THE ORIGIN OF OZONE IN THE NORTH ATLANTIC UPPER TROPOSPHERE

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The origin of ozone in the upper troposphere is still not well quantified. Long-range transport of O3 and its precursors from continental regions may be making a significant contribution. In this study, the global TOMCAT model has been compared to MOZAIC O3, NOy and CO data during the period June 2001 to May 2002. The model has also been used to carry out a series of sensitivity studies to investigate, in particular, the source attribution of O3 in the upper troposphere over the North Atlantic flight corridor. Results from comparisons with data along individual flights and seasonally averaged distributions will be discussed as well as estimates of the O3 budget in this region. Whilst, in-situ photochemical production of O3 from aircraft and lightning NOx contribute locally, uplift of O3 produced at the surface from anthropogenic emissions make a significant contribution to modelled O3 levels in the upper troposphere.