

Geoarchaeology of the mineable oil sands region, northeastern Alberta

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The archaeological record of the mineable oil sands region is notorious for its lack of direct chronological controls on site ages. This shortcoming is mainly due to site formation processes that inhibit the preservation of organic material suitable for radiocarbon dating. However, archaeological materials are commonly contained within eolian deposits that can be dated using Optically Stimulated Luminescence (OSL) techniques. In this paper, we use local post-glacial stratigraphy and new OSL ages to provide limiting ages for human habitation. OSL ages and stratigraphic relationships between periglacial features and artifact placement at the Quarry of the Ancestors site indicate that humans may have used the site as early as the terminal Pleistocene, shortly after catastrophic floodwaters from glacial lake Agassiz passed through the area. Twenty-eight radiocarbon ages from archaeological bone samples also show that human habitation persisted throughout Holocene. Altogether, this information forms a temporal framework for the archaeological record that is independent of artifact typology based chronologies that have been developed for the area.

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