



TEMPERATURE VARIABILITY IN THE STRATOSPHERE AND LINKS WITH OZONE CHANGE

C. Cagnazzo (1) , C. Claud (1) , A. Hauchecorne (2) , P. Keckhut (2) , S. Hare (3) and J. Austin (4)

(1) LMD, Ecole Polytechnique, Palaiseau, France, (2) SA, Verrières-le-Buisson, France, (3) Department of Meteorology, Reading University, United Kingdom, (4) Met Office, Bracknell, United Kingdom

Temperature trends for the period 1980-2000 have been determined using GCM simulated fields. They have been compared with observed trends, obtained from satellite and radiosonde measurements. Two simulations with the UM model (Unified Model, University of Reading) have been considered. In the first simulation, zonal and monthly mean ozone fields were produced by the UMETRAC model (Unified Model with Eulerian Transport and Chemistry; Austin, 2002, JAS, 59, 218-232). In the second simulation, AMIPII ozone climatology, representing conditions prior to ozone depletion, was considered. Trends have been computed using the a multiple linear regression model (AMOUNTS) to separate the effect of the major sources of atmospheric temperature variability from a long-term linear trend. While a general good agreement is found in the lower stratosphere, in the middle and upper stratosphere, trends are underestimated by the model. When comparing the two model runs, the most significant differences are observed between 50°N and 50°S in the middle stratosphere and at 50°N/S in the lower stratosphere where negative trends are stronger if including the ozone simulated trend, suggesting ozone-temperature links.