**Change detection in irrigation and drainage systems using aerial and satellite images over the past four decades (1973-2013) in Mekong Delta**

Zhanyu Liu\*1, Yi Ma2 , Nannan Wang3

Department of Remote Sensing and Geoscience, Hangzhou Normal University, Hangzhou 311121, China

1. E-mail: liuzhanyu@zju.edu.cn, +86 571 8898 2510.
2. E-mail: ant0105@163.com, +86 18324411626.
3. E-mail: 1570762909@qq.com, +86 18853816579.

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**Abstract**

Irrigation and drainage systems play a paramount significance in rice paddy cultivation. The aerial photographs and satellite images, the latter were acquired from the Multi-Spectral Scanner (MSS) and Thematic Mapper (TM) of Landsat and Huanjing (HJ), were utilized to extract the fundamental information about the artificial canals and ditches over the past four decades from early 1970s to 2013 in Mekong Delta, Vietnam. Several classification algorithms including Maximum Likelihood (ML), Spectral Angle Mapper (SAM) and edge tracing technique had been tested in the mapping of artificial canals and ditches using Landsat and HJ images. It was found that the total length and total number of artificial canals and ditches had an obvious increase in the past forty years all over the Mekong Delta. For different regions of the Mekong Delta, the increment rate was inconsistent over the past four decades. In addition, some canals and ditches built in 1970s and 1980s were widened after entering the new millennium.

**Presenter**: Zhanyu Liu

Tel: +86 571 8898 2510. *E-mail*: liuzhanyu@zju.edu.cn (Z.Y. Liu).

**Others**:

Yi. Ma, Tel: +86 571 8898 2510. *E-mail*: ant0105@163.com

Nannan Wang, Tel: +86 571 8898 2510. *E-mail*: 1570762909@qq.com

The postal address:

Hangzhou Normal University Science Park F1015, 1378 Wenyixi Road, Hangzhou 311121, Zhejiang, P.R. China

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