Comparison of Lake Turbidity Inversion Based on GF-1 and Landsat-8 Satellite Images

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With the wide use of GF-1 data, the ability of water quality parameter retrieval model of the data needs to be further analyzed. Based On the data of satellite GF-1 and OLI data of Landsat-8 as well as the simultaneous field survey of Turbidity measurement data, with a typical reservoir of NanSi lake as research area, the original spectral reflectance model, the normalized spectral reflectance model, and band ratio model were built, in which abilities of two sensors to retrieval water quality parameters in desertification areas were compared with each other. It was shown that, firstly, in study region, band ratio model which were established on turbidity of GF-1 data (R^2=0.84, RMSEP=27.41) and Landsat-8 data (R^2=0.81, RMSEP=37.43) could be used to retrieval lake turbidity perfectly. Secondly, compared with the original spectral reflectance model and the normalized spectral reflectance model, the turbidity was not significantly improved. Thirdly, Based on GF-1 and Landsat-8 Satellite Images, the result of turbidity retrieval of band ratio model is better than the original spectral reflectance model and the normalized spectral reflectance model. Especially for GF-1, and R^2 was improved 0.07. In general, GF-1 has a relatively high data quality, and it has a higher resolution, shorter revisit cycle, it can replace Landsat-8 data in lake turbidity inversion.