

Oceansat-2 and RAMA buoy winds: A comparison

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Sea surface vector winds from scatterometers onboard satellites play an important role to make accurate Numerical Weather Prediction (NWP) model analysis over the data sparse oceanic region. Sea surface winds from Oceansat-2 scatterometer (OSCAT) over the Indian Ocean were validated against the Research Moored Array for African–Asian-Australian Monsoon Analysis and Prediction (RAMA) buoy winds to establish the accuracy of OSCAT winds. The comparison of OSCAT winds against RAMA buoy winds for a period of one year (2011) shows that the wind speeds and directions derived from OSCAT agree with RAMA buoy winds. The monthly mean wind speeds from both OSCAT and RAMA buoy show maximum value during the monsoon period as expected. In the complete annual cycle (2011), the monthly mean root mean square differences in the wind speed and wind direction were less than $\sim 2.5 \text{ ms}^{-1}$ and $\sim 20^\circ$, respectively. The better match between the OSCAT and RAMA buoy wind is observed during Indian summer monsoon (June–September). During monsoon 2011, the root mean square differences in wind direction were less than 1.9 ms^{-1} and 11° , respectively. Collocation of scatterometer wind against equatorial and off-equatorial buoys clearly brought out the monsoon circulation features. Collocation of Advanced Scatterometer (ASCAT) winds on-board European Space Agency (ESA) Metop satellite with respect to RAMA buoy winds during monsoon 2011 also showed that the OSCAT wind statistics are comparable with that of ASCAT over the Indian Ocean, and indicates that the accuracy of both the scatterometers over the Indian Ocean are essentially the same.