GEOLOGIC MAPPING OF MAWRTH VALLIS, MARS.

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ABSTRACT

Introduction: Mawrth Vallis, generally counted among Mars' giant outflow channels, has an atypical geomorphology that is less well-studied than its coinciding, thick (> 150 m) clay-bearing deposits [e.g. 1]. Here, we present ongoing work as part of the PLANMAP project [2] to map the geomorphic features along the length of Mawrth Vallis in addition to a detailed map of the channel adjacent to the ExoMars 2018 landing ellipse (Figure) to establish its history of erosion and deposition and relationship with the clay-bearing deposits.

Data and Methods:

Basemaps: CTX (6 m/pixel), with additional insight from HiRISE (25–50 m/pixel), color CaSSIS (~4 m/pixel), and DEMs/hillshades from CTX (~20 m/pixel) and HiRISE (1–2 m/pixel).

Map projection and scale: Mawrth Vallis spans 340°E–347°E and 18°N–26°N. We are using a stereographic projection centered on 343°E, 22.4°N. We are digitizing at 1:20k (full CTX resolution), with an intended publication scale of ~1:100k. The geomorphic feature map will be displayed alongside the detailed map at a smaller scale.

References: [1] Loizeau D. et al. (2007) *J. Geophys. Res. Planets, 112*, E8. [2] Massironi M. et al. (2018) *Geophys. Res. Abs., 20*, EGU2018-18106.

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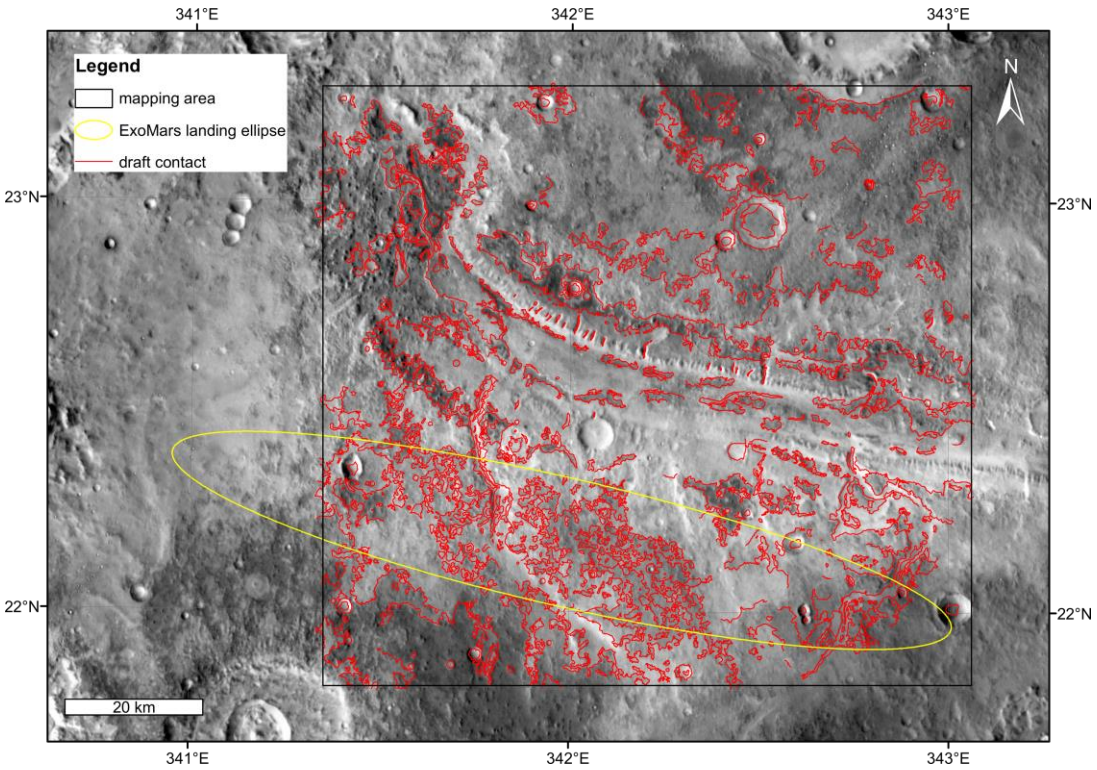

Figure: In-progress CTX-scale geologic map of Mawrth Vallis. Shapefiles overlain on 100 m/pixel THEMIS daytime IR.