

A NOTE ON THE STRUCTURE OF THE AREA AROUND DUGHDA, CHHOTAUDEPUR TALUKA, BARODA DISTRICT, GUJARAT

R. V. KARANTH, A. G. RAO AND J. M. PATEL

Department of Geology, M. S. University of Baroda, Baroda 390 002

Abstract

Bagh beds and Deccan Traps are the main formations exposed in Dughda area. These exposures are controlled by numerous fractures formed due to tectonic activity along the Narmada lineament. The contact between Bagh beds and Deccan Traps is characterised by pyroclastic rocks and tuffaceous beds.

Introduction

Dughda village (latitude $21^{\circ}59'38''$ N and longitude $73^{\circ}55'35''$ E) lies in a remote corner of Chhotaudepur Taluka, Baroda District, Gujarat State. The only earlier report on this area by Gwalani (1981) gives a petrographic and petrochemical account of the Deccan Traps of Dughda-Naswadi area. The present authors want to highlight the structural aspect of this area.

Geological setting

Geologically the area includes two important formations (Fig. 1), viz., Bagh beds (upper Cretaceous) and Deccan Traps (Upper Cretaceous to Eocene). Precambrian basement on which the Bagh beds have been deposited has not been exposed. Bagh beds are characterised by alternating bands of sandstone and limestone which have a general ENE-WSW trend and gentle southerly dips. Sub-horizontal basaltic flows are the chief extrusive rocks. The contact between Bagh beds and Deccan Traps is marked by a nearly consistent band of pyroclastic rocks. To the north of Chhodwani, Bagh sandstone occurs with intermittent layers of tuffaceous beds. Dykes of dolerite, basalt and trachyte are exposed in many parts of the area.

Structural features

Structurally the area is dissected by many fractures. Two sets of faults, viz., (i) ENE-WSW and (ii) NW-SE, control the exposures of all the rock types. Several sets of joints have been recorded, especially in basalts. ENE-WSW faults lie parallel to the main Narmada lineament. These are high angle reverse faults confirmed by the slicken side surfaces noticed at two places to the south of Vaguma village. ENE-WSW faults have been further dissected and displaced by younger NW-SE faults.

Discussion

Bagh formation in Dughda area occurs as well bedded sandstone with limestone bands affected by two sets of faults. Bagh beds do not occur as disconnected patches as described by Gwalani (1981, Fig. 1, p. 38). ENE-WSW fractures parallel to the main Narmada lineament and NW-SE cross fractures are observed throughout the Narmada rift zone (Murty and Misra, 1981). Reactivation along this zone during Upper Cretaceous-Eocene period appears to have produced these fractures. Occurrence of tuffaceous beds near Chhodwani indicates that the initial trappean activity coincided with the waning stage of Bagh sedimentation in Chhotaudepur

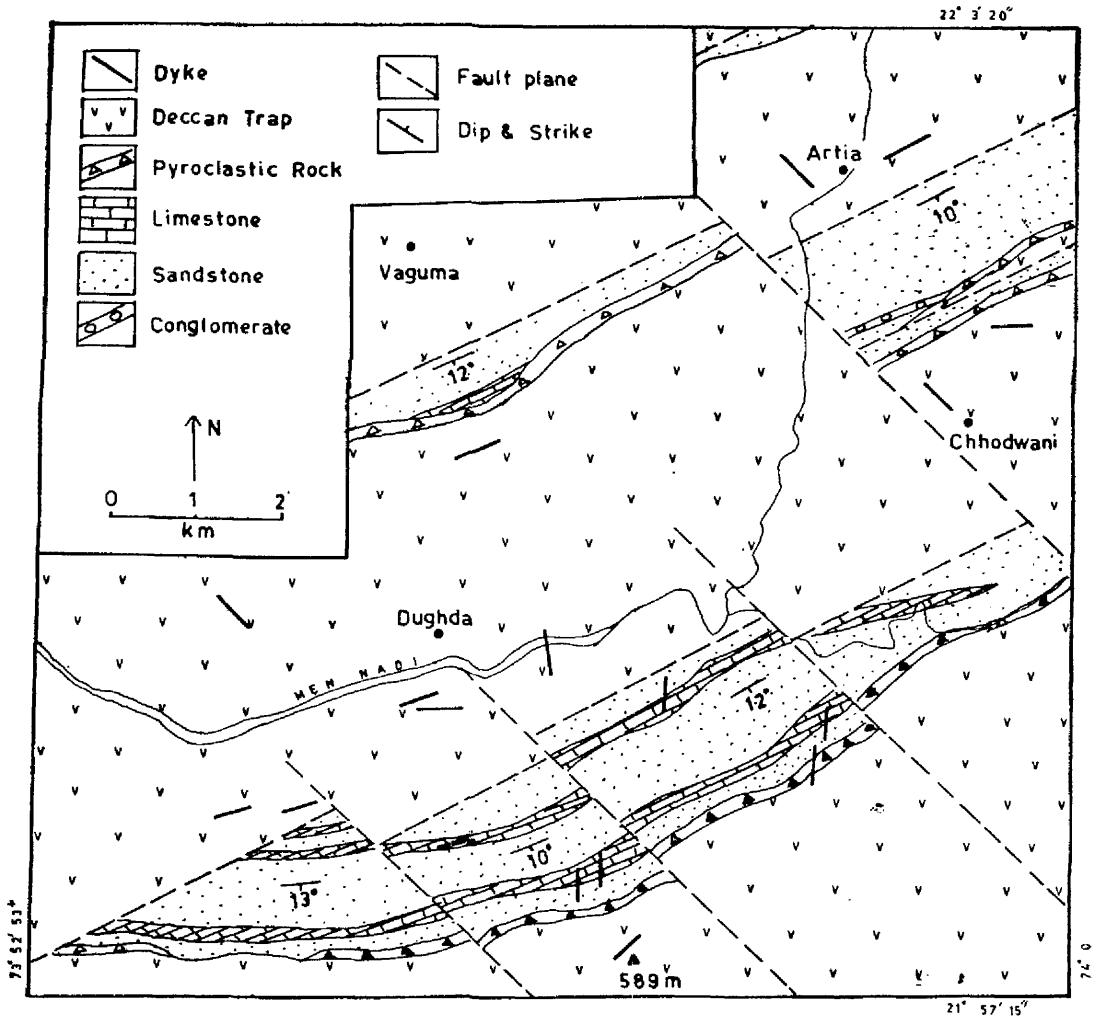


Figure 1. Geological Map of the area around Dughda.

region. Consistently occurring pyroclastic rocks at the junction of Bagh beds and Deccan Traps suggests that the main extrusive activity around Dughda was violent in character in the beginning.

Acknowledgement: The authors are grateful to Prof. S. S. Merh, Head, Department of Geology, M. S. University, Baroda for providing facilities during the course of their investigation.

References

- GWALANI, L. G., (1981) Petrology of the Deccan Trap basalts of Dughda-Naswadi area, Baroda District, Gujarat. *Bull. Indian Geol. Assoc.*, Chandigarh, v. 14, pp. 37-43.
- MURTY, T. V. V. G. R. K. and MISRA, S. S., (1981) The Narmada-Son lineament and structure of Narmada Rift System. *Jour. Geol. Soc. India*, v. 22, pp. 112-120.