NSF Award Abstract - #0001902

Collaorative Research: Magma Generation and Tectonics in the Early Mariana Arc System Revisited

NSF Org	OCE
Latest Amendment Date	August 31, 2000
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Award Instrument	Standard Grant
Program Manager	Bilal U. Haq OCE DIVISION OF OCEAN SCIENCES GEO DIRECTORATE FOR GEOSCIENCES
Start Date	January 1, 2001
Expires	December 31, 2004 (Estimated)
Expected Total Amount	$186827 (Estimated)
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Sponsor	University of Iowa Iowa City, IA 52242 319/335-2123
NSF Program	1620 MARINE GEOLOGY AND GEOPHYSICS
Field Application	0204000 Oceanography
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Abstract

Recommended project is for a comprehensive geochemical and geochronological examination of Eocene to Miocene volcanism in the southern arc and backarc of the Izu-Bonin-Marianas (IBM) arc system, tracing its older development with time. In doing so, the recommended research will also re-examine well-characterized samples that have been previously investigated using older, obsolescent anayltical techniques. This study will examine the changing nature of volcanism in the IBM system, as it transformed from "boninitic" volcanism associated with subduction initiation to the more "normal" tholeitic and cal-clkaline arc volcanism also seen today in the modern volcanic arc and backarc. This study also will examine the changing nature of the mantle sources during this transformation, as well as the implications they carry for tectonic processes during the arc system evolution. Previously sampled lavas and other volcanic rocks will be supplemented by collection of new samples during field work on Guam; all of these samples will be analyzed for major and trace elemental composition, isotopic composition, and geochronological (40 Ar - 39 Ar) dating using the latest analytical techniques.

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