COMPLETING THE GEOLOGIC MAPPING OF ATHABASCA VALLES, MARS. L. Keszthelyi, A. Huff, and W. Jaeger, USGS Astrogeology Science Center, 2255 N. Gemini Dr., Flagstaff, AZ. 86001 (laz@usgs.gov).

The geologic mapping of the Athabasca Valles region of Mars (MTM quads 05202, 05207, 10202, 10207) was accepted for publication in early 2020 as a single map at 1:1,000,000 scale. The focus of this mapping effort is the Late Amazonian volcanism in and around Athabasca Valles. Many key lava flow contacts are not readily apparent in THEMIS and are ambiguous even in CTX (Fig. 1). We used HiRISE to determine the nature of flow contacts and CTX data to map them. An attempt was made to strictly map lithostratigraphic units on the basis of lithology, age, and stratigraphic position.

**Figure 1.** (a) THEMIS IR daytime mosaic. The boundary between bright and dark surfaces appears to be a contact between lavas. However, the actual contact is indicated by the arrows where there are no discernible features. (b) Portion of image CTX image P19_008489_1852. The boundary in (a) is a change in surface texture and tone. The darker material on the west stands higher than the brighter material to the east, consistent with younger lavas moving from west to east over older lavas. (c) Portion of HiRISE image PSP_008489_1850. Arrows show where it is evident that the higher-standing platy-ridges lavas on the west are being embayed by smooth pahoehoe sheet flows from the east, which is opposite from the relationship inferred from THEMIS and CTX.