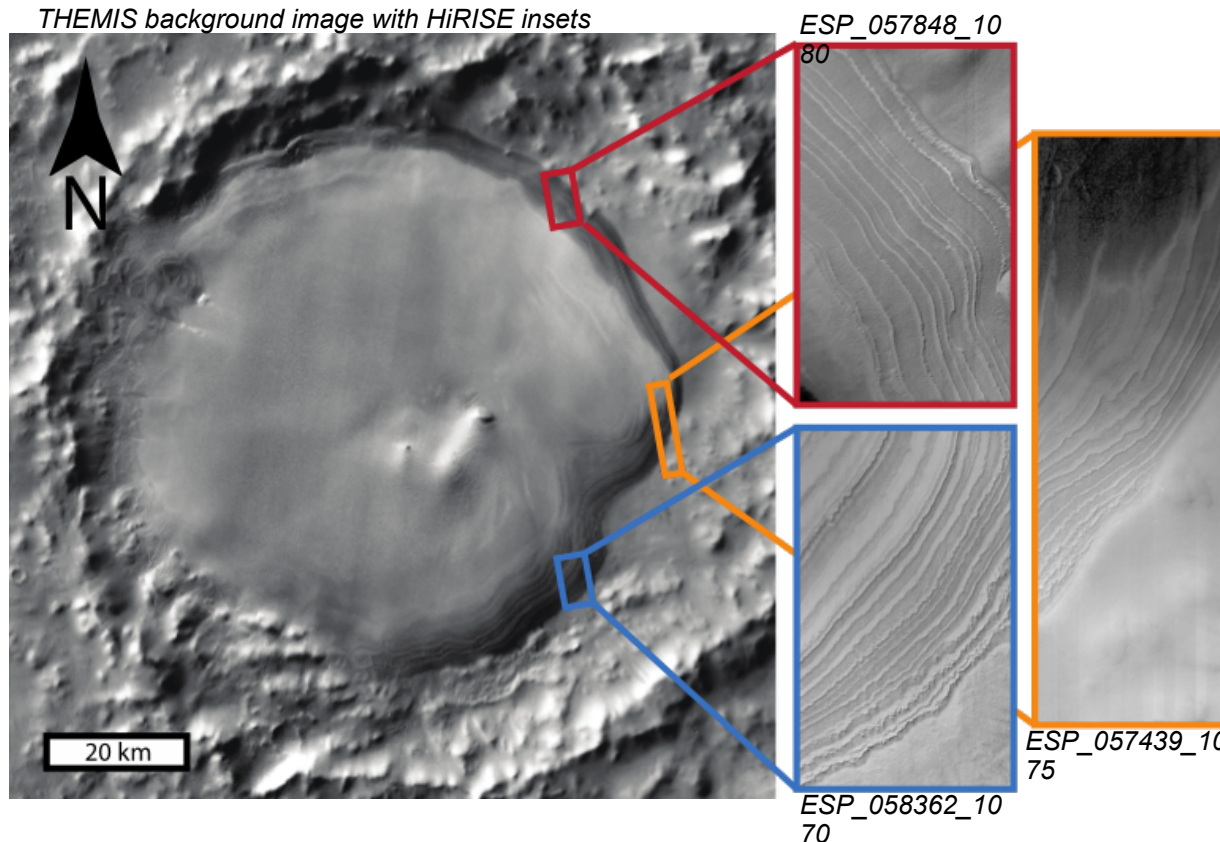
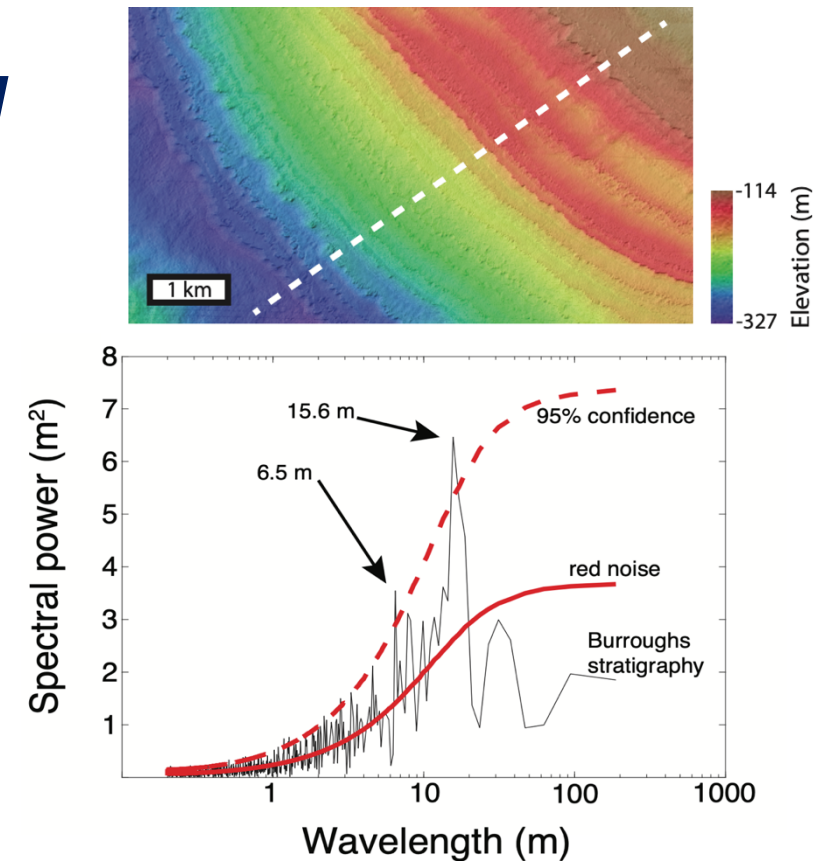


# Orbital forcing of Martian climate revealed in a south polar outlier ice deposit



An ice mound in Burroughs Crater at 72°S, 117°E contains a fantastic layered paleoclimate record, decipherable at HiRISE resolution.

[Published open access](#): Sori, M.M., P. Becerra, J. Bapst, S. Byrne, and R.A. McGlasson (2022), *Geophysical Research Letters* 49, e2021GL097450.



We made HiRISE DEMs and found that the topography of the ice mound has repeating patterns at wavelengths of 15.6 m and 6.5 m. The ratio is the same as the ratio of Mars' orbital precession and obliquity changes.

$$\frac{15.6 \text{ m}}{6.5 \text{ m}} = \frac{120000 \text{ yr}}{51000 \text{ yr}} = 2.4$$

This result suggests orbital control of recent Martian climate, implying an accumulation rate of 0.13 mm/yr over 4.5 Myr in this region. Likely a different record than the nearby south polar cap!

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