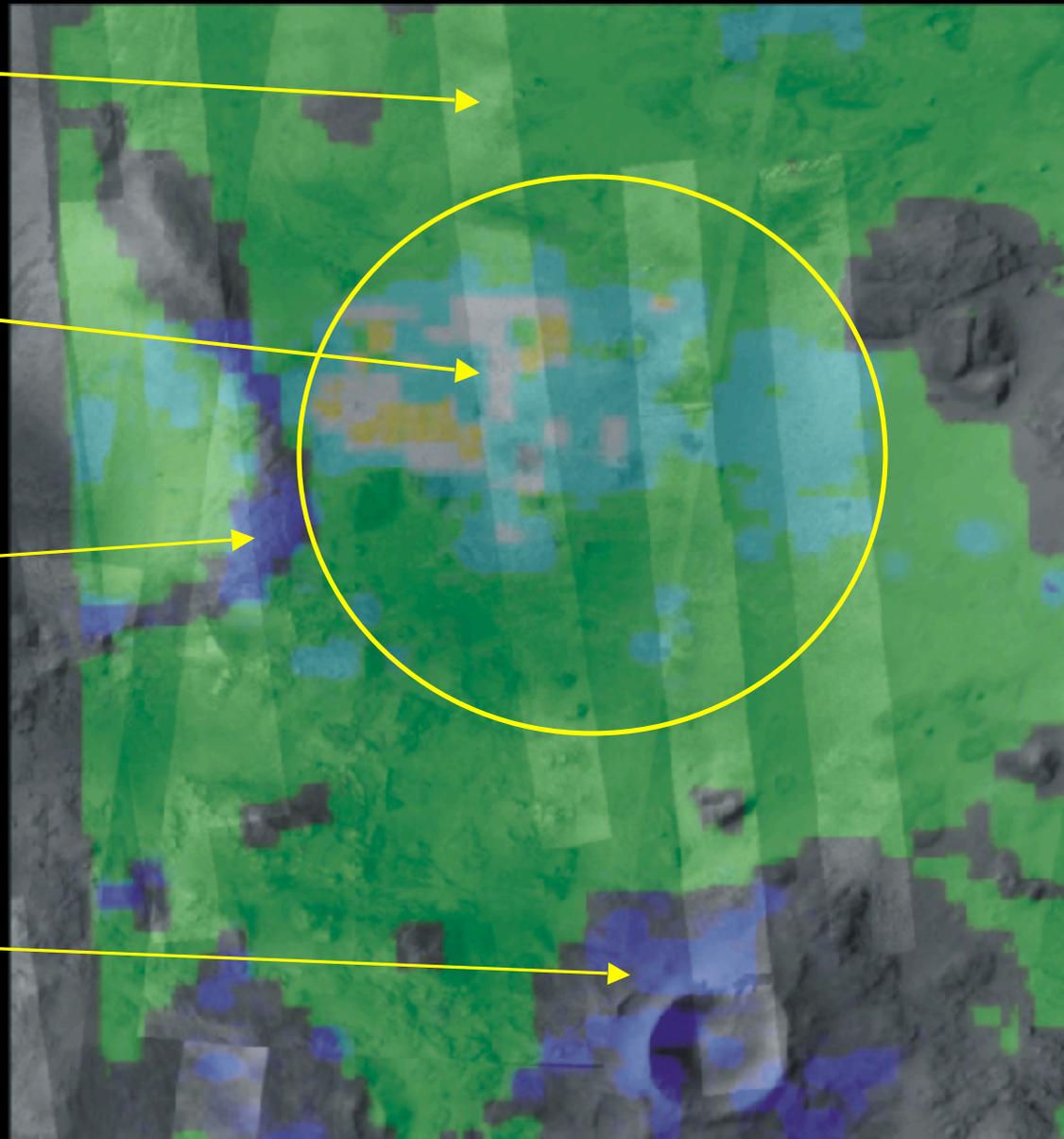
A VARIETY OF UNITS CAN BE REACHED BY THE ROVER

Olivine outcrops

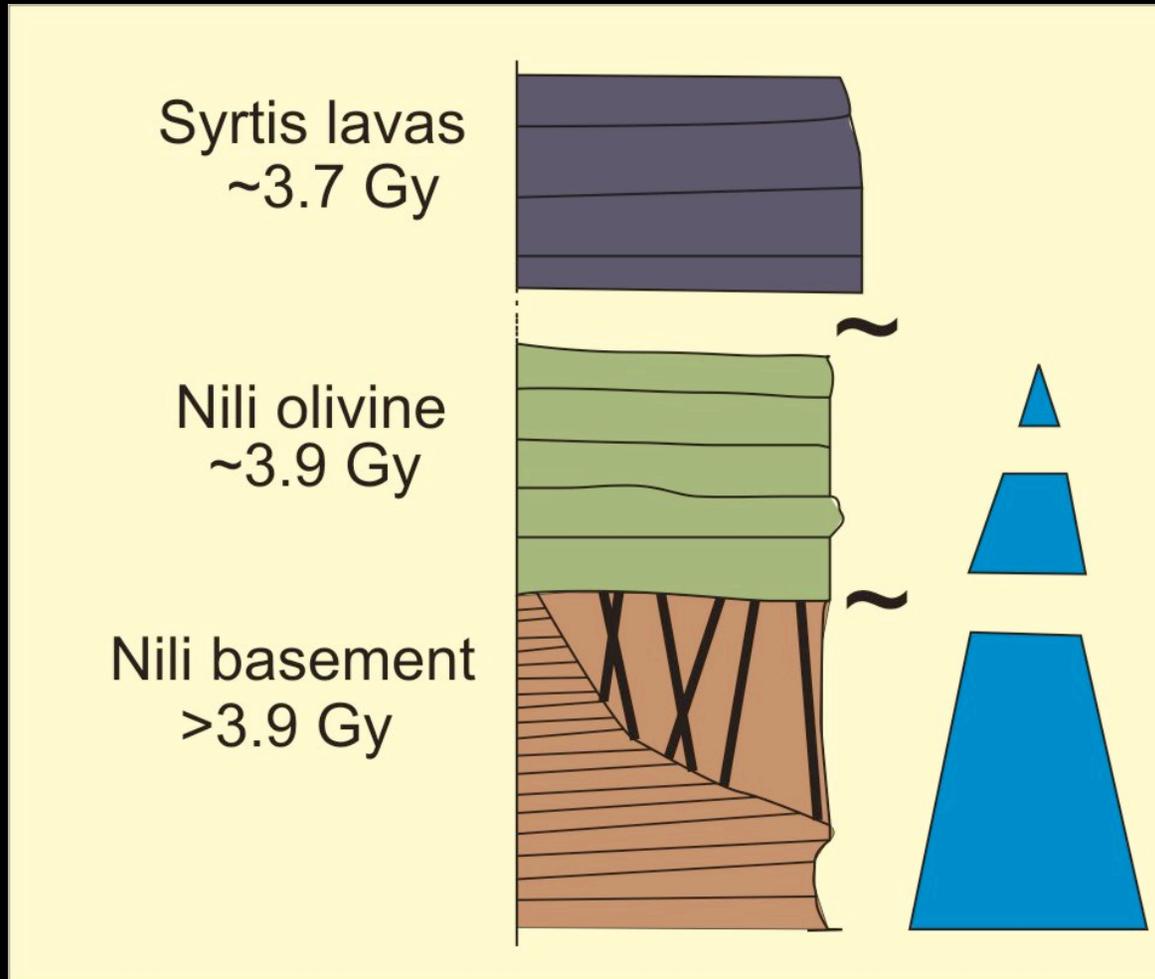
Altered minerals
with olivine

Altered minerals
alone

Hydrous ejecta



Age: Noachian



No alteration

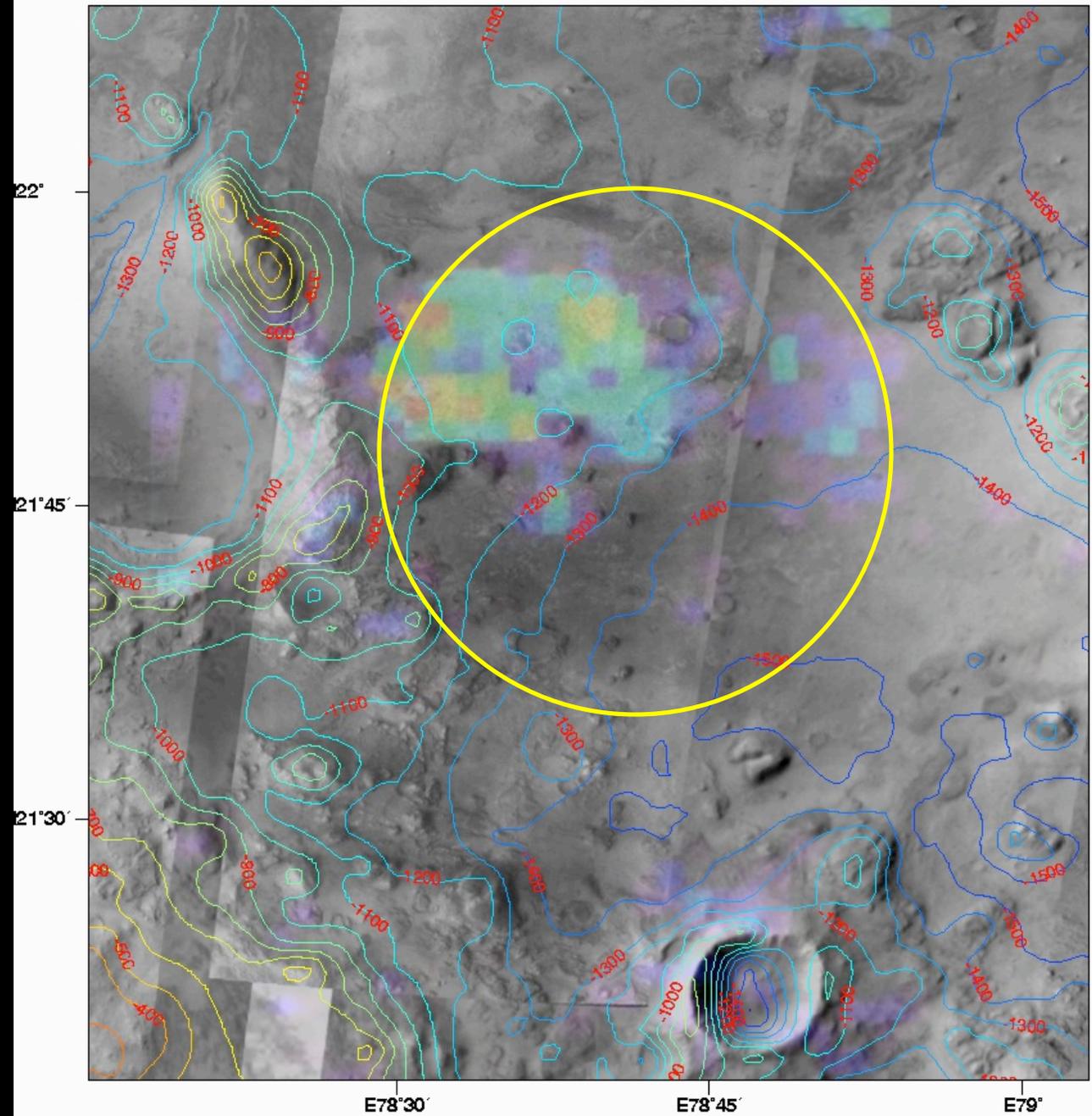
Partial /local
alteration

Basement
alteration

SAFETY:

Regional slopes $< 3^\circ$
Inside ellipse

Elevation:
-1.1 to -1.4 km

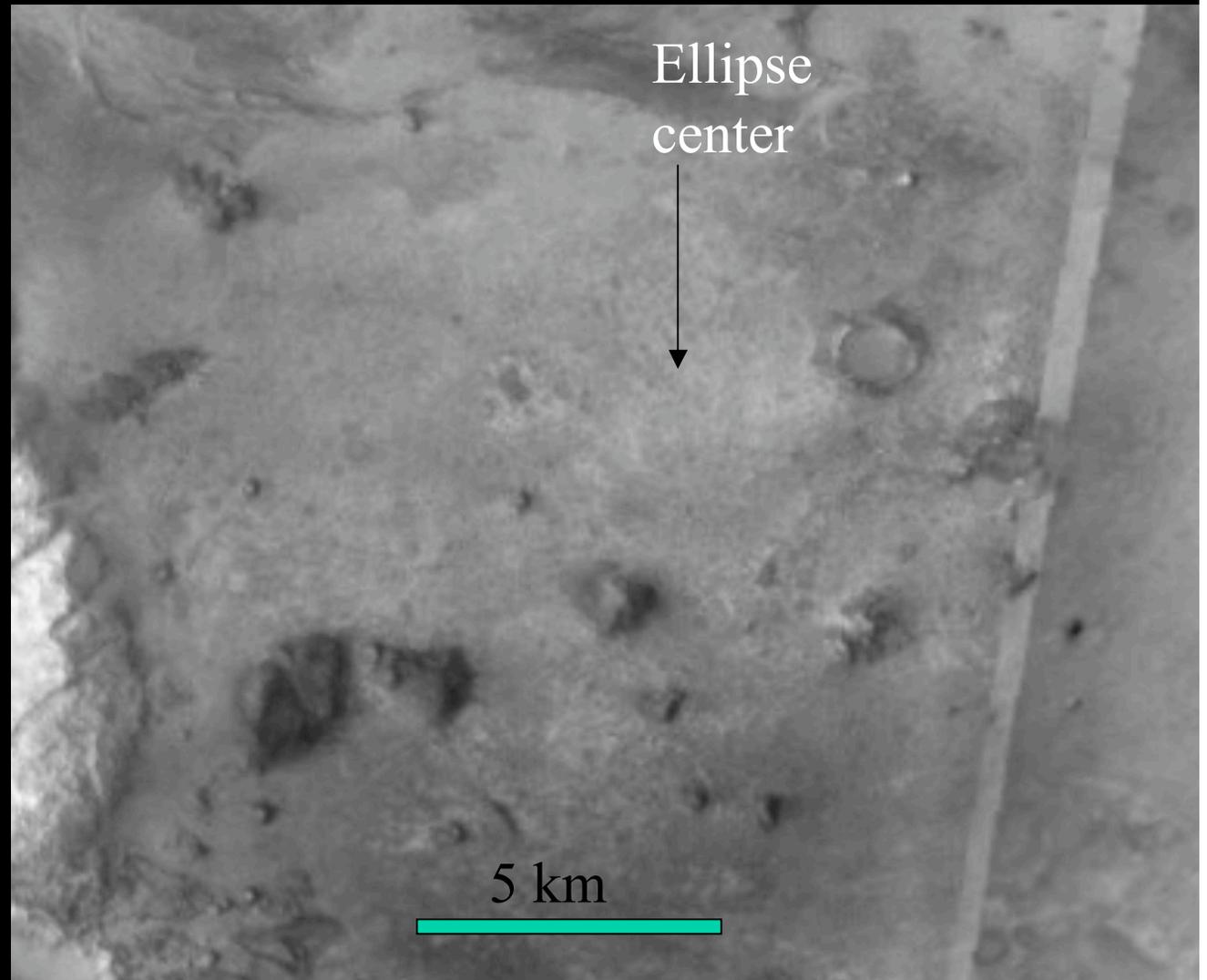


SAFETY:

Regional slopes $<3^\circ$
Inside ellipse

Elevation:
-1.1 to -1.4 km

A few hills covers
 $<5\%$ of the area



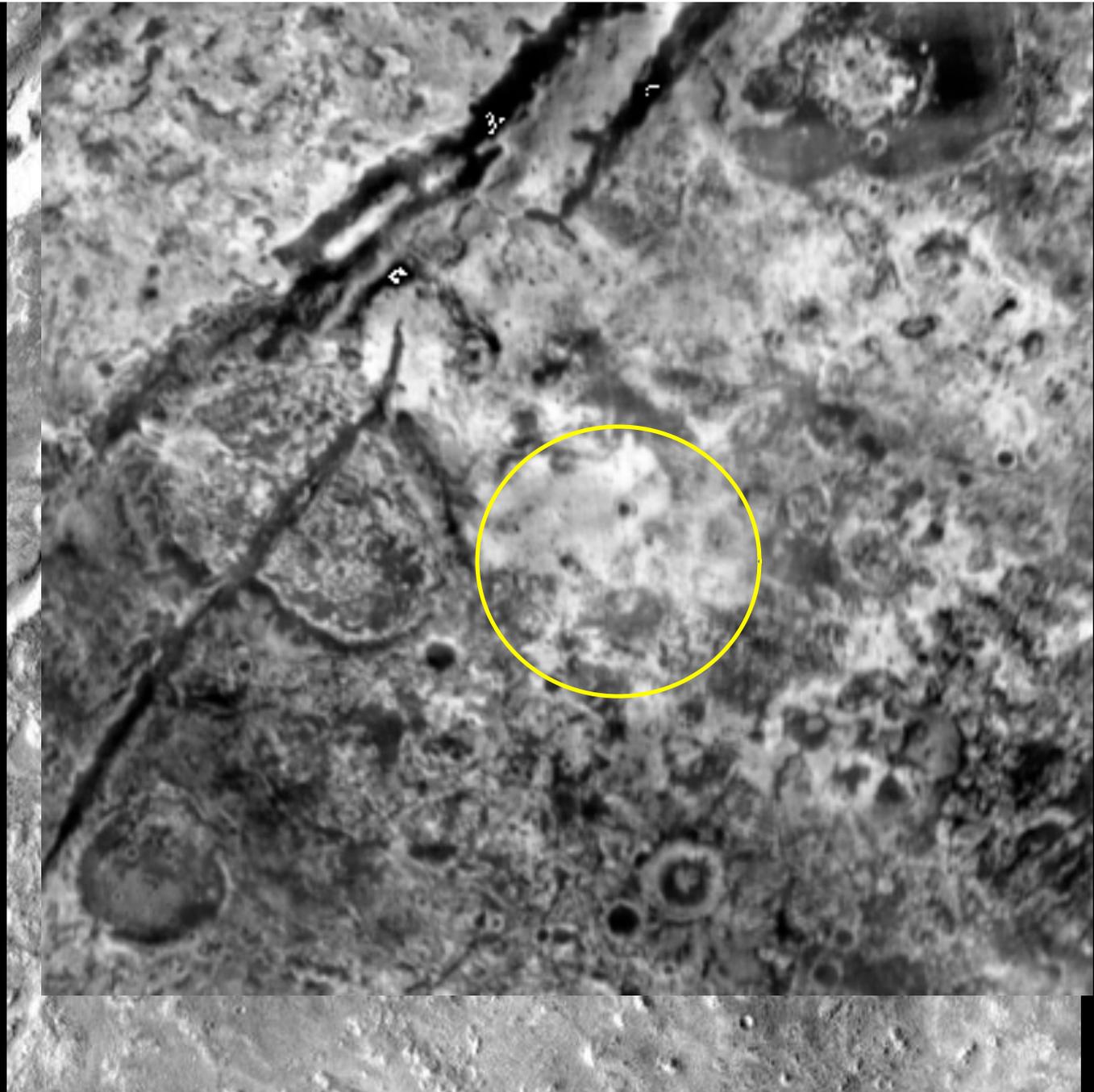
THEMIS visible mosaic

THEMIS

Rocky terrains

TES inertia:
medium to high
(200 to 600)

No dust



Subliminal message

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GO CHEMCAM!

Jean-Luc LACOUR / 2004 (CEA)

More i

Subliminal message



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