

Project EARTH-16-TM1: Understanding the volcanism of the Tasmantid seamount chain

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The Tasmantid seamount chain deep under the surface in the Tasman Sea is one of three sub-parallel lines of volcanoes (along with the East Australian Volcanic Chain and the Lord Howe Seamount chain) in the eastern Australia and Tasman Sea region. These chains are separated by an average of only 500 km and formed contemporaneously over a period spanning at least 35 to 5 Ma. The East Australian Volcanic Chain and Tasmantid Seamount Chain both show a strong age progression from north to south. Many fundamental questions remain about how this unusual pattern of volcanism formed and remained stable for at least 30 Myr and how it interacted with the changing regional tectonics during that period.

This project will focus on tying together the petrology and geochemistry of recent dredge samples with the physical volcanology (from recent bathymetry surveys) of four of the seamounts along the Tasmantid chain: Stradbroke, Recorder, Cato and Wreck. A particular focus will be on discerning any systematic volcanological, petrological or geochemical differences that might arise due to seamounts like Cato in the north of the chain being on a drowned fragment of continental crust while those like Stradbroke in the south are on oceanic crust.

Further reading:

McDougall, I., and Duncan, R. A., 1988, Age progressive volcanism in the Tasmantid Seamounts: *Earth and Planetary Science Letters* v. 89, p. 207-220.

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Knesel, K. M., Cohen, B. E., Vasconcelos, P. M., and Thiede, D. S., 2008, Rapid change in drift of the Australian plate records collision with Ontong Java plateau: *Nature*, v. 454, no. 7 August, p. 754-757.

Johnson, R. W., 1989, *Intraplate Volcanism in Eastern Australia and New Zealand*, Cambridge, Cambridge University Press, 395 p.