

Reconstructing the paleo Lake Bonneville in Utah/Idaho

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Executive Summary

Lake Bonneville is the name for a highstand of the Great Salt Lake (Utah, U.S.A.) during the last glacial ca. 15,000 years ago with a surface area of 51,300 km². This is approximately 10 times the mean-historical values due to the fact that no outlet exists in the area. Water depth was reconstructed by sedimentologists and paleoclimatologists using geochemical constraints on sediment cores, while long-term stable water levels are evident from paleo shorelines functioning like bathtub rings. Water levels were lowered to present day form through decreasing precipitation during the tail end of the last glacial and erosion of glacial till at Red Rock Pass, Idaho.

This project aims at tracking and quantifying the changes experienced in terms of land cover and distribution of Lake Bonneville from 25,000 years ago to the lowest levels of historic Great Salt Lake using remote sensing data, specifically from 1-arc second (30 m) continuous elevation data. Steps include clipping the elevation data to published lake levels, and comparing it, in order to ultimately produce time series portraying the changes over the study period and highlight water volume changes and fluxes.