^{210}Pb GEOCHRONOLOGY OF LAGUNA MELINCUÉ SEDIMENTS (CENTRAL ARGENTINA): RECENT HYDROCLIMATIC CHANGES CALIBRATION

Lucia Guerra – CICTERRA/CONICET/UNC, *Sandra Regina Damatto* – IPEN/CNEN/SP, *Daiane Baumgardt* – IPEN/CNEN/SP, *Eduardo Piovano* – CICTERRA/CONICET/UNC.

The sedimentary record of Laguna Melincué (33°S-61°W), a shallow lake located in central Argentinean Pampas, provides the opportunity to disentangle past hydroclimate variability in Southeastern South America. The instrumental records show important lake level fluctuations throughout the 20th century associated with regional precipitation changes. To infer past level conditions, multiple proxies were analyzed in a short sedimentary core extracted in 2011. Organic carbon and total nitrogen were the proxies that best reflected past hydrological balance changes in the lake system, with organic rich sedimentary facies depositing during periods of highstands, and organic poor facies indicating lower lake levels. A detailed chronological framework was obtained by ^{210}Pb dating method which is a widely-used technique for dating sediments spanning the past 100-150 years. This dating technique is suitable when environmental reconstructions at high temporal resolution are required. The ages were calibrated using the Constant Rate of Supply (CRS) model, which assumes that ^{210}Pb flux is constant and that sediment rate can vary with time (Appleby and Oldfield, 1978). Lake level fluctuation data was compared to the age model and the organic parameters in order to calibrate the paleolimnological data with the instrumental hydroclimatic data. The vertical ^{210}Pb unsuported activity exhibits marked interruptions and slope changes corresponding to the depth intervals 12-16 cm, 36-40 cm and 68-76 cm. These intervals correspond to sediments with increased organic matter reflecting periods of lake highstand and, thus, increased regional precipitation. Previous results in other pampean lakes under similar hydrological scenarios, show that changes in ^{210}Pb temporal fluxes can be linked to changes in precipitation. In this sense, this results support this hypothesis of hydrological control on ^{210}Pb activities, linking periods of increased precipitation to higher Pb fluxes. The calibration of precipitation-sedimentation constrained by the ^{210}Pb dates will enable the extention of paleohydrological reconstruction further into the past, beyond the 20th century.