

Geological Society of Malaysia — Petroleum Geology Seminar 1989

REMOTE SENSING APPLICATIONS TO GEOLOGIC EXPLORATION

P. FUENNING, O. SAWICKI, F. G. BERCA
BERCA INTERNATIONAL INC.

An arsenal of tools deployed in the lower and upper atmosphere exists for use in exploring below the surface of the earth. A range of sensors covering teledetectors for virtually the entire range of the electromagnetic spectrum is available in airborne or spaceborne configurations, giving data applicable to many phases of geologic exploration, from mineral or structural anomaly detection to detailed seismic logistic planning.

In this paper, following a systematic description of active and passive remote sensing systems, a series of descriptions of their applications to exploration geology is given. The examples given include the following:

- (a) SAR and SLAR (radar);
- (b) Thermal infrared scanners and sensors;
- (c) Multispectral scanners;
- (d) Multisensor multiband systems.

Both spaceborne and airborne systems are considered. The examples are based on practical applications, generally from actual exploration projects to illustrate a variety of results useful to explorationists. Data acquisition and its characteristics, digital and analogue data processing, as well as visual and digital image analysis and interpretation are described. A comparative evaluation of remote sensing techniques available for support of exploration activities is presented in conclusion.