Westfälische
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GEOPHYSIK
WWU MÜNSTER

Institut für Geophysik

Geophysikalisches Kolloquium
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Joint Inversion of Geophysical Methods Sensitive to Same and/or Different Physical Parameters

Joint inversion could improve model resolution and reduce non-uniqueness of the inverse problem, provide geophysical models that are consistent with multiple data sources for improved interpretation and classification. In recent decades, the use of joint inversion algorithms in geosciences has become widespread to identify near surface and deep subsurface structures. In the presentation, we will briefly give some details about joint inversion. And then, previously developed two different joint inversion algorithm will be explained. Direct current resistivity, radio-magnetotelluric and seismic refraction methods are widely used in the identification of near surface structures with collected data generally being interpreted separately. In this study, we developed a new two-dimensional joint inversion algorithm for direct current resistivity, radio-magnetotelluric and seismic refraction data based on a cross gradient approach and we proposed a new data weighting matrix to stabilize the convergence behavior of the joint inversion algorithms. We will also give an interesting field data example collected in the Bafra Plain (Samsun, Turkey) to explain the effect especially in highly conductive media. In order to explore the deep subsurface structures, Magnetotelluric and local earthquake tomography algorithms are generally used individually. In this part, we will also present a new joint inversion algorithm based on the Cross Gradient function in order to jointly invert Magnetotelluric and local earthquake datasets. In this study, Joint inversion of MT and LE, are presented only in two-dimensional space to be a guide to future three dimensional studies.

Das Kolloquium findet um **16 Uhr c. t.** im **Seminarraum GEO 315**, Corrensstr. 24, 48149 Münster statt.
Alle an dem Thema Interessierten sind hierzu herzlich eingeladen.

Die Dozenten des Instituts für Geophysik