

**High-resolution climate records from laminated sediments embedded in epoxy:
Exploration of a new application for Excimer laser-ablation ICP-MS**

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Abstract

Non-bioturbated sediment sections can provide valuable evidence of past climate change, although the sampling and analysis procedures can be extremely tedious. We propose to try to overcome this hurdle using multi-elemental analysis by Excimer-laser ablation Inductively-Coupled Plasma Mass Spectrometry of sediment embedded in epoxy resin. We will test this new technique with radiocarbon-dated sediment cores from two locations off the Pacific Baja California margin: (1) from 700 m depth at 23.5° N (sed. rate of 25 cm/kyr), where cyclic variations in ventilation of the oxygen-minimum zone on millennial to centennial time scales were recorded through the Holocene, (2) an enclosed basin at 25.2° N with a 200-m sill (sed. rate 110 cm/kyr), where changes in surface forcing linked to the El Niño-Southern Oscillation could potentially be revealed with annual resolution.