Ocean Calibration and Backscatter Measurement Error Analysis of CFOSAT Scatterometer

Miaomiao Yu*[1]

[1]National Space Science Center – Chine

Résumé

The China-France Oceanography Satellite (CFOSAT) has been successfully launched and has been in orbit stably for more than two years. The scatterometer on board adopts the rotating fan-beam scanning system for the first time, which provides a series of backscatter coefficients with different incident angles and azimuth angles. Kp (normalized standard deviation of the measurements) is commonly used to evaluate the accuracy of the measurements , resulting from the bias of the instrument measurement and the error caused by geophysical noise. The L2 data are carried out ocean calibration, using geophysical model function (GMF) and the European Centre for Medium Range Weather Forecasts (ECMWF) winds. The results show that the backscattering error is relatively large in large incident angles and at low wind speeds. The ocean calibration can effectively improve the measurement accuracy of sigma0 and we demonstrate that this method is as expected and meets the measurement requirements. In addition, the relationship between Kpc, incidence angle and wind speeds in L1B data was studied, and the similar analysis for the L2 products after calibration. Similar conclusions are presented, and the measurement accuracy is better on the condition of 40 degree incident angle and medium wind speeds. The above analysis can reduce the error of measurements and inversion, and then improve the data quality of the backscatter coefficients measurement . An estimation of geophysical noise can be obtained at the same time.

*Intervenant