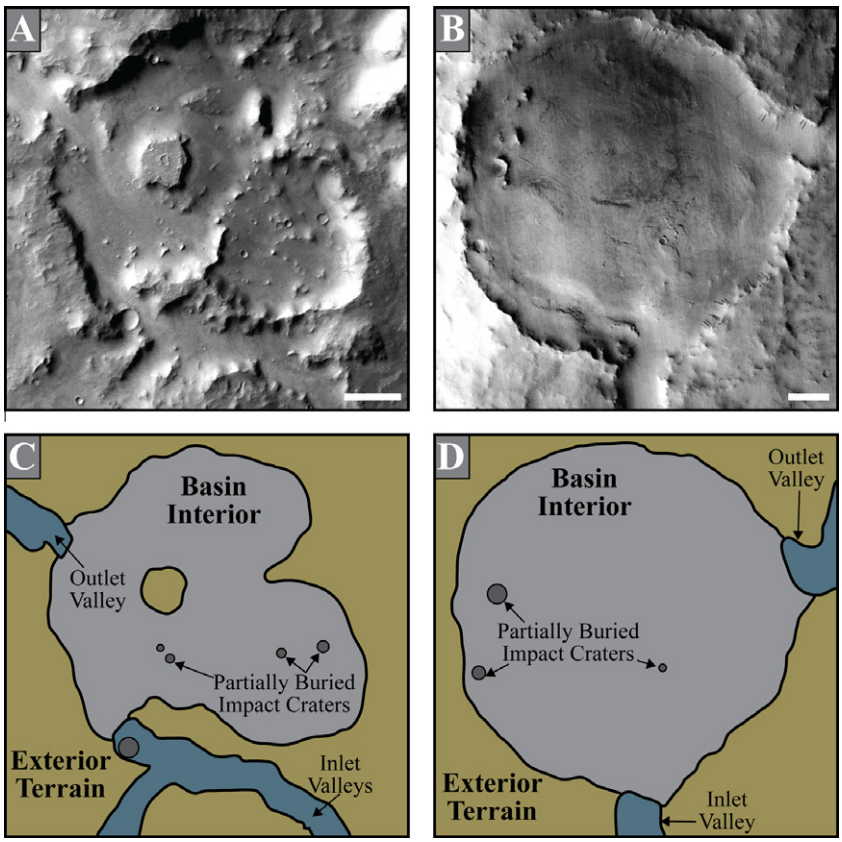

Fig. 6. Examples of resurfaced open-basin lakes with unknown source of resurfacing. Note the consistent texture both inside and outside the basin. Scale bars are 2 km. (A) Resurfaced open-basin lake at 0.61°N, 91.26°E (Fassett and Head, 2008a). CTX image P18_007885_1824_XN_02N269 W. (B) Resurfaced open-basin lake at 13.20°N, 19.52°E (Fassett and Head, 2008a). CTX image P13_005989_1932_XN_13N340 W. (C and D) Geologic sketch maps of the resurfaced open-basin lakes in parts (A and B) respectively. Partially buried impact craters are indicated.

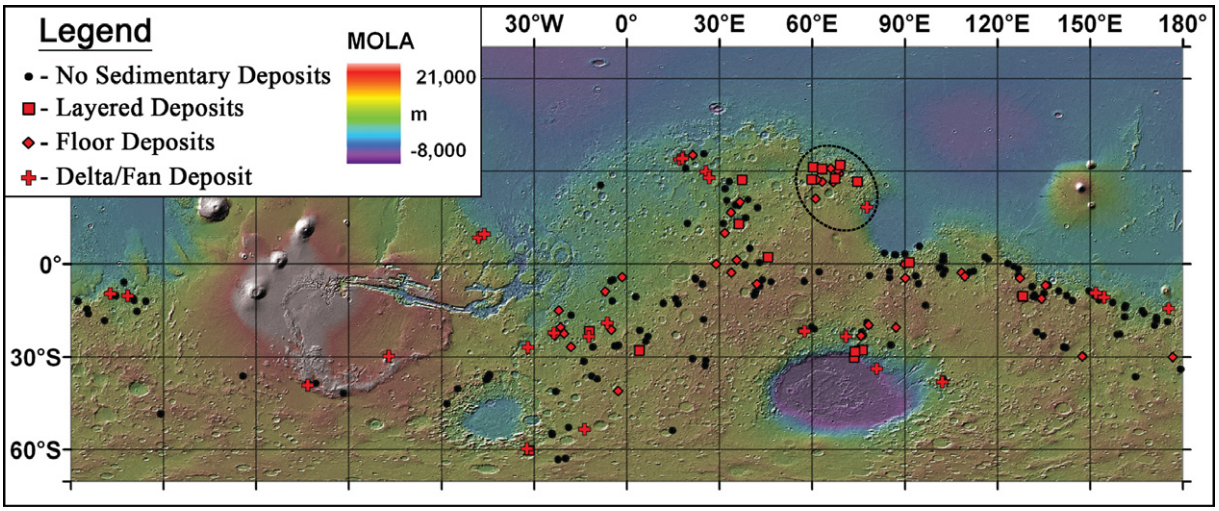

Fig. 7. Global distribution of the results of the exposed open-basin lake deposits classification. Area with high concentration of exposed open-basin lake deposits (Nili Fossae) is outlined in dotted black line. Background is MOLA topography overlain on MOLA hillshade (Smith et al., 2001).

basin lakes tend to cluster around clear volcanic sources such as Syrtis Major, Hesperia Planum and Apollinaris Mons, there also appears to be a clustering of volcanically resurfaced open-basin lakes in areas such as Arabia Terra and Margaritifer Terra (Fig. 8B, outlined areas), which are not linked to an established volcanic source. This lack of an obvious nearby volcanic vent requires more distributed volcanism not easy to trace to a specific edifice, such as large feeder dikes, which have been observed in Terra Tyrrhena and are thought to have emplaced regional expanses of Hesperian ridged plains (Head et al., 2006). Such dikes may also be responsible for floor-fractured craters, which may indicate past regional volcanic activity that modified pre-existing impact craters (Schultz, 1978; Schultz and Glicken, 1979). Indeed, we find that floor-fractured craters exist to the northwest of the cluster of