

The Lunar Surface as a Recorder of Astrophysical Processes*

* Crawford, I.A., Joy, K.H., Pasckert, J.H., Hiesinger, H.
Phil. Trans. R. Soc., A379, 20190562 (2021)

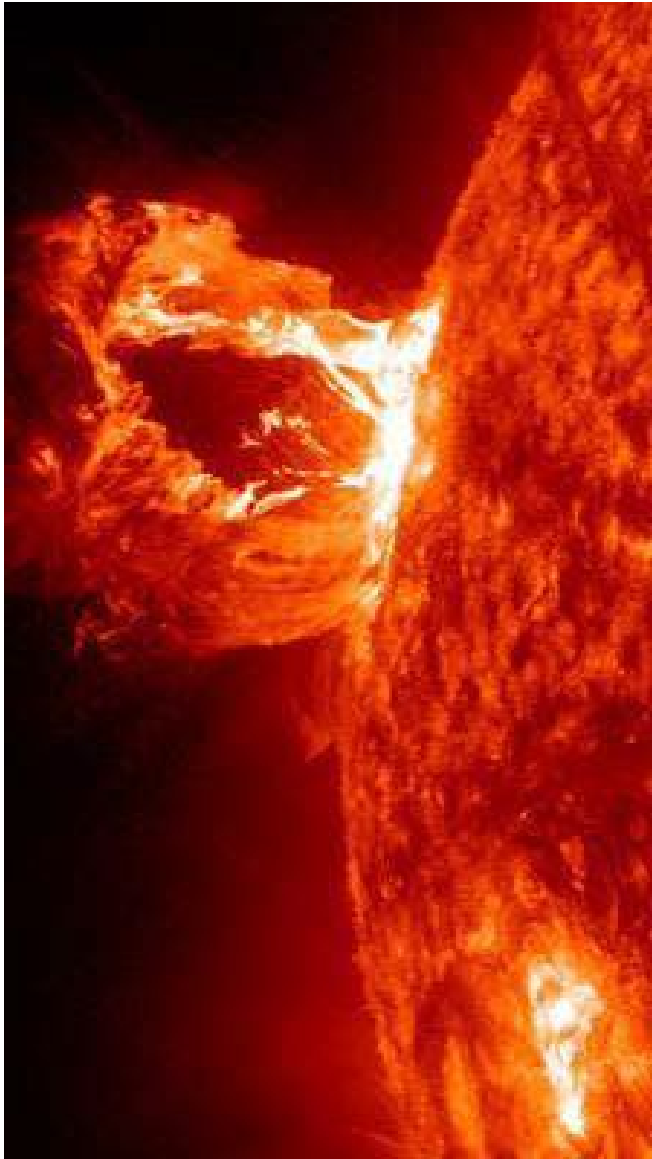
Ian Crawford



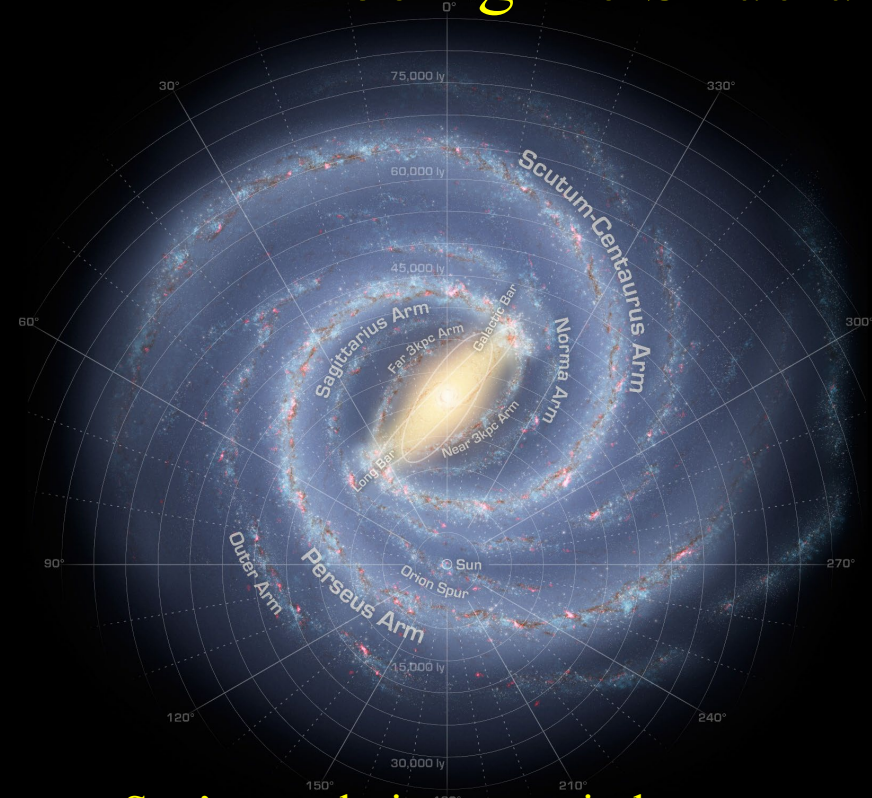
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NASA

An Astronomically Important Record

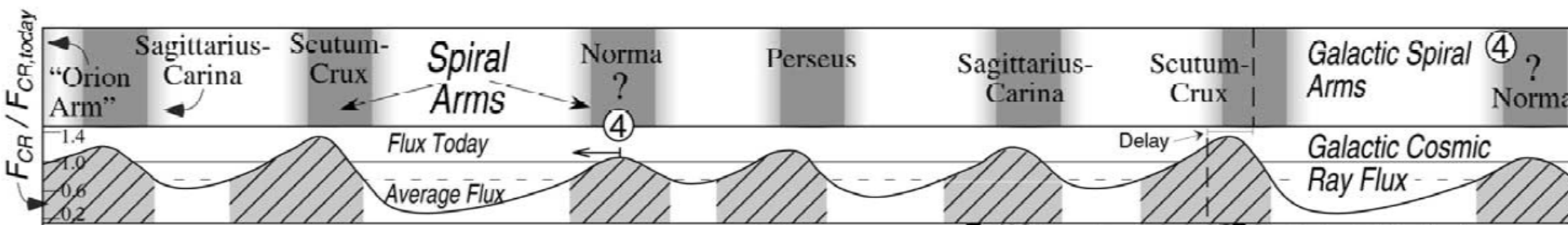
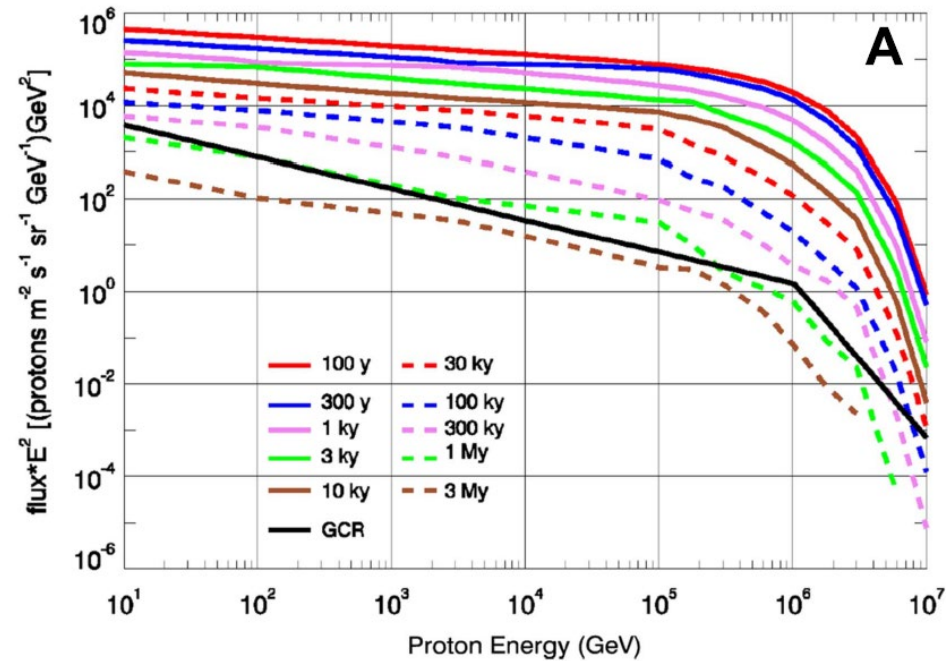


Probing the Structure of Milky Way Galaxy



Sun's revolution wrt spiral pattern
~ 800 Myr

A. Melott et al., *ApJ*, 840:105 (2017)
Effect of a Supernova @ 50 pc



~200 Myr

N.J. Shaviv, *New Astron.*, 8:39-77 (2003)

Treasures in the regolith



Preservation in palaeoregoliths

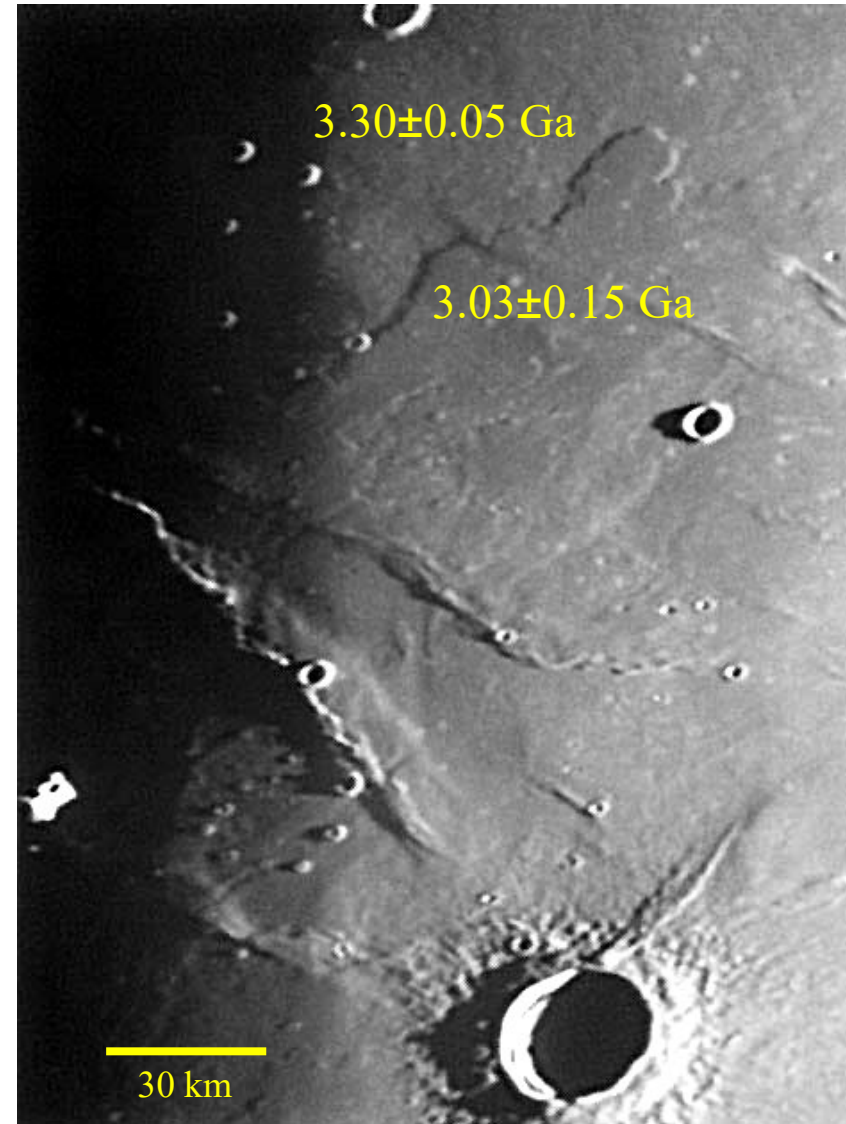
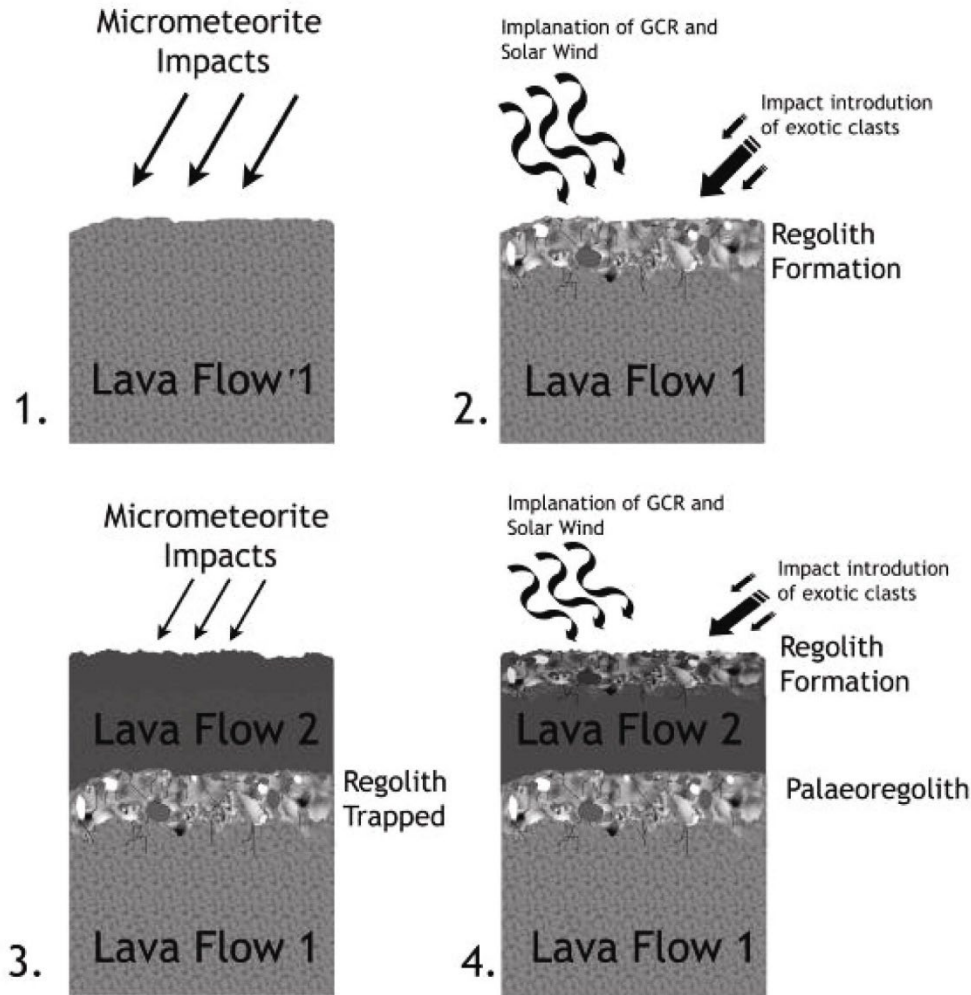
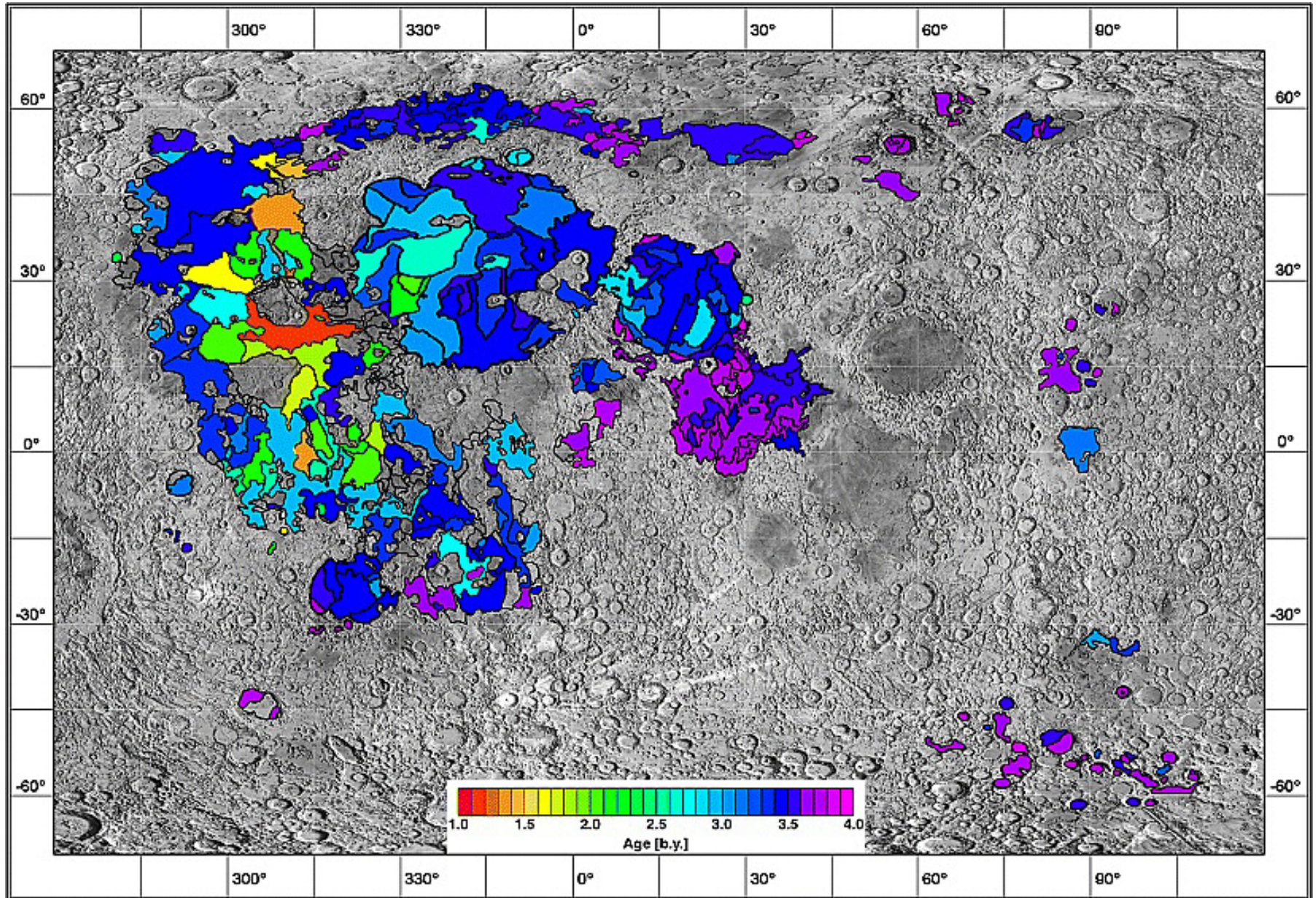


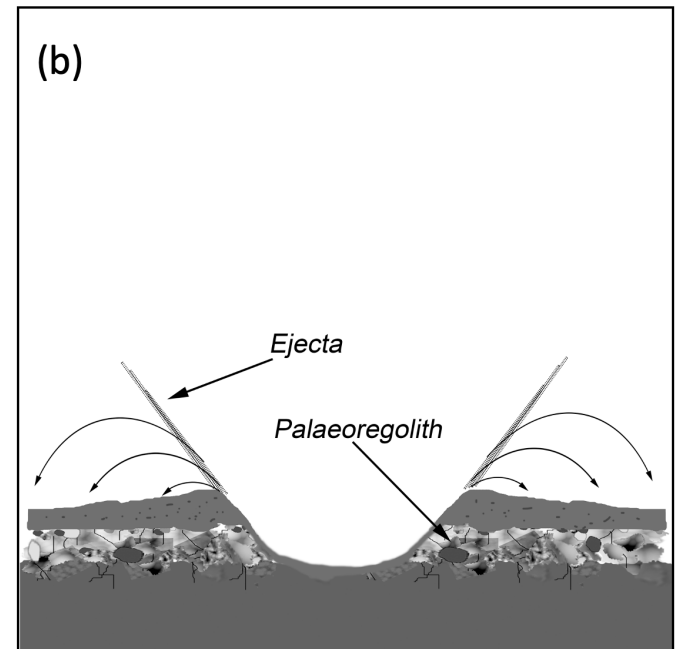
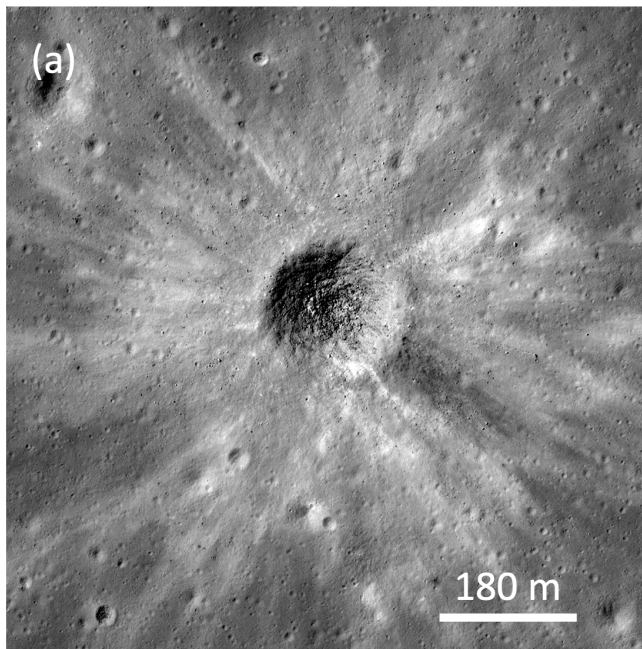
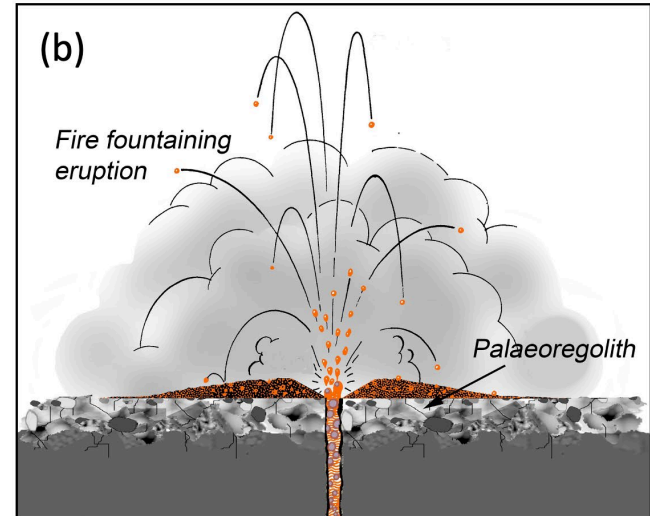
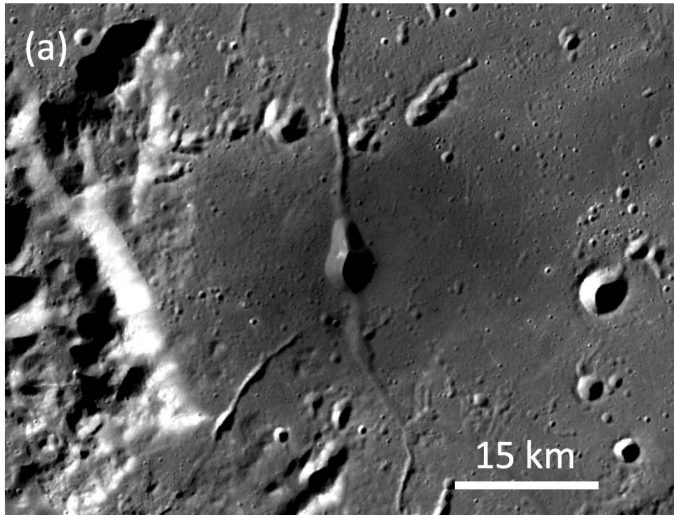
Image: K.H Joy; © Royal Astronomical Society

Model ages courtesy of Jan Pasckert, Münster

Lunar lava flow ages (Hiesinger et al. 2010)



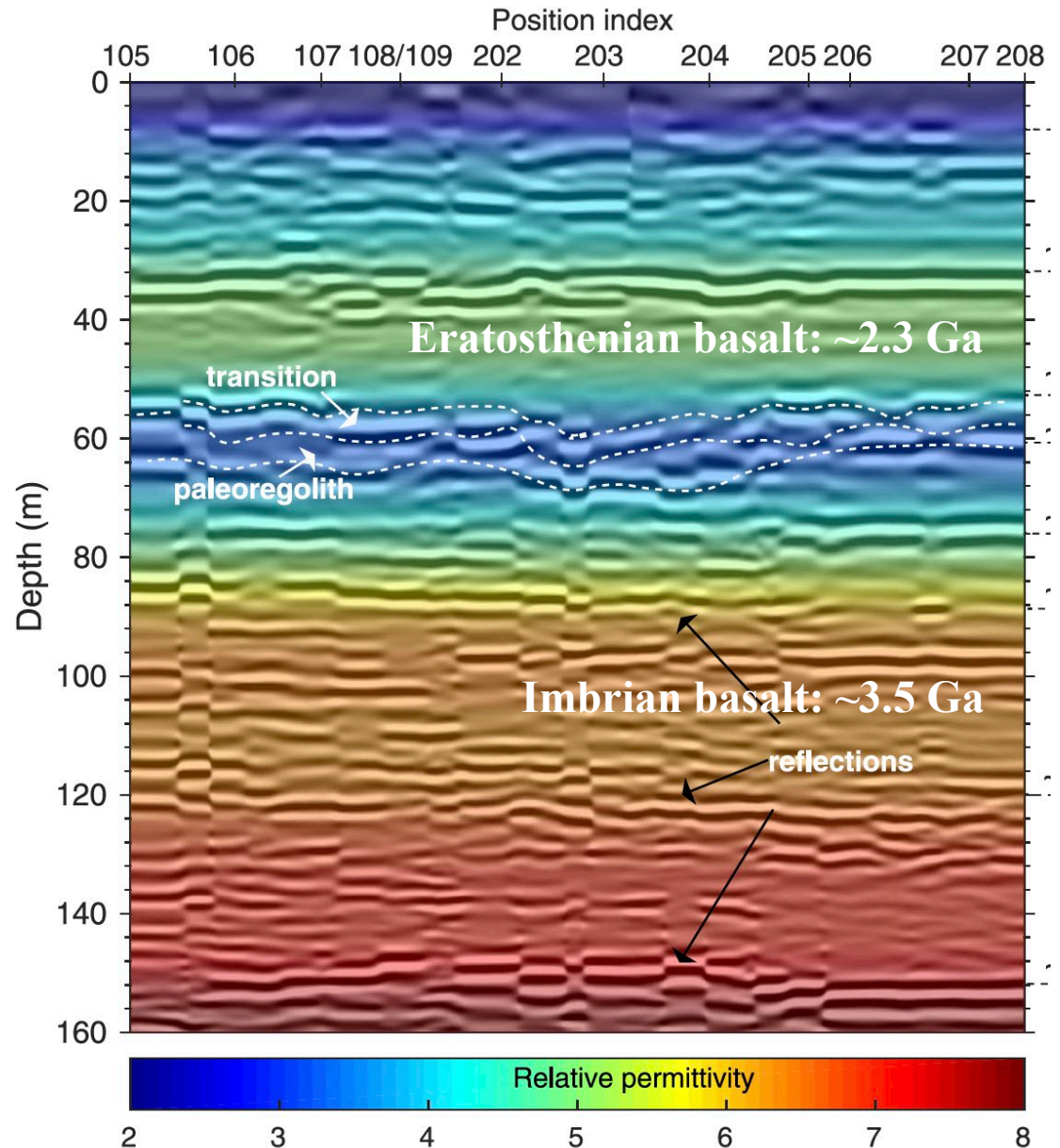
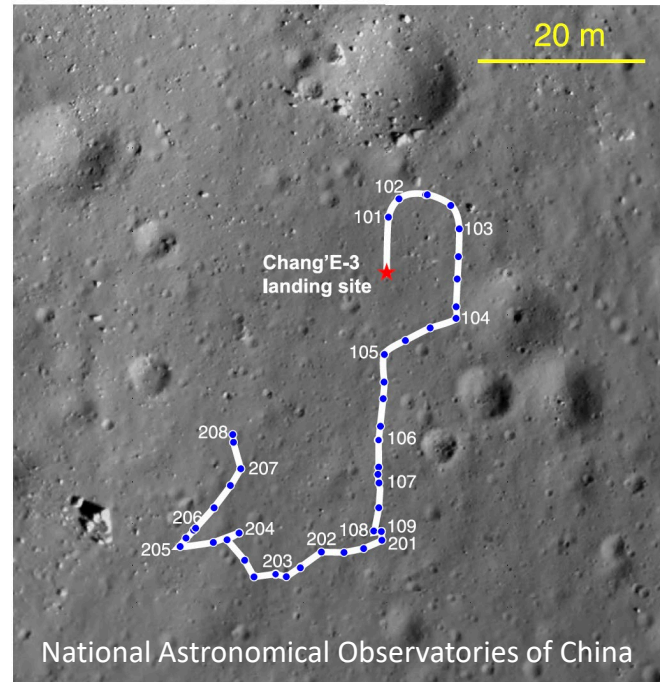
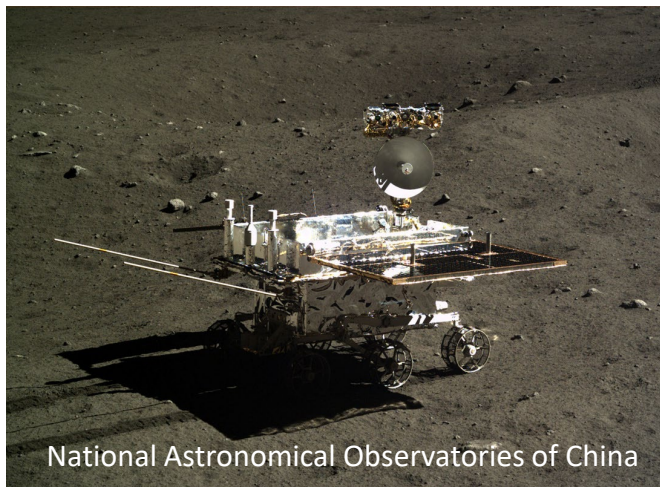
Other ways of preserving palaeoregoliths



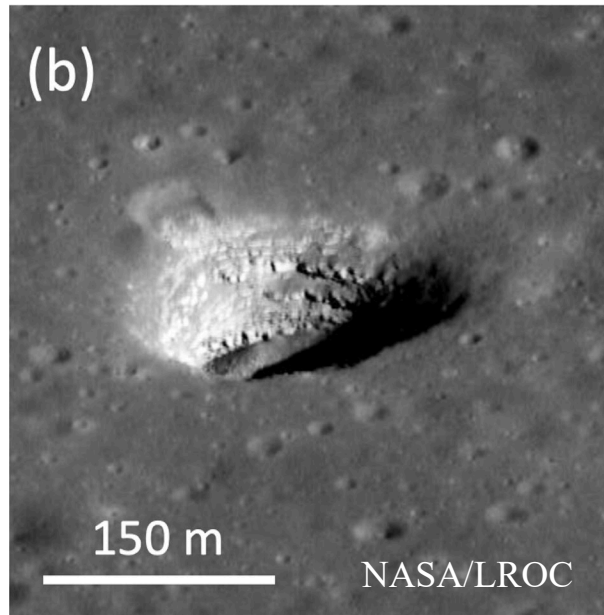
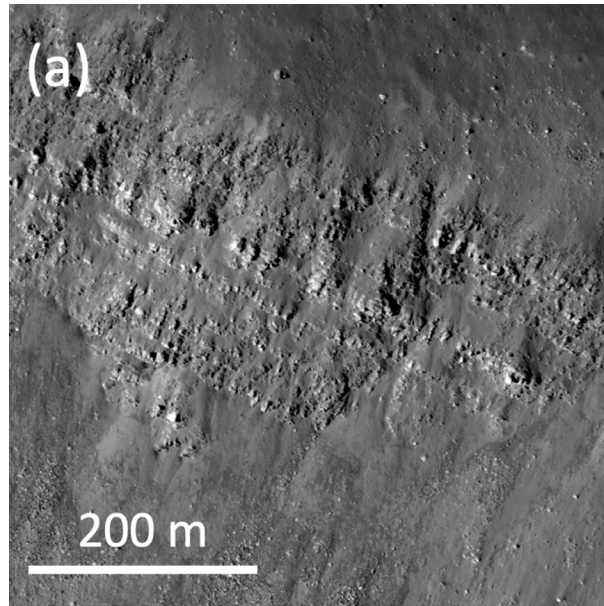
Drawings
courtesy
K.H. Joy

GPR Detection of Palaeoregoliths

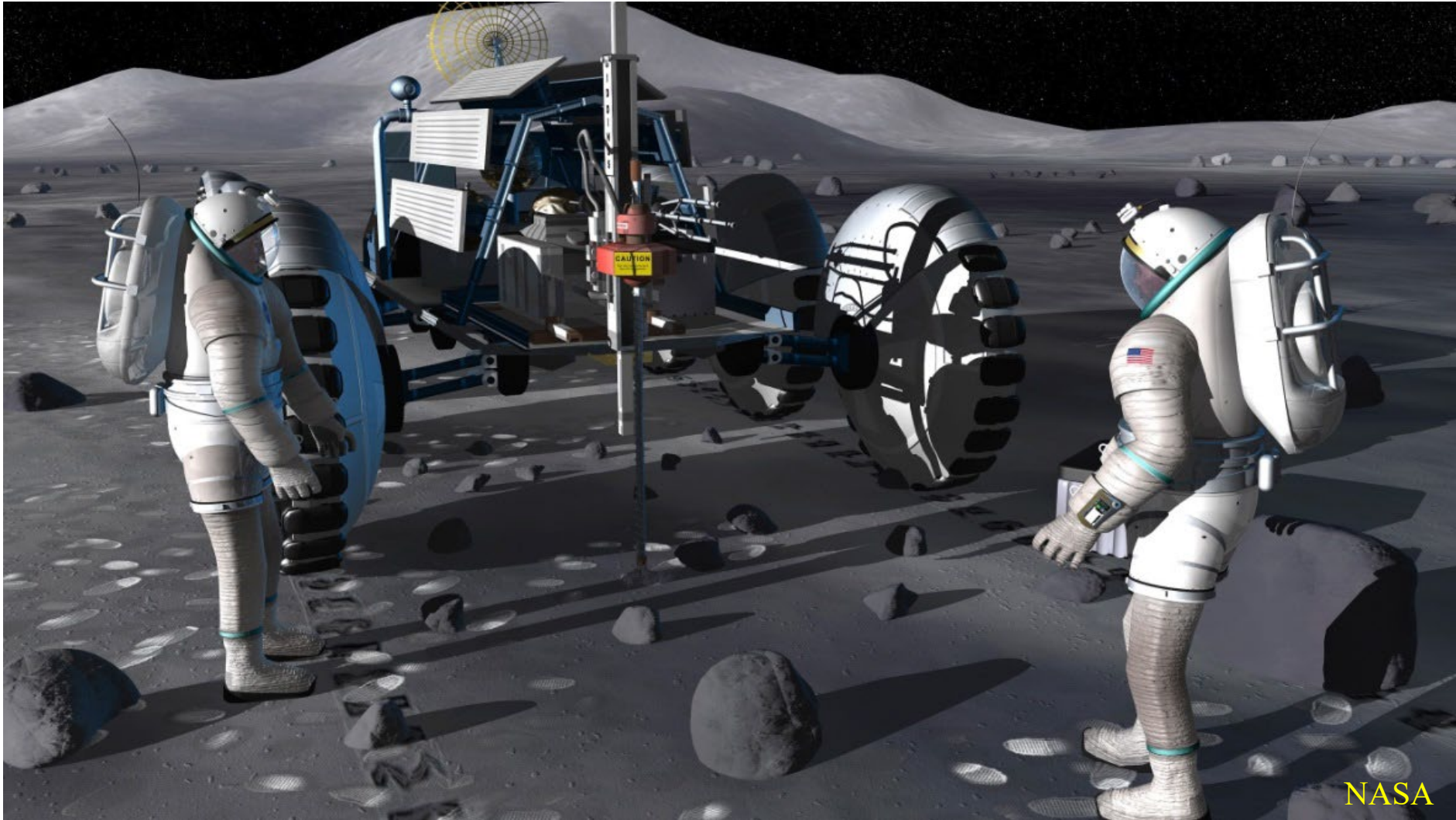
T. Zhu et al., *GRL*, 48, e2021GL095282 (Oct. 2021)

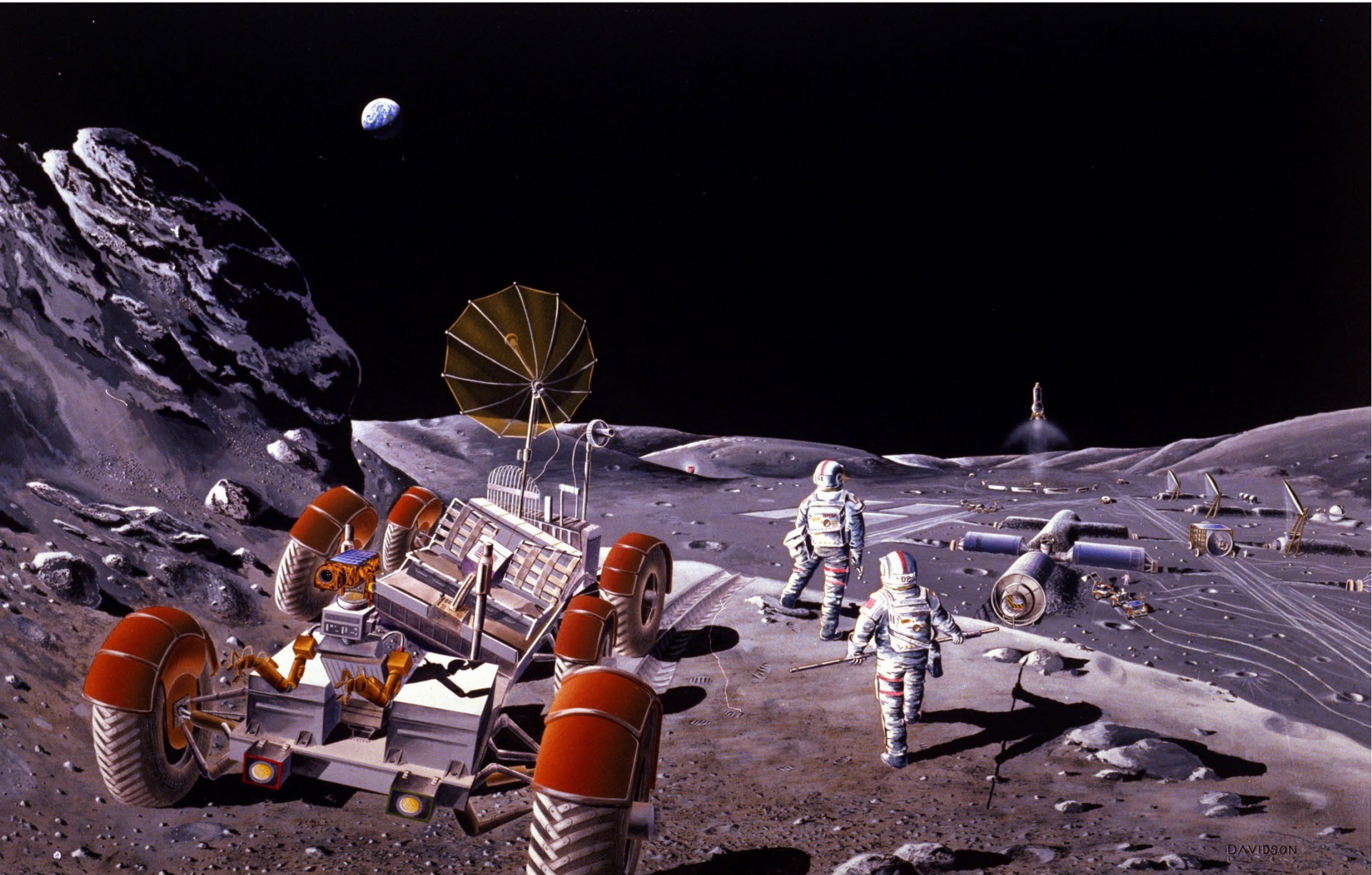


Accessing palaeoregoliths I Outcrops



Accessing palaeoregoliths II: Drilling ...





DAVIDSON