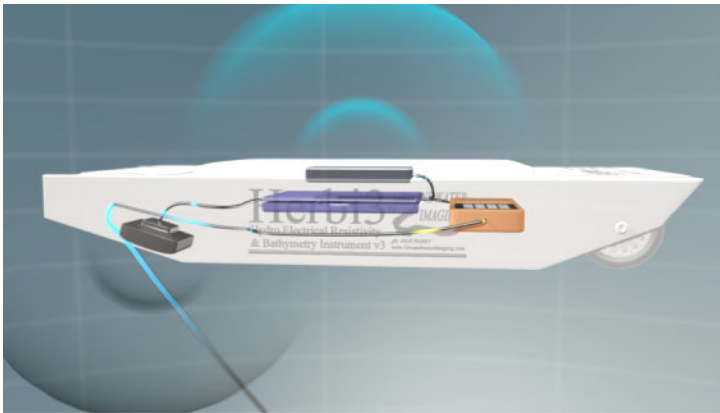


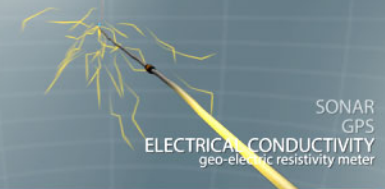
HERBI

Hydrographic Electrical Resistivity & Bathymetry Imager

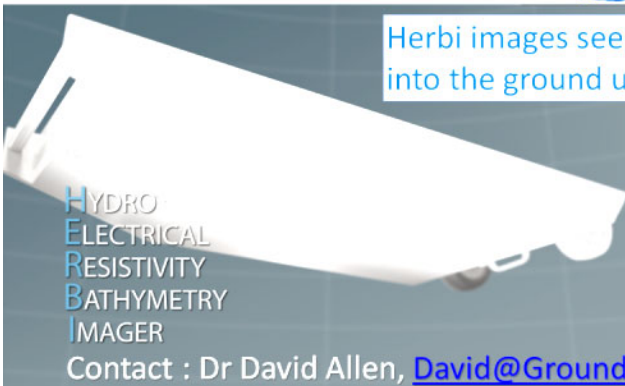


Herbi_{v3} from

GROUNDWATER
IMAGING

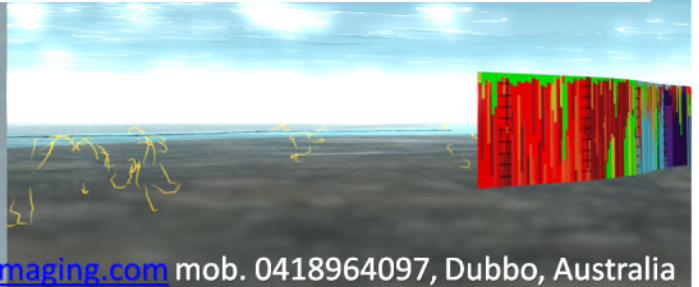


Herbi images seepage and saline groundwater flow pathways deep into the ground using a submerged streamer as it is towed in water.



HYDRO
ELECTRICAL
RESISTIVITY
BATHYMETRY
IMAGER

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Investigation of seepage and saline inflow is our speciality. For this purpose Groundwater Imaging Pty. Ltd. supply a compact device for use on water which they call Herbi3 (Hydrographic Electrical Resistivity & Bathymetry Instrument). It is towed by walkers or behind a boat. A submerged streamer of electrodes senses multiple depths into the substrate with extra focus on the top decimetres where silt layers & clay lining need to be investigated.

Herbi creates tomographic images of electrical resistivity of the substrate beneath surface water bodies over which it is towed. It, in turn, tows either a floating or submerged cable hosting strategically spaced electrodes. Cables are from 20 to 100 metres long. A typical 40m submarine cable images at 8 focal depths extending to around 10 metres beneath the waterbody bed. A typical floating cable is useful for imaging to 25 metres deep.

Herbi is augmented typically with Cee Hydrosystems' CeeScope or CeePulse sonar and GPS. Various accuracies of GPS are possible facilitating either lower purchase price and processing price or absolute elevation corrected bathymetry. Herbi may also have lateral range finders installed to facilitate efficient acquisition of full cross section bathymetry of small and/or shallow water bodies. With such data it is also feasible to calculate flow rate, volume and surface area for canals at various stages and find points at which they lack efficiency.

Herbi data is processed using proprietary software to create 3D 'Curtain' images within Google Earth. Comprehensive data cleaning is carried out using digital filters as well as an interactive graphical editor. Resistivity versus depth data may be simply formed by transformation or by optimized modeling (inversion).

Herbi has special logistical features for operation in the majority of waterways (not just navigable waterways). Principle among these is that it is lightweight and can be remotely controlled and monitored while in the water. It is pulled either by a motorized boat or by ropes pulled by walkers. In contrast to non-specialized resistivity systems operating exclusively from full sized boats, it can readily be lifted over or pulled through the majority of obstacles that typically litter waterways.

The resistivity data is collected by a L-GM Lippmann 4 point light geo-resistivity meter which can also be applied to land based and time lapse moisture migration survey.