## Upper-air temperature climate data secord from Satellite soundings

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NOAA/NESDIS has been recalibrating and reprocessing the MSU/AMSU/SSU observations onboard historical NOAA orbiting satellite series to develop upper-air temperature climate data record (CDR). Different atmospheric layer temperature CDRs have been developed after years of effort. These CDRs include i) STAR Version 2.0 MSU/AMSU layer temperatures of mid-troposphere, upper-troposphere, and lower-stratosphere; ii) STAR Version 1.0 SSU layer temperatures of mid-stratosphere, upper-stratosphere, and top-stratosphere. These are monthly and pentad gridded data with 2.50 latitude by 2.50 longitude. The MSU/AMSU CDR covers the period from 1979 to present and the SSU CDR is from 1979 to 2007. The SSU will be merged with corresponding AMSU channels to extend the SSU stratospheric temperature data record from 1979 to present. These datasets are currently being used for assessment of upper-air temperature climate change. This presentation will review the science issues involved in developing these time series and provide an update of the global trends derived from all these products. With available of 6 layers of temperature products from the mid-troposphere to top-stratosphere, the presentation will provide a comprehensive picture on the global mean and regional atmospheric temperature trends from the 1979 to present.