

A new algorithm for microwave radiometer remote sensing of sea surface salinity without influence of wind

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The microwave radiation of the sea surface at L band (1.4GHz), which is denoted by the sea surface brightness temperature, is not only related with sea surface salinity (SSS) and temperature (SST), but also influenced by sea surface wind. The errors of wind detected by satellite sensor have significant influences on the accuracy of SSS retrieval. The effects of sea surface wind on sea surface brightness temperature, i.e. $\epsilon_{\theta}^{\text{Th,v}}$, and the relations among $\epsilon_{\theta}^{\text{Th,v}}$, wind speed, sea surface temperature, sea surface salinity and incidence angle of observation are investigated. Based on the investigations, a new algorithm depending on the design of a single radiometer with double polarizations and multi-incidence angles is proposed. The algorithm excludes the influence of sea surface wind on SSS retrieval, and provides a new method for remote sensing of SSS.