

CHAPTER 20

GEOLOGY

Doctoral Theses

109. MUKHERJEE (Arka Prava)
An Integrated Remote Sensing and G.I.S. Application in the Study of the Hydrogeological Potential of the Western Part of Cuddapah District.
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Abstract

It is an application study of Remote Sensing and GIS in the Hydrogeological investigation of western part of the Cuddapah District. The study was carried out using some of the latest techniques of Remote Sensing and GIS, clearly shows that both the technologies conjunctly can be very effectively used to extract, compare and evaluate the various factors affecting the groundwater resources of an area. An attempt to automatically extract drainage pattern from the DEM of the study area by using latest techniques in GIS ; showed that process worked well in extracting the drainage basin extent and the overall drainage pattern. Even though slight discrepancies were found, it is however believed that a better resolution of the topographic data can help reduce such discrepancies. One of the interesting aspects revealed the discovery of the paleo-river course of the Mugamureru River. From the analysis of the output data it has been inferred that before the phenomenon of stream capturing took place, the Mugamureru River basin had a much larger extent; much of which lies to the north of what is now present mouth of the river. The later expression of a prominent fault zone across the main trunk of the river is believed to be responsible for the stream capture.

Contents

1. Introduction. 2. Scope of the Study. 3. General Profiles of the Study Area. 4. Approach to the Problem. 5. Remote sensing and Digital Image Processing. 6. GIS Analysis. 7. Results and Discussion. 8. Conclusion. Bibliography.