High Resolution GPR Investigation of a Lake Manly Shoreline Deposit, Death Valley, California

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Abstract

This poster broadens the scope of GPR research by investigating a unique and complex shoreline deposit in Death Valley, California. The goals of this research are to: (1) examine the diversity and size of features (e.g., boundary, dune, and beach lines) using GPR and (2) analyze the GPR signals to identify the edges of the deposit, determine its thickness, and understand its internal structure. The study area is located at Lake Manly, a significant site for interpreting Pleistocene deposits due to its depth and clarity of the deposit relative to its groundwater level. The deposit, which is estimated to be around 300,000 years old, provides valuable insights into the region's past environments and the impact of climate change.

Methods

Ground Penetrating Radar (GPR) surveys were conducted in a 300 x 300 meter area at Lake Manly. A total of 1200 2400 MHz surveys were completed using a GPR trace interval of 0.005m. The surveys were conducted using a Phase Array GPR system, which provided high-resolution images of the deposit. The data were processed using a GPR software package, which allowed for the creation of high-quality images and the identification of features within the deposit. A cross section of the deposit was also created, which provided a visual representation of the deposit's internal structure.

Summary

The GPR data collected at Lake Manly provides valuable insights into the region's past environments and the impact of climate change. The data collected at Lake Manly is consistent with the geological history of the area and provides a unique window into the region's past. The results of this research will contribute to a better understanding of the region's past environments and the impact of climate change.