Geophysical Research Abstracts
Vol. 20, EGU2018-5659, 2018
EGU General Assembly 2018

Comparison of Sentinel-2A and SPOT6 Data for Extracting the Main Crops in Beijing

Xuan Wang (1,2), Xiaofang Yang (1,2), Lin Ding (1,2), Yun Pan (1,2), Huili Gong (1,2), Longqun Zheng (1,2)

(1) College of Resource Environment and Tourism,Captial Normal University, Beijing, China (wangxuan2456@sina.com), (2) Beijing Laboratory of Water Resources Security,Captial Normal University, Beijing, China

Extracting crop planting area can not only estimate crop yield, but also provide the reference data for calculating agricultural irrigation water. This study aims at identifying the winter wheat and summer corn in Beijing, by Sentinel-2A(S2) and SPOT6(S6) data. At the same time, we investigate the performance of Sentinel-2A and SPOT6 for extracting crops using object based image analysis(OBIA) techniques, which incorporate spectral, textural, normalized difference vegetation index (NDVI) and modified red edge normalized difference vegetation index (mNDVI) after segmentation of imagery. Furthermore, we compare their accuracy of interpretation by field survey data and statistical yearbook data (correlation coefficient(R2)). Our results indicate that the area of winter wheat in Beijing was about 160 km3, and the area of summer maize was about 620 km3 in 2016. Interpretation accuracy of Sentinel-2A for winter wheat is higher (S2: accuracy :87.94%, R2: 0.926; S6: accuracy :80.14%, R2: 0.903) and summer maize of SOPT6 is better (S2: accuracy :80.54%, R2: 0.806; S6: accuracy :84.61%, R2: 0.885). The images of medium and high resolution have a good influence on the interpretation of crops by OBIA, especially the red-edge spectral of Sentinel-2A is an effective alternative for interpretation. As to the SPOT6, it has advantage of identifying the maize in the mountains because of its higher spatial resolution. In conclusion, SPOT6 can be used as an auxiliary data for Sentinel-2A, and the combination of these two data not only improve the efficiency, but also increase the precision.