



Voyage SS08-2006

Hot Subduction – recycling of oceanic crust in a dynamic W Pacific setting. Part 2.

Associate Professor Leonid V. Danyushevsky, UTAS (Chief Scientist)

This voyage studied the submarine Hunter Ridge in the SW Pacific, addressing magma generation processes in a complex active subduction setting. The data (rocks, seafloor bathymetry, magnetic anomalies) obtained during the voyage will significantly improve our understanding of the processes and products associated with subduction into a very hot mantle wedge in a complex tectonic setting. This project provides benefit to the National Research Priority Goal 1.6, developing deep earth resources, as much of Australia's mineral rich Phanerozoic geology likely developed in such a setting. Thus an improved understanding of modern magmatism in the SW Pacific has direct relevance to the interpretation of Australia's geological history, and this research will lead to a better understanding of the formation and consequent exploration for new deep earth ore deposits.

As a result of this voyage:

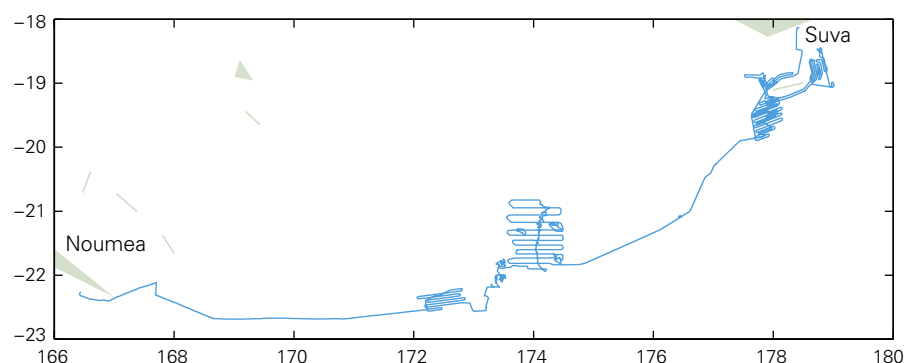
1. We have a better understanding of the process of island arc rifting, the interaction of a spreading centre with a subduction zone and the origin of adakitic magmatism within subduction zones.
2. We have found that there exists no clear structural boundary between the northern termination of the submarine Hunter Ridge and the western end of the Kadavu island (figure 1). A large number of small young volcanic cones occur on the slopes of the Kadavu island, the Hunter Ridge, and the seafloor of the North Fiji backarc basin west of Kadavu. At the western end of the study area an incipient rift has been discovered. Results of our magnetics survey suggests that the age of the propagating spreading centre associated with the rifting is ~ 1 My.

3. We have mapped the seafloor around Kadavu Island (figure 1) and the western end of the rift discovered previously during voyage SS10-2004.
4. We have commenced a program of detailed petrological studies on rock samples recovered. We obtained rock samples from a total 39 dredges and 23 wax core stations during voyage SS08-2006.

Itinerary

Departed Suva 14:00 hrs
Saturday 19th August 2006

Arrived Noumea 08:00 hrs
Monday 11th September 2006



> SS08-2006 voyage track

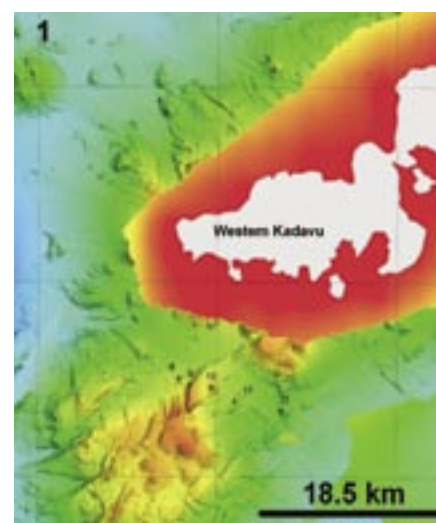


Figure 1