

Microseismic observation of fault reactivation at underground coal mines

Xun Luo and J. Ross

x.luo@dem.csiro.au

The movement of faults in a mining area can fracture the rock mass at the working face and cause roof collapse to damage machinery and working environment, which may cost mine operators millions of dollars to fix. Understanding of fault reactivation to the mining processes is thus crucial for the mines to control and prevent the problems. Since 1996 CSIRO has applied the microseismic technique to monitor fault activities at a number of underground longwall coal mines in Australia. The results presented in this paper have demonstrated that the fault reactivation associated with mining can be observed remotely and in real-time using an array of seismic sensors. The microseismic results have provided very useful information to the coal mines in the prediction of the impending hazardous areas.