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# AMT investigation in the Solfatara-Pisciarelli-Agnano area: results and further outlook

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In the framework of the MED-SUV project a 3D electromagnetic survey has been performed in an area covering the Solfatara-Pisciarelli-Agnano (SPA) fumaroles. Previous and newly acquired AudioMagnetoTelluric (AMT) measurements provide a dataset of 43 soundings recorded in the frequency range 0.1-100000 Hz. The 3D data coverage is mainly distributed inside the Solfatara area, while a 5 km long profile crosscuts the SPA area. One of the soundings was carried out close to the San Vito 1 well in order to better constrain the resistivity and geological models. The overarching aim of this study is to provide information on the internal structure along with the extension and link of fluid circulation between the distinct fumarolic areas.
Additionally, during active seismic experiment (RICEN) in the Solfatara area, three magnetotelluric stations were operating in order to study the coupled seismo-electromagnetic signals and explore new tools to detect and characterize fluids in depth.
3D inversion of the MT data set is still in progress, while preliminary 2D resistivity inversion modelling along the main profile provides a number of very interesting indications. Largest conductivity anomalies are localized within the first 500 m of depth in all of the three target areas and are clearly connected between the Solfatara and Pisciarelli areas, while relations with the Agnano conductive area are less obvious. Along the profile, at a depth of about 1500 m, the models suggest the passage to a more resistive host rock except below the Solfatara area. 3D inversion would give better insight about the extent and resolution of this anomaly.
Finally, the wavelet analysis of electromagnetic signals recorded during RICEN experiment, shows striking interplay between the magnetic field response and the seismic artificial signal. Standing these first results, a more ambitious goal, such as the achievement of an electromagnetic velocity tomography, is going to be pursued.