



Geomorphological evidences of cryoturbation on Nepenthes Mensae, Mars.

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Present climatic and environmental conditions in Mars are clearly cold, with temperatures that could reach the -180°C during the night in winter, and 15°C during the day in summer near the equator. With those conditions, the glacial and periglacial processes should be one of the most important sculptors the martian relief. However, there are not important ice accumulations outside of the poles. For that reason, although glacial conditions are climatically favourable, glacial processes are not so extent on Mars, almost not as much as one could expect with this climate. On the other hand, periglacial processes have an extent area for to work, because with small quantities of water and important thermal variations, rocks can be fragmented and mobilized. However, not so much areas modelled by periglacial processes have been described, although high resolution images allowed to found some polygonal terrains. To discriminate and to describe those features could help to understand the global distribution of those processes, the local geologic history and their climatic implications.

For that reason, we studied the surface of the western sector of Nepenthes Mensae by means of the analysis of MOC, THEMIS and HRSC images and MOLA- and HRSC-derived DEMs. This study was focused on the location of possible features that could be created by means of glacial and periglacial processes. In order to establish their origin, we compare them with similar features on Earth.

The most important and clear geomorphological evidence that we found of cryoturbation is located at (4.6N, 124.5E). In this site, it is possible to observe a depression edged by different possible shorelines (de Pablo & Pacifici, 2006). Surrounding this

possible paleolake, there is a patterned terrain characterized by abundant and parallel alignments of small ridges and rows of mounds, locally with a curved appearance. Those features are clearly similar to other ones located at the Melville Island, Northwest Territories of Canada. They were created by a mixture of geologic processes related with glacial and periglacial environments as solifluction and cryoburbation (GSC, 2006).

References

de Pablo & Pacifici, 2006. 1st *EuroPlanet Meeting*. Abstract EPSC2006-A-00447.

GSC, 2006: http://gsc.nrcan.gc.ca/landscapes/details_e.php?photoID=327