



Impact structures seen by magnetic anomaly maps

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The terrestrial planets are open systems and impacting was and it can be a very important process for the planetary evolution. Earth has an active dynamo, however neither Moon and Mars have an active one. The magnetized rocks in their crusts suggest that in their earlier history, dynamos may have been operating in the metallic core of these bodies. Because of its large iron core the possibility of an ancient operating Martian dynamo is more likely, but the small lunar core and the age of the magnetized lunar rocks, have brought in debate a possible dynamo origin of lunar magnetism. The magnetic fields have been observed at global scale only for the Earth, Mars and Moon, and very conspicuous magnetic anomalies have been estimated for these three bodies. For this study, we firstly have used the largest impact structures for the Earth, Mars and Moon. Thereafter, we have extended our work to smaller martian and lunar impact craters (30 km diameters), cataloging them in order to obtain information about the impact crater magnetic signatures, positions, shapes and diameters. We superposed ULCN 2005 or Kaguya 2008 gridded topography on Lunar Prospector magnetic map for Moon and Mars Orbiting Laser Altimeter (MOLA) gridded data on Mars Global Surveyor magnetic data for Mars, as a systematic search for Quasi-Circular Depressions. The results obtain for Mars and Moon, obtained for a larger number of craters allow us to have a statistical view on the indicated parameters.