Ensemble Empirical Mode Decomposition for streamflow data analysis of snow-fed rivers along Central Andes of Argentina

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Temporal variations in streamflow have crucial influences on the regional water resources in arid regions such the Central Andes of Argentina, where snowmelt is the main water source of the major rivers of the region. In order to identify non-stationary oscillations and long-term trends, we applied the Ensemble Empirical Mode Decomposition (EEMD) to centennial streamflow time series along the Central Andes of Argentina. This adaptive method allowed the identification of interannual and interdecadal modes of variability, which were linked to El Niño/La Niña occurrences and the Pacific Decadal Oscillation. Moreover, a declining long-term trend was found along the study area, which overlaps with the marked increase in demand of water for agriculture, energy production, industry and human consumption.