THE RETRIEVAL OF AEROSOL OVER LAND SURFACES FROM CBERS02B IN BEIJING AREA

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1. INTRODUCTION

It is difficult to retrieve aerosol over land surfaces from space-borne data because of the influence of land surface and the variety of aerosol models. And there are many methods to remove the influence of land surface and retrieve aerosol, such as dark dense vegetation (DDV) method, contrast reduction algorithm and so on. On September 19th, 2007, CBERS02B was launched. The data of CCD can be downloaded freely from Internet. For the quantitative application of CBERS data, it is important to acquire the aerosol from itself. In this paper, from CBERS02B data, the Aerosol Optical Depth (AOD) was retrieved and validated in Beijing area.

2. THEORY AND METHOD

The method was based on DDV method. The AOD was retrieved from red and blue bands. Because of no band in Short Wave Infrared (SWIR), the dark pixel was recognized when Normalized Difference Vegetation Index (NDVI) was larger than 0.7. And, the ratio of Red/Blue surface reflectance was also acquired which was 1.55.

3. DATA PROCEESING

The AOD was received as follow: 1) The LUT of atmospheric parameters was worked out by inputting viewing geometry, aerosol, land surface, and sensor parameter to the Second Simulation of the Satellite Signal in the Solar Spectrum (6S) model; 2) after data resample and radiative calibration, the Top Of Atmosphere (TOA) reflectance was received; 3) interpolate the LUT and retrieve the AOD; 4) the AOD images were being smoothed by 9*9 filter.

4. RESULTS AND VALIDTION

Some CCD images of CBERS02B in Beijing area were downloaded from Internet. Then the AOD images were retrieved. And the results were validated by ground measurement AOD of Xianghe station which is one station of Aerosol Robotic NETwork (AERONET).

5. CONCLUSION

The results shows: 1) From CBERS02B data, the AOD can be retrieve well; 2) DDV method doesn't work in all of urban area.

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