

Study of P-wave velocities and attenuation coefficients of Gondwana rocks from Chanda-Wardha valley coalfield, Maharashtra, India

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Abstract

This paper describes the findings of the study pertaining to the laboratory measurements of longitudinal wave velocities and attenuation coefficients of various Gondwana rocks of Chikhalgaon, Saoner and Agarjhari areas of Chanda-Wardha valley coalfield. It is found that Barakar sandstones, in general, have higher longitudinal wave velocities than Barakar and Talchir shales and Kamthi sandstones. Of the Barakar sandstones, the fine grained feldspathised variety has the maximum velocity. Attenuation coefficients of coarse-grained rocks are higher than those of fine grained ones. Black carbonaceous shales of Barakar are characterised by moderately high longitudinal wave velocities and attenuation coefficients. Coals are characterized by low longitudinal wave velocities and high attenuation coefficients. Longitudinal wave velocities of the rocks along the bedding plane are always higher than those perpendicular to the bedding plane.

Key words: Gondwana, Carboniferous, attenuation coefficient, P-wave velocity.