

Sea Surface temperatures from ATSR-1 and 2 - towards a climate data set

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Abstract

The major scientific objective of the ATSR-1 and 2 missions is to detect the signature of climate change in sea surface temperature (SST). The SST data currently available from ATSR-1 is from the first generation SST retrieval algorithm which is known to have some limitations. Hence, the full benefits of the high-quality data from the ATSR instruments are not yet being fully reaped by the climate research community. Therefore, during the preparation of the ATSR-2 processing system considerable effort has been directed towards improving the algorithms used to process ATSR-1 and 2 data. The paper describes the work undertaken by the ATSR Project team towards establishing a climate SST data set from the ATSR-1 and 2 observations based on the lessons learnt during the earlier phase of the project. The improvements that have been necessary in the implementation of the second generation ATSR algorithms will be discussed including more advanced cloud clearing, improved SST retrieval methods, consideration of instrument trends, etc. The advances in the quality of the new data set will be illustrated by comparison with other state-of-the-art SST data sets. Also the results of the intercomparison between the ATSR-1 and 2 instruments during the ERS tandem mission will be presented.

Keywords: SST, ATSR, AVHRR, infrared, tandem mission, climate change