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**Cronoestratigrafia da região da cratera *Gusev* (Marte)
através da identificação e caracterização de crateras de
impacto**

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Abstract

With the objective of applying an automated detection of impact craters to a set of images that show the great diversity of terrains that one can find at the surface of a planet, so that the craters can be dated, it is used in this thesis a pattern comparison methodology. This methodology includes, initially, a candidate selection phase followed by the template matching phase, in which the associated probability of each detection is established, and finally, the analyses of the probability volume, where the crater identification, at the image, is accomplished.

The methodology is tested on group of images from the region surrounding the Gusev crater, at the surface of planet Mars, obtained from the Mars Orbiter Camera (MOC) sensor, on board the Mars Global Surveyor probe from NASA.

The new results are compared to existing ones, that were found in the 70's through manual crater counting. This procedure has the objective of verifying if, despite the error percentage associated to an automated detection such as this, the new results obtained match the ones obtained in the 70's and, if so, can be used in a automated, and more precise, mapping of the planet's surface.

Key-words: Mars, impact craters, image analysis, automated detection, template matching, Automated crater mapping.

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