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SHIFTING IDEAS OF WESTERN NORTH AMERICAN COASTAL DUNES

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Coastal dunes on the southern Oregon, USA coast, commonly thought to be Holocene, have now been dated as late Pleistocene features. Five Australian sand auger cores taken in or near the Oregon Dunes National Recreation Area between Florence and Coos Bay, Oregon, have been dated using thermoluminescence techniques on C horizons of stabilized dune soils. The two dune sheets comprising the field area, Florence and Coos Bay dune sheets, measure 70 kilometers long by a maximum of 5 kilometers wide, making up the largest active dune field in Oregon.

Five cores have been dated at 24.6 +/- 3.1 ka, 37.2 +/- 4.8 ka, 32.4 +/- 8.2 ka, 4.7 +/- 0.4 ka, and 30.5 +/- 5.3 (Stock, written communication, 1999). These dates indicate that the dunes began to be emplaced well before the Holocene. This implies a source from an exposed continental shelf during lower stands of sea level. Mineralogy of dune sand indicates the majority of the sand to be from the Umpqua River via the inner continental shelf (Scheidegger, 1971). Dunal soils on the dune sheets display rapid rates of weathering. The maximum rubification value is 120, with a Buntley-Westin value of 32. Munsell colors range from 10YR7/8d (Bt) to 2.5Y7/3d (Cu).

These results demonstrate major dune advance(s) onto the Oregon coast during the latest Pleistocene. Additional work is underway to confirm this paradigm shift.

dune, Oregon, Pleistocene, transgression, advance

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