



A daily, near-real-time analysis of lake surface temperature

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Lake Surface Water Temperature (LSWT) for 248 lakes larger than 500 km² in area is included as part of the Sea Surface Temperature (SST) field in the UK Met Office daily Operational SST and Sea Ice Analysis product, OSTIA. This dataset is freely available. The OSTIA analysis procedure for SSTs, which has been optimised for oceans, is also used for the lakes. Infra-red satellite observations of lakes and in situ measurements are assimilated. The satellite observations are based on retrievals optimised for SST which can introduce inaccuracies into the LSWT analysis but are currently the only near-real-time satellite information available. However, this method does produce results of useful accuracy. It is demonstrated using independent data from the ESA ARC-Lake project at the University of Edinburgh that the OSTIA LSWT analysis has a global RMS error of 1.31 K and a bias of 0.45 K. It is also shown that the OSTIA LSWT is an improvement over the use of climatology to capture the day-to-day variation in global lake surface temperatures. Recent improvements to this product include a lake ice concentration field as part of the OSTIA global ice concentration field.