Introduction: Mawrth Vallis (Figure 1) is generally understood to be one of Mars’ catastrophic outflow channels. It is incised into Noachian (> 3.7 Ga) terrain and is associated with thick (> 150 m) clay deposits [1]. These clays are well-documented [e.g. 1–3], and have made Mawrth Vallis a candidate landing site for multiple rover missions. However, the atypical geomorphology of the channel is less well-studied. In the PLANMAP project, we will produce a geological map of Mawrth Vallis to establish its history of erosion and deposition and relationship with the clays.

PLANMAP: PLANMAP aims to provide standards for planetary geological map production to aid the dissemination of European maps, which would otherwise be prepared for publication via the USGS. PLANMAP is producing exemplar maps [e.g. 4] where various data (visual images, elevation models, spectra, crater size-frequency distributions) will be fused to make more fully-integrated geological maps.

The availability of abundant and diverse data types at Mawrth Vallis makes this region particularly suitable to be a PLANMAP exemplar.

Data and Methods: The basemap will be a Context Camera (CTX; 6 m/pixel) mosaic, with CTX digital elevation models (DEMs; ~20 m/pixel) to assess stratigraphic relationships, and High Resolution Imaging Science Experiment (HiRISE; 25–50 cm/pixel) images for unit definition. Mapping will focus on channel geomorphology. Linework will be drawn at ~1:200,000. Our map will undergo compositional analysis integration with other PLANMAP partners.

Results: We have mapped several smaller channel-types associated with Mawrth Vallis, including inverted channels on the floor of Mawrth Vallis, indicating a rich history of sedimentation and erosion.

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References: [1] Loizeau D. et al. (2007) J. Ge-

Figure 1. Mawrth Vallis, western Arabia Terra, Mars. MOLA topography is shown overlain on a MOLA hillshade. Smaller channels were digitised during early reconnaissance mapping of the region.