

Paleo- and rock magnetic study of Lonar Crater, India

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Lonar crater is a relatively small (1.8km diameter), well-preserved impact crater in Deccan Traps. We conducted paleomagnetic studies as well as magnetic field survey of the crater to study the effects of the impact on the preexisting remanence. Basalt samples were collected at 12 sites on the inner walls and at four sites outside of the crater rim. The alternating field demagnetization resolved two components from the most samples. The directions of the soft components fall on near that of present earth field. The hard components of the inner wall samples are likely of pre-impact, normal polarity Deccan Traps origin, while the outer rim samples show anomalous direction of the hard components, e.g. eastward declination and shallow negative inclination. The result of the ground magnetic surveys (about 1.5m height) shows bands of magnetic anomalies with amplitude of several 100 nT on the outside of the crater. Since the pre-impact basalt is expected to be magnetically homogeneous, the observed magnetic anomalies should be impact-related signature.