

LAND DEFORMATION ANALYSIS IN THE OPEN PIT MINING AREA OF PT.KALTIM PRIMA COAL FROM TIME SERIES DATA

Alivia Desi¹, Akbar Kurniawan¹, M.Taufik¹

¹Department of Geomatics Engineering, Institute of Technology Sepuluh Nopember (ITS)

Address : Jl.Arief Rahman Hakim, Kampus ITS,Sukolilo, Surabaya 60111

email : aliviadesi30@gmail.com , akbar.geodesy@gmail.com , taufik_srmd@yahoo.com

Abstract

Land deformations are major problem in the mining area, the occupation of safety and health environment issues have become a serious problem to be addressed into one of the biggest coal company in Indonesia.

The study was conducted by terrestrial survey in mining area of PT Kaltim Prima Coal (KPC), the Pit Inul Hatari, Kedapat Pit, and Pit A Road 1C. By using *Trimble S6 DR 300+* Total Station, the measurement of terrestrial survey are divided into four observations time series. The measurement of land deformations are focused into 9 Benchmarks that's already placed and set up for deformation analysis of the Pit. The Results of the measurement data are in the form of coordinate easting, northing, and elevation.

Analysis shows the movement of the Benchmark, where greatest vertical movement is 0.170 m at GTM 1074. The model of vertical changes on observations are approximated by a linear and quadratic functions, and from the Time Series analysis to predict the next position of the Benchmark motion.

Key words : *Land Deformation, Benchmark, Time Series*