

Description of the deformation till and reconstructed subglacial environments of the East Antarctic Ice sheet during the LGM at Skarvsnes, Lutzow-Holm Bay

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The late Pleistocene diamicton is exposed in Osen, Skarvsnes of Lutzow-Holm Bay, East Antarctica. This sediment is identified as deformation till (Dreimanis.

1989; Benn and Evans, 1998; Boulton et al., 1996) from the following features:

- 1) It consists of more than 10 m thick compacted silt matrix with sub-angular and sub-rounded granules, pebbles and boulders.
- 2) Two types of crack develop into the sediment: low-angle cracks have a length of 10-30cm and high angle cracks have a length of more than five meters.
- 3) Both cracks are consistent with the smooth shear planes indicating that the sediment was deformed in a brittle shear zone.
- 4) Low-angle cracks show a feature of "P shears" which are coupled to each other and often intercalated gravels in a brittle shear zone.
- 5) High-angle cracks have a feature of "Riedel shears" which continuously developed at regular intervals in the outcrop (Probably high-angle cracks converge on the lowermost part of sediment out of the outcrop).
- 6) Most of low-angle cracks tend to occur parallel to the ground surface in the upper part of outcrop, suggesting that the shear stress was imposed in the uppermost part of sediment.
- 7) Shear planes of high-angle cracks incline to the south-west direction, indicating that the shear stress was imposed from north-east to south-west.
- 8) Most of high-angle cracks develop in the whole of outcrop, suggesting that the deformation occurred in the whole of sediments simultaneously.

This description gives us the comparison between the late Pleistocene West and East Antarctic ice dynamics, and the key of resolving the unique history of late

Pleistocene East Antarctic Ice sheet.