

THE SOUTH AMERICA-SCOTIA PLATE BOUNDARY IN THE TIERRA DEL FUEGO ISLAND: A GEOPHYSICAL AND GEOLOGICAL STUDY

1LODOLO, E. and 2TASSONE, A. A. 1Osservatorio Geofisico Sperimentale, Trieste, Italy; 2Laquige, Buenos Aires, Argentina

The geological structure of the tectonic boundary between the South America and Scotia plates in the Tierra del Fuego region has been investigated during two geophysical and geological field studies conducted in February-March, and October-November 1998. 364 GPS-fixed gravity and magnetic data points have been acquired in the central part of the Island and along its eastern coast, and petrologic and geologic data have been collected on the most significant outcrops. A system of E-W-trending asymmetric folds and associated thrusts, affected by later N-S-trending faults, have been recognized along the Atlantic coast of the Island, where the main lithologic formations are exposed. Scarce outcrops are present in the central part of the Island, apart along the main road connecting Rio Grande and Ushuaia, and along the northern shore of the Lago Fagnano, where the presence of a major tectonic lineament, in correspondence of which the affected rocks are strongly deformed and metamorphosed, has been documented. An isolated plutonic body located in the vicinity of the lineament, may be considered as an associated structure because its location with respect to the trace of the lineament, its shape, and its relative isolation from the main belt of the Fuegian Cordillera. Analyses of Synthetic Aperture Radar (SAR) images, in conjunction with the onshore gravity and magnetic maps produced, support the presence of E-W-trending morphological alignments, and aided a delineation of the gross geological structure characterizing the surveyed area. In a regional scale, data strongly suggest that the identified tectonic lineament and subsidiary structures form part of the sinistral strike-slip Magallanes-Fagnano fault system known in literature, which represents the onshore location of the South America-Scotia plate boundary in the Tierra del Fuego region.