

Two of the East Pacific Rise samples (EPR 1 and EPR 2) are extremely massive basalts with little or no alteration and are free of glass and vesicles. These samples are higher in density and velocity than previously studied oceanic basalts (Fig. 1). The velocities of these two rocks at pressures between 1 and 2 kb (Table 1) are, however, lower than seismic velocities of the lower oceanic crust, thus suggesting that even massive basalt can not be a major constituent of the lower oceanic crust. This is in agreement with earlier conclusions based upon laboratory velocities by Christensen (1970b) and Christensen & Shaw (1970).

Acknowledgments

Dr Robert L. Fisher generously provided the basalts for this study. Financial support was provided by National Science Foundation grant GA-20317.

*Department of Geological Sciences,
University of Washington,
Seattle, Washington 98195.*

References

- Birch, F., 1960. The velocity of compressional waves in rocks to 10 kilobars, 1, *J. geophys. Res.*, **65**, 1083-1102.
- Birch, F., 1961. The velocity of compressional waves in rocks to 10 kilobars, 2, *J. geophys. Res.*, **66**, 2199-2224.
- Christensen, N. I., 1970a. Compressional-wave velocities in basalts from the Juan de Fuca Ridge, *J. geophys. Res.*, **75**, 2773-2775.
- Christensen, N. I., 1970b. Composition and evolution of the oceanic crust, *Marine Geol.*, **8**, 139-154.
- Christensen, N. I. & Shaw, G. H., 1970. Elasticity of mafic rocks from the Mid-Atlantic Ridge, *Geophys. J. R. astr. Soc.*, **20**, 271-284.
- Dortman, N. B. & Magid, M. S., 1969. New data on velocity of elastic waves in crystalline rocks as a function of moisture, *Internat. Geol. Rev.*, **11**, 517-524.
- Manghnani, M. H. & Woollard, G. P., 1968. Elastic wave velocities in Hawaiian rocks at pressure to ten kilobars, *Mono. Am. geophys. Un.*, **12**, 501-516.
- Nur, A. & Simmons, G., 1969. The effect of saturation on velocity in low porosity rocks, *Earth Planet. Sci. Lett.*, **7**, 183-193.