Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

HDS06-05 会場:301A 時間:5 月 22 日 10:00-10:15

CONCEPTUAL DESIGN OF POLARIMETRIC SYNTHETIC APERTURE RADAR FOR NATURAL DISASTER MONITORING

CONCEPTUAL DESIGN OF POLARIMETRIC SYNTHETIC APERTURE RADAR FOR NATURAL DISASTER MONITORING

Tien Sze Lim[1*]
Tien Sze Lim[1*]

[1]Faculty of Engineering & Technology Multimedia University Jalan Ayer Keroh Lama, Bukit Beruang 75450
[1]Faculty of Engineering & Technology Multimedia University Jalan Ayer Keroh Lama, Bukit Beruang 75450

Synthetic aperture radar (SAR) is an important and efficient earth observing tool using microwave frequencies. Optical aerial and satellite images have been used long time for such applications. Unfortunately, weather conditions limit the use of optical data. These facts have led to the development of microwave sensors. The main thrust of such research activities is due to the fact that microwaves can penetrate through clouds and has all-weather capabilities. This paper discusses the conceptual design of a circular polarized Unmanned Aerial Vehicle (UAV) Synthetic Aperture Radar (SAR) in collaboration with Center for Environmental Remote Sensing of Chiba University, Japan. The proposed system is capable to obtain high-resolution image for natural disaster monitoring such as flood and landslide. The UAVSAR system operates at L-band, full circular polarization (right and left), with 1m by 1m spatial resolution. Its unique features include compact in size, light weight and low power. Firstly, the high level design of the system will be discussed and the system specifications are presented. It followed by radar electronics design, which outlined the details transmitter and receiver subsystem. Finally SAR embedded processor, data acquisition system and antenna system will be discussed. The developed UAVSAR system will be utilized in Malaysia to reduce the geo-hazard damage caused by landslide and flood.

キーワード: Synthetic aperture radar
Keywords: Synthetic aperture radar