High Resolution VSP Survey: Outokumpu Borehole, Finland: Preliminary Results

Heather Schijns[1], D. Meillieux[1], E. Bianco[1], L. Tober[1], M. Welz[1], D. R. Schmitt[1], I. T. Kukkonen[2], and P. Heikkinen[3]
[1]University of Alberta, Edmonton, AB, Canada; schijns@ualberta.ca
[2]Geological Survey of Finland, Espoo, Finland
[3]University of Helsinki, Helsinki, Finland

Abstract/Excerpt

Over the last few years, the Geological Survey of Finland and the Institute of Seismology at the University of Helsinki conducted large crustal scale seismic reflection profiles over Finland. Portions of these profiles ran through the historic mining town of Outokumpu: the site of a large base metal mine that is currently not operating. The structures outlined in these profiles motivated a re-examination of the regional geological model and a consequent reassessment of exploration strategies. This led to the complete coring of a 2.5 km deep borehole near Outokumpu to both test the revised models and to attempt to intersect a strong reflector expected to have a high probability of being associated with an ore body. Here we describe additional high resolution geophysical work conducted to further refine the geological model, to study anisotropy in such crystalline terranes, and to construct a velocity model that will be used for locating microseisms induced by fluid injection testing.