

# Ground Penetrating Radar: A Sharper, Shallower Image

## Research Themes

At the Allied Geophysical Lab, Ground penetrating radar (GPR) techniques are applied to studies in:

- Archeology – location of historic unmarked graves at Mueschke Cemetery, Houston, TX
- Paleontology – location of a mastodon fossil
- Planetary Science – interpretation of GPR data collected in a meteorite impact crater
- Reservoir Analogs – surveying conventional and unconventional reservoir analogs
- Engineering and Environmental Science – geotechnical surveys and vertical radar profiling

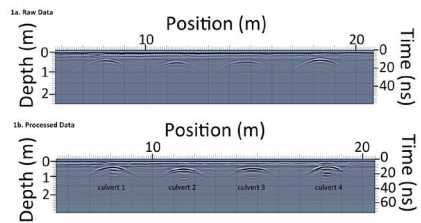
## Recent Accomplishments

- Conducted a vertical radar profile (VRP) survey as an alternative to a vertical seismic profile (VSP) for locating a near surface aquifer
- Conducted a 3-D GPR survey over culverts for geotechnical applications
- Authored articles for the Geophysical Society of Houston (GSH) Journal

## Issues

Beyond expanding the application of GPR in other studies, GPR research is also focused on:

- Improving the depth of penetration – GPR is dependent on the electromagnetic properties of the media it propagates through. In certain soils, e.g. clay soils, penetration is very shallow. This limits the use of GPR to areas where soils are suitable and allow adequate penetration. Improving depth of penetration will increase the utility of GPR in varied soil conditions.
- Interpolation of data – GPR surveys collect data along a single line and these data is interpolated for the areas between lines. Different interpolation methods yield varying results. Algorithm development and data collection with various survey geometries will improve interpolation methods.



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