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**Sumba and its effect on Australia's northwestern margin**

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## **Abstract**

Sumba Island, Indonesia, occupies a forearc position within the Australian/Indonesian convergent margin. It represents a sliver of arc crust that has moved into its current position from elsewhere. Tectonically it lies at a junction between different lithospheric types. To the west, an intraoceanic volcanic arc system occurs at which Australian oceanic lithosphere converges on Indonesian arc lithosphere. To the east, a volcanic arc-continental collision zone involves Australian continental lithosphere in collision with the Indonesia arc. Sumba lies at the transition between these different regimes, and represents the focus of a number of structural and tectonic features. We suggest that collision of a promontory of Australian continental lithosphere with Sumba at ~8 Ma created many of the structural features on the Australian side of the plate boundary, partitioned the lithosphere into structural domains that reflect different deformation histories since the Neogene (22 Ma), and contributed to the uplift of Sumba at ~8 Ma. The shape of the collided promontory controls the shape of the uplifted Sumba Block. The proposed 8 Ma age for collision correlates well with deformation events in Sumba, the Timor Sea and the Browse Basin. Structures created or reactivated by the collision bound deformational provinces within the North West Shelf of Australia.