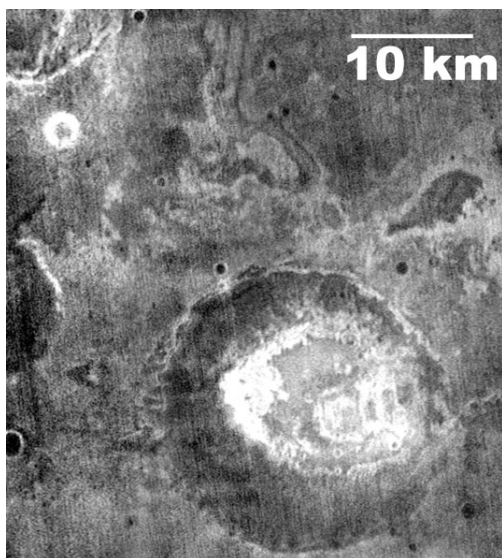




section is now under the Arabia contact elevation level. Four sub-channels has been formed inside this section indicating that the later stage water level was lower than Arabia contact elevation for a significant period of time. The topography shows a southward dipping higher region within the crater floor next to the eroded northern rim. This indicates larger sedimentary deposits in that area.

There is no evidence of catastrophic flooding inside the crater. This indicates that the flow rate to the crater was moderate, which would be the result of a gentle rise of the water level in the northern basin.

The floor of the crater is composed of several separate units. The fractured terrain seen in Fig. 2 has a layered structure. Its slabs have sharp edges indicating to rigid but relatively brittle material. The unit has also high thermal inertia (Fig. 3). All of these features are in conformity with lithified sediments. On the other hand, IR-dark regions might indicate presence of near sub-surface ice.

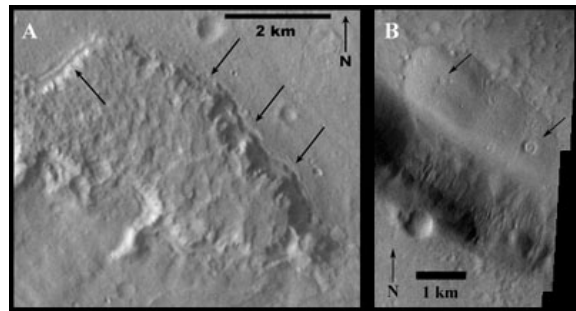


**Fig. 3:** The THEMIS night IR mosaic shows the variations in thermal inertia in the studied region.

**Inflow channels:** Two channels enter the crater, one from the east and the other from the west. There are no traces of deltas at the mouth of these inlets. They are relatively small-scale features (lengths ~4 km) and their short and stubby appearance indicates formation by sapping.

**Gullies:** Distinct layering is seen along the crater wall. In places, two or more separate layers are detected, but only one layer can be followed around the rim. This particular layer is darker than the under and overlying layers, and it is the source of numer-

ous gullies (examples in Fig. 4b). Gullies are located on the southern rim, which is in agreement with the observed gully orientations in the latitude vicinity (30- 40°N) [8].



**Fig. 4:** a) A mesa was formed when water entered the basin north of the crater. A distinct set of terraces (black arrows) tells of the gradually lowering water level. (Themis V13930008). B) Lobate debris aprons formed from the southern rim of the crater. Gullies are located adjacent to them originating from the dark layer on the crater wall. (Themis V19159010)

**Lobate debris aprons:** Prominent mass-wasting deposits occur on the southern part of the crater floor (Fig. 4c). Their appearance is similar to e.g. rocky glaciers in Deuteronilus Mensae [9]. Small craters on the top of the mass-wasting debris apron formation are similar to the few relaxed impact craters observed at Deuteronilus; they suggest target material been ice-rich sediment.

**Conclusions:** Water-related processes have affected the rim and cavity topography and surface texture of the crater floor in many ways. A large amount of water has entered the studied crater overflooding the N rim transporting notable amount of sediments inside. Additionally, a possible creeping rock-ice glacier together with gullies has formed on the S rim of the crater.

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