NRESi

"Our environment is our future"

RESEARCH COLLOQUIUM SERIES

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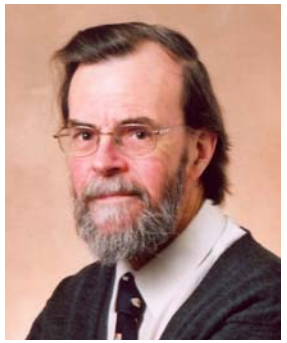

Friday
Oct. 17, 2008

3:30 - 4:30

LECTURE THEATRE
7 - 212

LIGHT SNACK
SERVED AT 3:20 PM

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Holocene Sediment Budget for a 10^3 km^2 Glaciated Drainage Basin

Chilliwack River drains 1200 km^2 in the Cascade Mountains on the Washington-British Columbia border. We have assembled a summary sediment budget for the basin by reconstructing the end-glacial (c. 13 000 calendric years BP) topography and determining the eroded sediment volume by DEM differencing. A lake in the upper basin preserves a record of headwater fine sediment yield, whilst alluvial fans throughout the basin, including a large end-point fan, preserve coarse sediments. Using a 1-D model of river and floodplain evolution, constrained by textural, lithological and geochemical tracers, and some absolute dates, we have computed a summary history of sediment yield for the basin that gives insight into the timing of sediment movement and the parameters of the fluvial sediment transport system. The mass balance framework and simplified morphodynamic formulation provide insight into the complex response of the fluvial system following deglaciation. More generally, the results demonstrate a quantitative approach to landscape change at intermediate scales of geomorphological interest.