



Joint Inversion Seismic & Gravity & MT Data

LandTech has performed Gravity surveys since 1998. The LandTech team has developed techniques that combine the latest Gravity meters and computing technology, to provide accurate and cost-effective surveys. Our survey operations span the globe, having successfully undertaken major contracts in many countries. Thousands of gravity stations have been surveyed. LandTech's reputation for precision field work is a direct result of the overriding commitment to survey quality by our dedicated staff of internationally experienced surveyors, engineers and gravity technicians.

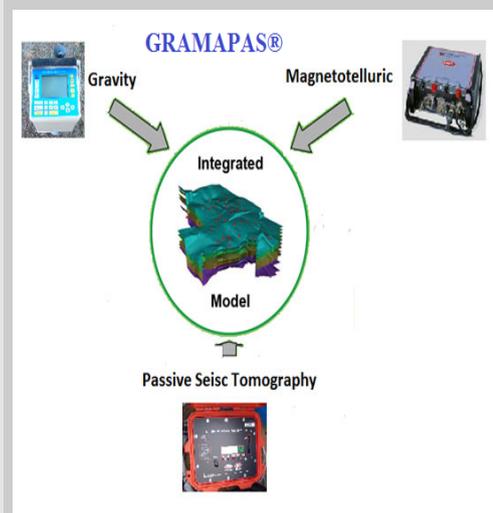


LandTech has developed **GRAPAS®** a joint Passive Seismic Tomography (PST) Data and Bouguer gravity residuals inversion. It consists of the reiteration of a set of n iterations of the seismological inversion, leading to a new velocity model and new event locations, followed by one inversion of the gravity data and the computation of a new density contrast model. This procedure is repeated until the convergent criterion is satisfied.

Using this method, it is possible to estimate what information is brought to the model by seismic and gravity data. The flow chart illustrates the organization of this sequential method.

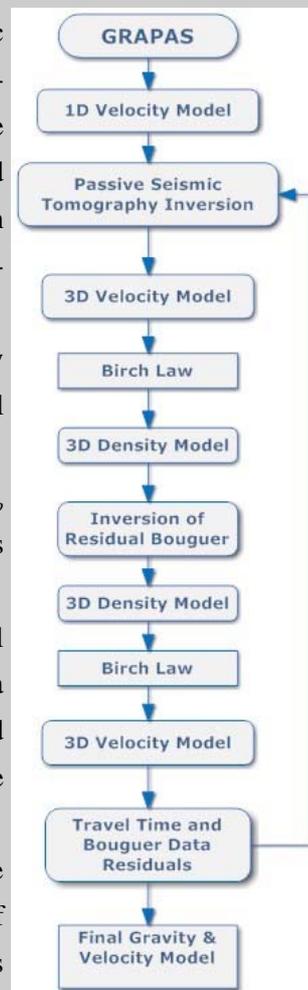
LandTech's Passive Seismic Tomography inversion program calculates the 3-D V_p model and new earthquake locations from the arrival times of local earthquakes. This process is stopped after n iterations.

This 3-D absolute V_p model is then converted into a 3-D relative density contrast model using Birch's law. At this stage, the linear inverse gravity problem is solved leading to a new density contrast model that is transformed back to a new V_p model. This completes the first loop of the sequential inversion.



The following loops use the same procedure defining as input the final velocity model of the previous loop. The sequential process is stopped when the standard deviations between

observed data and theoretical values calculated from the models stop decreasing significantly between two loops. LandTech's engineers have recently developed **GRAMAPAS®** a joint inversion program of PST, gravity and magnetotellurics data.



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