

## IODP Exp. 345: The first sample of primitive layered gabbros from fast-spreading lower oceanic crust

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Three-quarters of the ocean crust formed at fast-spreading ridges is composed of plutonic rocks whose mineral assemblages, textures and compositions record the history of melt transport and crystallization between the mantle and the seafloor. However, owing to the nearly continuous overlying extrusive upper crust, sampling in situ the lower crust is challenging. Hence, models for understanding the formation of the lower crust are based essentially on geophysical studies and ophiolites. Integrated Ocean Drilling Program (IODP) Expedition 345 recovered the first significant sections of primitive, modally layered gabbroic rocks from the lowermost plutonic crust formed at a fast-spreading ridge, and exposed at the Hess Deep Rift (Gillis et al., Nature, 2014, doi:10.1038/nature12778).

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