OPTICAL DATING STUDIES OF POST-GLACIAL AEOLIAN DEPOSITS FROM THE SOUTH-CENTRAL INTERIOR OF BRITISH COLUMBIA, CANADA

Olav B. Lian*§ and D.J. Huntley†

Accepted September 8, 1998 for publication in
Quaternary Science Reviews

**Department of Earth Sciences, The University of Western Ontario, London, ON, N6A 5B7, Canada.*
†*Department of Physics, Simon Fraser University, Burnaby, BC, V5A 1S6, Canada*.

§Now at: School of Earth Sciences, Victoria University of Wellington, P.O. Box 600, Wellington, New Zealand (e-mail: olav.lian@vuw.ac.nz).

Abstract — Tests of the validity of optical dating of the fine-grained (4 – 11 μm) component of aeolian deposits from seven sections in south-central British Columbia, using 1.4 eV (infrared) excitation of potassium feldspars, were made making use of known-age tephra beds. At one site on the western side of the Fraser Valley, samples bracketing the Mazama (7.5 – 7.6 ka, cal. yrs.) and Bridge River tephras (2.3 ka, cal.yrs.) yielded optical ages in accordance with the known ages when a correction for thermal-transfer was used.

The same method was applied to aeolian deposits on the Fraser Plateau, known to have been deposited between 14 and 2.3 ka (cal. yrs). The ages obtained from five samples, from four separate exposures spanning 10 km, varied from 28 to 94 ka, clearly indicating that this sediment was not exposed to sufficient sunlight prior to burial. As a result of a detailed investigation it is suggested that the reason is that some grains had been transported over short distances (<100 m) while shielded within carbonate-cemented clusters.