EAGE

EM P01

Step-By-Step Solutions Of Structural Geophysics Problem

S. Kiselev[1]*

[1] ROSGEO

Summary

A new methodology for the study of the structure of the top layer for a more accurate construction of deep image seismic data

Abstract

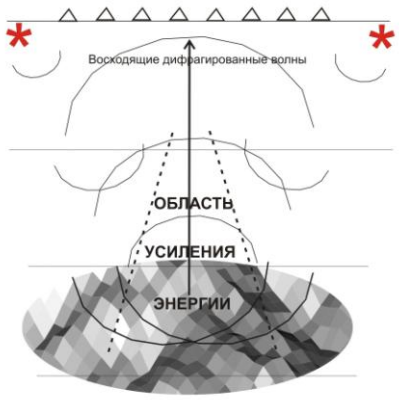
Synchronous excitation of a seismic wave at points remote from each other by a certain distance will increase the energy density (wave intensity) in the area of the object under study. The geometrical place of points of convergence of rays can be called caustics. Caustic is usually some surface. Depending on the type of the falling wave front, caustic can acquire the form of a line or point, called a line or a focus point.

The energy transferred by a seismic wave is divided in each elementary volume and at each time into equal kinetic and potential waves in the case of a monochromatic wave. Thus the total specific energy can be recorded:

$$I \approx \rho\left(\frac{du}{dt}\right)^2 + \rho\omega^2 A^2,$$

Where A is the oscillation amplitude, ω is the prevailing frequency, ρ is the density.

Focusing energy will create more intense secondary waves. Kinematic and dynamic parameters of these diffracted waves increase the reliability of the prediction of the elastic properties of rocks its cracked part.



Thus, a more intensive secondary drain will be formed a beam of rays is formed directly inside the medium under study ascending from the diffractors to the top to the recording facility.