

Title: Continued Monitoring of Atmospheric Temperature Using Data from Microwave Sounding Instruments

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Remote Sensing Systems has been producing Climate Data Records derived from the Microwave Sounding Units (MSUs) and Advanced Microwave Sounding Units (AMSUs) for the past several years. These measurements have been an important part of national (CCSP) and international (IGPP) assessments of climate change, as well as providing a basis for a number of independent studies of climate change. The continuation, validation, and improvement of this dataset is of fundamental importance to our ability to continue to monitor long-term changes in atmospheric temperature.

We propose to continue to produce, diagnose, and maintain the accuracy of atmospheric temperature measurements from microwave sounding instruments. Such measurements began in late 1978 with the launch of the first Microwave Sounding Unit (MSU). With the continued operation of various Advanced Microwave Sounding Units (AMSUs), the advent of the Advanced Technology Microwave Sounder on the NPP and NPOESS platforms such measurements will continue for at least 20 additional years.

Our proposed work includes:

1. Continued production of Climate Data Records (CDRs) from available microwave sounders.
2. Investigation and removal of any calibration problems that develop in the dataset.
3. Development of a CDRs from new instruments that are suitable for merging with the earlier data.
4. Validation of CDRs using adjusted radiosonde and radio occultation measurements.
5. Software engineering to improve the reliability, transparency, and efficiency of our data processing system. The end result would be a processing system suitable for converting to operational status.