

Comment on shear zones in the Navarana Fjord Escarpment, J. P. Koch Fjord, central North Greenland

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The Navarana Fjord Escarpment is a major sedimentological feature of the Franklinian Basin in North Greenland. A southern sequence of Ordovician–Silurian shelf carbonates forming the escarpment itself is juxtaposed across a steep scarp slope with a northern deep-water trough succession dominated by sandstone turbidites. The relief of the scarp can be estimated to many hundred metres on the basis of present-day exposures along Navarana Fjord and J. P. Koch Fjord, central North Greenland.

The evolution of the Lower Palaeozoic basin in North Greenland was interpreted in terms of control by an east–west trending fault system by Surlyk *et al.* (1980) and the Navarana Fjord Escarpment was originally ascribed to one of these faults; its significance has subsequently been discussed in a series of papers by J. M. Hurst and F. Surlyk (see Surlyk & Ineson, in press a, b and Escher & Larsen, in press, for references and further discussion). Hurst & Surlyk (1984) and Surlyk & Hurst (1984) discussed the role of tectonism in controlling the margins of the carbonate shelf sequence in North Greenland. Both papers illustrated the Navarana Fjord Escarpment as seen on the eastern side of J. P. Koch Fjord. These figures locate a series of shear zones in the carbonates forming the vertical fjord wall. While it is evident from both papers that the shears were considered to be genetically related to faulting along the line of the present Navarana Fjord Escarpment, it was not known if they developed during the general period of carbonate accumulation or at a later date.

Field work in 1985 during the North Greenland mapping programme 1984–85 has indicated that the carbonates adjacent to the scarp are indeed cut by fractures. Orientation, however, is approximately north–south, *perpendicular* to the trend of the scarp and not *parallel* to it as was suggested in the papers by Hurst and Surlyk. The fractures are part of a regional joint system clearly associated with scattered basic dykes in the same region which also trend north–south (Dawes, 1976). In the North Greenland fold belt, some tens of kilometres north of the escarpment, the basic dykes are abundant and are considered to be of Cretaceous age (Soper *et al.*, 1982; Friderichsen & Bengaard, 1985).

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