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Structural and tectonothermal architecture at the continental impingement zone of the Tasman intraplate strike-slip deformation belt, north Victoria Land, Antarctica

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The Mesozoic-Cenozoic tectonic evolution at the northeastern edge of the Antarctic plate is controlled by the separation of the Antarctic continent from Australia and greater New Zealand, and the development of the Ross Sea embayment. An impressive array of intraplate strike-slip deformation belts formed in Eocene times in this region of Antarctica, during its drifting from Australia. These strike-slip belts originate from transform faults at the mid oceanic ridge in the Southern Ocean, compartmentalize the oceanic crust by reactivating their collinear fracture zones, and terminate by transtensional horsetail splaying in the Ross Sea, within the Antarctic continent. At present, this geodynamic scenario is the best documented example of the intraplate termination of transform shear, a major update to "conventional plate tectonics". A key feature for supporting the post-rift shearing of the Antarctic passive margin in the Southern Ocean is the documentation of Cenozoic strike-slip tectonics in the continental impingement region of oceanic fracture zones, along structural trends parallel to them. In this report, we present the results of structural field studies carried out along the eastern shoulder of the Wilkes Sublacial Basin and along the Pacific coast, in the impingement region of the Tasman fracture zone. Structural data were collected at 23 sites and include the attitude of fracture and fault surfaces with associated slickenlines. Integration of structural data with apatite fission track data provided constraints on the age of the

brittle structures recognised in the field. The overall deformation fabric is interpreted as Cenozoic in age and induced by distributed and partitioned brittle NW-SE to NNW-SSE right-lateral strike-slip faulting transferred from the Tasman fracture zone into the continent.