



High-resolution multiproxy climate reconstruction for southern South America since 1000 AD: LOTRED-SA, a new IGBP-PAGES initiative

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Within the last years considerable progress has been made in climate reconstruction techniques, in the handling of a wide range of high- and low-frequency proxy data, and in the quantity and quality of proxy data sets available. This allowed the realisation of high-resolution (subannual and regional scale) reconstructions as performed for example for Europe (e.g. Luterbacher et al., *Science*, 2004; Xoplaki et al., *Geophysical Research Letters*, 2005). Regional reconstructions are particularly important since climate change and extremes exhibit much larger amplitudes on regional than on hemispherical or global scale. LOTRED-SA (Long-Term climate REconstruction and Dynamics of southern South America) is a new collaborative long-term initiative under the umbrella of PAGES and involves many research groups from different countries. The initiative seeks (i) to collate the large number of disperse already existing and new paleoclimate data sets (documentary data, early instrumental data and data from low- and high-resolution natural archives) for the last ca. 1000 years available for South America, and (ii) to use sophisticated new methods to work towards a regional reconstruction of different climate parameters at high temporal and spatial resolution with associated uncertainties for southern South America. The reconstructed climate variability, extremes and trends will be compared with results of general circulation model runs in order to detect the dominant processes driving these variations today and in the past. The results of this project will lead to the first high resolution multiproxy climate field reconstruction for the southern hemisphere. Most multiproxy reconstructions that have been performed so far focused on northern hemisphere climates because southern hemisphere proxy data availability was reported to be marginal. The

first LOTRED-SA science conference (October 2006 in Mendoza, Argentina) showed, however, that many proxy data of different archives have been collected in southern South America in the recent past. This contribution reports on the state-of-the-art of the project and the scientific highlights of the LOTRED-SA science meeting.