

## **Emplacement of thrust-sheets recorded in Upper Cretaceous basin fill, Magallanes (Austral) Basin, southern Chile**

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The sedimentary sequence predecessor to the Magallanes retro-arc foreland basin records an early extensional phase associated with the breakup of Gondwana in the latest Jurassic. The fill of the oceanic Rocas Verdes back-arc basin includes volcanic rocks and volcanogenic sediments of the Upper Jurassic Tobìfera Formation and fine-grained clastic strata of the Lower Cretaceous Zapata Formation. Compression associated with the onset of the Andean orogeny rapidly inverted this basin along the eastern margin of the cordillera initiating foreland subsidence. Turbidites of the Punta Barrosa Formation record the earliest phase of deep-water deposition in the Magallanes foreland basin; bathyal depths persisted through deposition of the Upper Cretaceous Cerro Toro Formation. The overlying Upper Cretaceous Tres Pasos and Cretaceous-Tertiary Dorotea formations represent the transition from slope to deltaic deposition, recording the culmination of a prolonged period of deep-water sedimentation in the basin.

U-Pb detrital zircon dates (SHRIMP-RG) from the Cerro Toro, Tres Pasos and Dorotea formations suggest emplacement and denudation of thrust sheets composed of Rocas Verdes basin units. New data were obtained from one sample from the Cerro Toro Formation, two samples from the lower and upper Tres Pasos Formation, and two from the basal Dorotea Formation. These data are integrated with geochemical analyses from the Punta Barrosa, Cerro Toro and Tres Pasos formations and indicate denudation of ophiolitic blocks in the rising cordillera. Age populations from samples of the upper Tres Pasos and Dorotea formations show a distinct peak at ~150 Ma, the age of the Jurassic Tobìfera rift volcanic sequence. This grain-age population, absent in other detrital studies, indicates that the Tobìfera thrust-sheet (or part of it) was exhumed and eroded in the latest Cretaceous.