Progradation is defined as the **forward growth or extension of shoreline systems** due to the deposition of sediment by wave-dominated processes.

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Coastal dunes in Westland, New Zealand, provide a record of paleoseismic activity on the Alpine fault

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Abstract

Regional episodes of coastal progradation and dune formation in South Westland, New Zealand, have quickly followed all known Alpine fault earthquakes since A.D. 1200. This reflects rapid transport of large postseismic sediment pulses from mountain catchments to the coast and accumulation of this material as a dune ridge. This study provides the first demonstration of this link for multiple events over a region. The dune sequences also provide evidence of another previously unrecognized regional aggradation event, which may be earthquake-related, and which occurred just 50 yr after a large Alpine fault earthquake. Coastal dunes have great potential for paleoseismic application because the spatial separation of earthquake-induced sediment pulses on a prograding coast allows identification of events closely spaced in time. Coastal dune systems have the potential to improve paleoseismic understanding over the Holocene for many plate boundary faults near coastal areas.

Supplemental material: Coastal dunes in Westland, New Zealand, provide a record of paleoseismic activity on the Alpine fault

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