



## **Fresnel Volume Migration applied to geothermal exploration in mid-southern Tuscany**

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We implemented a Fresnel Volume Migration imaging technique to successfully image the target horizon within a geothermal field in mid-southern Tuscany, Italy. The challenge in imaging this lithology boundary were the presence of strong wavefield scattering and low signal-to-noise ratio in the input seismic data. The migration velocity was carefully modeled using the first-arrivals trav-elttime tomography technique, taking into account the velocity function from a vertical seismic profiling measurement in the area. Prior to the imaging, the data preconditioning was carried out deliberately in the time domain. The key in the data preconditioning stage was the implementation of static corrections using first-arrival travelttime tomography. Our seismic imaging result shows a clear image of the key reflections which correspond to the boundary of the target geothermal source rock. This finding provides the basis for a successful exploration of the geothermal reservoir in this field.