

## Mapping of high electrical conductivity on the Torres Syncline hinge, SE Parana basin

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Seventeen magnetotelluric (MT) and geomagnetic deep soundings (GDS) in the period range of 0.001-1000 s have been carried out around the Torres Syncline in the southeastern border of the Parana basin. Robust techniques were used to derive impedance tensor components and geomagnetic transfer functions. Parkinson induction arrows show strong ocean effects in periods longer than 100 s at sites near the coast line and a NW-trending conductive anomaly nearly coincident with the hinge of the Torres Syncline. The Groom-Bailey distortion technique was used to derive apparent resistivity and phase curves that correspond to the electromagnetic induction in orientations parallel and perpendicular to the NW electrical anomaly. 2-D inversions of MT data along two profiles parallel to the coast and across the Torres Syncline have distinguished two main conductive features: (i) a near-surface zone of very high conductivity in the profile closest to the coast (mainly located over outcrops of pre-volcanic sediments); and (ii) a zone of high conductivity that dips to the NW, in the central region of both profiles, from a depth of 500 m at the coast to 1000 m at a distance of 120 km further inland. The near-surface conductor is probably connected with electronic conduction in coal beds underlying the studied region, whereas the deeper conductor could be ascribed to metasomatic residues concentrated along the hinge of the downfolded Torres Syncline, in association with the volcanic events.