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Stable isotope and ostracode species assemblage evidence for lake level changes of Nam Co, southern Tibet, during the past 600 years

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Ostracode species assemblages and δ18O - and δ13C signatures of ostracode valves are used to reconstruct lake level changes of Lake Nam Co, Southern Tibet, in response to Monsoon dynamics. Species assemblages and intraspecific morphological variability provides information about lake level and salinity changes, as well as habitat structure. Species assemblages and stable isotope signatures of their valves from a 210Pb-dated 79 cm long short core taken at a water depth of 49 m depth provide a high-resolution record of environmental conditions covering the last $\sim$600 years. The δ18O and δ13C values of 5 different species were analyzed. δ13C values show a relatively wide range from +2 permil to -6 permil VPDB. δ18O values vary between -5.5 permil and -3.5 permil. The most abundant species, *Leucocytherella sinensis*, prefers shallow water habitats. High abundances from about 25 to 35% and more positive δ18O values between 1450 AD and 1700 AD suggest lower lake levels and higher lake water salinity that may correspond to the Little Ice Age. During the past two centuries the species assemblage shows a decrease in shallow water forms. This is interpreted as an increase in lake level as a response to rising temperatures and increased melt water production and/or monsoon strengthening. *Leucocytherella sinensis*, *Leucocythere dorsotuberosa*, *Leucocythere dorsotuberosa* var. *postilirata* and *Ilyocypris*

cf. *sebeiensis* show similar δ18O values and downcore trends between -5 permil and -4 permil. *Candona xizangensis* shows more positive δ18O values varying around 3 permil. There are no significant downcore trends in the δ13C values of the 5 species. Just *L. sinensis* and *Ilyocypris* cf. *sebeiensis* show consistently 1 to 2 permil more positive values than the other species.