To study this former subduction zone, the VESPA cruise has
taken advantage that the Cook Fracture Zone, an early Miocene
transform fault, cuts across the Loyalty and Three-King ridges.
This allowed us to dredge deep parts of a structure which is
usually overlaying by a thick sediment layer.

Boninites, andesites and shoshonites are of great use to deter-
mine the arc polarity of these ridges and both with geophysic
methods we will be able to:

1) Establish the age of subduction initiation
2) Resolve conflicting model of South Pacific volcanic arc
evolution, especially between a Cenozoic subduction flip and
arc collision model versus a simple Pacific trench roll-back.

Geochemical investigations on
rock dredged:
• Geochemical data using Ar/Ar and
U/Pb techniques and micropaleont-
ological data in order to date the
formation of the ridge and to know
if several volcanic arcs exist.
• Sr, Nd, Pb and Hf isotopic data on
volcanic rocks to characterize the
mantle source beneath ridges.

3.5 tonnes of rocks from 43
dredge sites.

During the cruise the scientific team has aquired:
A huge quantity of maps using multibeam echosounders,
Seismic reflection profiles using a Sub-bottom profiler
(CHIRP) and a rapid seismic profiler (SISRAP).

Many thanks to InterRidge for providing this opportuni-
ty to participate in this cruise, and to Martin Patriat and
Nick Mortimer (chief and co-chief) for this successfull
scientific mission.

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