Geological mapping of the Hokusai (H05) quadrangle of Mercury: Status update

Conference or Workshop Item

GEOLOGICAL MAPPING OF THE HOKUSAI (H05) QUADRANGLE OF MERCURY: STATUS UPDATE.

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Introduction: MESSENGER data are being used to construct ~1:3M scale quadrangle geological maps of Mercury [1–6]. Here, we present our progress mapping the Hokusai (H05) quadrangle (Fig. 1). A more complete update on this work can be found in [4].

Data and Methods: Since H05 is a mid-northern latitude quadrangle (0–90° E; 22.5–66° N), its map is in a Lambert Conformable Conic projection. Linework is drawn at the 1:400k scale, using ArcGIS, for publication at the 1:3M scale, per USGS recommendations [7]. Thus, this map will be compatible with the other new quadrangle maps of Mercury [8].

The basemap is constructed from the MESSENGER MDIS basemap tiles, with an average ground resolution of 166 m/pixel. Ancillary mapping data products include global topography [9], mosaics with high- and low-incidence illumination from both east and west [10], and an enhanced color mosaic [11].

Future Work: The smooth plains within H05 are fully mapped. We are now mapping the cratered plains. Some plains are not easily mapped as smooth or intercrater plains, likely requiring a new unit on the map.

References: [1] Galluzzi V. et al. (2016) *J. Maps*, *12*, 227-238. [2] Mancinelli P. et al. (2016) *J. Maps*, *12*, 190-202. [3] Guzzetta L. et al. (2016) *J. Maps*, *13*, 227–238. [4] Wright J. et al. (2018) *LPS XLIX*, #2164. [5] Malliband C. et al. (2017) *LPS XLVIII*, #1476. [6] Pegg D. L. et al. (2017) 15th Early Career Planetary Scientists' Meeting, UKPF. [7] Tanaka K. L. et al. (2010) *Planetary Geologic Mapping Handbook – 2011*, *USGS*. [8] Galluzzi V. et al. (2017) *11th EPSC*, EPSC2017-1005.

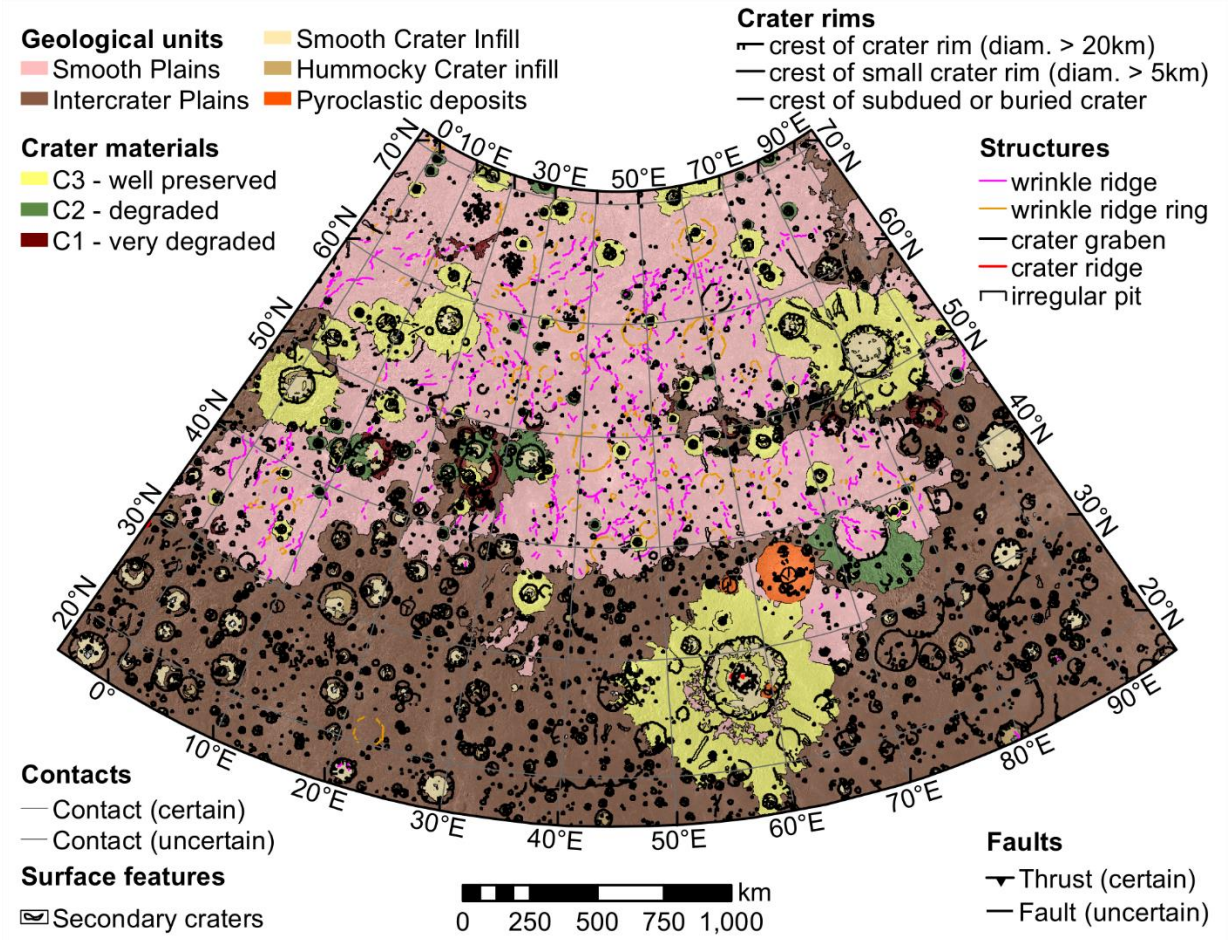

Fig. 1. *Our current working geological map of the Hokusai quadrangle of Mercury. 5° of overlap is shown with the surrounding quadrangles.*