



Ozone-temperature radiative feedback in the Integrated Forecasting System (IFS) of ECMWF

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The IFS develops biases in the stratospheric temperatures at longer forecast lead times. Lower stratospheric values tend to be too cold and upper stratospheric values too warm.

We will show to what extent an improved representation of ozone in the IFS radiation scheme could mitigate these biases. Currently, a monthly mean ozone climatology derived from the MACC re-analysis is used in the IFS radiation scheme.

We pursued two ways to improve the realism of ozone fields in the radiation scheme: (I) to use on-line simulated (prognostic) ozone in the radiation scheme and (II) to correct biases in the monthly mean climatology of the MACC-re-analysis.

We will discuss the usefulness of the schemes to investigate ozone-temperature feedback and the correlation between ozone and temperature errors. An improved climatology leads to improved T and wind fields in initialised 10 day forecast and long-term simulations (1yr). This finding highlights the importance of the correct reproduction of atmospheric profiles in the ozone assimilation process.