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Changes in monthly values of ocean surface winds

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Data collected from ships, remote-sensing satellites, and numerical re-analysis indicate that on average the wind speed at the ocean surface has increased in recent decades. The magnitude of reported trends vary in different studies based on dataset, data coverage, and method used. Observations of the ocean surface by satellites, namely altimeter and SSM/I, provide a reasonable long dataset with global coverage. This well calibrated and validated dataset is analysed for linear trends for regional mean time series and mean time series for each calendar month over the period of 1991-2008. The data indicate that the observed global trend is not uniformly distributed and can be linked to a signi_cant uptrend in regional average time series across equatorial regions and the Southern Ocean. When analysing trends for each calendar month, only the Southern Ocean showed a consistent increase in surface winds for at least three continuous months. Although altimeter trends are consistently stronger than trends from SSM/I, this study shows that when normalised by the global average the two datasets feature similar characteristics. For example, trends form regional average time series are typically 1.3-2.0 times the global average trend. Differences exist when looking at absolute trend estimates and therefore the true trend at the near surface remains inconclusive for some regions. The data also showed that in the month of May, one of largest uptrend was found across the North Indian Ocean which may indicate a shift in onset time of the monsoon season.