

The Development of Andean Magmatism in SW Gondwana.

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The Andean magmatic belt is constructed on the old margin of Gondwana. In the southern Andes of Patagonia and the Antarctic Peninsula, its initiation was intimately related to the break-up of that supercontinent. Here, the Andean plutonic phase only commenced after the effective disruption of a large area of immature continental crust, which had mostly been formed during Neoproterozoic and Early Palaeozoic times. The Jurassic rifting and dispersal of this region into smaller plates was associated with one of the most intense episodes of silicic volcanism in the geological record, as the thinned crust was melted by heat derived from the spreading Karroo plume-head.

Subsequent to this cataclysmic break-up event, and contemporaneously with the opening of the Atlantic Ocean, the present Pacific Ocean subduction regime became established. This led to the growth of subduction-related batholiths throughout Cretaceous and Tertiary times. Their structure and geochemistry record changes in the dynamics of the Pacific regime, only slightly moderated by the structural control of deep seated lineaments near the continental margin. The isotopic signatures of the magmas are increasingly dominated by more primitive compositions due to the more rapid cycling of underplated material.