# New Support for a Late-Pleistocene Coastal Occupation at the Indian Sands Site, Oregon

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Archaeological investigations at the Indian Sands site (35CU67c) on Oregon's southern coast produced evidence of repeated cultural occupation beginning in the late Pleistocene into the Holocene (Davis et al. 2004; Moss and Erlandson 1998). Previous papers have dealt with the site's geoarchaeological context (Davis 2006; Davis et al. 2004), lithic technology (Willis 2004, 2005), and marine

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faunal remains (Moss and Erlandson 1998). This paper presents new thermoluminescence (TL) assays that support claims for a late-Pleistocene occupation.

Archaeologically relevant stratigraphic units at 35CU67c include pedogenically altered aeolian sediments of the 3Ab horizon, which are unconformably overlain by aeolian sands of the 2C horizon (Figure 1). Davis et al. (2004) argue that the lower part of 3Ab contains a late-Pleistocene cultural occupation based on a 10,430 ± 150 RCYBP (12,300 ± 490 CALYBP) date from wood charcoal excavated in situ in the lower part of the 3Ab horizon in direct stratigraphic association with lithic artifacts, positioned ca. 10 cm above the 3Ab-4Bsb contact. The position of this AMS date is plausible given its stratigraphic position relative to other chronometric dates at the site (Figure 1).

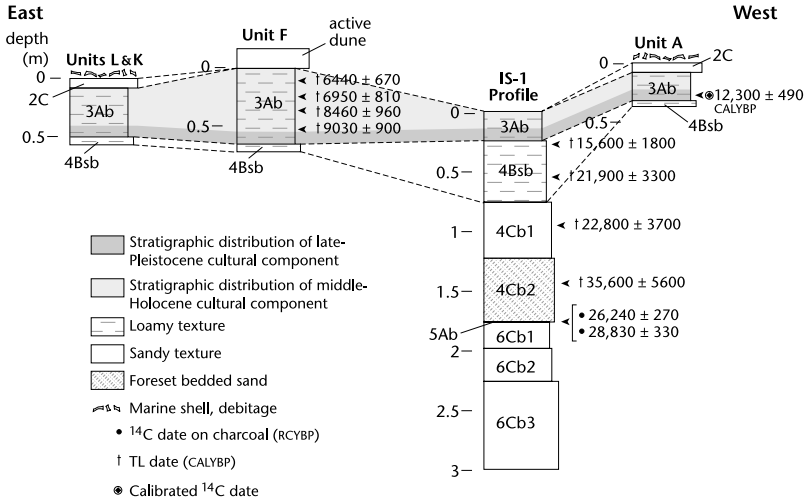


**Figure 1**. Stratigraphic correlation, position of new thermoluminescence dates from excavation Unit F, and distribution of buried archaeological components at the Indian Sands site (35CU67c), southern Oregon coast. Details on pedogenic horizonation and undiscussed chronometic ages are reported in Davis et al. (2004).

In 2003, a vertical series of four TL samples were collected from the 3Ab horizon in excavation Unit F to test the site chronostratigraphy established by Davis et al. (2004). TL samples were collected in copper tubes 10 cm long and 3 cm in diameter, driven into a freshly cleaned profile in Unit F. Background radiation samples were taken 2 cm above and below each of the TL sample tubes. These samples were sent to Nicholas Debenham at Quaternary TL Surveys in Nottingham, UK, and were studied following a standardized set of pretreatment and analytical methods (available at http://www.users.globalnet.co.uk/~qtls/index.htm#contents). These four TL samples returned ages between 9030 ± 900 CALYBP and 6440 ± 670 CALYBP (Figure 1).

Luminescence dating of pedogenic horizons can be problematic owing to mixing of sediments with widely variable exposure histories; however, in a

depositional context where sediments accumulate slowly and are subjected to limited vertical mixing, the use of luminescence dating may reveal when a stratigraphic unit was completely buried and no longer subject to the processes of bioturbation. As sediments gradually accumulate, this zone of bioturbation is incrementally elevated and deeper portions of the deposit no longer receive light-exposed sediments. Once sediments achieve this level of stability they begin to accumulate a TL signal. In this context, a TL date from the 3Ab horizon indicates when that portion of the site was fully buried and no longer influenced by bioturbation. Thus these new TL ages provide minimum limiting ages on deposition since the timing of sedimentation must be older than their associated TL age. The 3Ab TL chronology supports the previous interpretation made by Davis et al. (2004) that early hunter-gatherers occupied Indian Sands during the terminal Pleistocene and provides a means of separating early from later cultural components.

**References Cited**

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Most New World studies are from the Late Pleistocene or Earliest Holocene, while all but one of the Old World Studies are Mid- to Late Holocene in age. Differences in types of human occupation and lifestyles between these times are important. In Europe, the more or less sedentary lifestyles from the Bronze Age through medieval times led to the accumulation of organic debris (in wells, cesspits, latrines, trash heaps) and associated insect faunas.Â  And, the mountains are home to many thousand short-term camp sites, where hunter-gatherers rested for a matter of days and either did not build shelters at all, or built shelters so ephemeral that they do not register in the archaeological record. New genetic models predict that late-glacial human populations existed in isolation in Beringia several thousand years before their eventual dispersal to the Americas (Fagundes et al., 2008a; Mulligan et al., 2008; Perego et al., 2009; Schroeder et al., 2009; Tamm et al., 2007), and that the primary route taken followed the northwest North American coast (Fagundes et al., 2008b; Wang et al., 2007), not a new idea but one that has recently gained support among many archaeologists (e.g., Dixon, 2001; ErlandsonÂ  The only late-Pleistocene archaeological site in a near-maritime setting along the south coast of Beringia is Ushki, Kamchatka.Â  To calculate number of occupation episodes, they indis-criminately group individual 14C dates into respective millennia. These sites share technological attributes similar to Late Upper Paleolithic (LUP) sites in northeastern Asia, including flake- and blade-based stone tool traditions, use of informal lithic tools, lack of fluted bifacial technology, and use of stemmed and lanceolate projectile points (13â€“15).Â  , A late Pleistocene human presence at Huaca Prieta, Peru, and early Pacific Coastal adaptations. Quat. Res.Â  , Geoarchaeological Context of Late Pleistocene and Early Holocene Occupation at the Cooperâ€™s Ferry Site, Western Idaho, USA. Geoarchaeology 19, 685â€“704 (2004). doi:10.1002/gea.20020. OpenUrl CrossRef Web of Science.