

Utilization of Remote Sensing Data for Coal Potential Detection

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ABSTRACT

Remote sensing data consist of optical and Synthetic Aperture (SAR) can be used for geological and mining applications. One is used for the Coal potential detection. Optical data can be used Landsat, SAR data used ALOS Palsar, Shuttle Radar Topographic Mission (SRTM), XSAR, Grace/Champ/GOCE. Landsat is used to find the location of mining, hydrothermal, alteration. ALOS Palsar data used to detect the Peat potential. Peat is one of five types of Coal. Bituminous is Coal types in Eocene sediments adjacent to Peat. Anthracite is adjacent Bituminous types. Lignite is coal types in Miocene sediments adjacent to Peat. Lignite is adjacent sub Bituminous. Whereas SRTM and XSAR height models made high accuracy and precision using integration method. Height model is used to form the geological structure of joint, faults, folds detection. Grace/Champ/GOCE data is used for earth gravity detection and earth magnetic field. Coal lies in the potential value of the earth gravity is relatively the same as the direction of the magnetic field given relatively equal. Additionally Coal potential lies in the fault based on geologic structures that have been made earlier. Potential coal based on several geology parameters, namely structural geology, hydrothermal, alteration, earth gravity, earth magnetic field, and height model. Coal potential of this detection model can also be applied to energy and mineral mining. This detection model could be used to geological preliminary survey so that it will minimize the cost and time and improve efficiency of geological mapping.

Keywords: optical and SAR, coal potential, geological parameters, cost, time