

Low lying Water Bodies and Wetland Monitoring Exploiting in Situ Data and Earth Observation Imagery,in Terms of Quality, Biodiversity Dynamic Trends and Risk Management

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In the test area of the Dongting Lake in China, by using ASAR, Terra/MODIS, Jason-2 and the data from Beijing No.1, CBERS, the following researches have been successfully performed.

1)The South Dongting Lake was taken as an monitoring example to experimentally study the application of Jason-2 altimetry data in monitoring of continental water level fluctuations based on data editing rules and some geophysical corrections. The study results compared with the measured level data from the nearest in-situ station showed a linear dependence with the correlation coefficient 0.974, in the meantime, which proved that the Jason-2/OSTM GDR data had the ability to monitor the continental water level fluctuation to a certain extent, and also could provide an effective technical means and method to investigate the long-term level variations of inland waters in China.

2) In accordance with the characteristic that the water body has relatively low backscattering coefficient on ASAR images, two ASAR APP-1P images during the low water and flood seasons were taken as the test examples in the Dongting Lake, The experiment results show that comparing with the double-peak threshold method and traditional Otsu threshold method, the precision of water body extraction based on a modified Otsu threshold method is the highest, which also can heighten the automatic level of water body extraction from ASAR data and the application of ASAR data to flood disaster monitoring under the wet or cloudy weather conditions.

3) According to the different characteristics of microwave and visible spectrums, the water extraction methods were studied by different data source mentioned above. The inundation risk map assessment is completed for the lake during 2001 to 2008.

Besides, flood monitoring and assessment is carried out for whole country as usual.