Voyage ss2009_v03

Hot Subduction – Recycling of Oceanic Crust in a Dynamic West Pacific Setting (Part 3)

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Contribution to Australia's national benefit:

This project maintains Australian scientific leadership in an area of international interest and addresses the following priority objectives of Australia's Marine Science and Technology plan (1999):

1. To characterise and better understand the geological framework of Australia's continental margin and adjacent ocean basins; and

2. To improve the marine science and technology skills base.

With respect to the latter point, and as identified in the ARC Discipline Research Strategies Review for Earth Sciences, this research contributes to 'strengthening of marine geoscience research potential in Australian universities'.

This project also provides indirect benefit to the National Research Priority – An Environmentally Sustainable Australia – and the associated priority goal – Developing Deep Earth Resources. Much of Australia's mineral rich Phanerozoic geology is developed in complex subduction related plate boundaries, thus an improved understanding of magmatism in a modern active subduction setting will have direct relevance to the interpretation of Australia's geological history. A better understanding of the tectonics and magmatism associated with these environments will lead to a better understanding of the formation of new deep earth resources.

As a result of this voyage:

1. We have a better understanding of the tectonic structure of the Hunter Ridge and the extent of active magmatism along the southern margin of the North Fiji Basin.

2. We have found numerous active submarine volcanic centres along the entire southern margin of the North Fiji Backarc Basin and also sites of active hydrothermal systems along the southernmost propagating spreading centre of the Basin.

3. We have mapped 11,600 km^2 of the seafloor at the southern margin of the North Fiji Backarc basin.

4. We have commenced a program of detailed investigations of the chemical composition of the samples collected in order to constrain magma generation and evolution processes in the region and the connection between magmatic and hydrothermal systems which ultimately produce ore deposits on the seafloor.

Itinerary

Departed Latouka, Fiji, 16:00, Friday 3 July 2009

Arrived Noumea, New Caledonia, 8:00, Monday 27 July 2009

> Voyage track ss2009_v03