

Physical properties of fore-arc basalt and boninite recovered by IODP EXP352 and its significance for the seismic velocity structure in the oceanic crust

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Physical properties of the cores recovered by IODP EXP352 were characterized through a set of measurements on whole core sections and discrete samples. Gamma ray attenuation density (GRA), magnetic susceptibility (MS) and P-wave velocity (PWL) of the cores were obtained using the Whole-Round Multisensor Logger (WRMSL). Natural gamma radiation (NGR) was measured by the Natural Gamma Radiation Logger (NGRL). Point magnetic susceptibility (PMS), reflectance spectroscopy and colorimetry (RCS) data were acquired using the SHMSL. Thermal conductivity (TCON) and moisture and density (MAD) were obtained on sections and discrete samples, respectively. All raw data were subsequently "filtered" to remove spurious points that correspond to empty intervals in the liner or broken pieces. We have mainly studied the relationships among P-wave velocity, density, porosity and magnetic susceptibility. We show that the physical properties are useful dataset for the interpretation of the layer 2 (i.e. volcanic rocks) in the seismic velocity structure of the oceanic crust.

Keywords: IODP EXP352, Physical property