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Indian Streams Research Journal

International Recognized Multidisciplinary Research Journal

ISSN: 2230-7850

Impact Factor : 4.1625(UIF)

Volume - 6 | Issue - 2 | March - 2016



GEOMORPHOLOGICAL STUDY OF JAGBUDI RIVER, RATNAGIRI DISTRICT, MAHARASHTRA



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ABSTRACT :

The preservation of rocks from Achaean (3.8 Ga) to recent is greatly represented by the Indian Peninsula. It consists of various types or groups of the rocks like Precambrian rocks followed by the Deccan traps. The Deccan trap is a major rock type of the Indian peninsula. Deccan trap is one of the good examples of continental flood basalt province of the world. Deccan trap spread about 5000,000 km² areas in the western and central India. It is well exposed in states like Maharashtra, Madhya Pradesh and Gujarat. The Deccan trap also called the Deccan Volcanic Province (DVP). On the basis of available data, the entire sequence of lava flows was erupted during a short span of 0.5 to 1 million years (Sen et al. 2006; Chenet et al. 2007) that roughly coincides with the Cretaceous – Tertiary Boundary (app. 65 million years) (e.g., Mahoney 1988; Duncan and Pyle 1988).

KEY WORDS: Geomorphological Study , Jagbudi River , petrology and geochemistry .

INTRODUCTION:

Since then the DVP has remained the center of attraction for various reasons. Firstly it is related to hotspot activity for which the petrology and geochemistry of the Basalt could throw light on the mantle dynamics to a great extent. Thus the geomorphology of the DVP would speak volume about the tectonics of rifting and plume activity on the continental crust.

AREA OF INVESTIGATION :-

The Jagbudi river flows in Chiplun Taluka, Ratnagiri District, Maharashtra. The geomorphological study carried out from head to mouth of river having latitude $17^{\circ}55'00''$ to $17^{\circ}00'00''$ N & longitude $73^{\circ}25'00''$ to $73^{\circ}55'00''$ E. The study area falls in the survey of India toposheet number - 47G/5, G/6, G/9, G/10. of the scale 1:50,000. The Jagbudi river is a tributary of main Vashishti river, originate near the Hatlot pass of Sahyandri hill ranges. From the origin, Jagbudi river first flow in N-S direction, and then immediately turn towards westward direction for some distance and again resume its southward trend till it joins the Vashisti. This sharp almost right angle bends of the river are suggestive of drainage complexity of the kokan coast



Fig. No. 1 : Accessibility map of Jagbudi river.

PHYSIOGRAPHY, CLIMATE AND VEGETATION:-

The study area lies to the west of Sahyadri hills. The area is hilly showing the undulation topography. The highest point in the basin is 1100 meters and while lowest point is 20 meters. The basin shows the parallel and dendritic drainage pattern. The Jagbudi river basin is 7th order perennial river

which is about 56 km long. The climate of the area are humid. The Rainfall is abundant and comparatively regular. The temperature varies between 19° to 40°. Due to the humid and tropical climate condition thick vegetation has been observed.

METHODS OF STUDY:-

The methods adopted during the investigation are mainly –

- ✦ Field work
- ✦ Morphometric analysis
- ✦ GIS analysis
- ✦ Lineament analysis

Geomorphology

Introduction

Geomorphology is a process which include all the physical and chemical changes that modify the landforms through long period of time. Strahler, 1996 define geomorphology is the measurement and mathematical analysis of the configuration of the Earth surface and shape and dimensions of landforms. Most of the geomorphic process originate within the earth surfaces. The process acting on the Earth crust are Exogenous process, those process originate within the earth crust are Endogenous process. And the endogenous and exogenous process control the development of landscape.

The basin morphometry has been carried out for the study area is a part of a Konkan Costal belt of Maharashtra. The konkan costal belt of Maharashtra characterized by the horizontal to East Deeping lava flows, except W to SW dips are observed.

The lateritisation and the erosional planes are consequence this regions because of favorable climatic conditions. The plateau occupy the lateritic cover at different level. Generally the costal belt of Maharashtra represent a costal plane but in study area still it consist of hills of different elevations and erosional surfaces at different level. The drainage network of the Jagbudi river basin are parallel, dendritic and at few places radial drainage network has been observed (fig. no. 2)



Fig. No. 2 : Drainage network map of Jagbudi river.

The Jagbudi river originate from the western scarp of Konkan and flowing westernly maintaining a zigzag course indicating structural control and ultimately meets to Vashisti.

In the present study different geomorphic units have been recognized in the field for the interpretation of the tectonic control of the area.



Plate no. 1 : Flat topped hill basin



Plate no. 2: River shows meandering pattern



Plate no. 3 : River Terrace



Plate no. 4 : Knick point

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