

Vegetation, climate and fire regime changes in the Andean region of southern Chile (38°S) covaried with centennial-scale climate anomalies in the tropical Pacific over the last 1500 years

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Pollen and charcoal analysis from Laguna San Pedro (38°26'S, 71°19'W), a small closed-basin lake located within the present-day distribution of *Araucaria- Nothofagus* forest in the Temperate-Mediterranean Transition zone in the Andes of Chile (35.5-39.5°S), reveal centennial-scale changes in vegetation, climate and fire regime since 1500 cal yr BP. We interpret periods of relatively low growing season (summer) moisture and increased fire activity between 1500-1300 and 1000-725 cal yr BP, the latter period is also characterised by remarkably rapid bulk sediment accumulation and we infer prolonged annual sedimentation resulting from a decrease in the duration of lake freezing under a warmer climate. Relatively moist conditions during summer and low fire activity occurred between 1300-1000 and 725-121 cal yr BP, with slow bulk sediment accumulation through the latter phase in particular implying a cool and wet climate. Our results suggest that the Medieval Climate Anomaly chronozone was re