Evaluation of globally gridded SST products from NOAA, CMC and UKMeto using AIRS and CrIS SST measurements.

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The Sea Surface Temperature (SST) is a key component of climate research and daily globally gridded SST products are a key input to this effort. Here we evaluate the NOAA RTGSST, which goes back to 1996, the Canada Meteorological Center (CMC) SST, available since 2002, and the OSTIA SST by the UK MetOffice, available since 2012. The calibration of the three products is tied to the moored and floating buoys along the equator, but there are differences in the way all grid points are optimally filled. The 2016 annual mean between 30S and 30N, 299.7K, differed by only 8 mK. However zonal mean differences between the three products north of 30N and south of 30S latitude are of the order of 150 mK, and of opposite signs. Even more puzzling is that during 2016 the CMC was on average 150 mK colder than the OSTIA at 280K, while being warmer by 150mK at 290K. Differences of this magnitude are of concern when measure warming of the oceans at the rate of 15 mK/year. We use the daily mean and standard deviation and trends of the difference between the SST measured with AIRS (Atmospheric Infrared Sounder) since 2002 and CrIS (Crosstrack Interferometer Sounder) since 2012 to evaluate the three products.