

Reprinted from

Eleventh International Symposium

Machine Processing of

Remotely Sensed Data

with special emphasis on

Quantifying Global Process:

Models, Sensor Systems, and Analytical Methods

June 25 - 27, 1985

Proceedings

Purdue University
The Laboratory for Applications of Remote Sensing
West Lafayette, Indiana 47907 USA

Copyright © 1985

by Purdue Research Foundation, West Lafayette, Indiana 47907. All Rights Reserved.

This paper is provided for personal educational use only,
under permission from Purdue Research Foundation.

Purdue Research Foundation

GEOLOGICAL AND GEOMORPHOLOGICAL STUDIES OF MALWA PLATEAU (INDIA) USING IMAGE PROCESSING TECHNIQUE - A CASE STUDY

SIDDHARTH K. SONI AND A. N. PATEL

Department of Civil Engineering
S.G.S. Institute of Technology and Science
Indore, INDIA

ABSTRACT

The Malwa plateau is a prominent Geological, Geomorphological and Geographical feature of Central India. It's importance has further been enhanced because of the rivers Narmada and Tapti, which are the only Westwardly flowing rivers in the country.

The area selected for the study was bounded by the following limits:

77°-00'E - 79°-00' E

22°-00'N - 24°-00' N

The Geological succession of the above area is: Pleistocene and recent formations along the Narmada Catchment.

Deccan trap
Upper palaeozoic and lower Gondwana
formations Vindhyan

Looking to the complex geological formations, morphological features the above area was selected to apply the modern Remote Sensing techniques of Mapping.

The data sets used for the above study were:

1. Imageries comprising of band 4,5,6 and 7 of Landsat 1 & 2.
2. Ancillary data such as topsheets B & W paper prints, Diazo prints and false color composites.

Methodology comprised of both visual and Digital interpretation techniques. For Digital interpretation techniques the interactive system of M/s Spectral Data Corporation available at Forestry Department University of Toronto Canada was used. The following functions were available with the system:

1. Data input/output
2. Gray scale and mapbuild
3. Image Data analysis
4. Ratio and transportation Analysis

5. Parameter alteration
6. Video Digitizer option
7. Scatter Digram option
8. Color printer option
9. Universal programming option
10. There were six other options which were totally copyright of the manufacturer.

Out of the above functions, function till color printer option were used.

The above analysis provided us with the latest lithostratigraphical map. The information such as Dip and strike were compiled with the available geological maps.

This study let us to conclude that landsat data is an aid in geological mapping and these methods can compliment conventional mapping techniques.