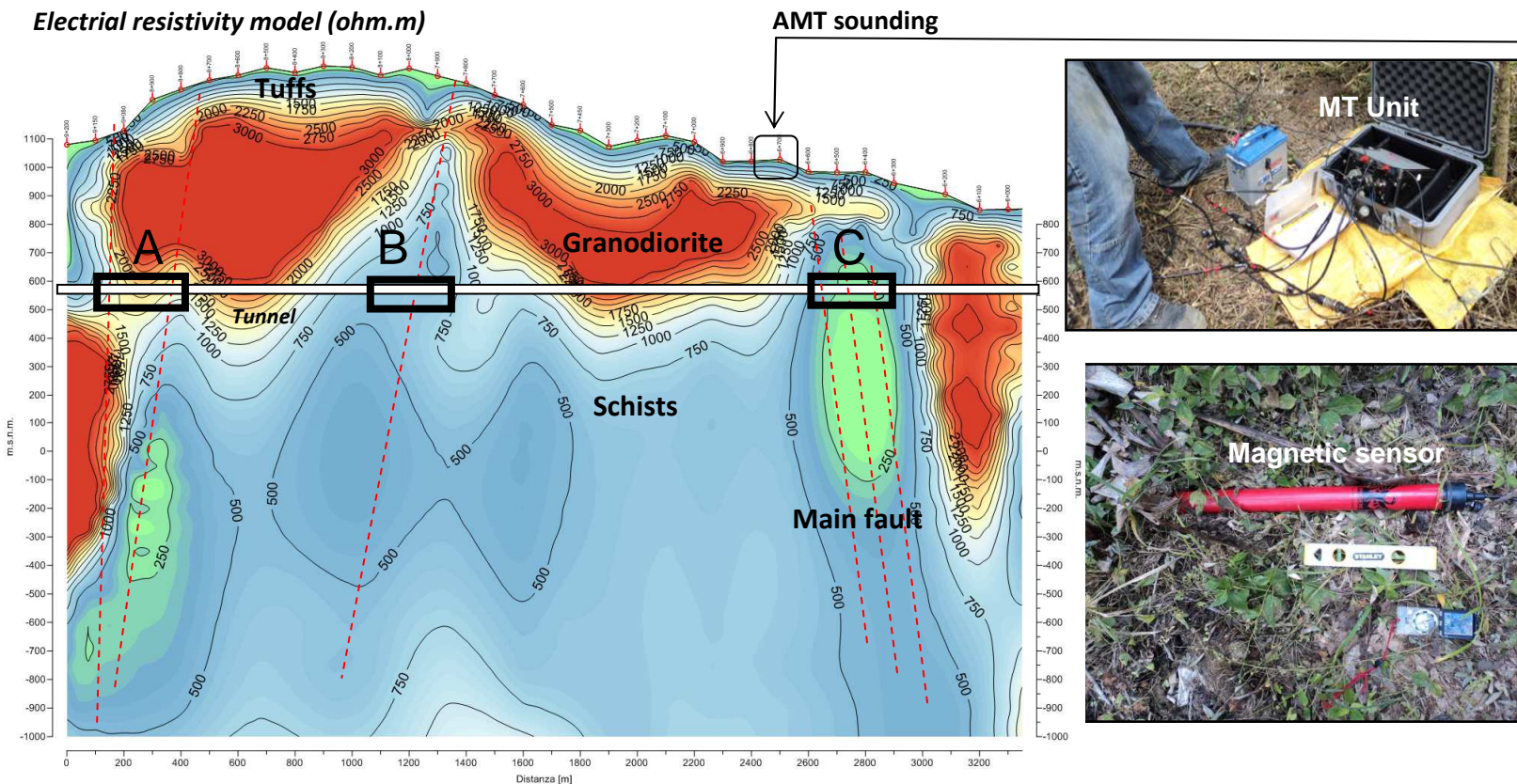


DEEP GEOLOGICAL MODELLING FOR TUNNELING EXCAVATION AMT METHOD

The geological prediction for the excavation of deep tunnels is of fundamental importance, both for selection of method of excavation both to identify the most critical areas (fault zone, weakness zone, groundwater, etc.).

The definition of a deep geological model requires high costs for the drilling of boreholes and generally very long time for the drilling operations, particularly in difficult environments (mountainous or remote areas).

Among the techniques of deep geophysical survey, the method Audiomagnetotelluric (AMT) has proved to be particularly efficient for predicting deep geological in difficult areas, particularly for small size of the instrument (ease of transport and execution of surveys, with obvious economic advantages and time saving) The AMT method provides a model of the electrical resistivity of the ground that, properly calibrated with the expected geological setting) provides a geological prediction down to great depths. This method (commonly used for petroleum or geothermal survey) has been applied successfully in several projects in Ecuador and Italy, with accessibility conditions prohibitive for other methods of investigation. The good and stable results obtained by the AMT survey have made possible to outline the general geological framework up to great depths and to highlight areas critical to the mechanized excavation (eg, zones A, B and C in AMT section below, related to fault zone)



Project:
Deep tunneling for hydro
scheme in Ecuador
Client:
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