

Study of Land Use Changes around an Archaeological Site Using Satellite Imagery Analysis: A Case Study of Hathnora, Madhya Pradesh, India

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Abstract : Many undesirable significant changes in landscapes and the regions in the vicinity of historically important structures occur as impacts due to anthropogenic activities over a period of time. A better understanding of such influences using recently developed satellite remote sensing techniques helps in planning the strategies for minimizing the negative impacts on the existing environment. In 1982, a fossilized hominid skull cap was discovered at a site located along the northern bank of the east-west flowing river Narmada in the village Hathnora. Close to the same site, the presence of Late Acheulian and Middle Palaeolithic tools have been discovered in the immediately overlying pebbly gravel, suggesting that the 'Narmada skull' may be from the Middle Pleistocene age. The reviews of recently carried out research studies relevant to hominid remains all over the world from Late Acheulian and Middle Palaeolithic sites suggest succession and contemporaneity of cultures there, enhancing the importance of Hathnora as a rare precious site. In this context, the maximum likelihood classification using digital interpretation techniques was carried out for this study area using the satellite imagery from Landsat ETM+ for the year 2006 and Landsat TM (OLI and TIRS) for the year 2016. The overall accuracy of Land Use Land Cover (LULC) classification of 2016 imagery was around 77.27% based on ground truth data. The significant reduction in the main river course and agricultural activities and increase in the built-up area observed in remote sensing data analysis are undoubtedly the outcome of human encroachments in the vicinity of the eminent heritage site.

Keywords : cultural succession, digital interpretation, Hathnora, Homo Sapiens, Late Acheulian, Middle Palaeolithic

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