

PRESS EMBARGO

The following presentation will be published in Nature on March 17th, and is subject to Nature's embargo on press reporting.

Pack-ice on Mars



*John Murray, Jan-Peter Muller, Gerhard Neukum & the
HRSC Mars Express team*

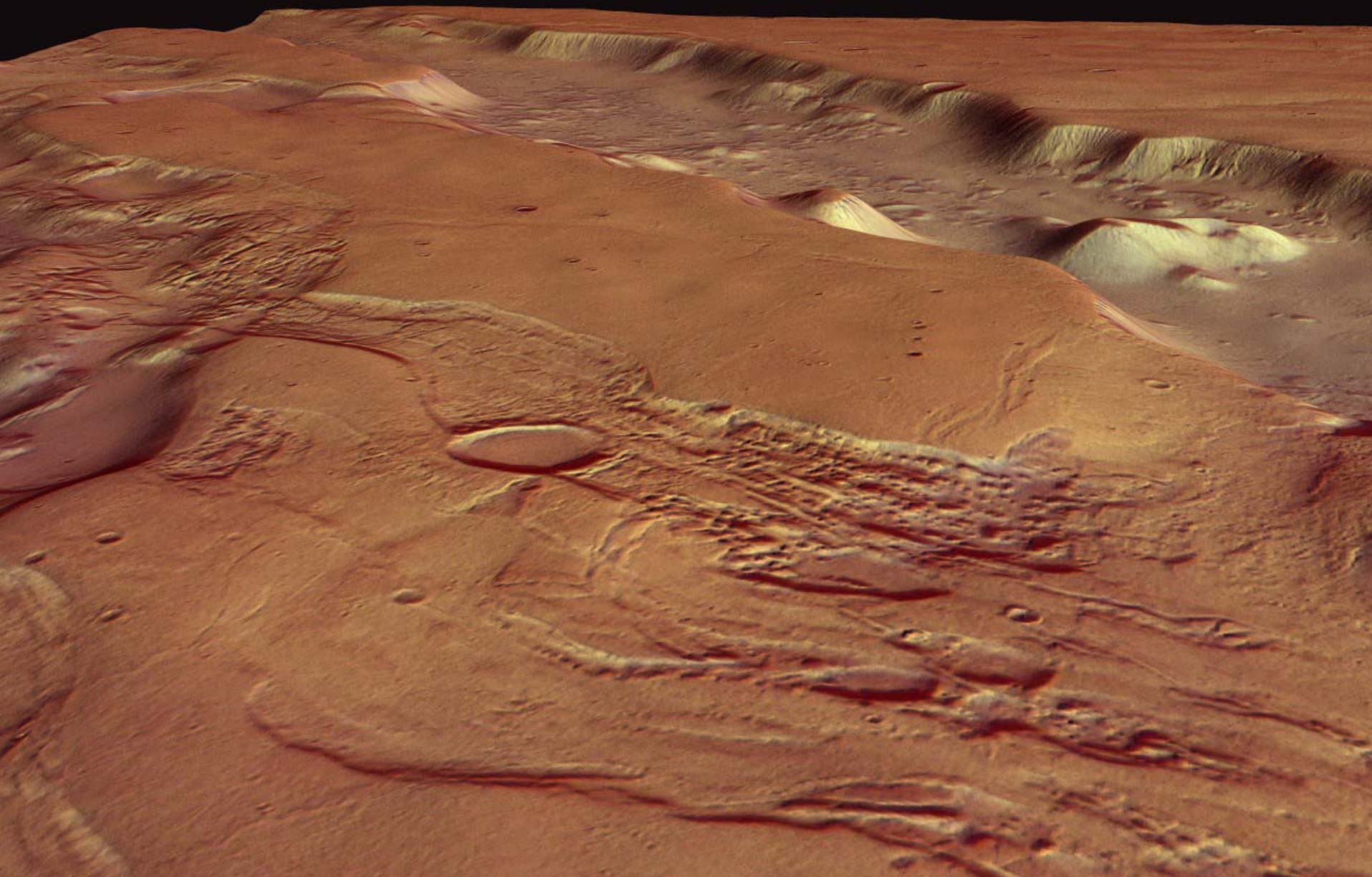


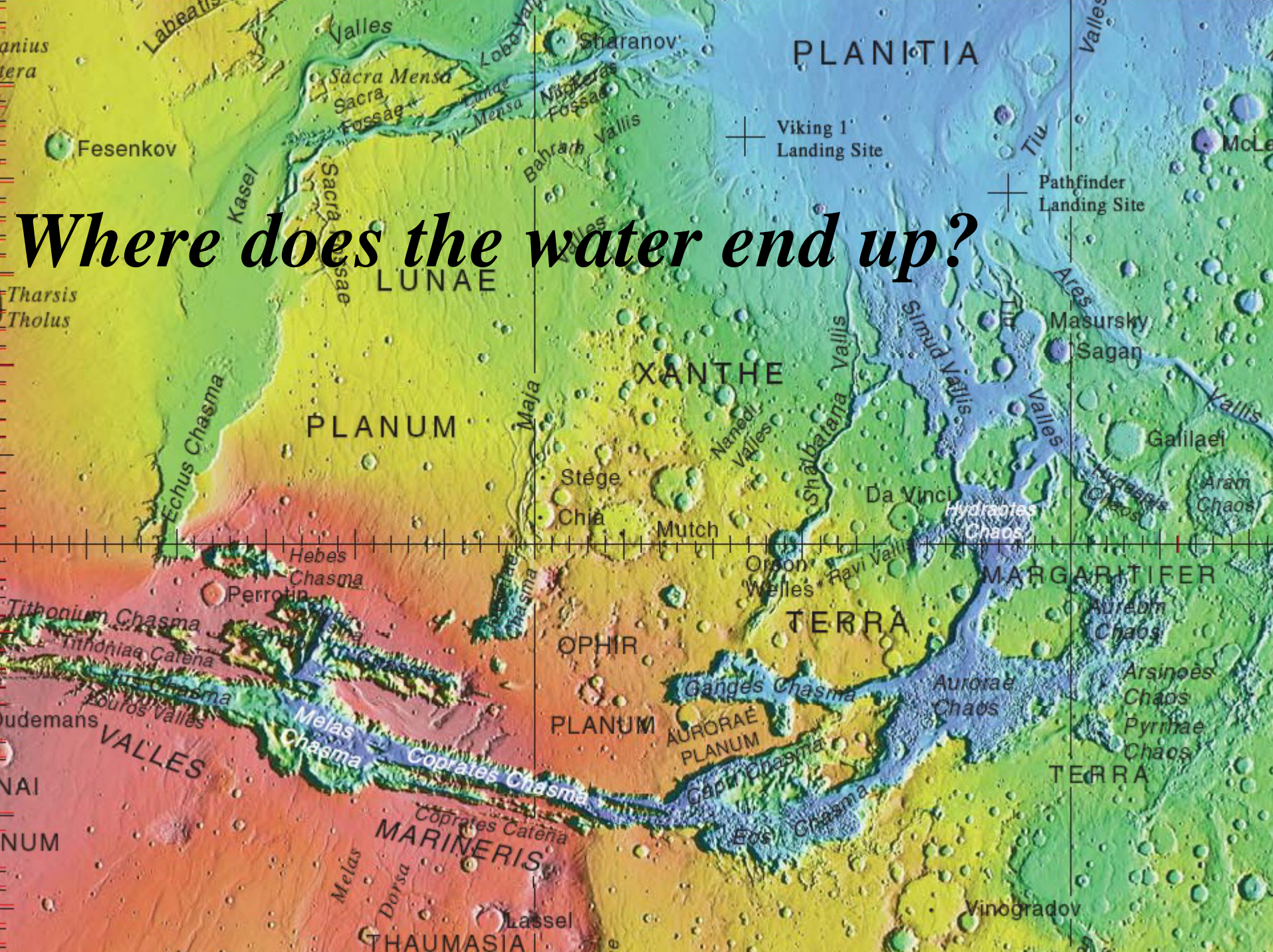
University
College
London



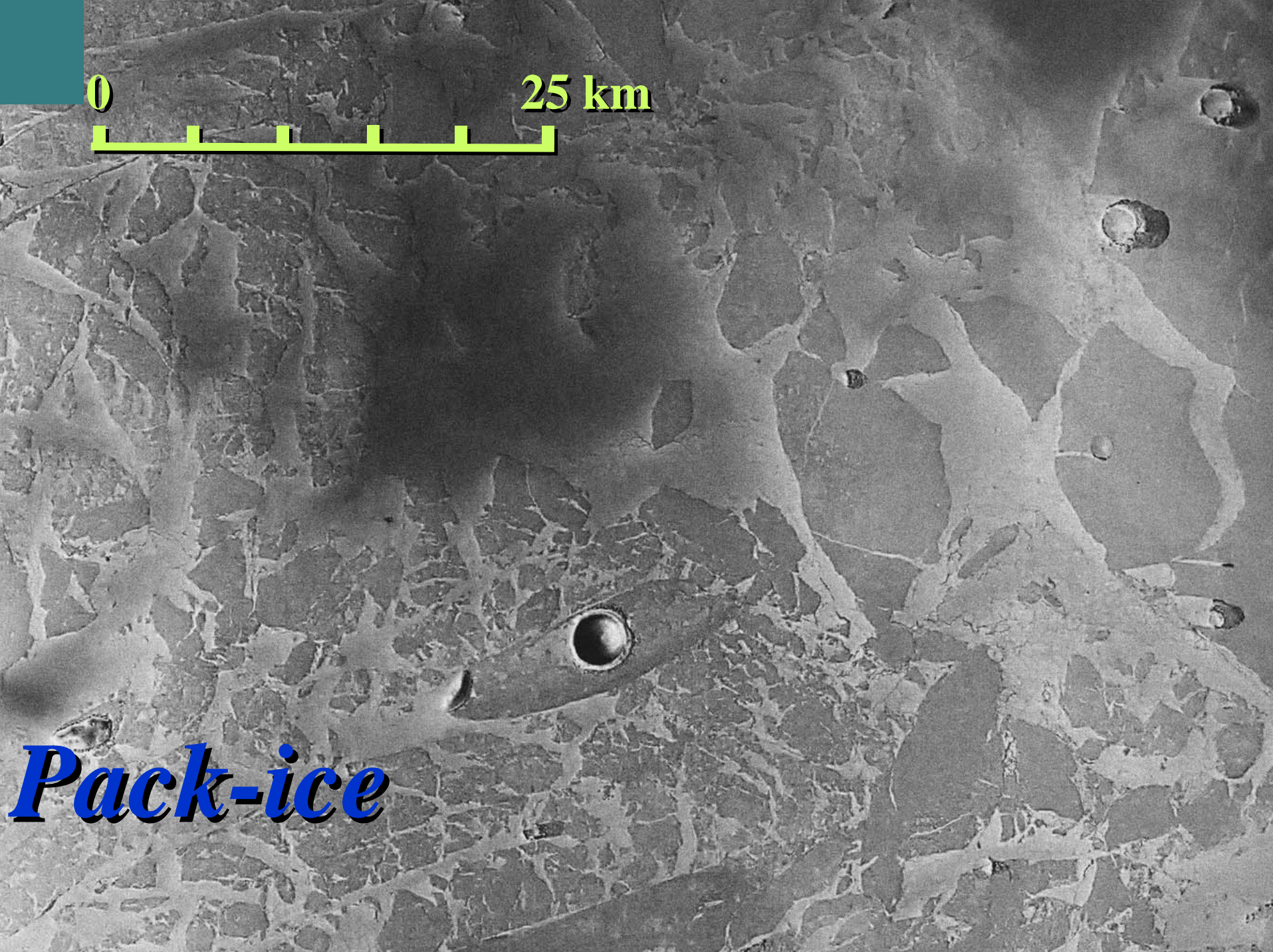
Dao & Niger Valles

Evidence of catastrophic flooding events

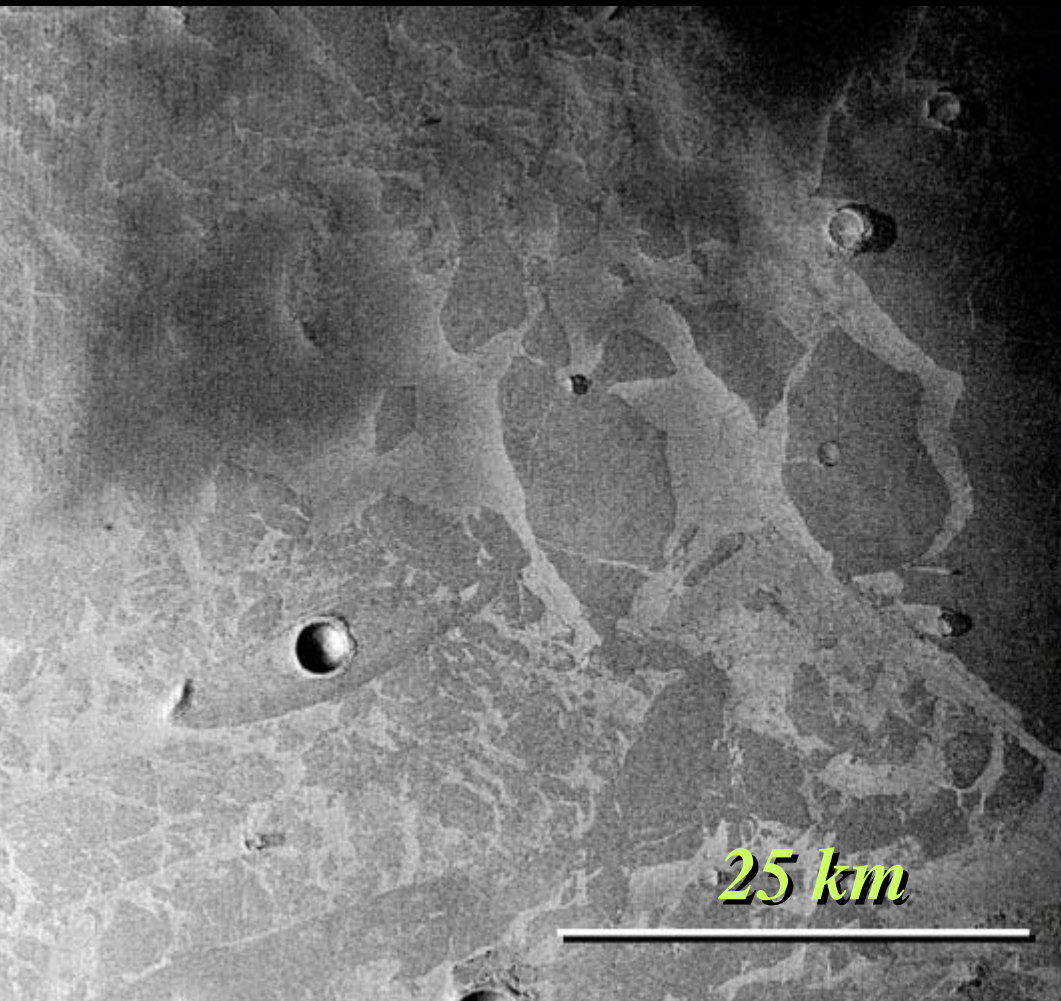




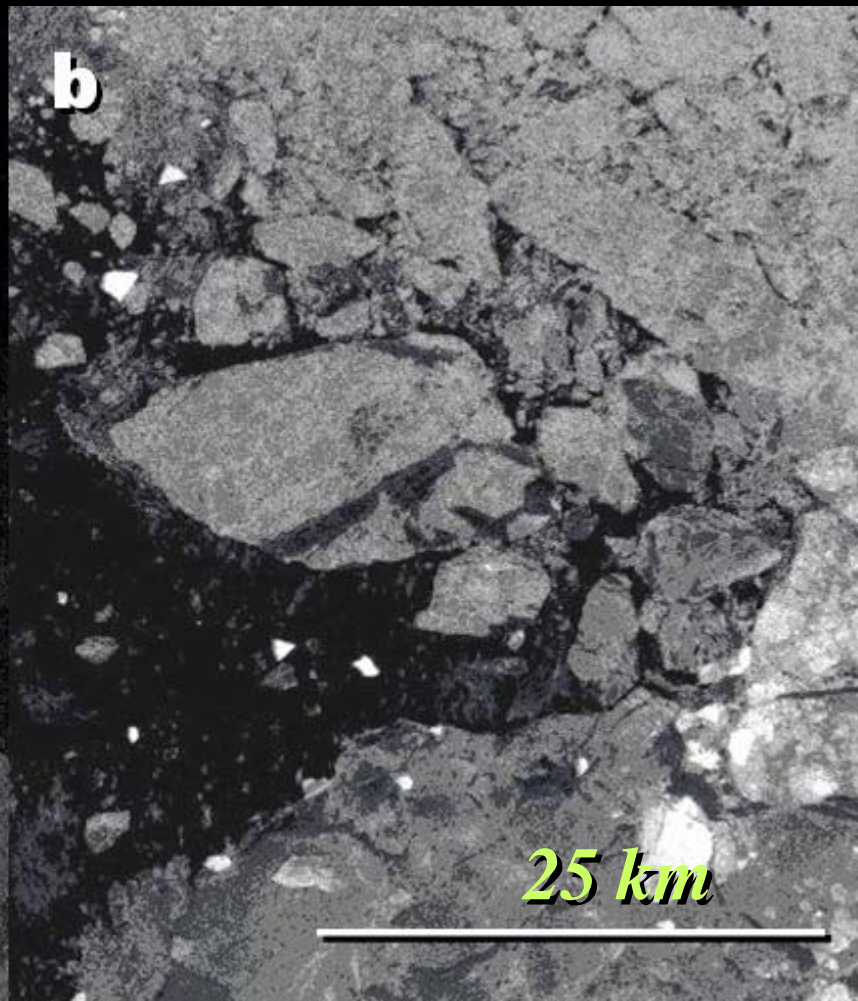
0 25 km

An aerial photograph showing a vast expanse of pack ice. The ice is composed of numerous irregular, dark-colored floes of varying sizes, separated by lighter-colored channels of open water. The overall texture is highly fragmented and complex. In the upper left corner, there is a scale bar with a yellow line and black tick marks, labeled '0' at the start and '25 km' at the end. In the bottom left corner, the words 'Pack-ice' are written in a large, blue, italicized serif font.

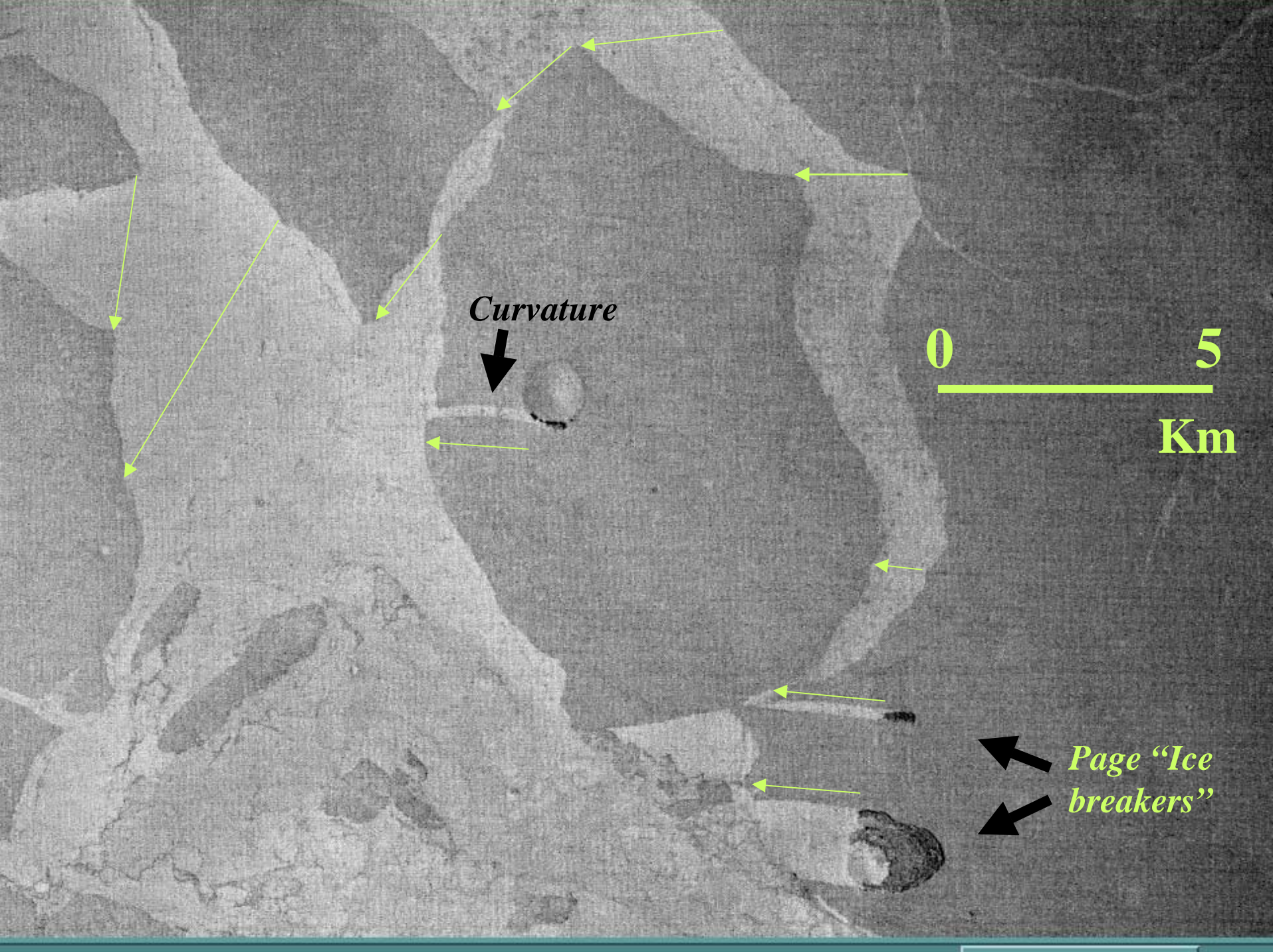
Pack-ice



MARS



ANTARCTICA



Curvature

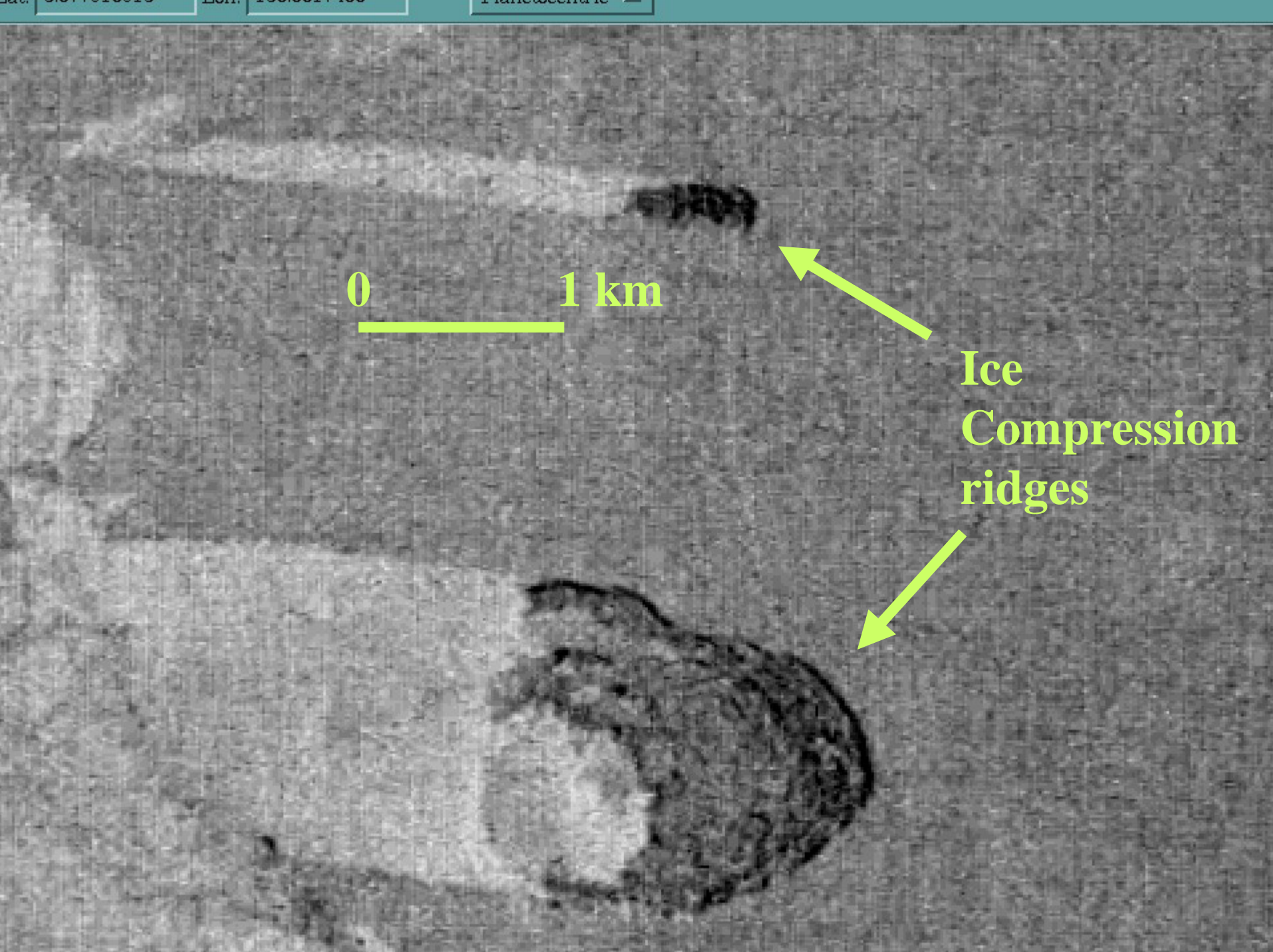


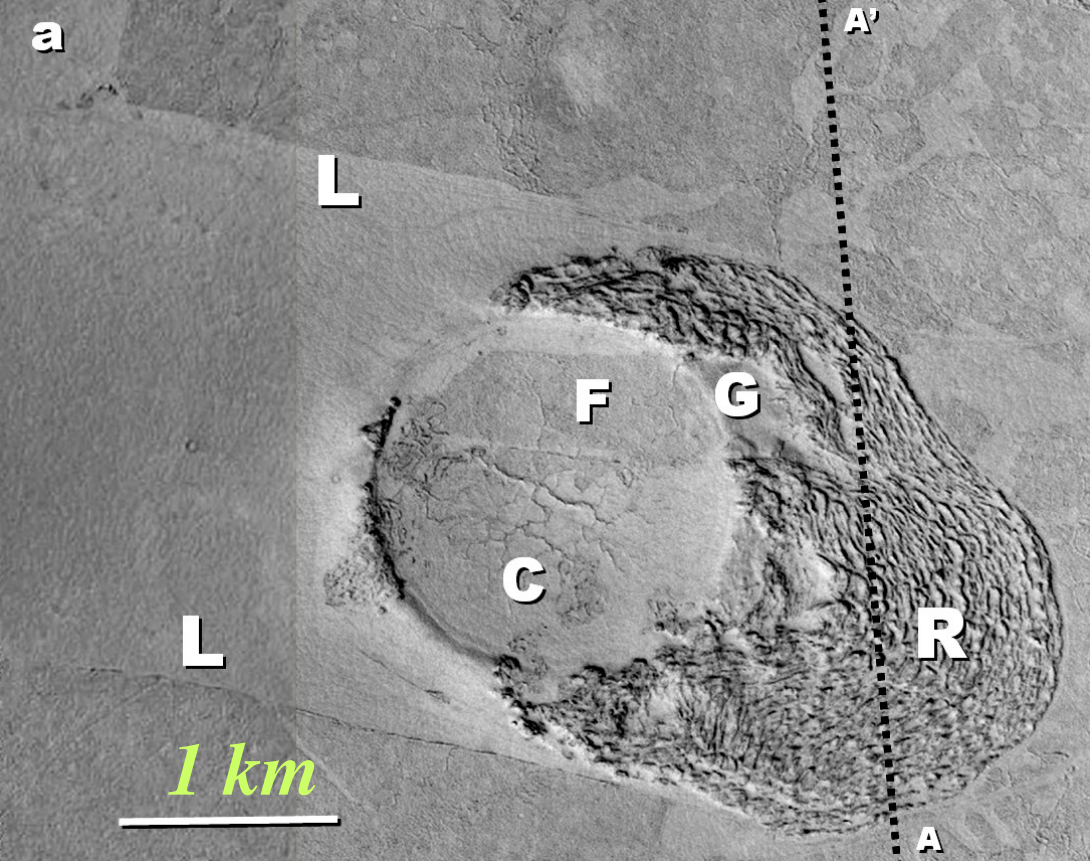
0

5

Km

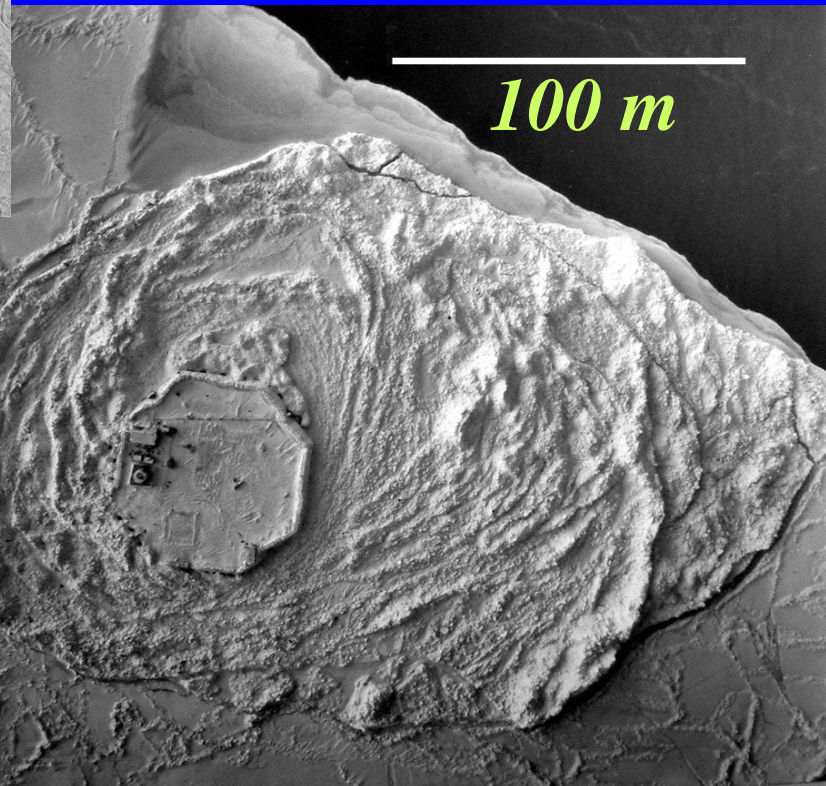
*Page "Ice
breakers"*





MARS

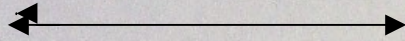
Pressure ridges



Arctic Ocean

Pressure ridges round an artificial island

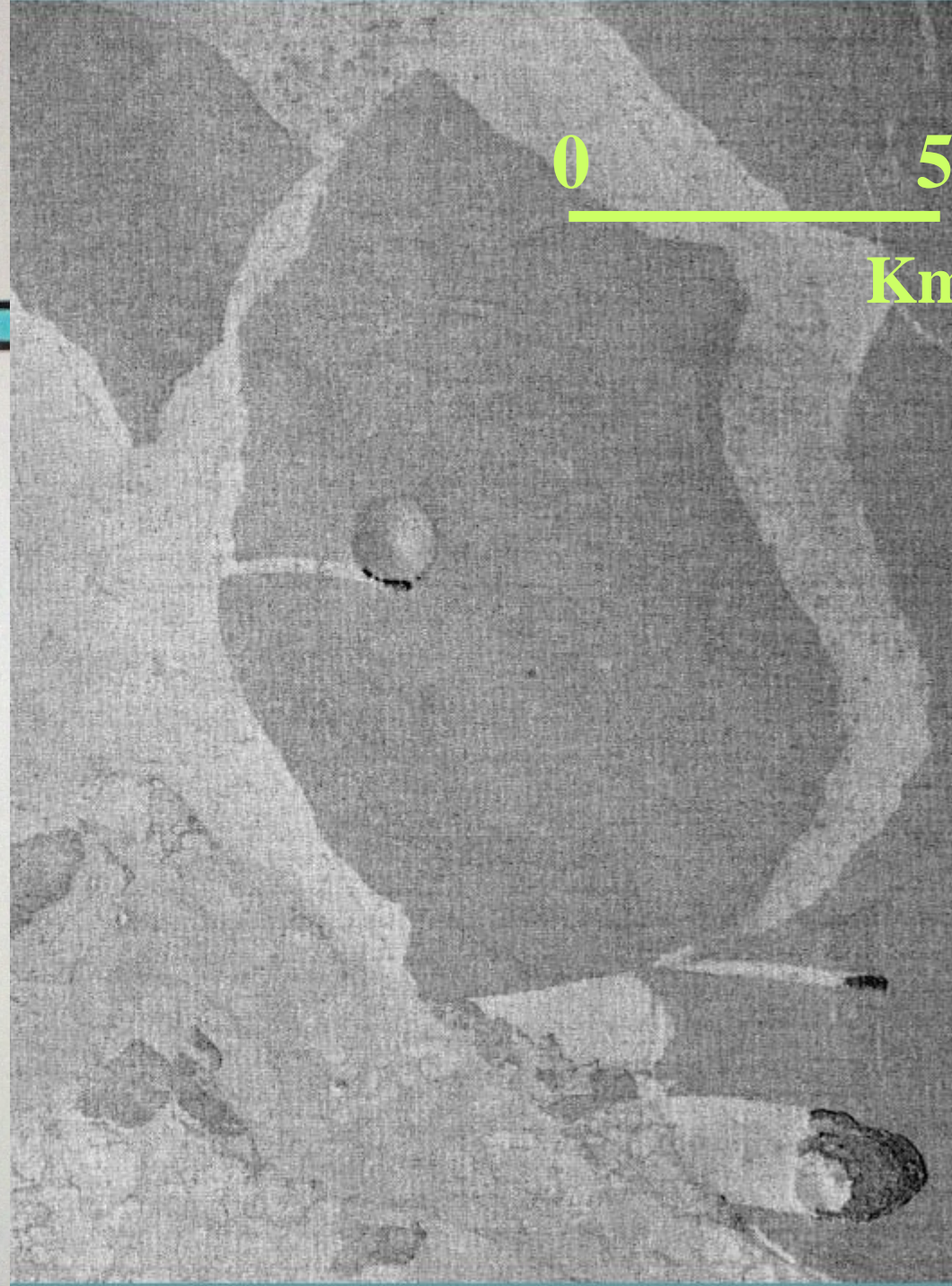
1100m diameter



Maximum
Depth = 45 metres

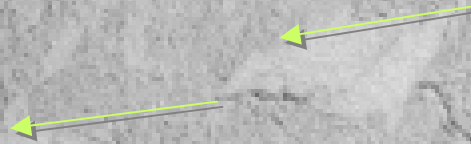


Approximate
Diam. : outer rim height
Ratio for fresh impact
Craters = 0.04



MOC Image

Age = 5 million years
(very young)



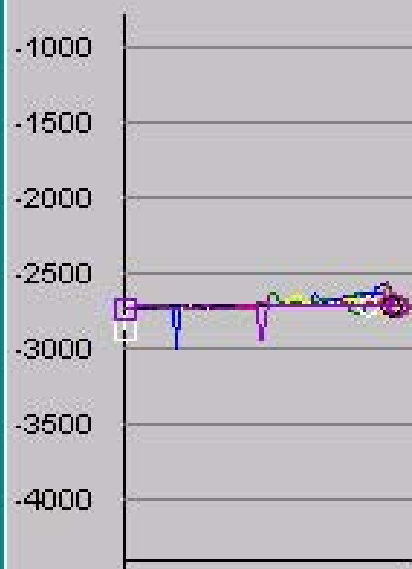
0

1 km

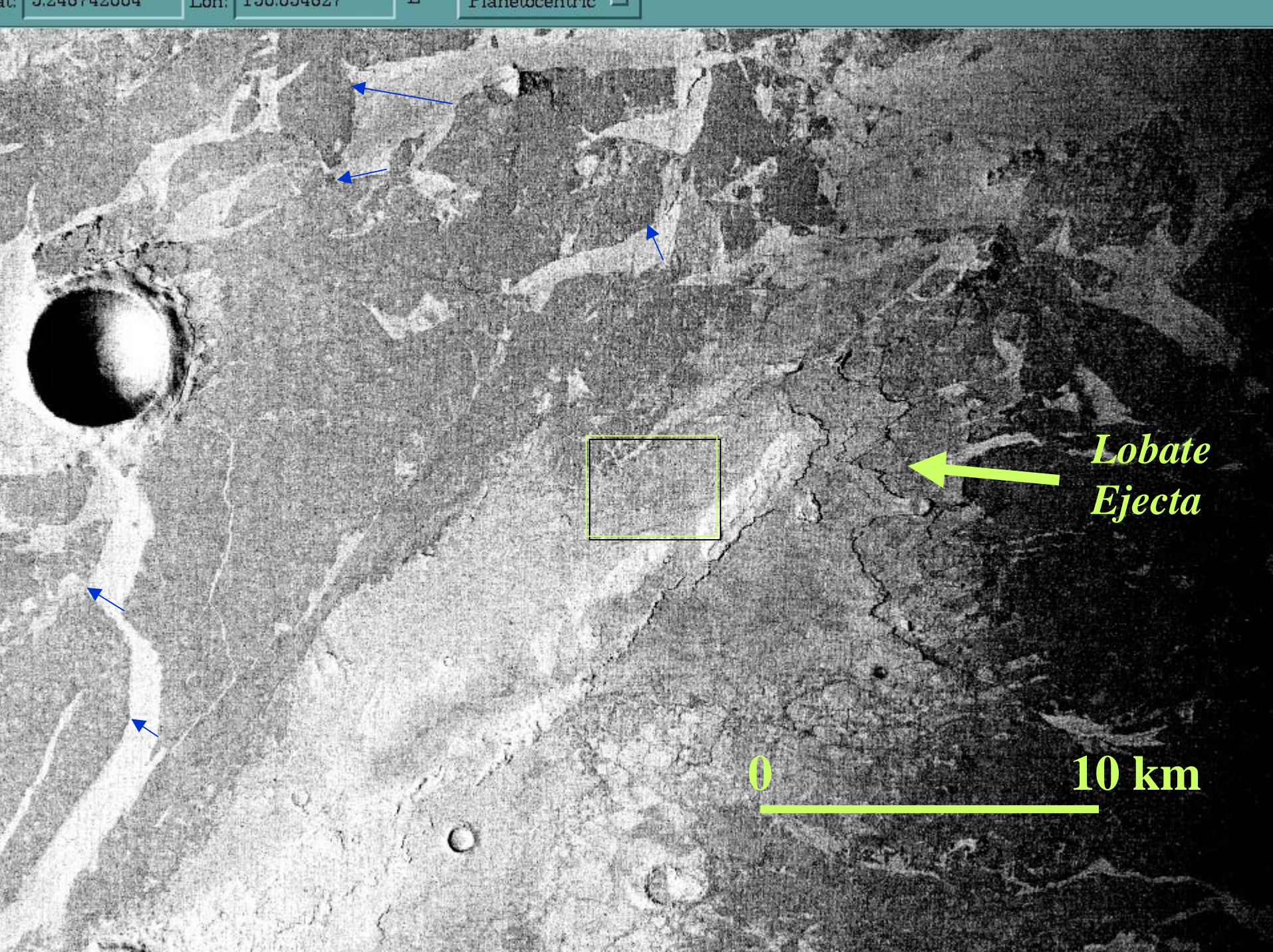




Elevation (m)



MOLA altimeter data:
0°.005 slope
= EXTREMELY FLAT
(Same slope as water surfaces during Tidal events in Bristol Channel)

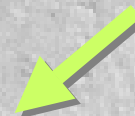


*Lobate
Ejecta*

0

10 km

Pack-ice



OLD SHORELINE

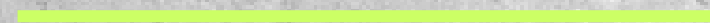
Ejecta



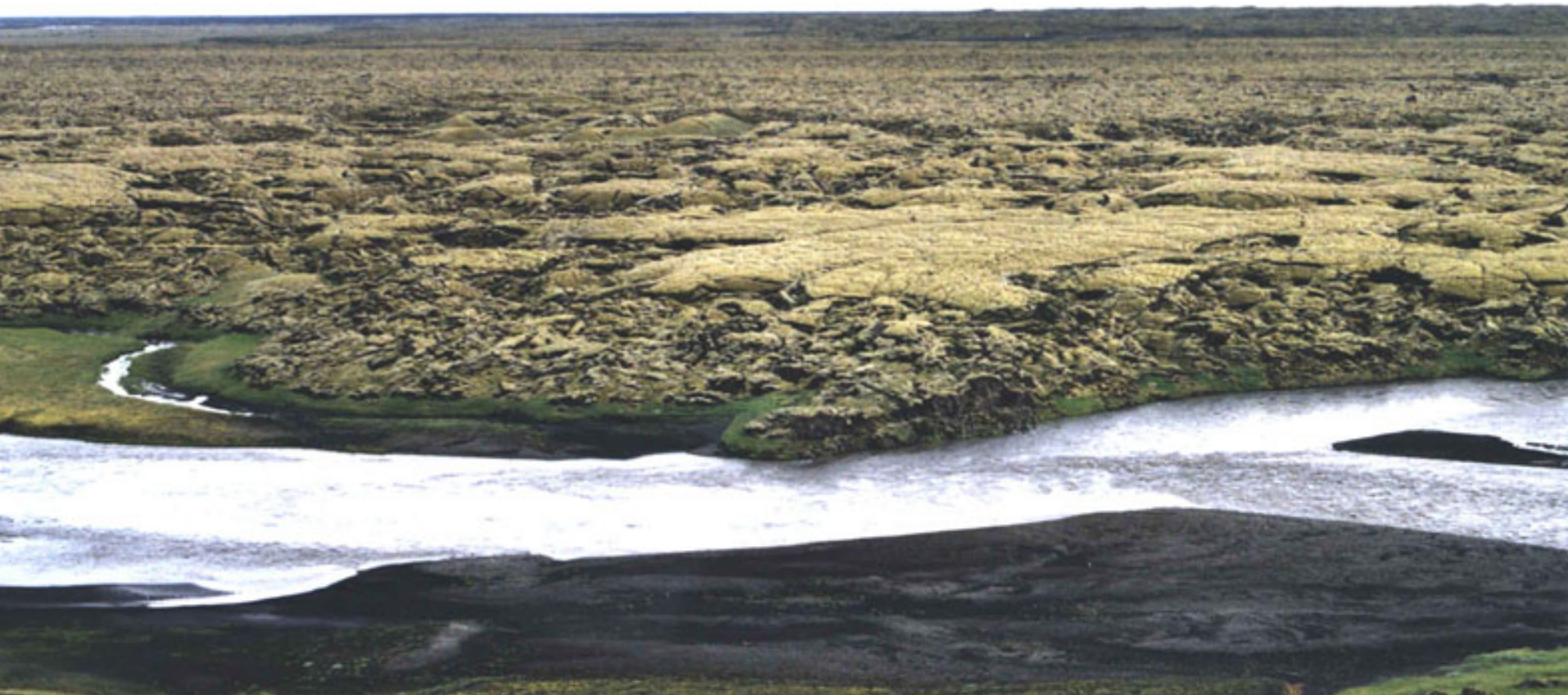
(MOC image)

0

1 km

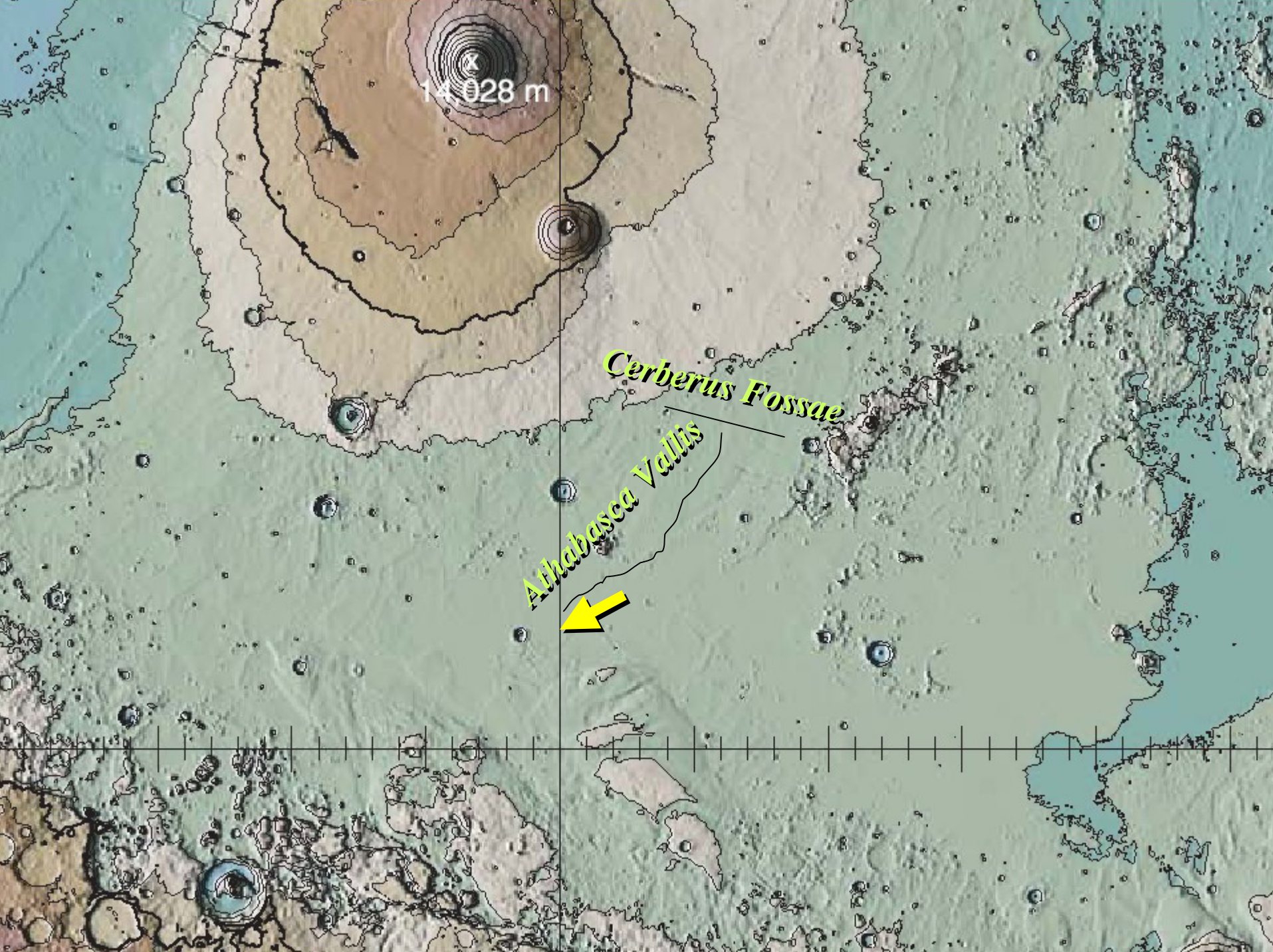


*Alternative ideas:
Very fluid lava flows?*



Ice MUST be dust-covered

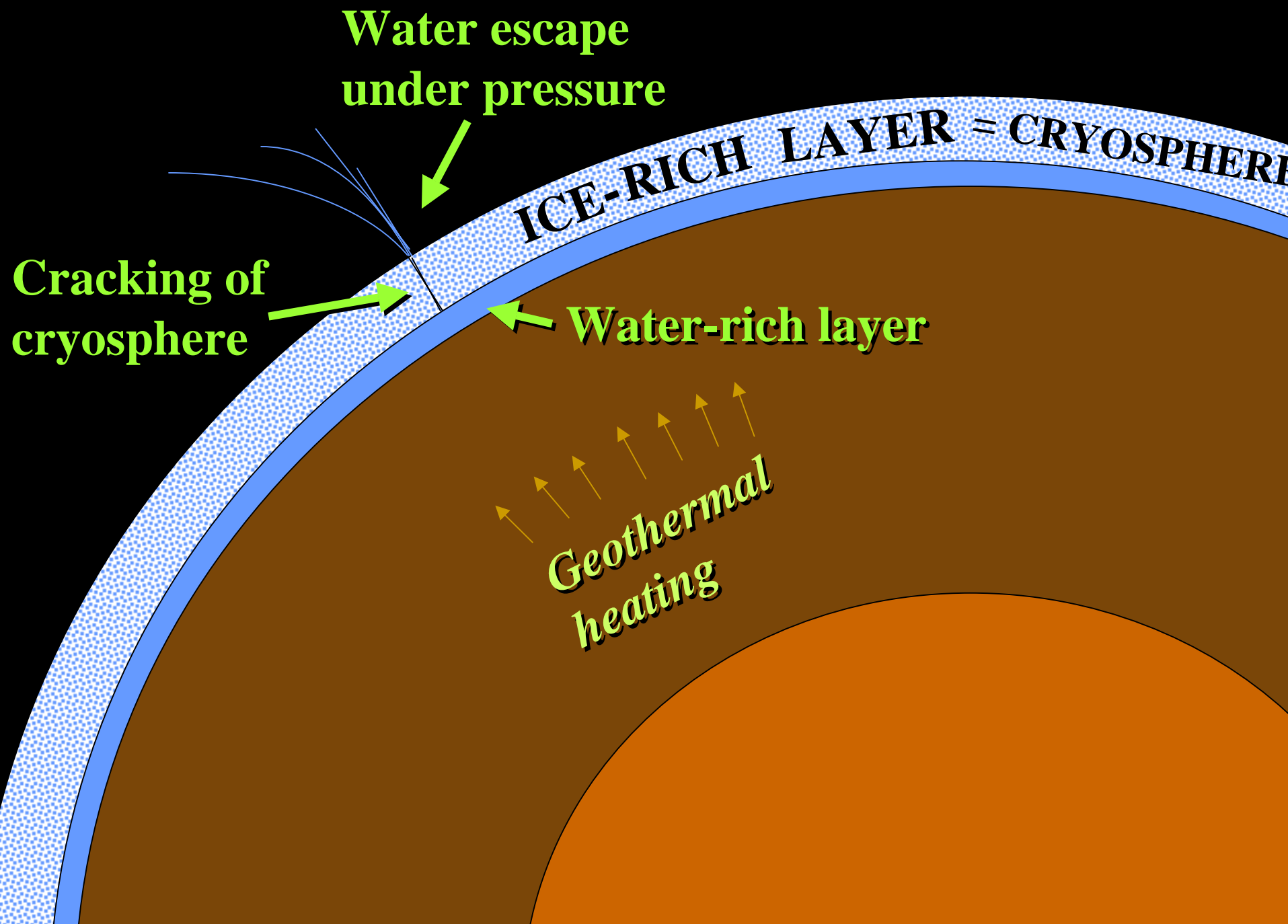




x
14,028 m

Cerberus Fossae

Athabasca Vallis



- 1. Warm wet subterranean places on Mars have existed throughout Mars' geological history, and life may have developed there.*
- 2. Periodically, water eruptions disgorge the contents of these habitats on to the surface, most recently 5 million years ago to form the Elysium frozen sea.*
- 3. Elysium is the most likely place to find past or present life on Mars.*



