

## Detection of resistivity anisotropy with TM-mode MT response

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The transverse magnetic (TM) mode in the magnetotelluric (MT) method has two resistivity values, the cross-strike and vertical directions. While two values are regarded as the same mutually in the isotropic inversion, forward calculations by anisotropic modeling suggest that the apparent resistivity is deformed by anisotropic structures. Therefore, a new anisotropic inversion technique that takes into account different resistivity values in two directions was proposed. This method can be applied to both isotropic and anisotropic structures. The tradeoff between the isotropy and anisotropy is determined objectively by the statistical criterion called ABIC. The tests with the synthetic data have showed the effectiveness of the proposed method. Moreover, the application of this method to field data at Sanriku-oki seismogenic zone showed better agreement with estimated structure than one by isotropic inversion.