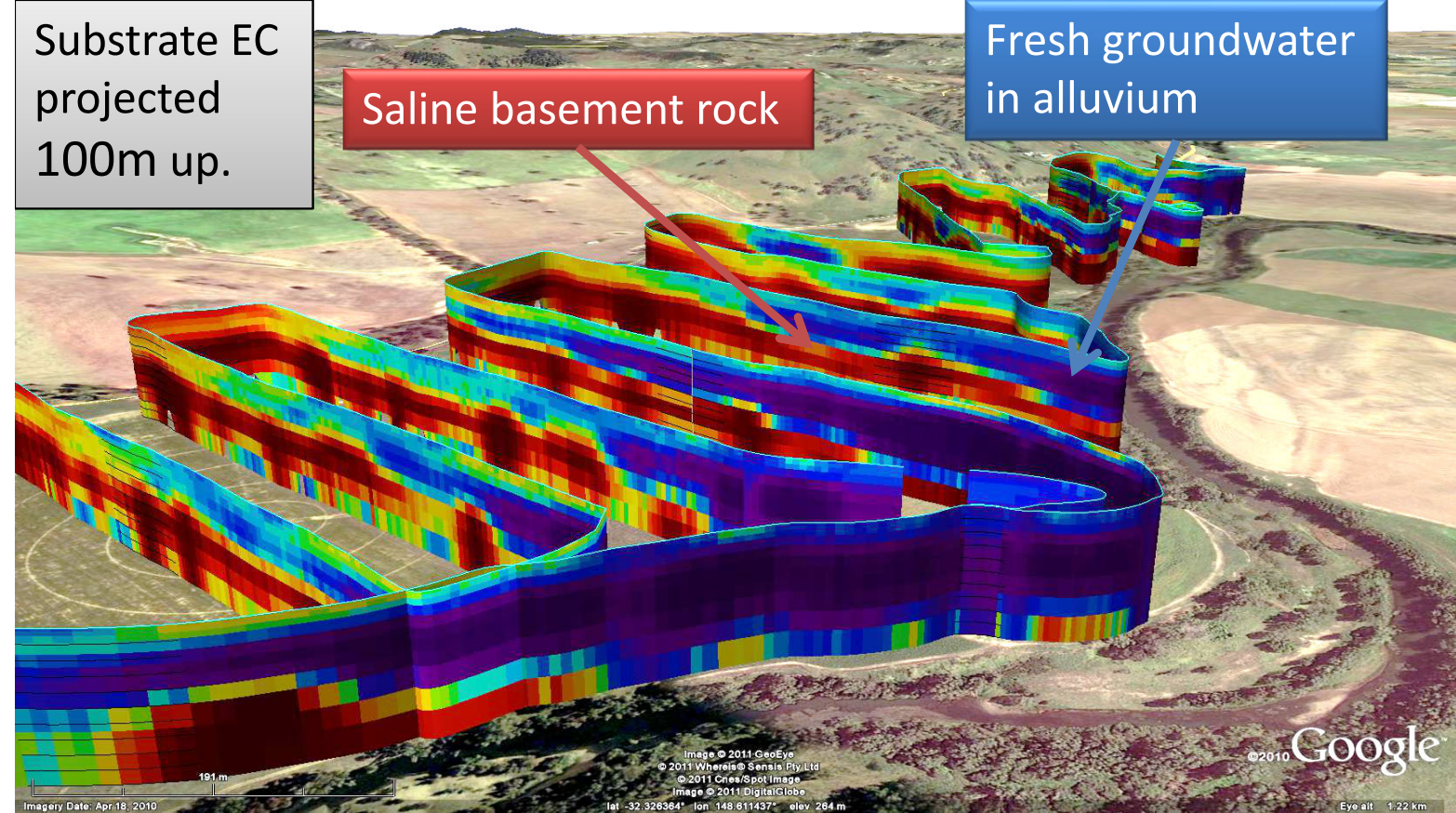


Substrate EC  
projected  
100m up.

Saline basement rock

Fresh groundwater  
in alluvium



## Soil Moisture and Groundwater Mapping

Imagine what a difference it makes to a groundwater investigation if substrate visualization is practical and affordable. Drilling alone gives information at a single location and is expensive. Groundwater down the hole can mix leading to lack of information about vertical changes. Should a geophysical technique be used to extend upon and extrapolate drill hole information in three dimensions across a site, then a thorough understanding of groundwater distribution and salinity can be gathered. It is often possible to map depth to rock layers that confine that groundwater. Groundwater Imaging Pty. Ltd. tow devices for imaging electrical conductivity of a whole range of focal depths of the substrate. Electrical conductivity, or its inverse, resistivity, responds to changes in substrate permeability and saturation as well as groundwater salinity. Distribution of saline pollutants as well as the groundwater itself can be mapped.

Now commonplace are GPS assisted soil conductivity mapping electromagnetic devices.

Groundwater Imaging Pty. Ltd. extend on such technology, also adapting airborne electromagnetic technology, to image to depths of many tens of metres into the substrate at the same time as they image changes right at the ground surface. A survey platform, controlled by the Australian made TerraTEM system, is displayed. We are continually designing and modifying our towing platforms which have now conducted thousands of kilometres of cross-country trials. We aim to make it possible to survey anywhere that can be driven.

Data is collected wherever the system is towed and then displayed in 3D 'curtain diagrams' projected up above the ground a fixed height (say 100m) above Google Earth imagery. The resulting files, also hosting graphics of state database bore details, are compact and can be received via email and viewed on any computer running Google Earth. This form of presentation is good for revealing vertical changes in the groundwater hosting substrate. Horizontal mapping is conducted by gridding depth slices of that same data and these too can be delivered for semi-transparent viewing in Google Earth.

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