

Rice field mapping and monitoring using single-temporal and dual polarized ENVISAT ASAR data

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Abstract: In this paper, the main purpose is to select the best single-temporal ENVISAT alternating polarization ASAR APP data for rice mapping. The authors investigated the backscatter coefficient of rice fields and other land covers using multi-temporal ASAR APP data with co-polarized(HH, VV) channels. Then the best single-temporal data were selected out for further analysis. Experiments were carried out to verify the effectiveness of single temporal and dual polarization ASAR APP data for extracting rice information in Hongze county, Jiangsu Province of China. Results indicate that the image acquired around September is the best for mapping rice area. The classification accuracy for rice and no-rice was assessed using DGPS samples and it was more than 86%. The study indicates that the whole procedure of rice mapping using single temporal ASAR APP data could become a low-cost and convenient operational system for rice area mapping.

Key words: ENVISAT; ASAR; rice; dual polarization; radar backscattering

《农用地分等定级标准样地理论与实践》正式出版

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