**Suggested topics:**

Remote Sensing Applications/Disasters

**Paper title:**

Analysis of Rice Recovery after the Great East Japan Tsunami Using Time-Series MODIS Data

**Author name (s):**

Y. Y. Hsiao1, C.F. Chen1,2, N. T. Son2, S. H. Chiang2

**Proposed presenter (s):**

Y. Y. Hsiao

**Affiliation:**

1 Department of Civil Engineering, National Central University

2 Centre for Space and Remote Sensing Research, National Central University

**Phone, fax, and e-mail:**

Tel: 886-3-422-7151#57659

Fax: 886-3-4254908

E-mail: [*s86246tpkaty@gmail.com*](mailto:s86246tpkaty@gmail.com), [*cfchen@csrsr.ncu.edu.tw*](mailto::cfchen@csrsr.ncu.edu.tw), [*ntsonait@hotmail.com*](mailto:ntsonait@hotmail.com), [*gilbert@csrsr.ncu.edu.tw*](mailto:gilbert@csrsr.ncu.edu.tw)

**Mailing address:**

Centre for Space and Remote Sensing Research,

National Central University, No.300, Jhongda Rd., Jhongli City, Taoyuan County 32001, Taiwan

**Presenters Preference between oral and poster presentation**

Oral Presentation

**Abstract:**

The 2011 Great East Japan Tsunami destroyed rice agriculture in east coastal area, especially in Fukushima and Miyagi. The tsunami damaged approximately 23,600 hectares of rice cultivation areas in the region. Monitoring the impact and recovery of rice area after the Tsunami is critical to provide agronomic planners with valuable information to devise effective crop management strategies. This study aims to investigate the paddy rice redistribution and its recovery after the disaster using Moderate Resolution Imaging Spectroradiometer (MODIS) data from 2010 to 2013. The procedure of data processing consists of four steps: (1) data pre-processing to produce the time-series Normalized Difference Vegetation Index (NDVI) MODIS data; (2) data filtering of the time-series NDVI data using the wavelet transform; (3) paddy rice mapping using the cross-correlation algorithm and accuracy assessment, and (4) examination of paddy rice recovery. The primary mapping results compared with the ground reference data indicated close agreement between the two datasets. The paddy rice areas affected by the 2011 Tsunami were significant and spatially distributed along the coastline. However, results revealed the significant recovery of paddy rice areas between 2011 and 2013 due to the intervention of the central government’s policy. We expect this study can provide useful information for agronomic management in east costal area, Japan.

**Keywords:** MODIS, crop recovery, wavelet transform, Great East Japan Tsunami.