

Processing and reprocessing of the Kola-92 dataset

David Smythe, December 2024

This note outlines the useful research that could be yet obtained from this unique dataset:

- Reprocess the main 40 km long 2D vertical component line, using the relocated shot and receiver positions to make a better image.
- The 40 s data are preserved as uncorrelated vibroseis data (yielding 20 s TWT after correlation). New experiments can be devised to correlate or convolve the data to extract higher resolution.
- The data are 3-component (3C); only the vertical component has ever been processed. The two horizontal components, of lower quality from just single geophones and not strings, may nevertheless yield new insights.
- Improved tie-in of the VSP data from the Sputnik borehole and the main seismic line.
- Processing to image the Moho at 10-12 s TWT.
- Processing of the single-fold 3C/3D coverage in the few square kilometres around the drill hole.
- Processing to enhance the horizontal reflectors (from ?water layers) where they cross-cut the dipping primary geological layering, to show that both types of layering can be imaged.