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## Investigation on the tendencies of the land–Ocean warming contrast in the recent decades

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In this study, the surface climate temperature trends for the land and the oceans (land–ocean warming contrast) have been examined and compared based on five data sets. The five datasets included three reconstructed data sets of surface temperature observations and two data sets derived using the satellite microwave sounding unit retrieval products in the lower troposphere (LT) for the period from January 1980 to December 2014. Unlike previous studies, the current study shows that the warming trends significantly decreased over both the land and ocean since 1992 and reached their minimum (near zero) in the early 2000s, which is consistent with the occurrence of the warming hiatus. However, due to the sharp decrease in the surface warming trend over the land (1992 to 2007) in conjunction with an increase in the ocean surface warming trend after 2002, the combined trend carries an overall positive sign (between 2005 and 2007) due to the greater ocean warming trend. The rate of warming increase in the ocean, which began in 2002, is surprisingly fast and is approaching the highest warming trends observed over the land since 1980. These basic land and ocean trend results are confirmed by all five datasets with slightly different values due to the various techniques used in compiling the data sets. However, there is consistency in the overall trend pattern results.

### Biography

Jianjun Xu is a Chair Professor at Guangdong Ocean University, China. He has expertise in satellite remote sense and sun-earth's climate connection, decadal climate change, air-sea interaction, hydrometeorology, mesoscale numerical modeling and satellite data assimilation.

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