

## THE UNCERTAINTY OF 2D LAYERED MODELS ALONG WIDE ANGLE SEISMIC PROFILES

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The estimation of uncertainty for any geophysical model is important for determining how reliable the model is. It is especially important for subjective trial and error modelling techniques like forward ray-tracing modelling of wide-angle seismic data when the final result is very dependent on the interpreter's knowledge of the area and experience. In this kind of modelling, it is common to encounter over interpretation of the seismic data without checking the uncertainty of the result, especially in the deep parts that are not constrained with other a priori knowledge.

This presentation propose a method of estimating the uncertainty of the final models based on a 1D method of small error propagation generalized for 2D profiles. This method translates picking precision of each refraction and reflection phase to uncertainties in inverted velocities and boundary shapes, and propagates them further to deeper layers. Presented are estimations of previously published models from seismic experiments in the Central Europe. This presentation also discuss the effects of uncertainty propagation in two modelling techniques: layer-stripping and joint inversion, showing the advantage of the last one. Also a specific case of sedimentary layers is presented where combination of refractions and reflections traveltimes are used to find the velocity structure and the shapes of boundaries with special focus on the post-critical reflections effects on the uncertainty of velocities.