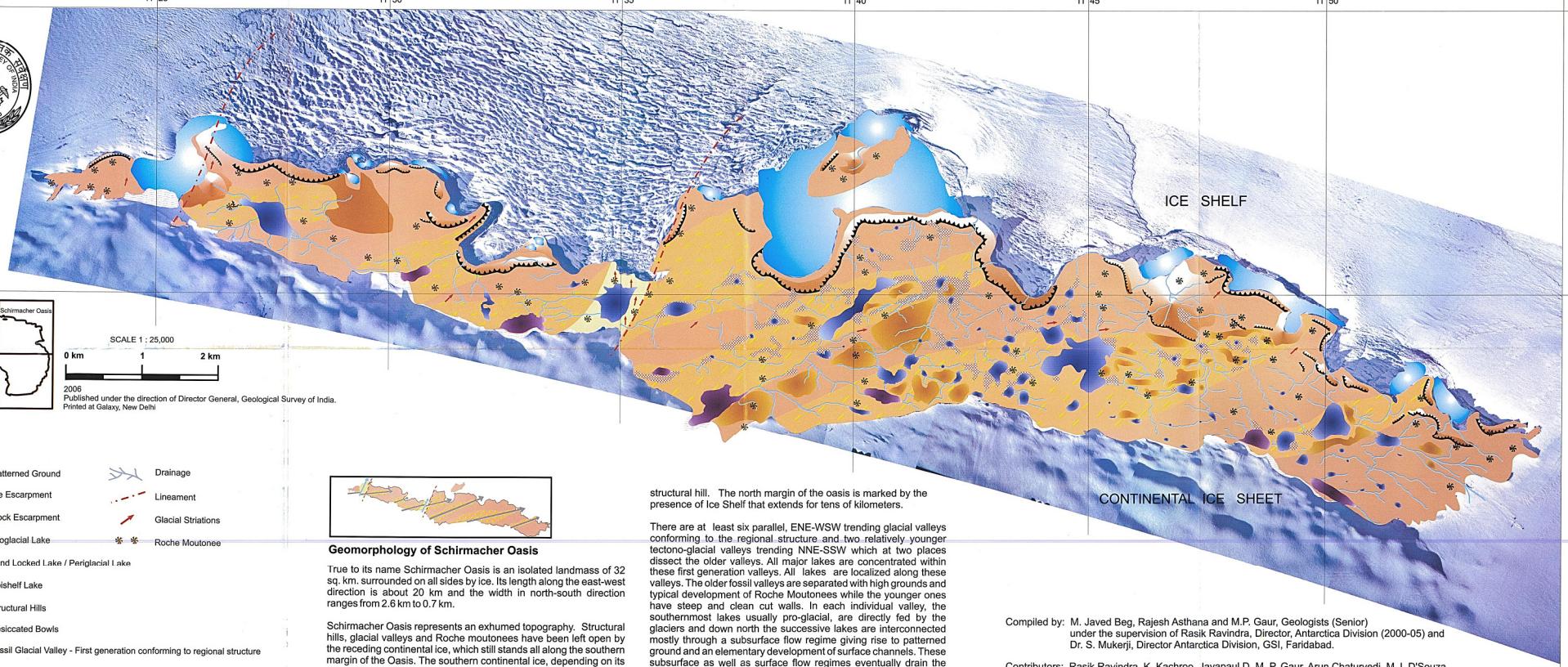
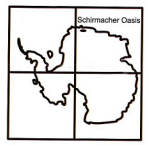
Geomorphological Map of Schirmacher Oasis, East Antarctica





SCALE 1 : 25,000

0 km 1 2 km

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Geomorphology of Schirmacher Oasis

True to its name Schirmacher Oasis is an isolated landmass of 32 sq. km. surrounded on all sides by ice. Its length along the east-west direction is about 20 km and the width in north-south direction ranges from 2.6 km to 0.7 km.

Schirmacher Oasis represents an exhumed topography. Structural hills, glacial valleys and Roche moutonees have been left open by the receding continental ice, which still stands all along the southern margin of the Oasis. The southern continental ice, depending on its position in reference to the exposed topography, stands as tall escarpments at the head of the valleys or gently abuts against a structural hill. The north margin of the oasis is marked by the presence of Ice Shelf that extends for tens of kilometers.

There are at least six parallel, ENE-WSW trending glacial valleys conforming to the regional structure and two relatively younger tectono-glacial valleys trending NNE-SSW which at two places dissect the older valleys. All major lakes are concentrated within these first generation valleys. All lakes are localized along these valleys. The older fossil valleys are separated with high grounds and typical development of Roche Moutonees while the younger ones have steep and clean cut walls. In each individual valley, the southernmost lakes usually pro-glacial, are directly fed by the glaciers and down north the successive lakes are interconnected mostly through a subsurface flow regime giving rise to patterned ground and an elementary development of surface channels. These subsurface as well as surface flow regimes eventually drain the entire valley in north on to the ice shelf, which in turn is marked by huge Epi-Shelf lakes.

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Topography based on maps of Schirmacher Oasis 1:25,000 published by USSR, Moscow (1972) and Aerial Photographs of Schirmacher Oasis 1:26,000 procured from Germany (1996)

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