



1000-year record of landslide dams at Halden Creek, northeastern British Columbia

M. Geertsema (1) and J.J. Clague (2)

1. British Columbia Forest Service, 1011 4th Ave Prince George, BC, Canada
2. Earth Sciences Department, Simon Fraser University, Burnaby BC, Canada

Large, rapid, low-gradient landslides are common in clay-rich sediments in north-eastern British Columbia. The landslides block drainage in small watersheds in the region, creating upstream impoundments that may persist for years. We have documented such events in the Halden Creek watershed, 60 km southeast of Fort Nelson. The events are recorded geologically in two ways. First, trees are drowned in lakes dammed by the landslides and subsequently buried by deltaic sediments, where they are protected from decay. Bank erosion later exhumes the drowned trees. Second, landslide deposits with entrained wood are exposed along stream banks. We have reconstructed the recent history of landslide damming at Halden Creek by radiocarbon dating exhumed trees and wood in and beneath landslide deposits at 13 sites in the watershed. Drowned trees range in age from 169 $\pm$ 59 to 274 $\pm$ 49 ^{14}C yr BP. Wood in and below landslide deposits yielded radiocarbon ages ranging from modern to 965 $\pm$ 49 ^{14}C yr BP. Greater dating precision has been obtained by wiggle matching and combining dates from cohorts of trees.