



Agellia
 alvearis
 nel Triassico
 del Jura
 nel Jura
 nel Jura
 nel Jura

foreland basin. They root into previous normal faults and/or a detachment within Early Cretaceous marine shales. Deformation was active until the Eocene (Diraison *et al.*, 1997a; Ghiglione *et al.*, 2002; Rossello *et al.*, 2004). Fault-slip data provide information on the relative importance of strike-slip and dip-slip faulting. This can be visualized by plotting the pitch of striations versus the strike of the corresponding fault plane. For localities in Fuegian foothills there is a predominance of strike-slip faults (where striations pitch between 0° and 45°), left-lateral and right-lateral ones being equally numerous whereas two families trend more nearly N and E, respectively (Diraison *et al.*, 2000).

THE FAGNANO-MAGELLAN FAULTING ZONE

The Fagnano-Magellan Fault zone (**FFM**) is a regional wrenching with sublatitudinal disposition and senestral displacement affecting the northern foothill of the Fuegian Cordillera along the whole Island of Tierra del Fuego (Argentina-Chile). This structure has been recognized for some time by several investigators attributing it diverse geotectonic connotations and mechanical operations. This way, it was considered as the expression of the suture between the South America and Scotia Plates (Olivero and Martinioni, 2001) like a continental transform fault. Some researchers consider the **FFM** as the superficial expression of the suture separating the continental South American and oceanic Scotia Plates, remarked as one of the few emerged locations where it takes place (Lodolo *et al.*, 2002a, 2002b and 2003). However, the same continental compositional nature of the metamorphic lands and acid or mesosilicic crystalline lens of the nucleus of the Fuegian Cordillera towards the south of the **FFM** would inhibit this statement since they support the presence of equally continental materials. Also, the regional geologic reports on the western projection toward Magellan's Strait (Diraison *et al.*, 1997b) and neighbouring regions of its trace in the Peninsula Brunswick and Island Riesco in the Chilean territory (Cunningham, 1993, 1995) do not show significant changes toward the north or south of the **FFM**.

This structure has a very strong superficial expression on the whole foothills of Tierra del Fuego Island (Fig. 2) that for its best description it is divided in the following sectors from East to West: **i)** Eastern sector, **ii)** central sector and **iii)** western sector.

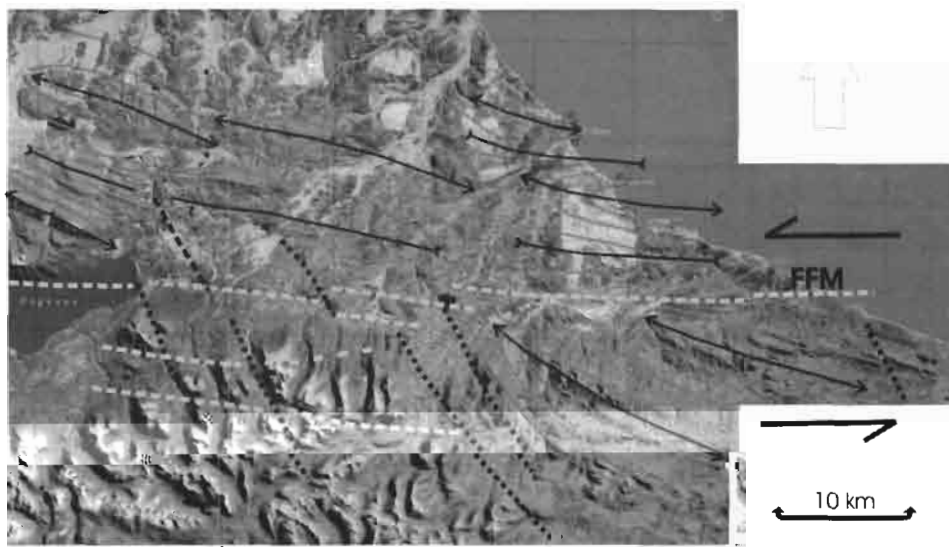
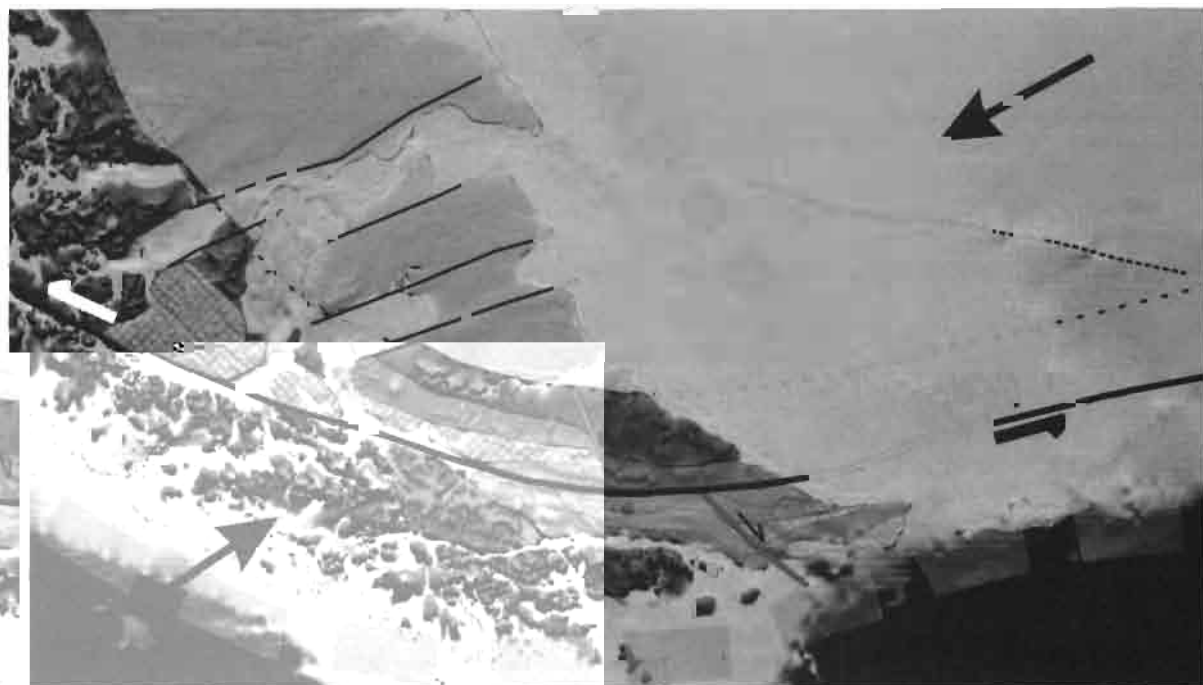


Figure 2. Tectonic schema of the FFM on satellite images of the foothills of the Fuegian Cordillera indicating main en-echelon folding and subordinate faulting (yellow and black dashed lines).



(Rossello *et al.*, 2004). Also, each apparently underwent a right-lateral slip of about 20 km, from Middle Eocene to Miocene times, prior to motion on the FFM. We infer that the RCRC and ECBS formed as parts of an early single anti-Riedel fault, and that these parts were later offset by about 55 km of left-lateral slip along the main FFM. From surface and subsurface data, we estimate the following rates of horizontal slip on the fault zones: 2.2 cm/yr for the right-lateral RCRC and ECBS; and 0.27 cm/yr for the main FFM.

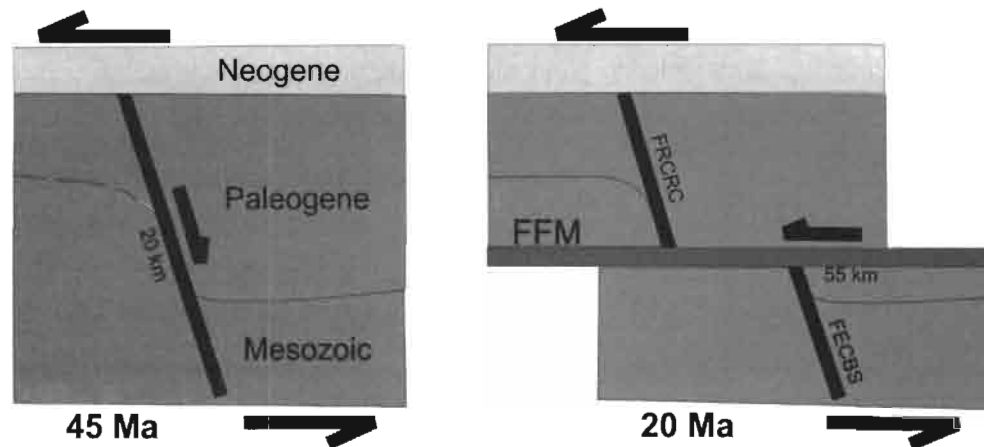


Figure 3. Cartoon of the kinematics of the Fagnano-Magellan Fault zone estimated at 45 Ma and 20 Ma. *Black lines:* Río Candelaria - Río Claro fault zone (RCRC) and Estancia La Correntina - Bahía Sloggett fault zone (ECBS). *Red line:* Fagnano-Magallanes Fault zone (FFM).

Acknowledgements

The author wants to express their gratefulness to REPSOL-YPF's colleagues for fruitful discussion, especially to C.E. Haring, V.A. Nevistic and C.P. Bordampé.

References

- Cunningham, W.D., 1993. Strike-slip faults in the southernmost Andes and the development of the Patagonian Orocline: *Tectonics*, 12, 169-186.
- Cunningham, W.D., 1995. Orogenesis at the southern tip of the Americas: The structural evolution of the Cordillera Darwin metamorphic complex, southern Chile. *Tectonophysics*, 244, 197-229.
- Diraison, M., P.R. Cobbold, D. Gapais, E.A. Rossello and A. Gutiérrez Pleimling, 1997a. Neogene tectonics within the Magellan Basin (Patagonia). *VI° Simposio Bolivariano: Petroleum exploration in the Subandean basins* (Cartagena, Colombia). Tomo 1, 1-14.
- Diraison, M., P.R. Cobbold, D. Gapais and E.A. Rossello, 1997b. Magellan Strait: Part of a Neogene rift system. *Geology*, 25 (8), 703-706.
- Diraison, M., P.R. Cobbold, D. Gapais, E.A. Rossello and C. Le Corre, 2000. Cenozoic crustal thickening, wrenching and rifting in the foothills of the southernmost Andes. *Tectonophysics*, 316, 91-119.
- Ghiglione, M.C., V.A. Ramos and E.O. Cristallini, 2002. Fueguian Andes foreland fold and thrust belt: structure and growth strata. *Revista Geológica de Chile*, 29, 17-41.
- Lodolo, E., M. Menichetti, A. Tassone, R. Geletti, P. Sterzai, H. Lippai and J.L. Hormaechea, 2002a. Researchers target a continental transform fault in Tierra del Fuego. *EOS, Transactions, American Geophysical Union*, 83 (1), 1-4.
- Lodolo, E., M. Menichetti, A. Tassone and P. Sterzai, 2002b. Morphostructure of the central-eastern Tierra del Fuego Island from geological data and remote-sensing images. *EDS Stephan Mueller Special Publication Series*, EGS, 2 (1), 1-16.
- Lodolo, E., M. Menichetti, R. Bartole, Z. Ben-Avraham, A. Tassone and H. Lippai, 2003. Magallanes-Fagnano continental transform fault (Tierra del Fuego, Southernmost South America). *Tectonics*, 22 (6): 1076-1086.
- Olivero, E.B. and D.R. Martinioni, 2001. A review of the geology of the Argentinian Fueguian Andes. *Journal of South American Earth Sciences*, 14, 175-188.
- Rossello, E.A., E.G. Ottone, C.E. Haring and V.A. Nevistic, 2004. Significado tectónico y paleoambiental de los niveles carbonosos paleógenos de Estancia La Correntina, Andes Fueguinos, Argentina. *Asociación Geológica Argentina, Revista*. (Buenos Aires). 59 (4), *In press*.