



Improving HJ-1B IRS Land Surface Temperature products using a fusion model supported by MODIS

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Land surface temperature (LST) product is an important data of land surface processes on global scales, and there already have been many successful LST products, such as MODIS LST product. HJ-1B IRS (Infrared Scanner) is one of the key instruments onboard HJ-1B satellite, launched in 2008 by China. It can scan the earth every four days, has four spectral bands ranging from the near-infrared to thermal infrared bands. Band 4 located in the thermal wavelength at 300m resolution makes it has the ability of getting the LST products, which based on single-channel algorithm, and the accuracy is not high. Many efforts have been devoted to the split window algorithm can provide better results than single-channel on a global scale. The MODIS LST product based on split window algorithm, and many researchers have validated that the product has high accuracy in most cases. In order to improving the accuracy and temporal resolution of HJ-1B IRS LST product, a fusion model based on spatial and temporal adaptive reflectance fusion model (STARFM) approach is proposed, which take full advantage of the spatial correlations among different pixels. Daily MODIS LST product is used and Daily IRS-MODIS LST products will be valuable. A series of experiments were carried out to validate the IRS LST results in Shanxi province, China, from June to August, 2010. results showed that LST retrieved from HJ-1B IRS LST by the fusion algorithm are highly in conformity with the MODIS LST products.