

### **Abstract**

Satellite images analyzed together with geological structure studies and geophysical surveys can be applied to detect possible land subsidence areas. The area of Nakhon Ratchasima, Chaiyaphum, Buriram, Mahasarakham, and Khon Kaen province are selected for the study area. Results from structural geology indicate that there is a direct relationship between salt rock dissolution and fractures of rock in the region. Based on lineament analysis of satellite images and field checking, sink holes (important evidence that an area will develop land subsidence) within the study area can be classified into 3 types; 1) sink holes occurring at rock fractures 2) sink holes occurring near rivers and 3) sink holes occurring at the recharge area. Electrical vertical sounding and seismic reflection surveys were conducted at Amphur Khong, Nakhon Ratchasima province to determine the subsurface geological structure and its relation to the surface features that are analyzed and detected by satellite images and to classify land subsidence areas as its risk level. Lineament length density maps and lineament intersection density maps were created to classify the land subsidence area into 3 levels based on its risk level: 1) High risk level land subsidence areas: Ban Nong Moun in Amphur Prathai, Ban Non Sung in Amphur Bua Yai, southern and the eastern area of Amphur Khong, Nakhon Ratchasima province, and the western area of Amphur Phon Khon, Kaen province 2) Moderate risk level land subsidence area: the northern area of Amphur Bua Yai in Nakhon Ratchasima province and the eastern area of Amphur Phon, Khon Kaen province, and 3) Low risk level land subsidence area: Amphur Khonsawan, Chaiyaphum province and the southern area of Amphur Phon Khon, Kaen province.