

Title: Global Comparisons Between the Modified Pathfinder Derived Sea Surface Temperature and Skin Temperatures from the Along-Track Scanning Radiometer on-board ERS-2: How close are we getting?

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INTRODUCTION:

Sea Surface Temperatures (SST) as derived from the Pathfinder Sea Surface Temperature Data Set and the Along-Track Scanning Radiometer on-board the European Remote Sensing Satellite provide a unique opportunity for comparing two independent SST data sets. Previous comparisons (Vazquez-Cuervo and Sumgaysay, 2001) with the ATSR-1

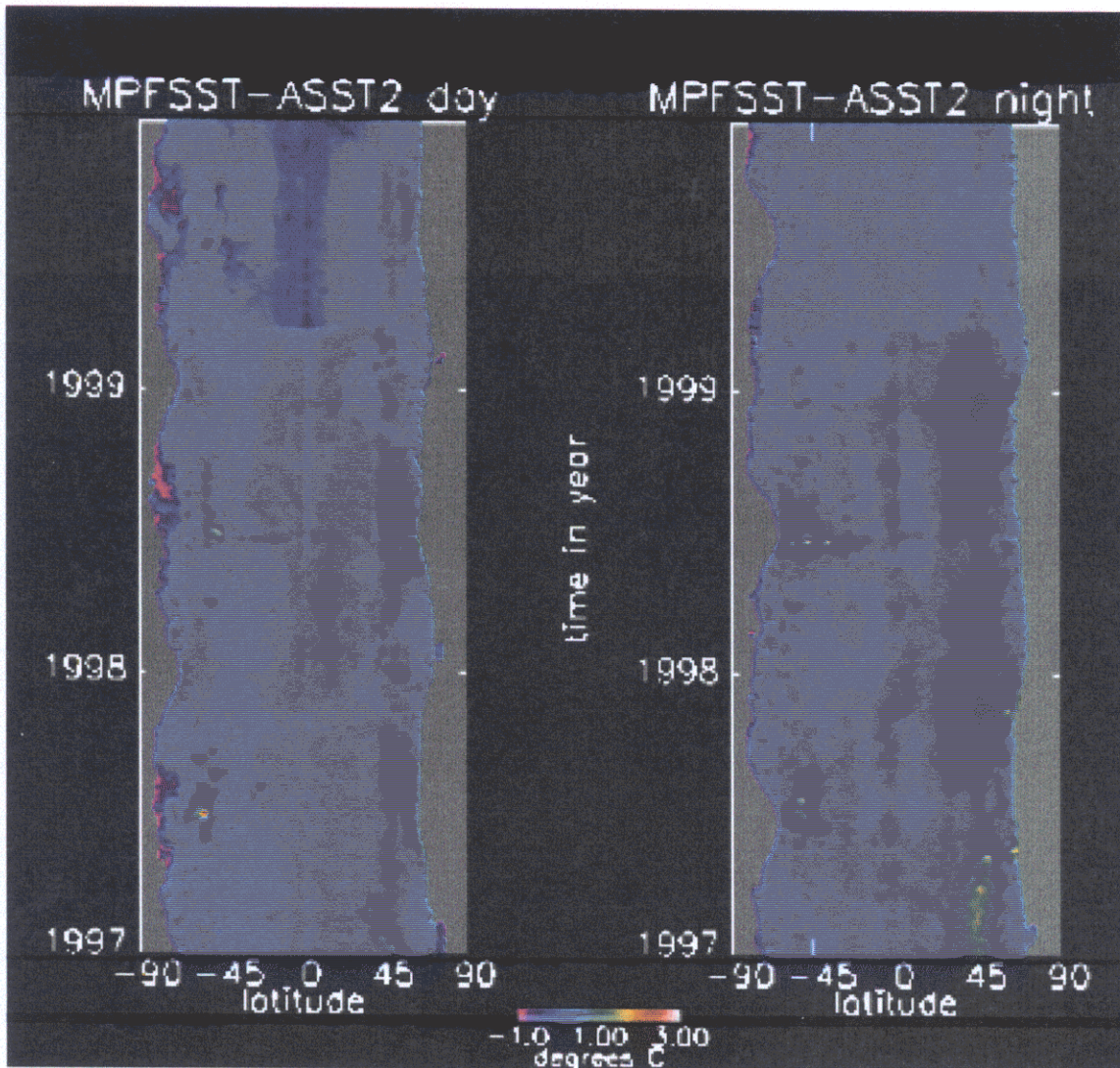
instrument on-board the ERS-1 platform indicate that biases on the order of 1 degree are possible. A significant percentage of this bias appears to be attributable to cloud contamination in either the Pathfinder or ATSR data sets. In this paper we intend to continue the comparisons, but with the ATSR-2 data

DATA AND RESULTS:

Direct comparisons were done between the ATSR-2 and Pathfinder SST data sets. Mean differences were calculated between 1997 and 1999. Figure 1 shows the zonal averages of the mean differences between 1997 and 1999. The color scale goes from -1 degree Celsius to 3 degrees Celsius. The vertical axis is in time in years and the horizontal axis is in latitude from

90 degrees South to 90 degrees North. Clearly there is a reduction in the mean differences for 1999.

The statistics were broken up into daytime and nighttime differences, and additionally the 1999 statistics were calculated separately. The following table shows the summary of these statistics.



CONCLUSIONS:

Direct comparisons between the ATSR-2 and Pathfinder SST data sets indicate a significant improvement in the quality of the ATSR-2 data. Daytime mean differences on the order of 0.3 degrees Celsius are comparable with the magnitude of the diurnal signal, indicating that the remaining differences between these two high quality data sets

might be explained by skin-bulk temperature differences and/or remaining uncertainty in the collocation of the data. These results are very encouraging for using these data sets jointly in global change and climate research.

Future work needs to focus on further identifying the causes of the remaining differences

REFERENCES:

Vazquez-Cuervo and Sumagaysay, in-press, Bulletin of the American Meteorological Society, 2001.