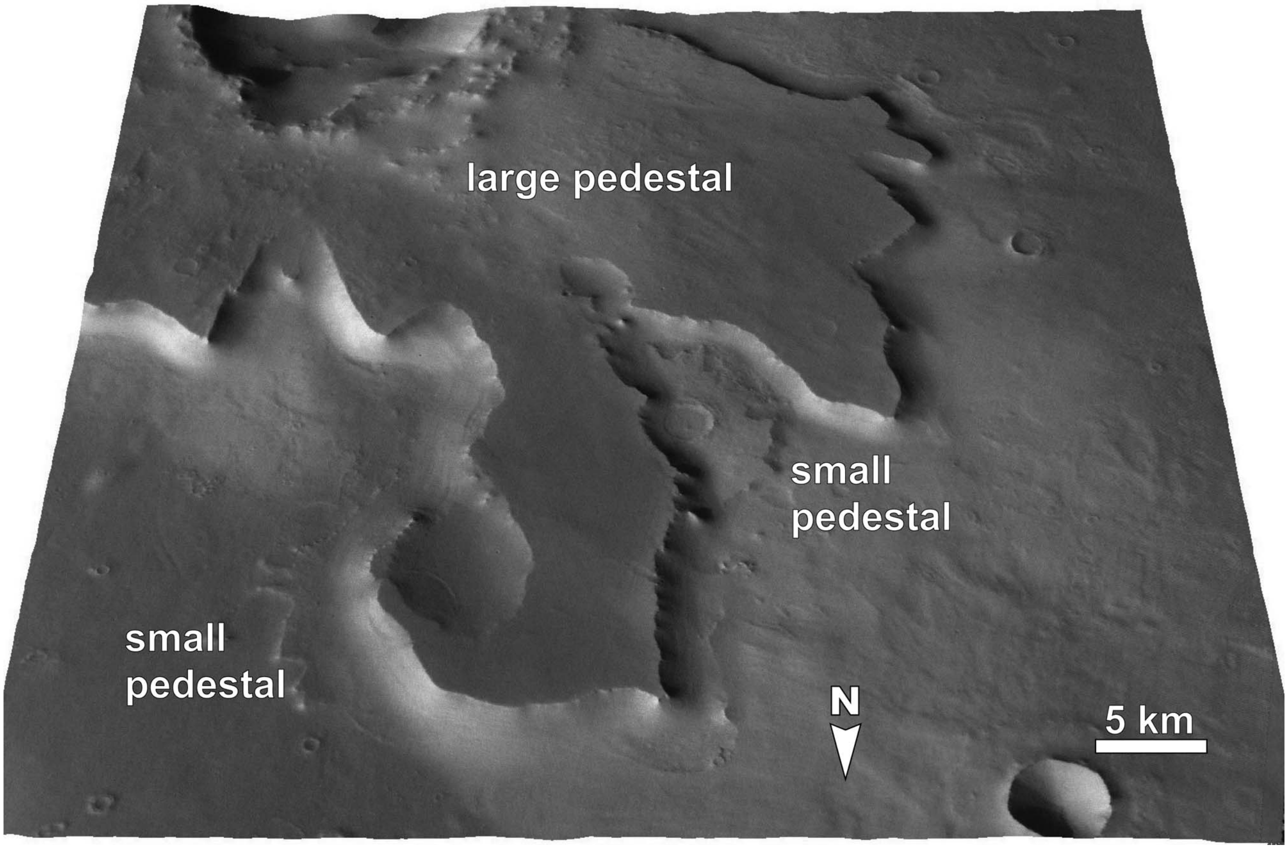

Figure 17. Perspective view of HRSC DEM showing the superposition of a distal lobe of the large Malea pedestal of Figure 6 (LMP3) and two other smaller (~10 km) pedestals. Image centered approximately at 71.4°S, 54.3°E. Illumination is from the lower left.

this depression. To the north, the margin of pedestal doublet merges with the margin of the rim of the depression. The area is partly mantled, but the mantle appears dissected to a greater degree than at the locations of the larger Malea pedestals. Based on MOC and HRSC images, the south and east margins of the pedestal doublet are partly devoid of mantle and present some indication of layering, but pitting is the dominant morphology. Given that the eastern pedestal overlays the western pedestal, we believe that the pedestals belong to a layered sequence, perhaps with fewer layers in the case of the larger Malea pedestal. In fact, the large Malea pedestal of Figure 6 is part of such sequence. Figure 17 shows a perspective view based on HRSC data of one of the distal lobes of this large pedestal overlying a much smaller pedestal, the latter perhaps being composed of the same layers extending from the lower portion of the larger pedestal and, thus, of the same material and of the same layers extending from the lower portion the larger pedestal. Similar stratigraphic superposition was previously noticed by *Kadish et al.* [2008] for smaller pedestals in Utopia Planitia, attributing the overlapping layers as being possibly due to cratering events during different periods of midlatitude glaciation produced by orbital forcing [e.g., *Head et al.*, 2006; *Laskar et al.*, 2002]. Here we note that this is also a plausible scenario for the larger pedestals.

[38] All of the positive identification of subsurface reflectors occurred for pedestals with P/C values greater than the 2.0 mode of the pedestal population [*Kadish et al.*, 2009]. LPP (P/C = 2.1) in Figure 7 exemplifies the lack of reflector for small P/C values, but it is also the thickest (~500 m) pedestal and the relationship between P/C and the presence of reflectors is not clear. Based on their finding of an average P/C = 3.1 for the pedestal population that is greater than the average ejecta-to-crater diameter ratios (1.7 [*Barlow*, 2006]), *Kadish et al.* [2009] argued that the armoring mechanism had to extend farther than emplaced ejecta, perhaps involving a shock wave associated with the impact event. SHARAD resolution is either insufficient to detect or the armored layer does not present a dielectric contrast to produce a shallow reflection.

[39] A genetic relationship between large (>30 km) and smaller pedestal craters is difficult to establish with the use of SHARAD alone, however, given that we could not document the unambiguous presence of a basal reflector and for the smaller diameters. We can, however, relate these two populations based on several important physical commonalities. Both small and large pedestals exhibit a defining marginal scarp around the perimeter of a flat pedestal surface. Despite the wide range in pedestal crater diameters, as previously mentioned here and by *Kadish et al.* [2010], large pedestals are not proportionally taller than small pedestals. Further, this finding extends to excess ejecta craters [*Black and Stewart*, 2008], which range from 16 to 108 m tall, and perched craters [*Boyce et al.*, 2005], which are usually <100 m but can