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= DEEP SEA DRILLING PROJECT =
= SONIC VELOCITY =
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I. INTRODUCTION

A. BACKGROUND AND METHODS

Sound velocity measurements were taken aboard the Glomar Challenger starting on Leg 2. Mention of 'sonic velocity' in early volumes of the Initial Reports (eg. McManus, 1970) often refer to several different methods for shipboard measurement of sonic velocity; this database contains only data derived via a "sonic velocimeter" used in the core lab to measure the sonic velocity of a whole core or a discrete sample of core.

Two sonic velocimeters were used. The first, borrowed from the Navy at the outset of the program, is the 'earmuff' transducer system; the name is descriptive of the transducers which were applied across the diameter of an unsplit core. On Leg 15 a 'Hamilton frame' was installed. Susequently sonic velocity measurements could be taken on whole or split core or on selected samples taken from a core.

B. LEGS IN DATA SET

The data base is complete and contains data from legs 2-12 and 14-95;

C. BIBLIOGRAPHY

Boyce, R. E., 1973. Appendix I. Physical Properties - Methods,. In: Edgar, N. T., Saunders, J. B. et al., 1973, Initial Reports of the Deep Sea Drilling Project, Volume 15, Washington (U.S. Government Printing Office) pp. 1115-1127.

Boyce, R. E., 1976. Appendix I - Definitions and Laboratory Techniques of Compressional Sound Velocity Parameters and Wet-Water Content, Wet-Bulk Density, and Porosity Parameters by Gravimetric and Gamma Ray Attenuation Techniques,. In: Schlanger, S. O., Jackson, E. D., et al., Initial Reports of

the Deep Sea Drilling Project, Volume 33, Washington (U.S. Government Printing Office) pp. 931-958.

Gealy, E. L., 1971. Sound velocity, elastic constants, and related properties of marine sediments in the western Equatorial Pacific: Leg 7, Glomar Challenger. In: Winterer, E. L. et al., 1971, Initial Reports of the Deep Sea Drilling Project, Volume VII, Washington (U.S. Government Printing Office) p. 1105.

McManus, D. A., 1970. Comparison of three methods of measuring or estimating sonic velocity in sediments. In: McManus, D. A., et al., 1970, Initial Reports of the Deep Sea Drilling Project, Volume 5. Washington (U.S. Government Printing Office) p. 545.

II. FORMAT AND FIELD DESCRIPTIONS

A. DATA FORMAT

Record length = 50 characters (52957 records)
 (originally 80, blank fields removed by NGDC)

COLUMN	FIELD	FORMAT
=====	=====	=====
1-2	LEG	A2
3-5	SITE	A3
6	HOLE	A1
7-9	CORE	A3
10-11	SECTION	A2
12-15	TOP INTERVAL DEPTH (centimeters)	F4.1
16-19	BOTTOM INTERVAL DEPTH (centimeters)	F4.1
20-27	TOP OF CORE DEPTH (meters)	F8.2
28-35	SAMPLE DEPTH (meters)	F8.2
36-43	SONIC VELOCITY (kilometers/second)	F8.3
44-47	TEMPERATURE (degrees C)	F4.1
48	SPLIT CORE ("*" or blank)	A1
49	ORIENTATION ("V" or "H")	A1
50	INSTRUMENT CODE ("E" or "F")	A1

B. FIELD DESCRIPTIONS

The definition of leg, site, hole, core and section may be found in the explanatory notes. In addition, the special core designations, as well as the methods of sample labeling and calculating absolute sample depths are discussed.

INTERVAL DEPTH:

The depth, in centimeters, within a section at which the top or bottom of a measurement was taken. Values are encoded with an implicit decimal point. An encoded value of 805 represents 80.5 centimeters.

CORE DEPTH:

The subbottom depth in meters to the top of the core.

SAMPLE DEPTH:

The subbottom depth in meters to the point of measurement.

SONIC VELOCITY:

The sonic velocity in kilometers per second.

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TEMPERATURE:

The room temperature measured in degrees centigrade.

Although no effort was made to insure that the cores reached room temperature prior to any measurement, splitting a core usually allowed sufficient time for the core to equilibrate to the ambient lab temperature.

SPLIT CORE:

An encoded "*" means that the measurement was done on a split core. It should be noted that subsequent to leg 14 measurements were nearly always made upon split cores or pieces of split cores. This parameter was not always recorded and reference to the site summaries and Initial Reports is recommended.

ORIENTATION:

An encoded "V" indicates a vertical measurement (parallel to the core axis) and a "H" represents a horizontal measurement (perpendicular to the core axis).

INSTRUMENT CODE:

Indicates which of the two instruments was used to take the measurement.

E = EARMUFF DEVICE (Legs 2-14):

This system was borrowed from the Navy; a fair description of the principle of operation exists in Gealy, 1970. The sound transducers were held in 'earmuff' shaped devices which were placed on either side of an unsplit core.

F = HAMILTON FRAME (Legs 15-95):

Within a vertical framework one of two transducers was mounted on the lab bench with the other, adjustable, transducer attached to the end of a threaded rod above it. The distance between the two transducer heads could be accurately determined by reading a dial micrometer which monitored movement of the threaded rod (Boyce, 1973).

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