THE LIQUIÑE-OFQUI FAULT, GEOPHYSICS RESULTS IN THE PUYUHUAPI REGION

Manuel ARANEDA(1) and María Soledad AVENDAÑO(1)

(1) Depto. de geofísica, U. de Chile, Casilla 2777, Santiago, Chile

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INTRODUCTION

The Liquiñe-Ofqui fault zone (LOFZ) is defined as an structural weakening that reaches the upper mantle and its extension is more than 1000 kms in the Southern Andes.

It is studied in the Puyuhuapi zone with three gravimetric profiles that perpendicular cut fault structure. They have been defined as Risopatrón, Puyuhuapi and Peninsula.

Watching the Bouguer anomaly results of the two profiles firstly named, it can be concluded that there is no negative anomaly associated to the fault zone as it was expected (rocks less density). Consequently, in the Risopatrón profile it is proposed that the fault zone is composed by rocks with similar densities to the granitic rocks on the edges of the valley; or, this zone is so thin that it wasn't detected because of the gravimetric stations distribution (c/100m).

Some thing similar occurs in the Puyuhuapi profile, but it is less trustful because it begins at granitic rocks and ends at volcanic rocks. The Peninsula profile has similar characteristics as the ones mentioned before, but the west side begins at old vulcanic rocks composed by basalts with insertions of pyroclast and slag. In this profile, an anomaly of higher amplitude is seem that can be ever bigger. In the present state the residual anomaly is of 6 miligals, that considering a density contrast 0.4 gr/cm^3 produces an aproximate depth of 360 meters. The anomaly zone has a lenght of 2400 m.

THE LIQUIÑE-OFQUI FAULT

The Liquiñe- Ofqui fault zone is a structure with N-S direction, which is affected by different geological process that mainly occur due to the subduction action in Southern Andes.

This structure has been recognized for more than 1000 km, extended from nearby the Ofqui isthmus at the south up to Los Lagos region at the north, limit which is not well defined in Figure 1. Its origin has been related to as oblique subduction under the continental edge (Herve 1976, Beck 1988 , Garcia et al. 1988) or to the subduction effect of the oceanic crust under the continent (Forsythe and Nelson 1985). Muir Wood (1989) shwon details its activity and proved that near the last zone, South-east LOFZ has been active during the cuaternary, he also thinks that there was a vertical relative lifting of the east block of 1200 m. In this way, the LOFZ has been active, at least, since the recent oligocene in its northern side. Since the miocene its location has been controlled by intrusive plutonics, that still control the magma access to the surface in the present chain, Herve (1994).