

Assessment of climatic and seismic cycles in southern chile from high resolution XRF and magnetic susceptibility measurements of historic lake sediments.

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The high-resolution sedimentological studies performed on the sediment cores collected in the oceans or in the lakes constitutes the basis for inter-comparison of past climate variability. Among the new high-resolution approaches, the X-Ray Fluorescence (XRF) analysis of varved marine and lacustrine cores represents some of the best resolution. These data are particularly useful for tracking short-term climate changes expressed with calibrated time scales. However, the XRF results obtain on the fresh cores surface may be of low resolution because the core material is wet and unconsolidated. One particularly attractive method to solve this problem consists of impregnating the sediment cores with polymers in order to polish the core surface for XRF analyses. This step is essential for being able to get significant XRF and Magnetic Susceptibility (MS) results in the muddy cores. Since the 1960s, the evolution of sediment impregnation methods has been strongly linked to the development of innovative techniques (e.g., sampling devices, cryogenic and vacuum technologies, polymers, etc.). In this communication, we first propose a revised method that may be applied to prepare sediment cores for high-resolution XRF and MS data acquisition. Then we show an example of XRF and MS results obtain on laminated lake sediments from South America (Lago Puyehue, 40°S). As this area is very sensitive in terms of precipitation change (i.e., Southern Westerlies); the XRF data are compared with the regional instrumental precipitation database. The results are discussed in terms of climate and sismo- tectonic impacts over historic times. Our results shows that, in order to better interpret XRF tool over long sequences, the measurements should be first

"calibrated" according to instrumental data such as precipitation, temperatures, and earthquake magnitudes.

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Paleoceanography and Paleoclimatology [PP]	2006 Fall Meeting

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MEETING CONFIRMATION:

Abstract Reference Number: 9267

Abstract Title: Assessment of climatic and seismic cycles in southern chile from high resolution XRF and magnetic susceptibility measurements of historic lake sediments.

Paper Number: PP31C-1766

Presentation Type - Poster Presentation

Presentation Date: Wednesday, 13 December

Location: Moscone West, Level 2
Starting Time: 08:00

Poster sessions are scheduled 0800h-1220h in the morning and 1340h-1800h in the afternoon. Poster sessions are active for one half day, although authors must put up their displays in the morning between 0730h and 0800h and leave them up until 1800h for maximum viewing opportunity. You must be present at your poster for at least one hour during the allocated session time.

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Abstract Reference Title: Assessment of climatic and seismic cycles in southern chile from high resolution XRF and magnetic susceptibility measurements of historic lake sediments.

Abstract Submittal Fee: \$50

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