Geophysical Research Abstracts
Vol. 19, EGU2017-18053, 2017
EGU General Assembly 2017


# Apparent Temperature "Biases" of Individual Surface Drifters: Possible Ocean Eddy Effects?

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While the number of in situ sea surface temperature (SST) observations of the global ocean has been increasing rapidly in recent decades, the accuracy of regional and even global estimates of mean SST is improving more slowly than what the increase in the number of independent observations would suggest. The current explanation invokes the systematic biases of individual platforms (ships or buoys). This effect is particularly important for surface drifters, which usually stay in the ocean for 1-2 years and report measurements often, thus providing the majority of all in situ SST observations of the last decade. A possibility is investigated here that for surface drifters in particular the apparent systematic biases of individual platforms are, at least partly, due to the effect of ocean eddies, i.e. reflect the actually occurring in the drifter's vicinity local temperature perturbations. It is suggested that a significant number of drifting buoys is captured by ocean eddies and travel within them for some part of their trajectories; that there are systematic differences between the SST of eddy cores and of the surrounding water; and that these effects are partly responsible for the apparent biases of the SST measured by surface drifters, with regards to the larger area averages. Comparison of SST measurements from surface drifters with the high-resolution SST maps based on satellite data only found significant correlations of drifters' and satellites' temperature deviations from daily averages over containing one degree spatial boxes. Large number of ocean eddies are found to be co-located (and travelling together) with small-scale SST anomalies. However, many surface drifters move by trajectories that are not consistent with those of identified ocean eddies, prompting a further, more detailed look into history and dynamics of individual drifters.