

Interactive comment on “Can we explain the trends in European ozone levels?” by J. E. Jonson et al.

J. E. Jonson et al.

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General comment:

The manuscript has been revised and new material has been included. Much of the new material was requested by the referees. Some new material has also been included as we have looked at the manuscript with "fresh eyes".

Comments to referee 1

Point 1

Some additional text added explaining the Mace Head adjustment.

For both the Ref and the AvgBC cases the logan data are used, modified by the Mace

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Head correction as described in the text.

Only clean sector data are used (changed clean-air to clean sector in text). The clean sector data are used as monthly averages as now specified for the Ref and AvgBC cases in the manuscript.

Some more information on BC for other species added.

Point 2 and 3

Seasonal trend (in ppb) for all 4 seasons are now listed in a separate table for several ensembles/sites. In addition lines showing winter and summer trends are also included in Figure 2. An ensemble/sites representative for more regions are included. The location of the sites better specified.

Detailed comments

p5958

Abstract changes as suggested.

p5959 lines 9-10

More refs added as suggested.

p5959 lines 10-12

The reader is referred to section 4.1 below

p5960 line 14

“as much as 30% in recent years” is taken from the cited paper. I guess they would mean from the decline in the ozone layer started, around 1980?

p5962 lines 14-15

Additional references included. (this is also closer to model calculations for the same period).

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p5962 lines 23-24

Reference corrected

p5963 lines 5-7

New reference included and text changed accordingly.

p5963 - 5965

Minor comments fixed

p5966 line 2-5

Changed/added text.

p5966 lines 13-16

More text added regarding model description with references to peer reviewed papers regarding model changes. Additional text added regarding limitations of the NO₂ measurements.

p5967 line 23

See reply to referee 3

p5968 lines 7-9

We have no meteorological input data for the years 1991 - 1994 as now stated in the text.

p5969

Added reference to Vestreng et al. (2004)

Minor points regarding Figure/Table captions fixed.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 5957, 2005.

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