Isotopic Analysis of Dead Sea Sediment from the Last Glacial

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The Dead Sea is a terminal hypersaline lake located in a rift valley between Israel, Jordan, and Palestine. It's watershed spans between the Mediterranean and Saharan-Arabian climate zones. The International Continental Scientific Drilling Program - Dead Sea Deep Drilling Project yielded 460 meters of sediment reflecting a high-resolution continuous climate record of the past 200,000 years. While there is extensive data from the western catchment of the Dead Sea, there is a lack of information from the eastern catchment that is necessary to better understand how the sediment core reflects past climate. This project aims to fill that gap. Alternating intervals of aragonite, detritus, gypsum, and halite in Dead Sea sediments reflect precipitation patterns. The aragonite and detritus studied in this project reflect glacial, wet conditions. Ages of sediment samples were calculated with U-series dating. Initial $^{234}U/^{238}U$ activity ratios were calculated as well. These results can be used to show how lake level and water sources are affected by climate changes. Our samples are between 60 ka and 75 ka, with initial $^{234}U/^{238}U$ activity ratios of ~1.44 and ~1.47.