FEASIBILITY STUDY OF NEAR-SURFACE DISPERSION IMAGING USING PASSIVE SEISMIC DATA

M. Javad Khoshnavaz[1], Milovan Uorosevic[2], Andrej Bóna[3], M. Shahadat Hossain[4], and Ashley Grant[5]*

Curtin University, Perth, Western Australia, mj.khoshnavaz@postgrad.curtin.edu.au[1]

Curtin University, Perth, Western Australia, A.Bona@curtin.edu.au[2], Curtin University, Perth, Western Australia, M.Urosevic@curtin.edu.au[3], Curtin University, Perth, Western Australia, muhammad.hossain@postgrad.curtin.edu[4], BHP Billiton, Perth, Western Australia, Ashley.grant@bhpbilliton.com[5]

Multichannel Analysis of Surface Waves is a seismic technique used to define the near-surface structures and rock properties. It has been vastly used through active seismic surveys for seismic/geotechnical engineering as well. It can also provide information about regolith heterogeneity that is of relevance to reflection seismic data processing. However, active surface wave investigations are not always possible due to site restrictions and environmental constraints. In this research, we studied the feasibility of passive seismic for the analysis of surface waves caused by different type of ambient noise and ground motion. The example presented comes from a data set collected over a hard-rock environment. We showed that the achieved results from passive data have a considerable correlation with the results from active data of the same acquisition survey.