210

ICE PLATE TECTONICS – AN ANTARCTIC BY-PRODUCT

G. Kleinschmidt, Dr.

J.W.Goete-University, Frankfurt a.M., Germany

As by-products of several geological Antarctic expeditions and trips, striking analogies of deformed shelf ice, pack ice, one- and multi-year sea ice with tectonic – mainly plate tectonic – structures have been observed. The Antarctic ice provides models of

-- opposite continental margins,

-- passive and active continental margins,

-- divergent, convergent and transform plate boundaries,

-- active fracture zones going beyond the transform faults proper as discussed recently (Salvini and Storti, 2003; Kleinschmidt and Läufer, 2006),

-- transform faults with compressive and extensional components (transpression and transtension/pull-apart basins respectively),

-- subduction, collisional and strike-slip orogens,

-- indenters combined with lateral escape,

-- back-arc basins,

-- formation and desintegration of supercontinents and their reconstruction,

-- formation, drifting and incorporation of terranes.

Thus, Antarctic ice can serve as an excellent tool to illustrate and to explain plate tectonics. Wilson (1966) has already used structures of Antarctic sea ice as argument for the explanation of certain aspects of plate tectonics.

Kleinschmidt, G., Läufer, A.L. (2006): In: Fütterer, D.K. et al. (eds.): Antarctica: Contributions to global earth sciences, pp. 175-180, Heidelberg (Springer).

Salvini, F., Storti, F. (2003): Terra nostra, 2003/4: 285.

Wilson, J.T. (1966): Earth and Planetary Science Letters, 1: 335-338.