

Safety Net

Monitoring Solutions for Earthen Structures



- Earthen Dam Characterization
- Seepage Monitoring
- Failure Mode Analysis
- Levee Characterization
- Geologic Mapping

We Image the Subsurface.
Your Environment Benefits.

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Tucson, AZ - Richland, WA



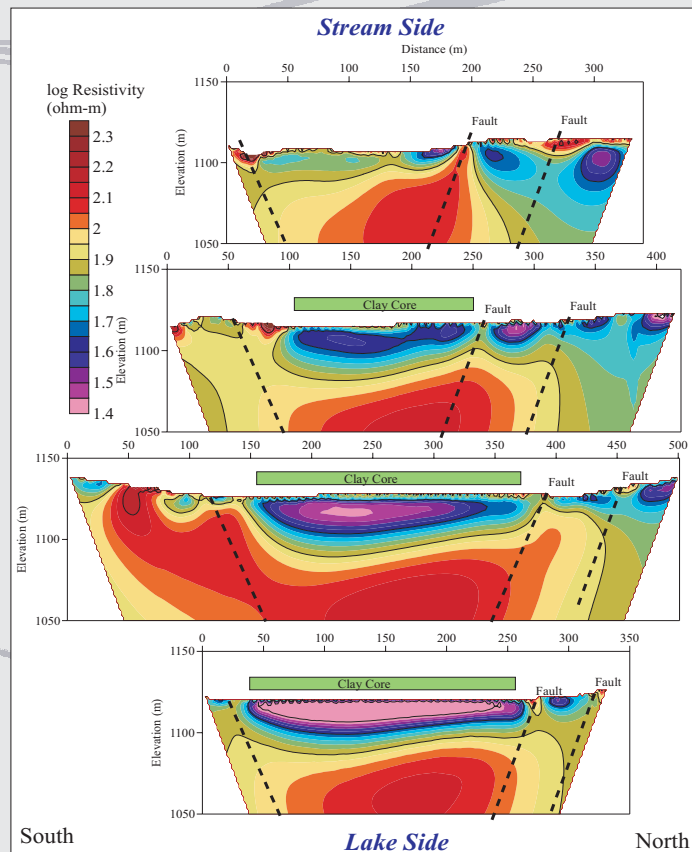
High Resolution Resistivity

Monitoring changes in soil saturation with High Resolution Resistivity (HRR) can be an inexpensive way to assess potential failure mechanisms in earthen structures. Localized areas of increased saturation may be indicative of piping. Broad changes on the face of a structure may be signs of more serious slope failure. HRR is capable of detecting these changes through

Routine monitoring - set frequency (e.g., biannually) of repeat HRR measurements, comparing newly acquired data to a baseline survey

Emergency monitoring - high frequency monitoring during extreme weather or seismic event

Patagonia Lake State Park



HRR™ is a trademark of hydroGEOPHYSICS, Inc. Of Tucson, AZ.

Case Study - Patagonia Lake State Park

The Patagonia Lake Dam has been rated as a high hazard facility by the Arizona



department of Water Resources (ADWR) ADWR and Arizona State Parks (ASP) have monitored this dam periodically using piezometers and land surveys. The dam's design is based on climate and flood models and engineering practices in the late 1960's. Failure of this dam could cause 4.6 billion gallons of water and sediments to be transported down Sonoita Creek towards the Santa Cruz River devastating the surrounding riparian environment and infrastructure, and the growing community of Rio Rico.



In 2009, with cooperation from ASP, HGI instrumented the face of the dam with 533 resistivity electrodes, placed along four HRR transects. The dam was

characterized (graphic to the left) for the baseline survey, from which all subsequent surveys will be compared. Decreases in resistivity indicates an increase in saturation and it is anticipated that problems deep in the dam's core can be detected long before they manifest at the surface.

In addition to earthen dams, HRR can be applied to levees and holding ponds to assess potential weak areas and loss of containment to aid in watershed management and flood protection.

Contact Us:

Email: questions@hgiworld.com

Tel: 520-647-3315 Fax: 520-647-3428

2302 North Forbes Blvd. Tucson, AZ 85745 USA

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