

# **Snow and Ice Research Group – New Zealand: Monthly video seminar**

## **Sedimentological, geomorphological and dynamic context of debris-mantled glaciers, Mount Everest (Sagarmatha) region, Nepal**

**Prof. Michael Hambrey, University of Otago / Aberystwyth University**



This talk investigates the sediment, landform and dynamic context of four avalanche-fed valley glaciers (Khumbu, Imja, Lhotse and Chukhung) in the Mount Everest (Sagarmatha) region of Nepal. All four glaciers have a mantle of debris dominated by sandy boulder-gravel that suppresses melting to an increasing degree towards the snout, leading to a progressive reduction in the overall slope of their longitudinal profile. Prominent lateral-terminal moraine complexes, also comprising sandy boulder-gravel, enclose the glaciers. These terminal moraines originally grew by accretion of multiple sedimentary facies of basal glacial and supraglacial origin, probably by folding and thrusting when the glaciers were more dynamic during the Little Ice Age. The four glaciers are in various stages of recession, and demonstrate a range of scenarios from down-wasting of the glacier tongue, through moraine-dammed lake development, to post-moraine-dam breaching. Khumbu Glacier is at the earliest stage of supraglacial pond-formation and shows no sign yet of developing a major lake, although one is likely to develop behind its >250 m-high composite terminal moraine. Imja Glacier terminates in a substantial body of water behind a partially ice-cored moraine dam (as determined from geophysical surveys), but morphologically appears unlikely to be an immediate threat. Chukhung Glacier already has a breached moraine and a connected debris-fan, and therefore no longer poses a threat. Lhotse Glacier has an inclined, free-draining tongue that precludes hazardous lake development. From the data assembled, a conceptual model, applicable to other Himalayan glaciers, is proposed to explain the development of large, lateral-terminal moraine complexes and associated potentially hazardous moraine dams.

**Tuesday, 2<sup>nd</sup> November 2010, 1pm-1:50pm**

All interested are welcome to attend.

Video meetings are held every month over the Access Grid. Video rooms are sited at most universities. The locations of the video conference rooms for each campus are:

Massey: Room 4.40, Social Sciences Tower, Massey University, Palmerston North.

Auckland: Room 429, SGGES (The School of Geography, Geology and Environmental Science), University of Auckland, Auckland.

Canterbury: Room 164, Level 1, Geography-Psychology Building, Canterbury University, Christchurch

Otago: Teaching Facilities South West corner, Information Services Building

Victoria: Library RB106



SIRG (<http://www.sirg.org.nz/>) operates as the New Zealand branch of the International Glaciological Society.