Status report

We are using MESSENGER data to produce a 1:3M scale geological map of the Hokusai (H05) quadrangle. Linework is drawn at 1:400k. Below, we show the current state of the map. Mapping of the northern smooth plains is nearly complete. Next, we will map the intercrater plains in the south. We will consider subdivision of this more cratered unit into two (e.g. intermediate and intercrater plains) as with other quadrangle mappers [1,2]. Classification of older craters is underway.

Geological mapping of the Hokusai (H05) quadrangle of Mercury

Fig. 1. Quadrangles of Mercury with Mariner 10 maps. MESSENGER-era geological maps of Victoria [1], Shakespeare [2] and Raditladi [3] are published. Derain is in the early stages of mapping [4]. Kuiper and Beethoven are also underway. There is an international effort to have geological maps of all the quadrangles published before the arrival of BepiColombo [5].

Fig. 2. Geological map of the Hokusai (H05) quadrangle of Mercury. ~1:7M scale. Transparent geological units are overlain on the MESSENGER ~166 metres per pixel global mosaic. An overlap of 5° latitude and longitude is shown with the surrounding quadrangles.

Fig. 3. Typical smooth plains. Common wrinkle ridges (magenta) are radial to ghost craters or randomly oriented. Wrinkle ridge rings (orange) show volcanically buried impact craters.

Fig. 4. Cartoon of formation of ghost craters and wrinkle ridge rings (not to scale). Populations of large and small ghost craters alongside each other require multiple flow events.

Fig. 5. Contacts between craters of the same degradation class according to [1]. This permits a simple symbology update to render the map in the degradation scheme of [6].

Fig. 6. The two crater classification schemes of the map and their approximate correspondences [7].

References


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