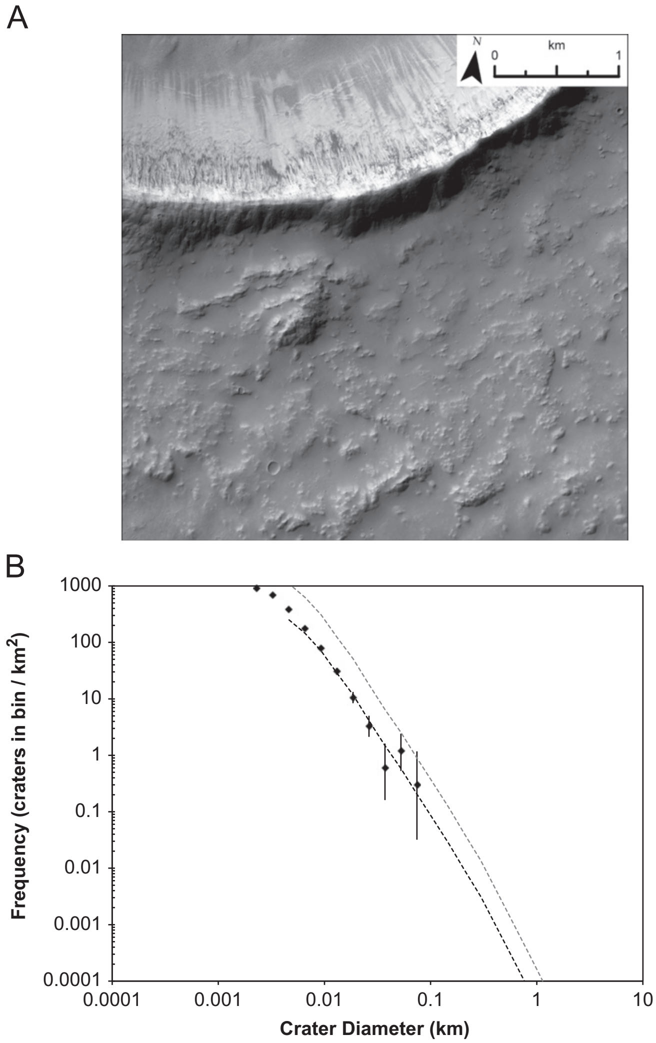

Fig. 10. (A) An unnamed 6.9-km diameter crater is found in Hesperia Planum (25.8°S, 115.7°E). No evidence of latitude-dependent mantling is observed. Portion of HiRISE: PSP_007436_1540. (B) A crater count revealed 10,710 craters on 3.3 km^2 of near-rim deposits surrounding the unnamed crater (25.8°S, 115.7°E). Isochrons of Hartmann (2005) indicate a best-fit age of 62.0 Ma. The grey dashed line marks the Early Amazonian boundary of Hartmann (2005).

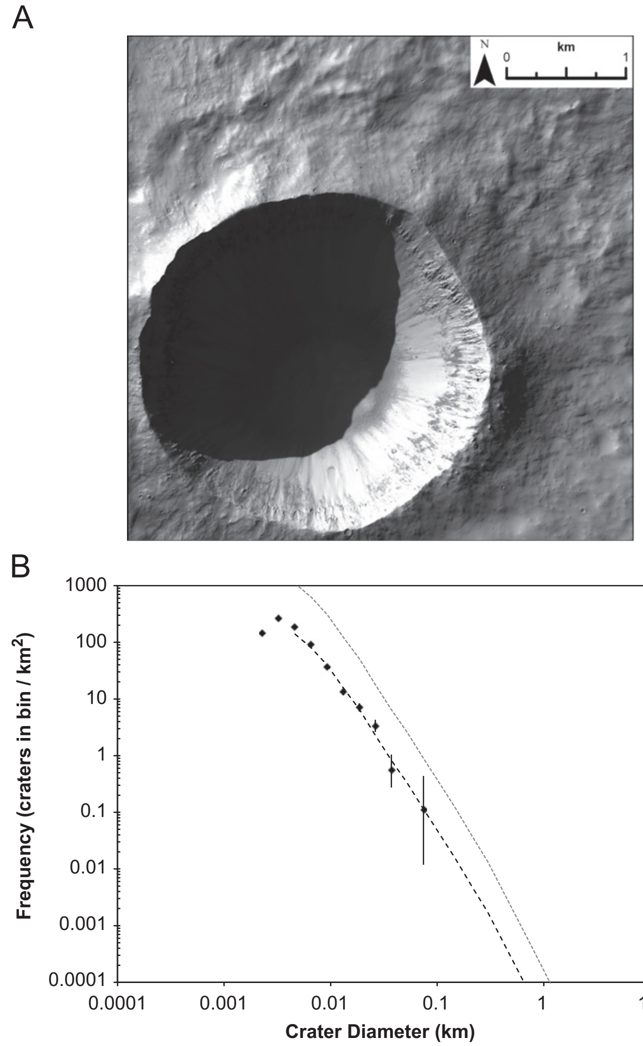

Fig. 11. (A) An unnamed 2.9-km diameter crater is found in Terra Cimmeria (25.9°S, 127.1°E). No evidence of latitude-dependent mantling is observed. Portion of HiRISE: PSP_008543_1540. (B) A crater count revealed 6749 craters on 8.9 km^2 of near-rim deposits surrounding the unnamed crater (25.9°S, 127.1°E). Isochrons of Hartmann (2005) indicate a best-fit age of 34.5 Ma. The grey dashed line marks the Early Amazonian boundary of Hartmann (2005).

located substantially farther poleward at 77.9°S. At high latitudes, hectometer and kilometer-scale impact craters are not observed without a polygonal texture (Levy et al., 2009). The interior, walls, rim, and near-rim deposits of these craters are overprinted by a continuous polygonal pattern. These craters are considered youthful because of their comparatively distinct rim-crests and the presence of modest low-albedo regions surrounding them (Fig. 5(A), Fig. 6(A)). Crater counts on the near-rim deposits of these craters are not indicative of the age of the crater; rather, the crater-size frequency distributions (Fig. 5(B), Fig. 6(B)) provide insight into the most recent resurfacing event. These ages, 0.7 Ma (Fig. 5(B)) and 0.3 Ma (Fig. 6(B)), are the youngest crater retention ages observed in this study. The crater-size frequency distributions also exhibit the poorest fits to isochrons observed, which we attribute to several potential factors. We were conservative in our identification of craters and at the smallest sizes, pits and bulges along polygon troughs are similar to impact craters. If polygons develop as quickly as suggested (Mellon, 1997; Levy et al., 2009; Kreslavsky et al., 2011) and are being refreshed, that could lead to a deficit of meter-scale craters and a misinterpretation of decameter-size craters (which could be polygonalized). Our best fits to isochrons (Fig. 5(B), Fig. 6(B), Table 1) are calculated using craters with diameters ≥ 8 m. If smaller craters were included, the best-fit estimates would be younger (0.3 and 0.1 Ma, respectively using craters with diameters ≥ 1 m). Our count data suggest that the more poleward polygonal terrain (Fig. 6) has a factor of two younger crater retention age than the more equatorial polygonal terrain (Fig. 5), though both are very young.

4.3. *Mid-latitude craters*

The bulk of the craters in our study (Fig. 11) are mid-latitude craters. These craters range in latitude from 20.8°S to 35.7°S and therefore bracket what has been interpreted as the equatorial extent of latitude-dependent mantling deposits, ~30° (Fig. 1). The two most equatorial craters in this group (Fig. 7, Fig. 8) exhibit no evidence of latitude-dependent mantling and have crater retention ages (Fig. 7(B), Fig. 8(B)) comparable to the two older rayed craters discussed in section 3.1. Moving poleward, the next three craters in our study (Fig. 9, Fig. 10, Fig. 11) also do not exhibit any geomorphic evidence of latitude-dependent mantling. The crater in Fig. 9 is the smallest diameter crater (0.8 km) in our study. Crater retention ages are reported in Fig. 9(B) (5.8 Ma), Fig. 10(B)