

# Determination of Time Travel of a Seismic Wave Through a Stratification Medium

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## Abstract

A seismic wave generated that incise on a field will travel through the subsoil, assuming a homogeneous and isotropic medium (in such a way that the path of the ray is symmetrical), until get to the interface. The seismic waves spread toward the inside of the land and the time of travel of the waves that return to the surface are measure after of this are refracted or reflected in geologic limits that appears on the subsoil. The present work will talk about the time in which take the seismic waves arrive to the subsoil crossing a layer and after that adding the number of layers that could be possible, making two suppositions, the first one is that the ray is refracted and the second is that the ray is reflected. These two suppositions are based on Snell Law. The reflection law and refraction law are derivatives from the Huygens principle, when it is considering a wave front that incise on an interface that suppose be plane.

With the time that take the ray in arrive to the receptor is can be possible to determinates the equations of arriving time taking into account the fundamental principles of seismology as it is the Fermant principle.

A programming language named R -Studio, which will help us to determine the time of arrival of the wave with the system of equations that will be created by applying an iterative method such as the Newton method.

## References

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