On the inversion characteristics of CFOSAT wind scatterometer

Binghua Wang[*1], Xiaolong Dong[2], and Wenming Lin[3]

[1]Binghua Wang – Chine
[2]Xiaolong Dong – Chine
[3]Wenming Lin – Chine

Résumé

The China-France Oceanography Satellite Scatterometer (CSCAT) is the first rotating fan beam scatterometer operating in orbit, which can observe ground targets from multiple angles through different angles of incidence and azimuth. The new observation system provides more observation angles for sea surface wind inversion than previous scatterometers. While improving the quality of inversion, it also brings new challenges to the construction and solution of the cost function. Based on the maximum likelihood estimation wind inversion algorithm, this paper analyzes the residual characteristics of the CSCAT sea surface wind inversion cost function in detail, and focuses on the influence of the new observation geometry on the wind inversion residual and wind qualityand established the likelihood probability model function of the ambiguous solutions. The results show that the residual characteristic of the CSCAT wind inversion varies with the position of the wind vector cell (WVC) across the swath. The exponential distribution of the ambiguous solution likelihood probability model function is between -1 and -9, in which the sweet swath is smaller, and the nadir swath is larger. The results provide an important reference for the quality control of CSCAT and the refinement adjustment of the two dimensional variational ambiguity removal(2DVAR) algorithm.

---

[*]Intervenant