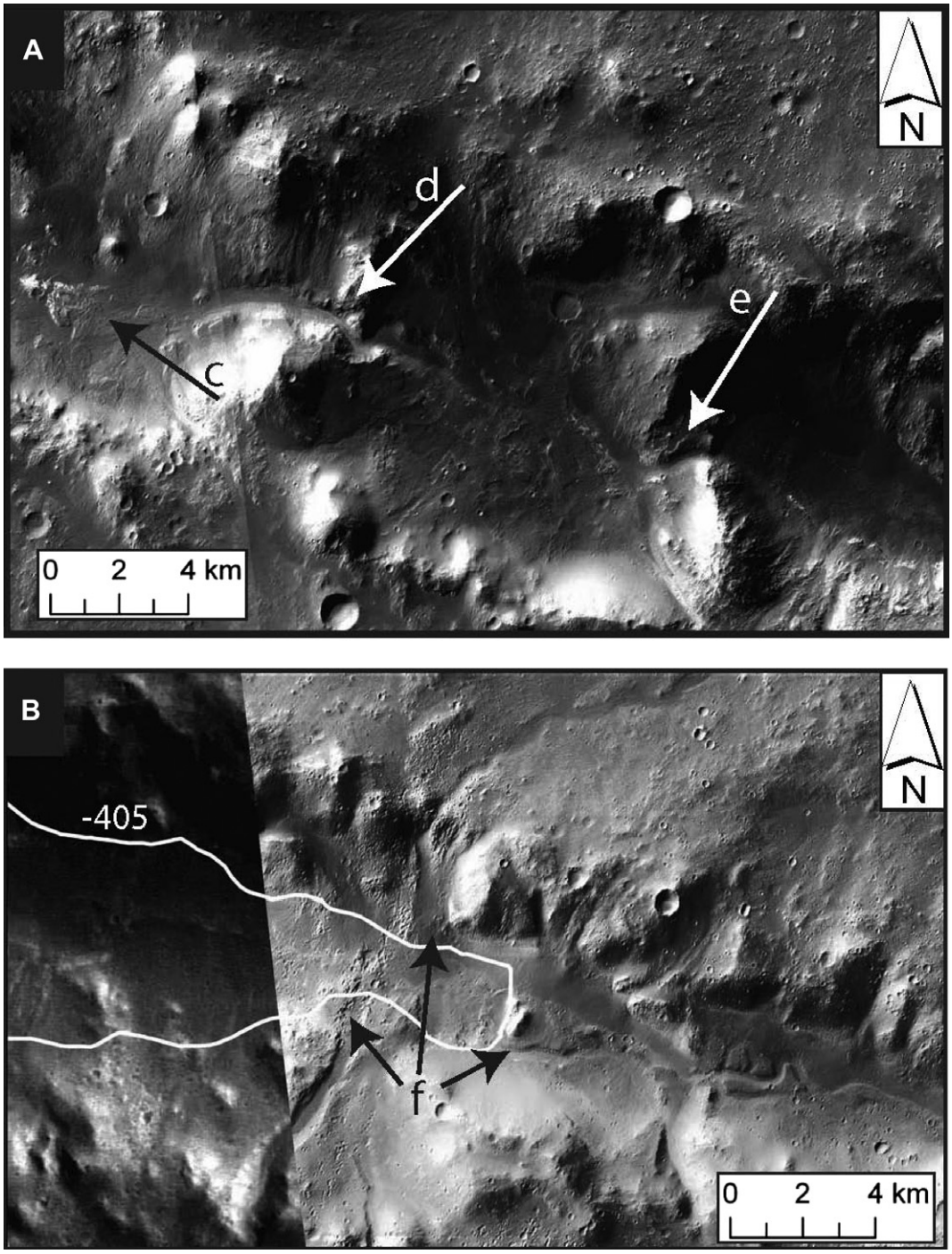


**Fig. 4.** (A) This detail shows higher resolution views of locations c, d, and, e from Fig. 3: (c) a fan at the terminus of the valley between Middle and West sub-basins, (d) the valley between Middle and West sub-basins, sloping into West sub-basin, (e) the valley between East and Middle sub-basins, sloping into Middle sub-basin. The mounds separating the sub-basins can also be seen in more detail. (B) A close-up of location (f) from Fig. 3, three inlet valleys to East sub-basin. (A) Composite of CTX images P20_008852_1550 and B01_010131_1534. (B) Composite of CTX image P19_008641_1528 and HRSC nadir image h0478_0000.

Aharonson, 2006), but calculations of this type fall outside of the scope of this paper.

## 4. Signs of precipitation and varying hydrological conditions

### *4.1. Evidence for precipitation*

Two lines of evidence suggest that precipitation was an important source of water to the Erythraea Fossa OBP system. First, there are many small, high-elevation valleys to the northeast, many of which start at or near local elevation maxima (Fig. 8). The highest elevation points of most of the valleys (Fig. 8C) are located at elevations ranging from 600 m to over 800 m. Given this high elevation, and the isolated relief of these ridges, these are unlikely to have been primarily fed by groundwater (at least not groundwater that is not being actively recharged by local precipitation) (Grant, 2000; Gilmore and Phillips, 2002; Costard et al., 2002; Craddock and Howard, 2002; Lamb et al., 2006; Andrews-Hanna et al., 2007; Dickson et al., 2007; Di Achille et al., 2007). Their morphology also suggests that they were formed by surface fluid flow: they