

Fig. 1. Location map for Hecates Tholus and the other main volcanic constructs within Elysium Planitia. Hecates Tholus is centered at 32°N, 209°W.

shields. Regional mapping of Elysium Planitia [Malin, 1977; Brown, 1980] indicates that the northern boundary of the volcano merges smoothly with the surrounding plains materials but that the southern flanks are covered by lateral lava flows from Elysium Mons. This partial burial of the southern

slopes has resulted in an apparent 30-km southward offset of the summit caldera from the preserved center of figure of the volcano.

The summit of Hecates Tholus (Figure 2) is characterized by a nested caldera complex 11.3 × 9.1 km in extent. At least

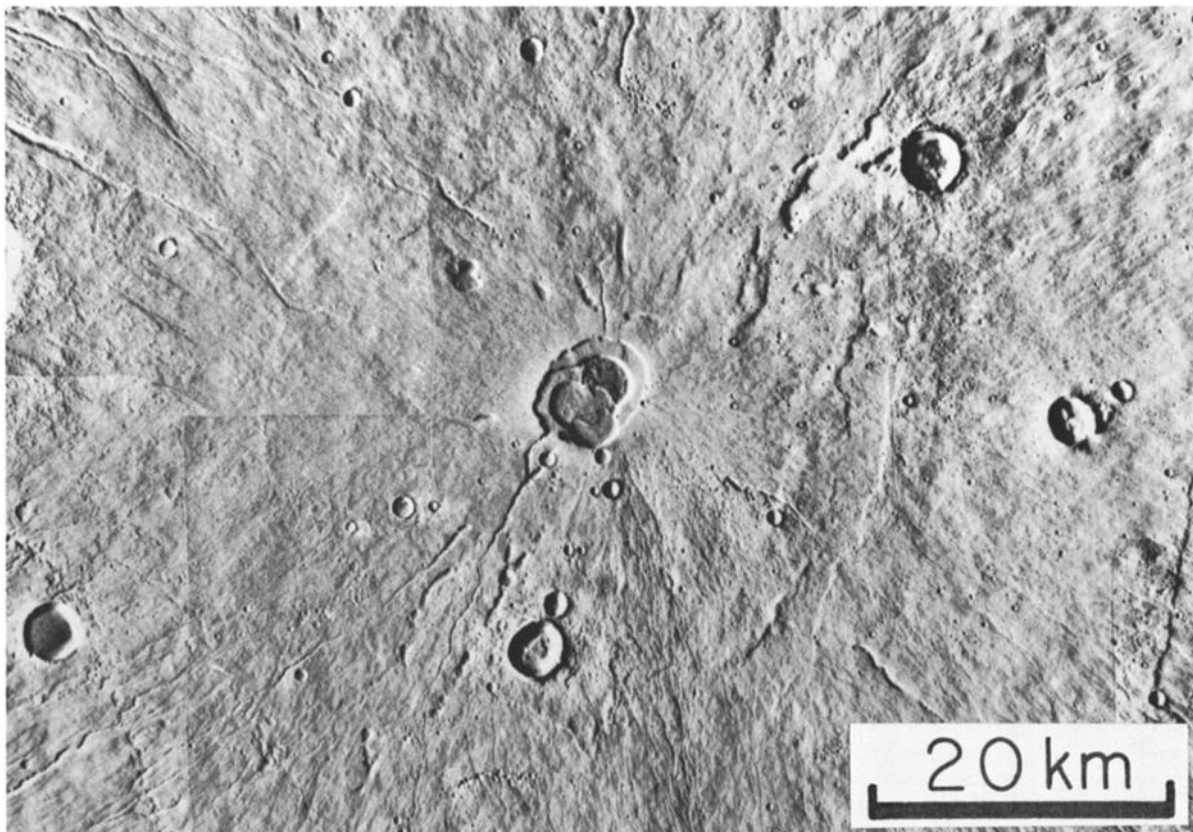


Fig. 2. Photomosaic of the summit area of Hecates Tholus. The marked difference in the frequency of occurrence of the channels and craters around the nested caldera is inferred to be the product of an air fall deposit which has mantled the area to the west of the caldera. Image resolution ~50 m per pixel, Viking frames 651A17-21.