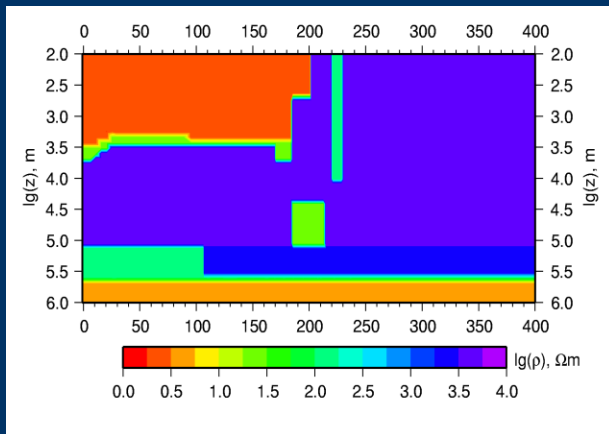


Recovering static shifts in 3D with Occam inversion?

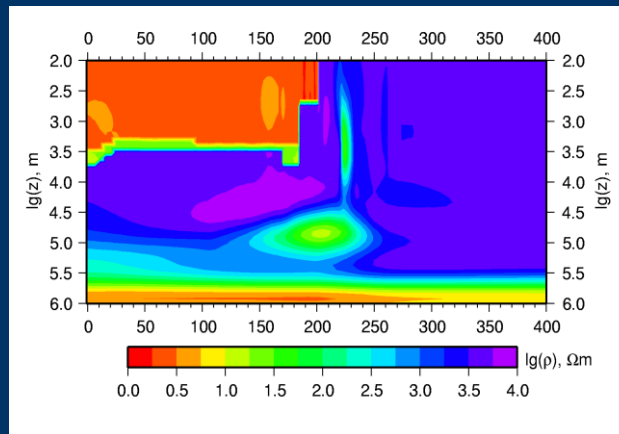
Maxim Smirnov & Laust B Pedersen
Uppsala University
Department of Earth Sciences



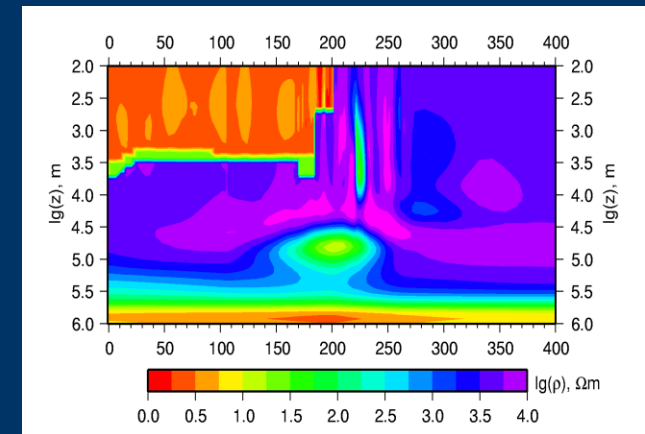
Static shift correction in 2D inversion



Synthetic model

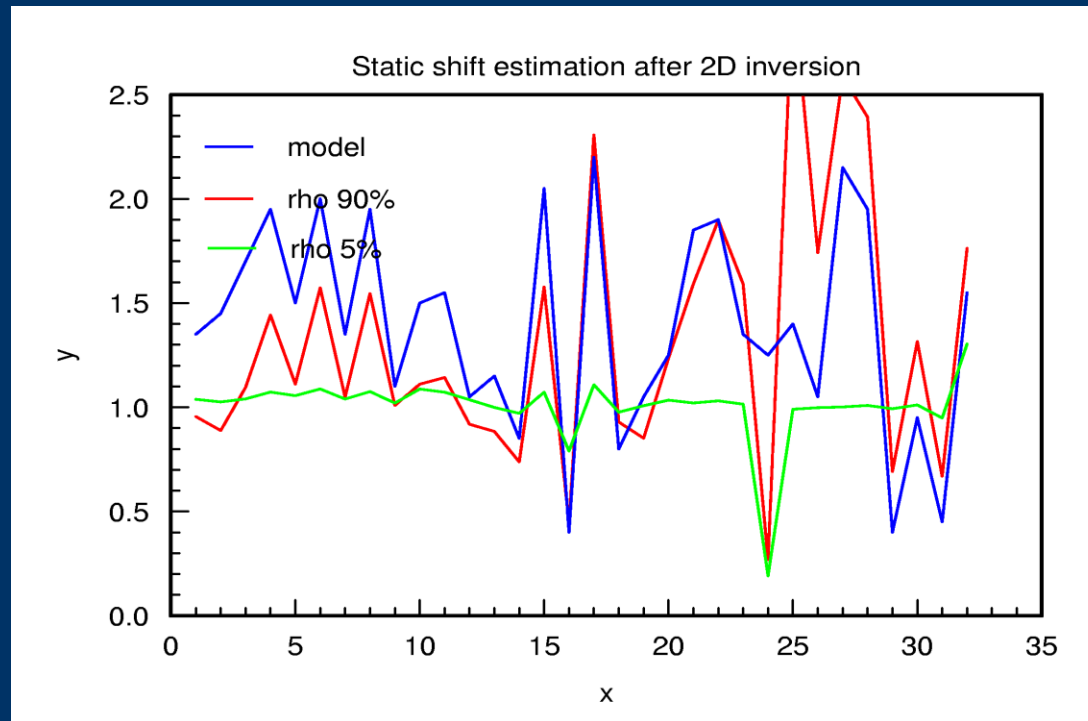


DET inversion result with error floor on Rho 90%



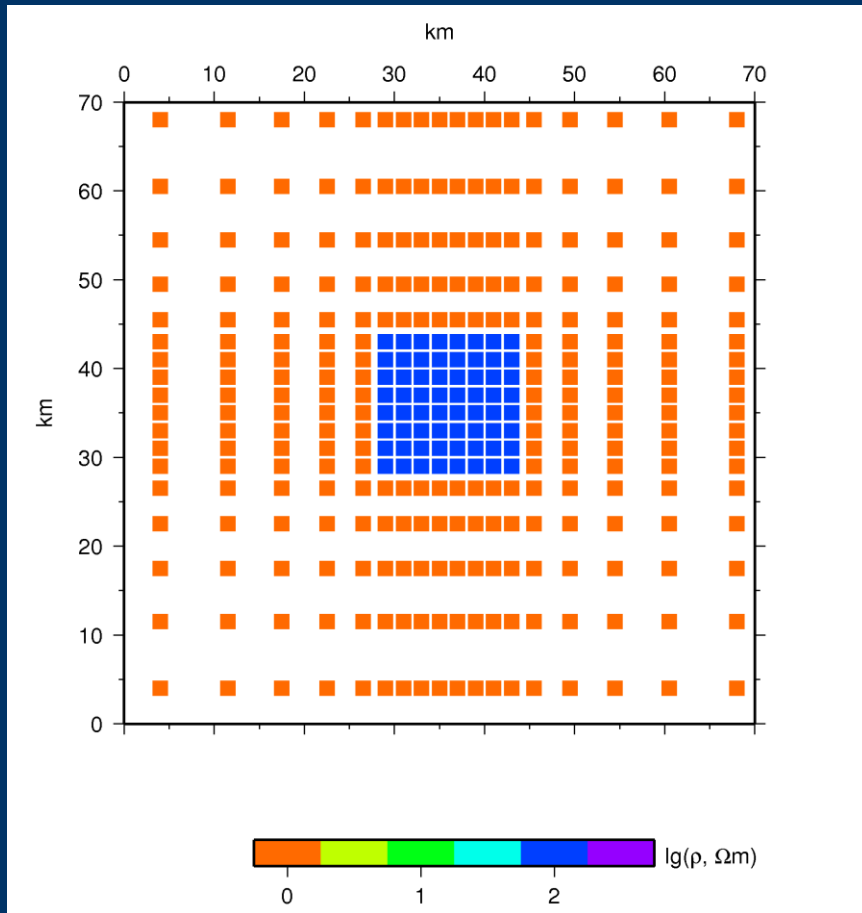
DET inversion result with error floor on Rho 5%

Recovering static shift parameters in 2D



DET inversion (error floor on Rho 90%) allows to estimate static shift parameter and does not fit static shifts. While inversion with error floor on Rho 5% fits (if possible) data with static shifts by creating phantom structures in the upper part of the model

3D inversion. Complete galvanic distortion tensor estimation

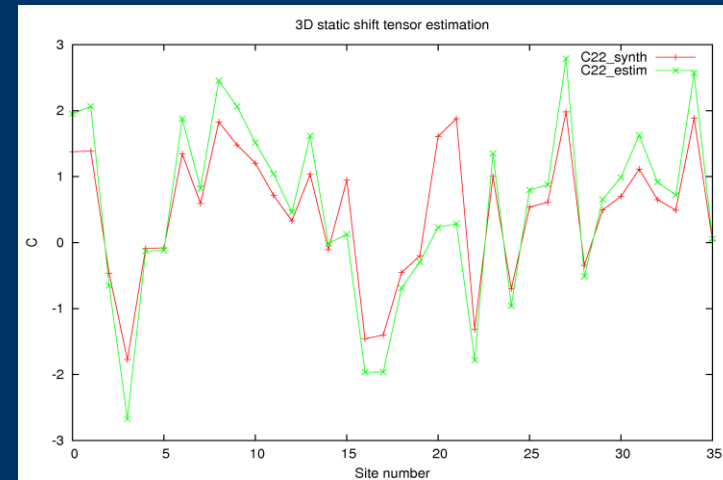
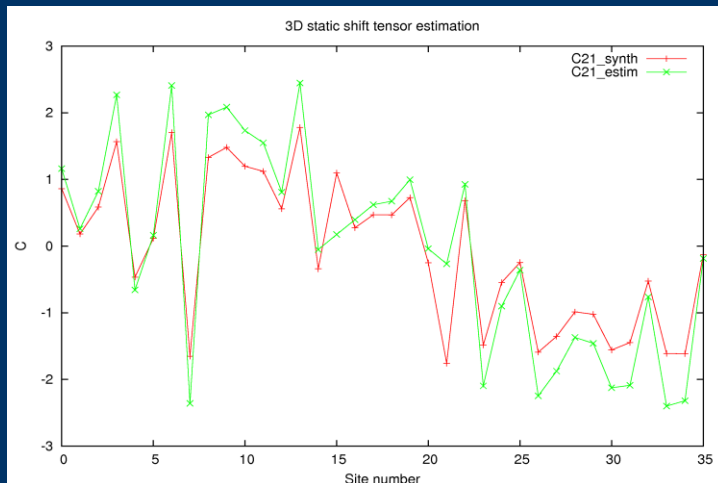
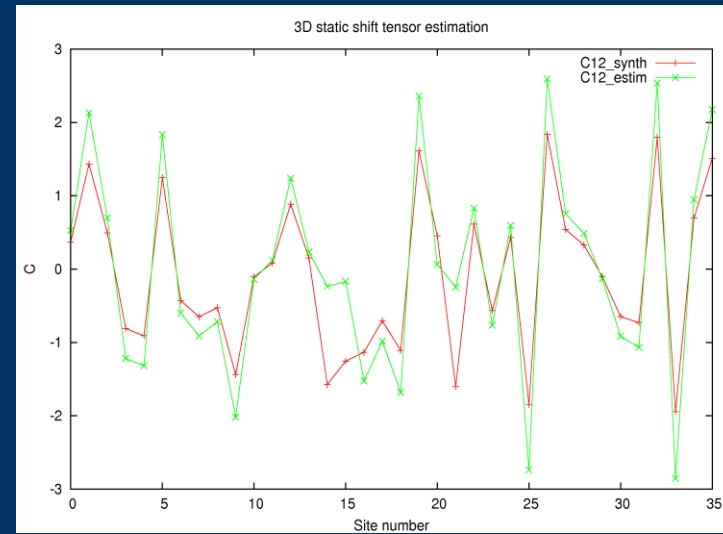
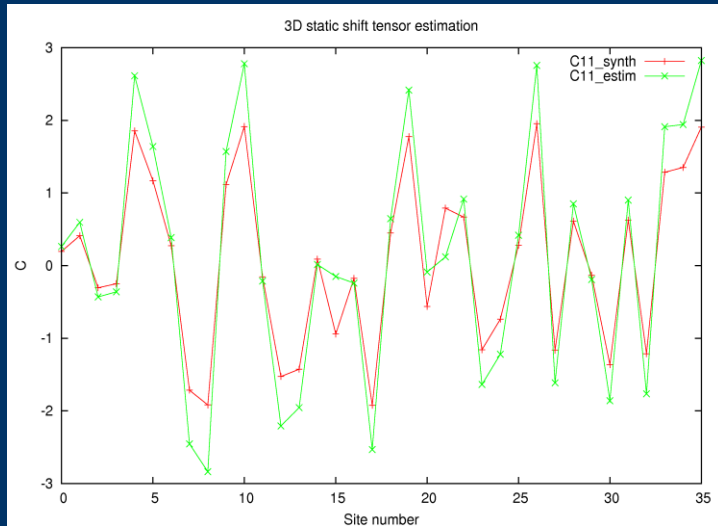


3D synthetic model used in the test

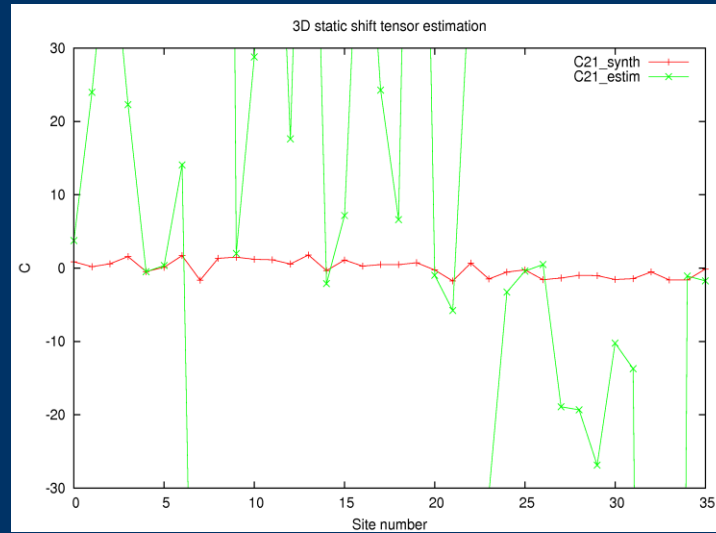
Full distortion matrix components with zero mean were generated. All sites were consequently distorted.

Distorted data were fitted at RMS 15, while undistorted at RMS 1.

Galvanic distortion tensor recovery at iteration 0



Galvanic distortion tensor recovery at iteration 5



How to solve the problem?

Possible philosophy

Invert for phases of off-diagonal elements and downweighted apparent resistivity and diagonal impedance elements

Estimate static shift matrices for each station

Correct for static shifts

Remove downweightings in final stage
