RAMGARH CRATER, RAJASTHAN, INDIA: STUDY OF MULTISPECTRAL DATA OBTAINED BY INDIAN REMOTE SENSING SATELLITE (IRS-1A). **A. V. Murali** and **S. Williams**, Lunar and Planetary Science Institute, 3303 NASA Road 1, Houston, TX 77058, **K. Lulla**, NASA/ Johnson Space Center, Houston, TX 77058.

Ramgarh Crater (25° 20'N; 76° 37' 30"E; ~350 km SSW of New Delhi) in Rajasthan, India, known for 120 years (1), consists of a ~5.5 km diameter structure with a ~3 km ring of hills (Fig.1). Ramgarh lies within ~50 km north of the exposed edge of Deccan flows and it was excavated into the basement rocks through which the Deccan basalts were emplaced (Fig. 2). Therefore, it is important to evaluate any temporal relationship of this potential impact crater to Deccan volcanism that figures prominently in the K-T extinction scenario (2, 3).

Although there are indications that it may be of impact origin (4, 5) no systematic study to determine the age and origin of this crater has been made. Based on morphological features, it was concluded that Ramgarh is an impact structure that is either an eroded young crater or, more likely the central uplift of a much larger ancient impact feature (6).

As a part of our proposed studies of Ramgarh Crater, we attempted to characterize the crater features using multispectral remote sensing data. This data from the Indian remote Sensing Satellite (IRS-1A) were obtained on February 9, 1989. This satellite uses a Linear imaging Self Scan Sensor (resolution 73 m) in four spectral bands (0.45- 0.52; 0.52-0.59; 0.62-0.68 and 0.79-0.86, all in microns). Image data from the sensors were analyzed using LIPS (Ver. 7.0) image processing system. The spectral classes of the crater area were generated using histogram analysis and pixel by pixel examination of the crater features. The 0.79-0.86 microns band was the most useful for seeing the lithologic variations; ratio techniques were used for data extraction (7). The fault passing through the Ramgarh structure (8) is apparently younger than the crater, unless it is a fault line scarp. In any case it parallels other regional tectonic trends seen as lineaments in the IRS image. The spectral reflectance of the materials in the interior of the crater is not uniform and several distinct spectral classes are identifiable. The sandstone (Fig. 2) responses are relatively bright and the ratio image generated shows distinct pattern of vegetation density around the crater area. The map of Sharma (1973) is too coarse (Fig. 2) to aid the spectral characterization and we plan to evaluate the data in detail after the field observations and sample collection at Ramgarh Crater, India.

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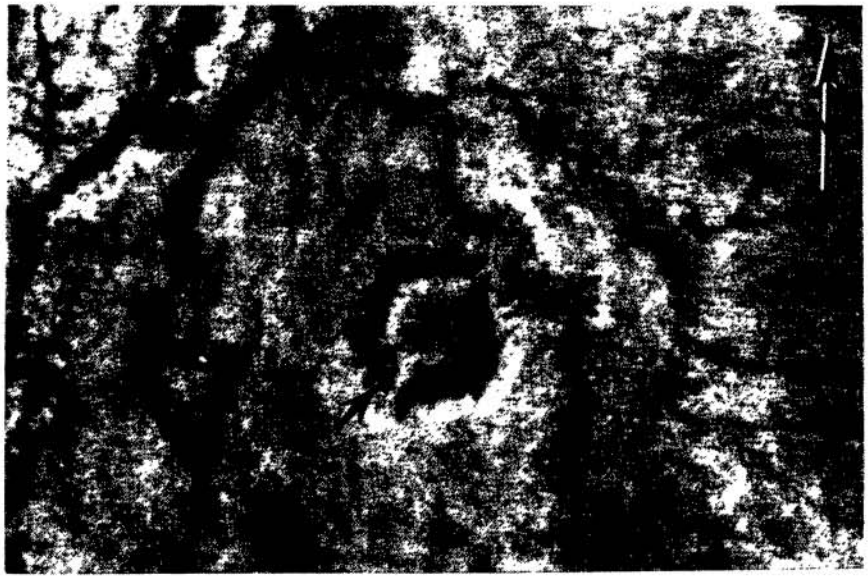

FIG. 1 LANDSAT IMAGE OF RAMGARH CRATER.

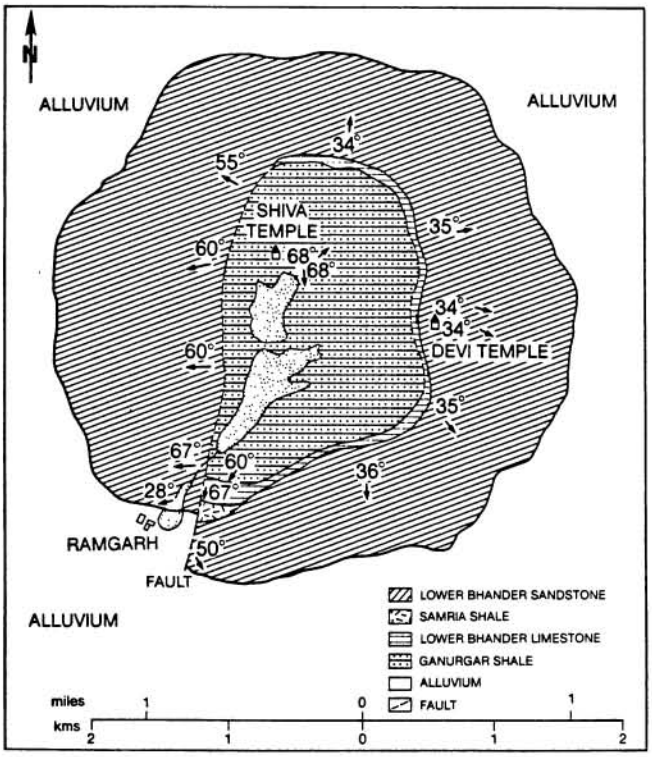

FIG. 2 GEOLOGY OF RAMGARH CRATER (SHARMA, 1973)