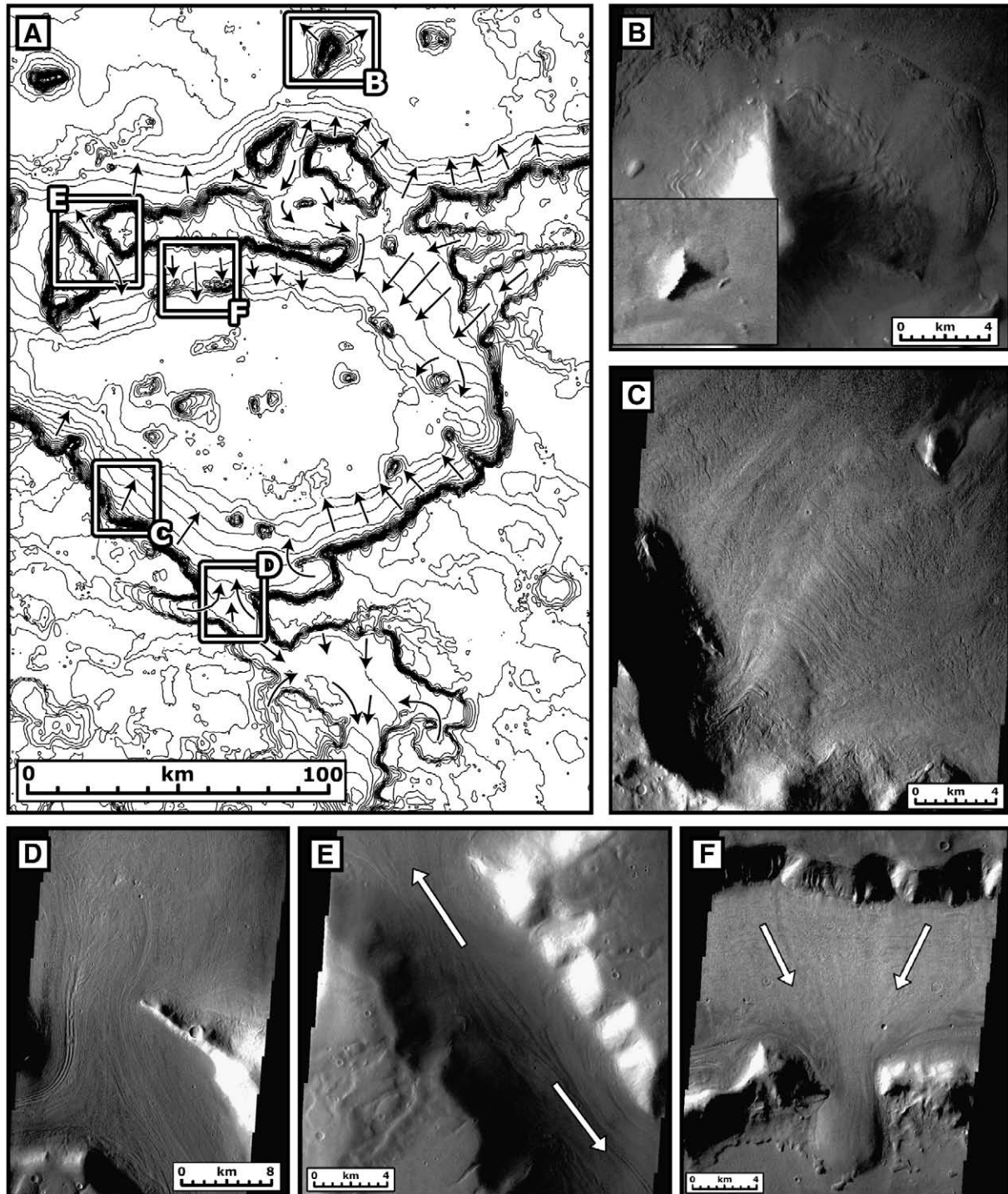


and LVF (e.g., ice-assisted rock creep, ice-rich landslides, rock glaciers, debris-covered glaciers); and 7) assessing the implications for the geological history of Mars. We address these questions in an analysis of several regions in the northern mid-latitudes.

3.1. North-Central Arabia Terra (Fig. 1, location 3; Fig. 3)

Regional analyses of LVF in the southern part of this area (Head et al., 2006a) have shown evidence for local sources of LVF in alcoves

in valley walls, down-valley flow, merging of flowlines into broad trunk valleys, extensive along-valley flow, and termination in lobate deposits, all features that are similar to valley glacial landsystems on Earth (Boulton and Eyles, 1979; Eyles, 1983; Benn et al., 2003). In this preliminary analysis we mapped a ~50,000 km<sup>2</sup> area (Fig. 3) just north of the area of LVF interpreted to be a valley glacial landsystem (Head et al., 2006a). We found it useful to subdivide LDA into *linear* (occurring along valley walls and crater interiors) and *circumferential* (aprons generally surrounding isolated massifs) (Fig. 3A).



**Fig. 3.** Northern Arabia Terra (Fig. 1): A. Topographic contour map of study region: 100 m contour interval. Arrows show mapped directions of flow. Boxes show locations of Figs. B–F. B. Massif with circumferential LDA. Themis V13879005 with Viking inset for comparison. C. Linear LDA along crater wall. Note alcoves, lobes, and divergence around obstacle. Themis V10834007. D. Large fold where LVF converges and becomes LDA. Themis V11433004. E. Massif LDA meet and flow laterally from a divide, forming LVF. Themis V14216012. F. Linear LDA blocked by parallel ridges, merges to form LVF and piedmont lobe in gap. Themis V12057009.