

Airborne Electromagnetics as an effective, data based, tool for large scale groundwater mapping.

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Abstract: Effective groundwater mapping and management at large scale, calls, among the others, for detailed, high resolution, hydrogeological models. Airborne Electromagnetics can provide description of the subsurface, in terms of its electrical conductivity, from few meters down to couple of hundred meters, with lateral resolution in the order of tens of meters, over vast areas. This translates into a voxel of thousands of nodes per km², imaging the subsurface at a resolution impossible to achieve with ground methods, or boreholes. If robust procedures for data calibration, processing and inversion are accompanied by integration with relevant available data, the outcome of an AEM survey can be a quite accurate description of the main aquifers of the region, in terms of their geometry, water quality and vulnerability. We will present a few examples of AEM applied to GW mapping and management from Denmark and US, obtained with different AEM systems (see, e.g., Figure 1).

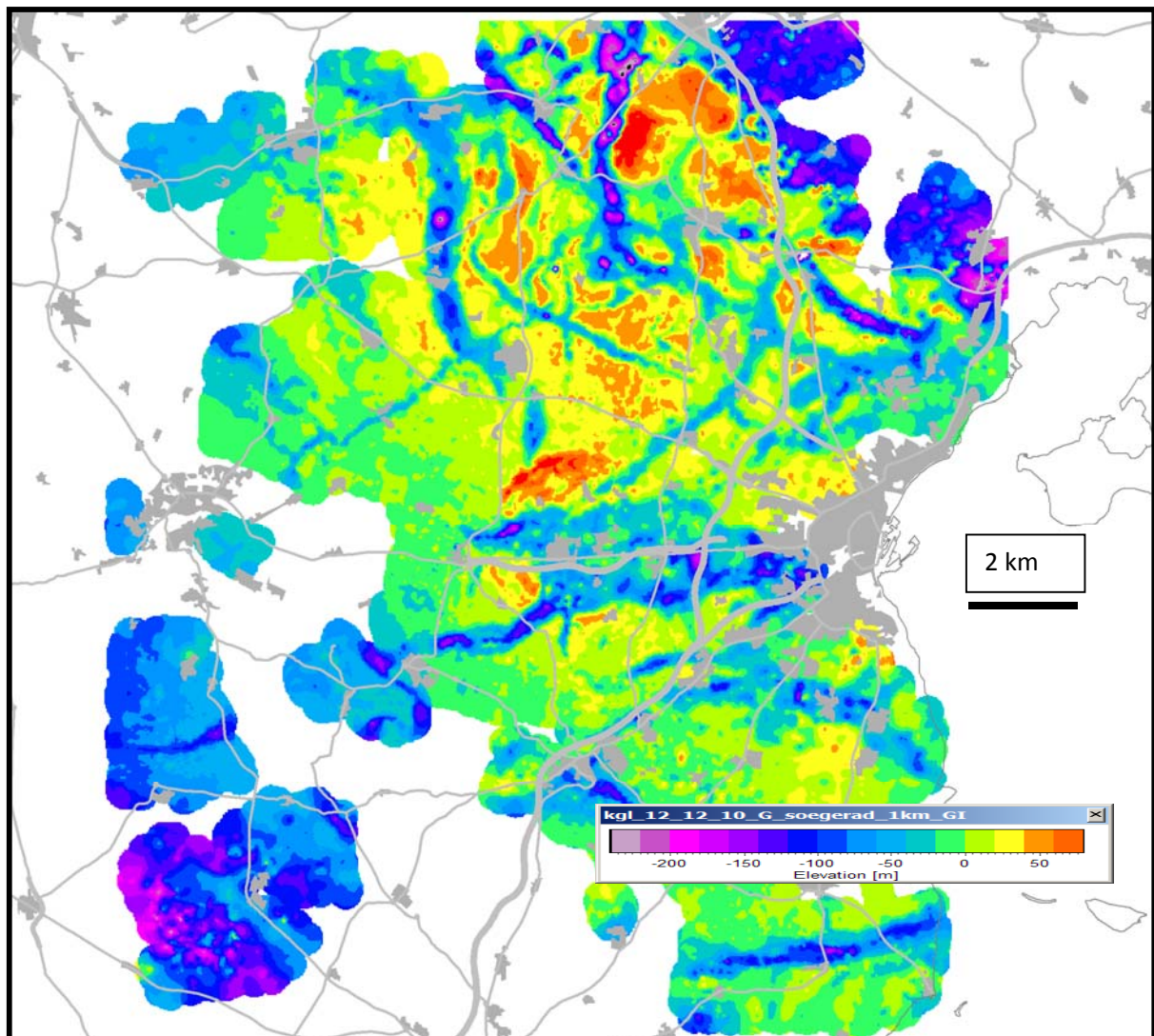


Figure 1. Elevation of conductive layer, in Eastern Jutland, DK, corresponding, in places, with bottom of buried valleys.