

Continental margin structure and evolution controlled by ridge subduction (Chile triple junction area, 46-47°S).

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The data collected during the CTJ cruise of the R/V L'Atalante (March-April, 1997) show the complex structure of the continental margin in the Chile triple junction area. At about 30 km south of the triple junction, the E-W trending North Taitao Ridge fault bounds a major relief -the Taitao ridge- to the north. The structure of the continental margin is unlike on either side of the North Taitao Ridge fault. A well developed accretionary prism exist along the Taitao ridge transect that shows no prolongation north of the North Taitao Ridge fault. We assume that the Taitao ridge accretionary prism extended north of it and was subsequently removed. We suggest the following evolution: (1) After 780 ka, a first subduction of the Chile ridge occurred. As the Chile triple junction migrated to the north, an accretionary prism developed south of it. The accretionary wedge accumulated along the Taitao ridge transect is a remain of this old accretionary prism. (2) At 300-250 ka ago, the section of the Chile ridge located north of the North Taitao Ridge fault jumped west of the subduction front. (3) Then, frontal subduction-erosion removed most of the previously accumulated accretionary prism. South of the North Taitao ridge fault, no ridge jump occurred preventing subduction erosion to work along this segment of the continental margin. (4) When the Chile ridge reached the trench again, the section of the margin south of the triple junction began to develop an accretionary prism, as it is today.