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*Supplement of*

## **The representation of solar cycle signals in stratospheric ozone – Part 2: Analysis of global models**

**Amanda C. Maycock et al.**

*Correspondence to:* Amanda C. Maycock (a.c.maycock@leeds.ac.uk)

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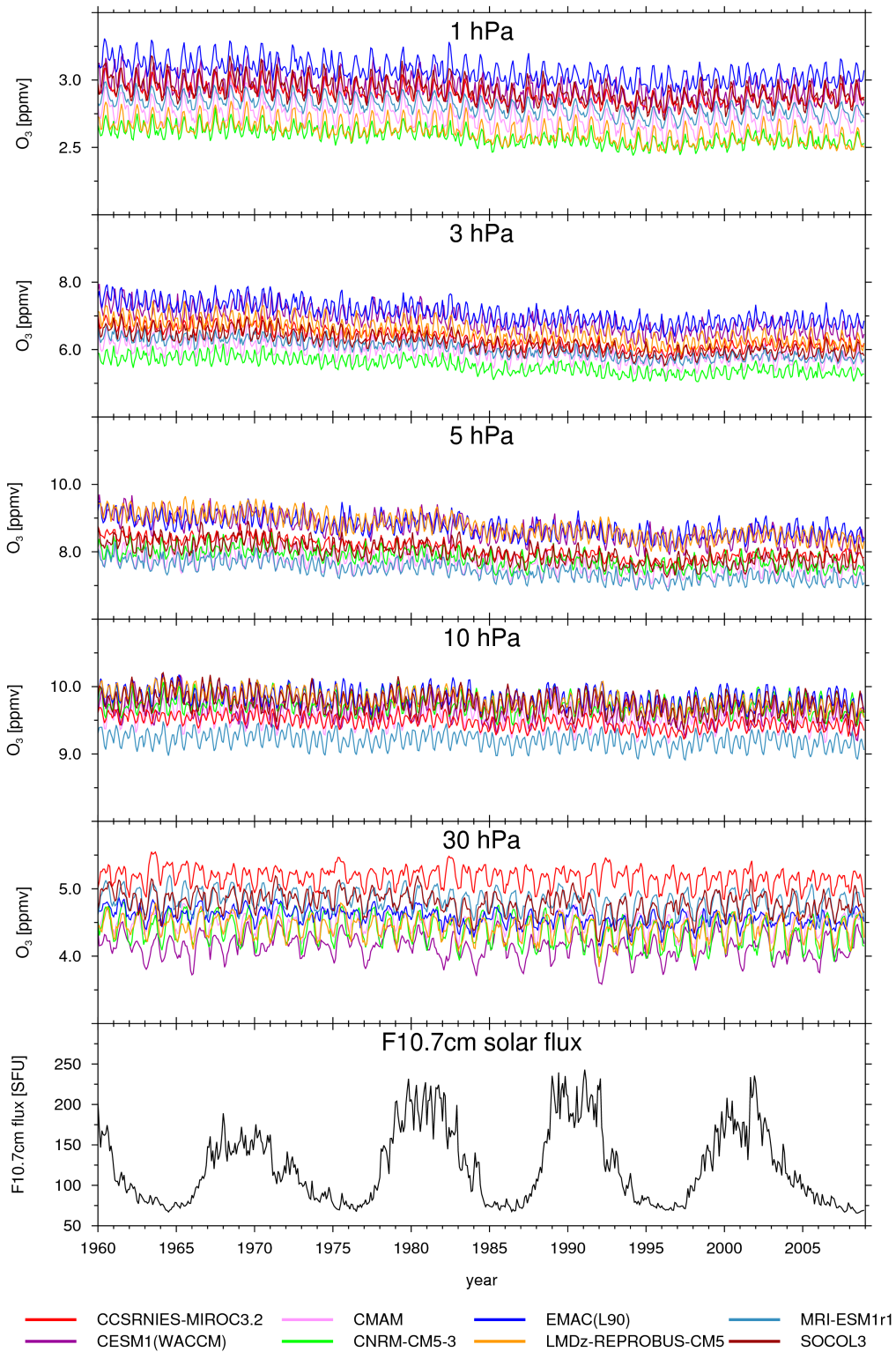


Figure S1: Timeseries of tropical mean (30°S-30°N) ozone mixing ratios [ppmv] in CCMI-1 models for 1960-2009 at 1 hPa, 3 hPa, 5 hPa, 10 hPa and 30 hPa. The lowest panel shows the F10.7 cm solar flux.

Power spectra of tropical mean O<sub>3</sub> at 3hPa

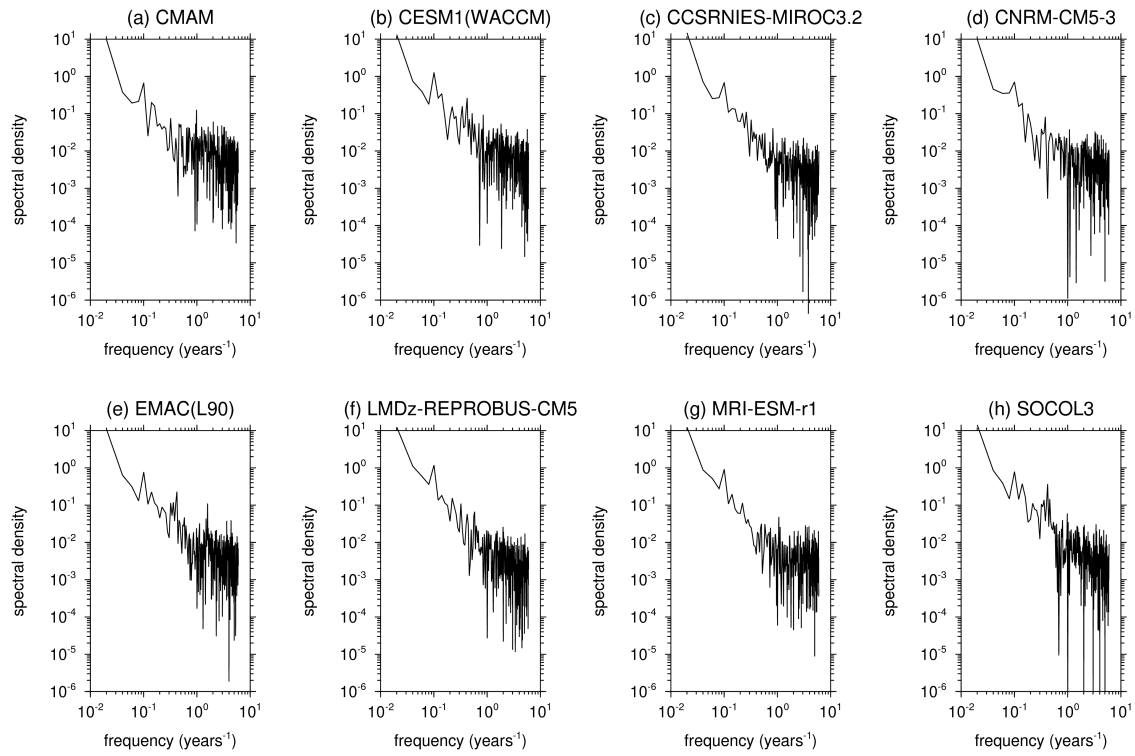


Figure S2: Power spectra of monthly mean tropical (30°S-30°N) ozone anomalies at 3 hPa (near the SOR maximum) in CCMI-1 models. A peak around the decadal timescale is evident in all of the models. Note the enhanced power at lower frequencies reflect the long-term ozone depletion trend.

CCSRNIES-MIROC3.2 1960–2009 Monthly SOR [%]

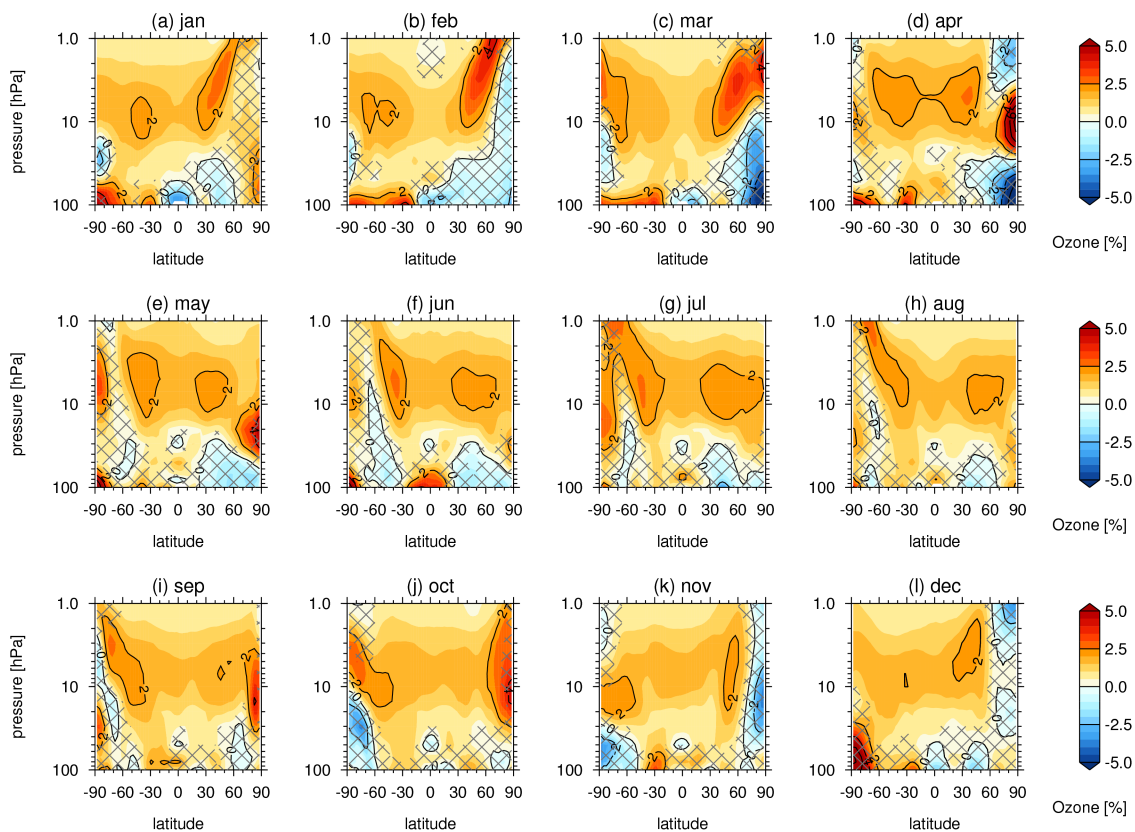


Figure S3: Monthly mean percent (%) ozone anomalies per 130 SFU for (a) January to (l) December in the CCSRNIES-MIROC3.2 model. The solid contours denote 2% intervals. The hatching denotes regions where the SOR is not statistically different from zero at the 95% confidence level.

CESM1(WACCM) 1960–2009 Monthly SOR [%]

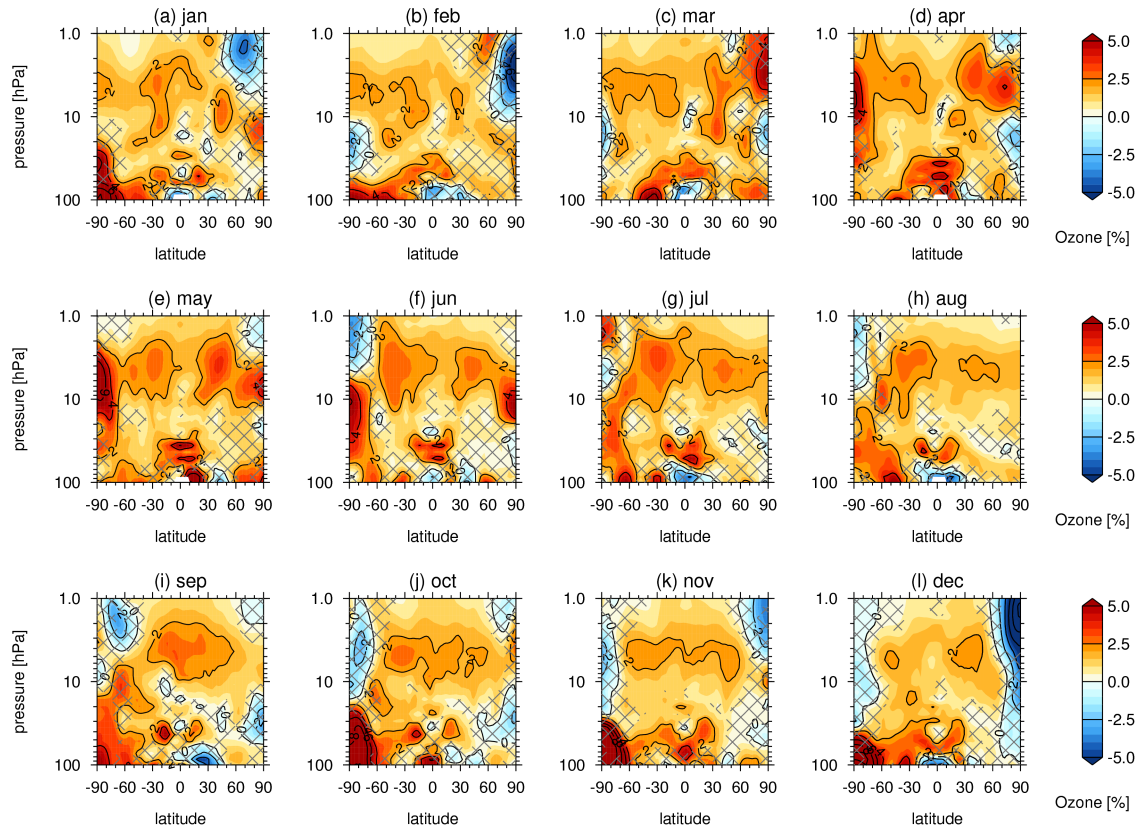


Figure S4: As in Figure S3, but for CESM1(WACCM).

CMAM 1960–2009 Monthly SOR [%]

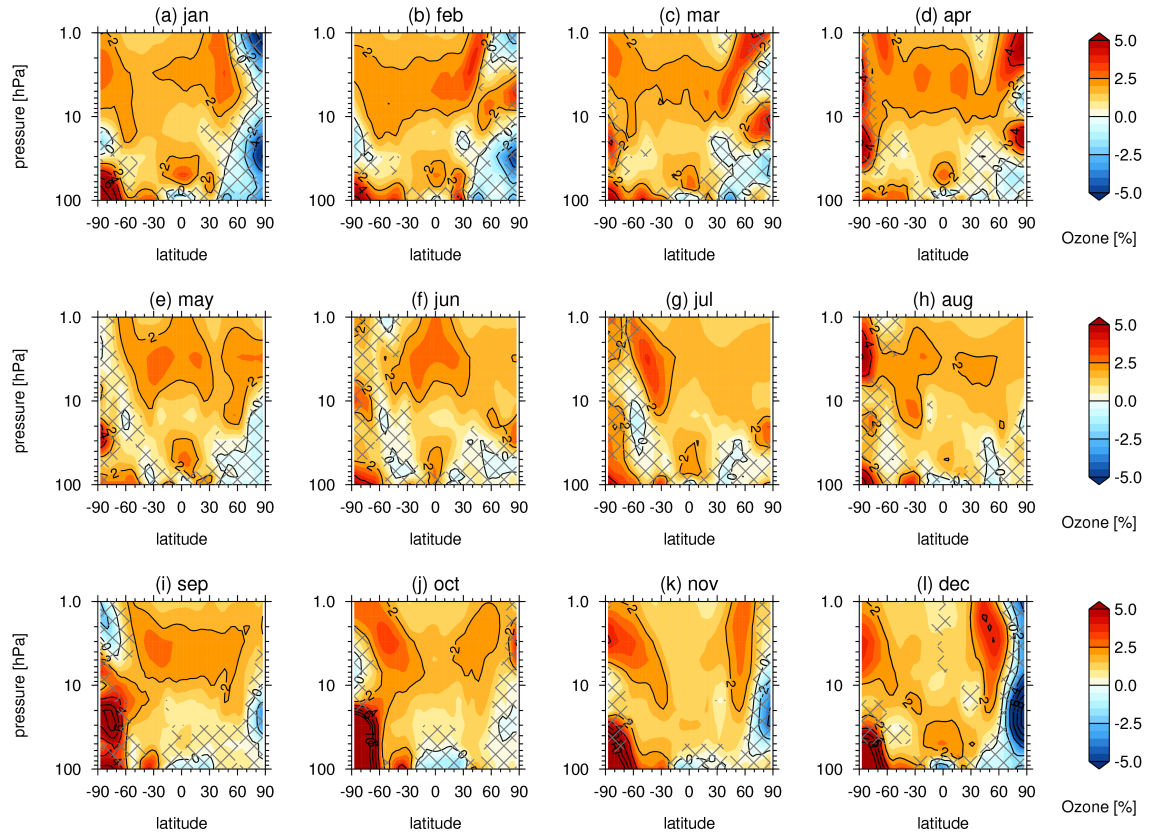


Figure S5: As in Figure S3, but for CMAM.

CNRM-CM5-3 1960–2009 Monthly SOR [%]

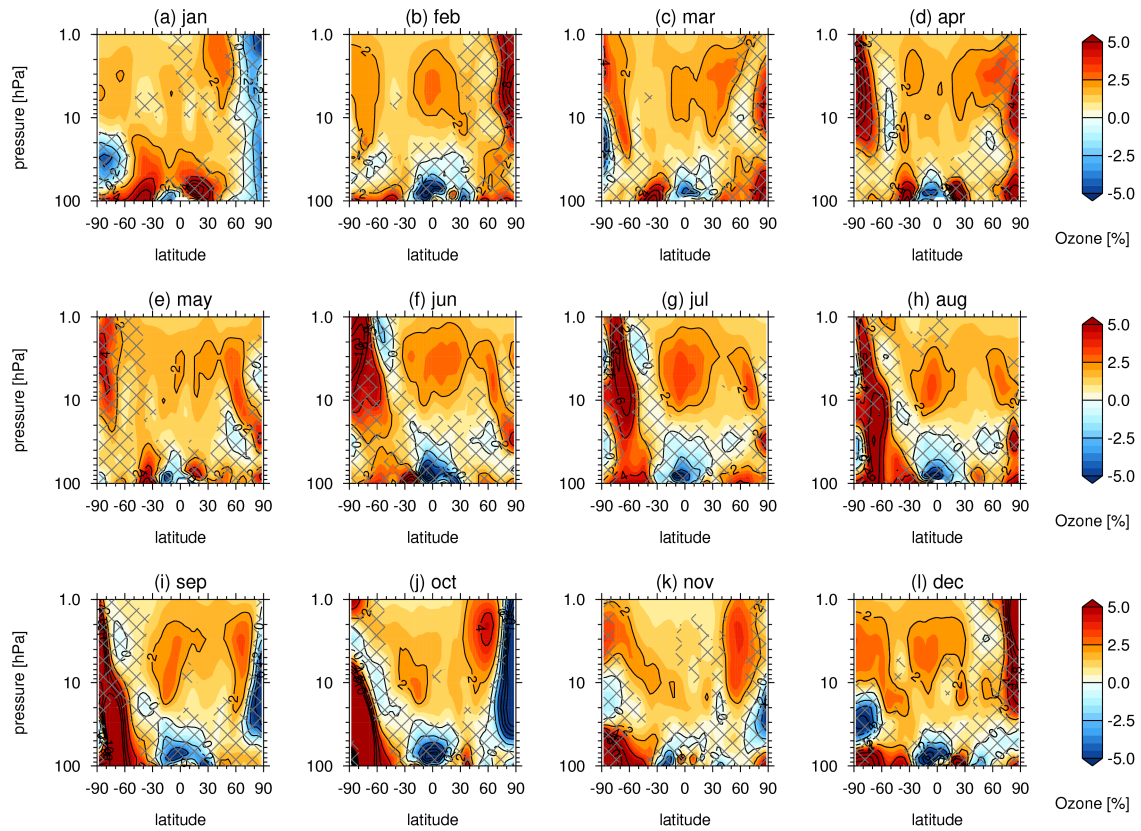


Figure S6: As in Figure S3, but for CNRM-CM5-3.

EMAC(L90) 1960–2009 Monthly SOR [%]

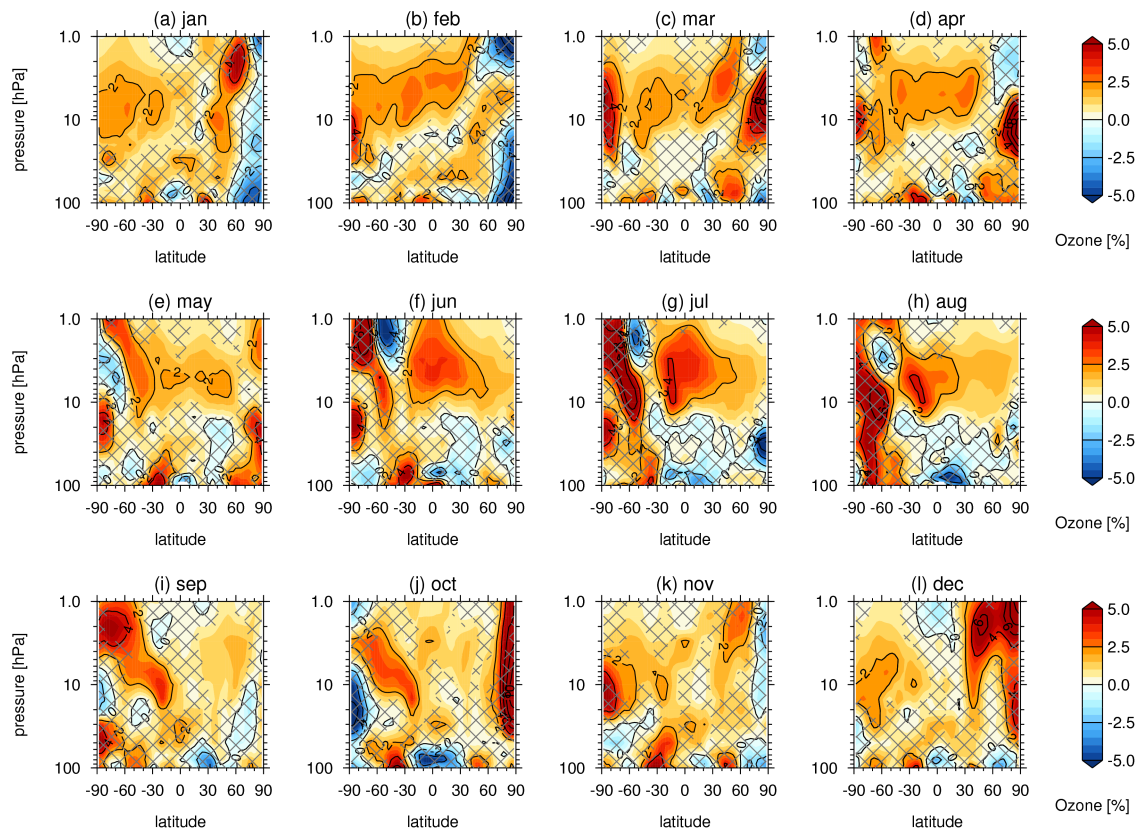


Figure S7: As in Figure S3, but for EMAC(L90).



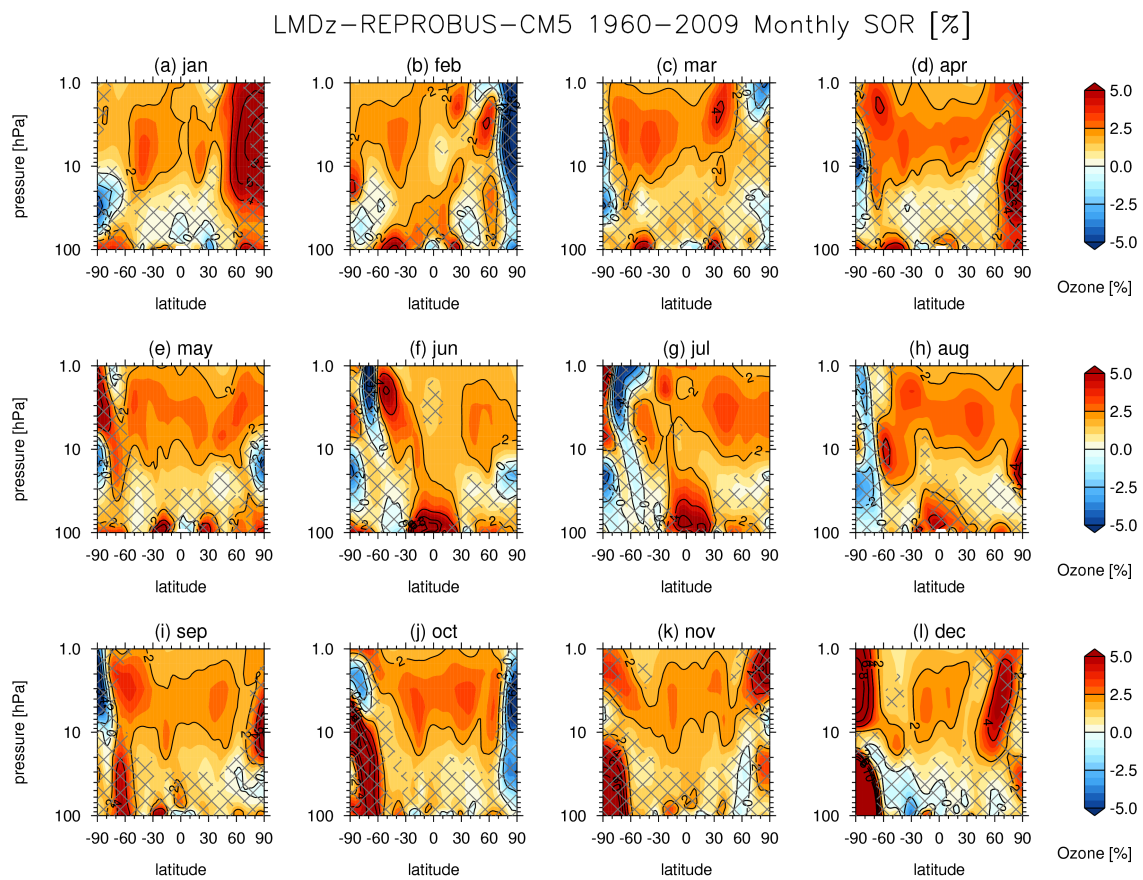


Figure S8: As in Figure S3, but for LMDz-REPROBUS-CM5.

MRI-ESM1r1 1960–2009 Monthly SOR [%]

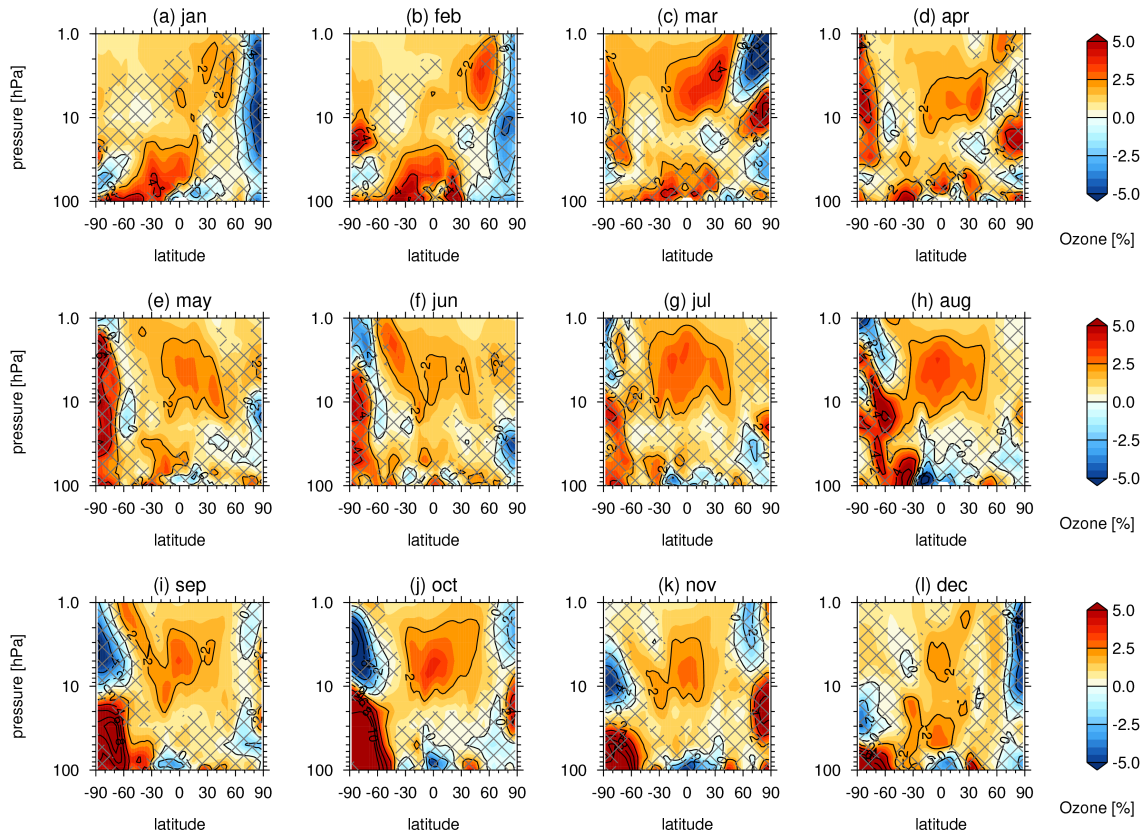


Figure S9: As in Figure S3, but for MRI-ESM1r1.

SOCOL3 1960–2009 Monthly SOR [%]

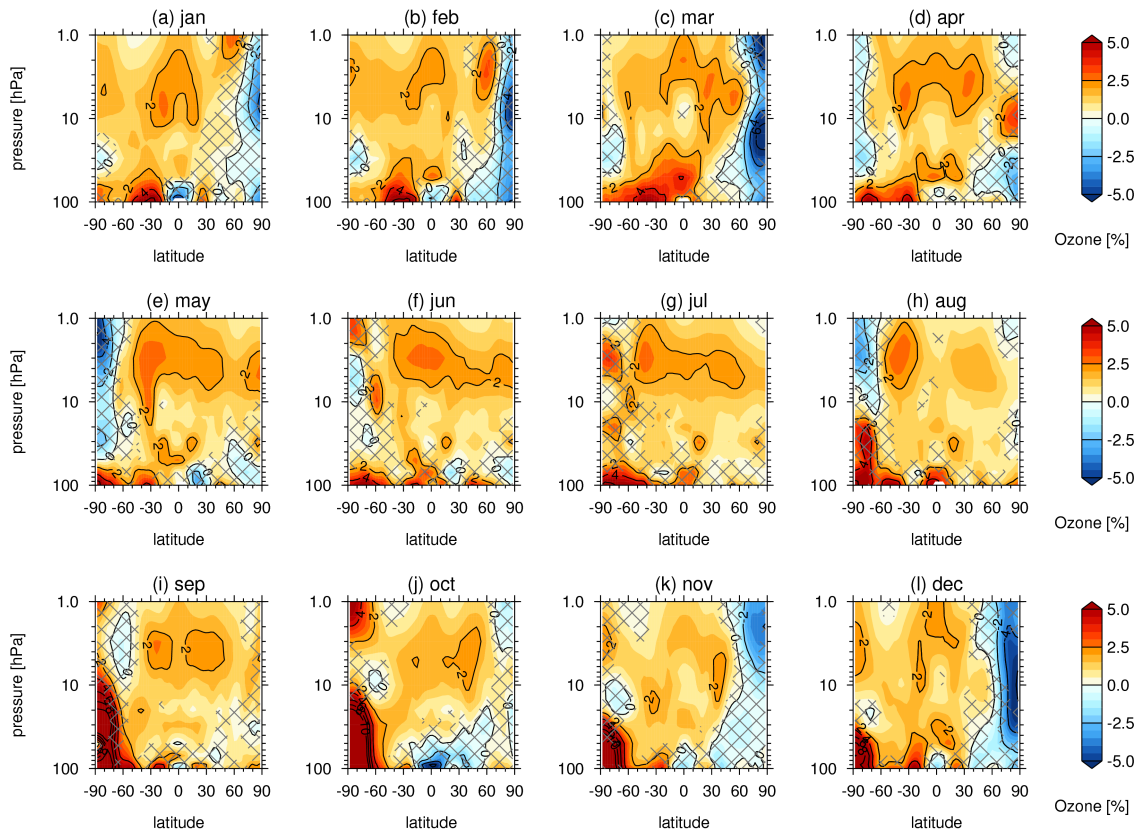


Figure S10: As in Figure S3, but for SOCOL3.

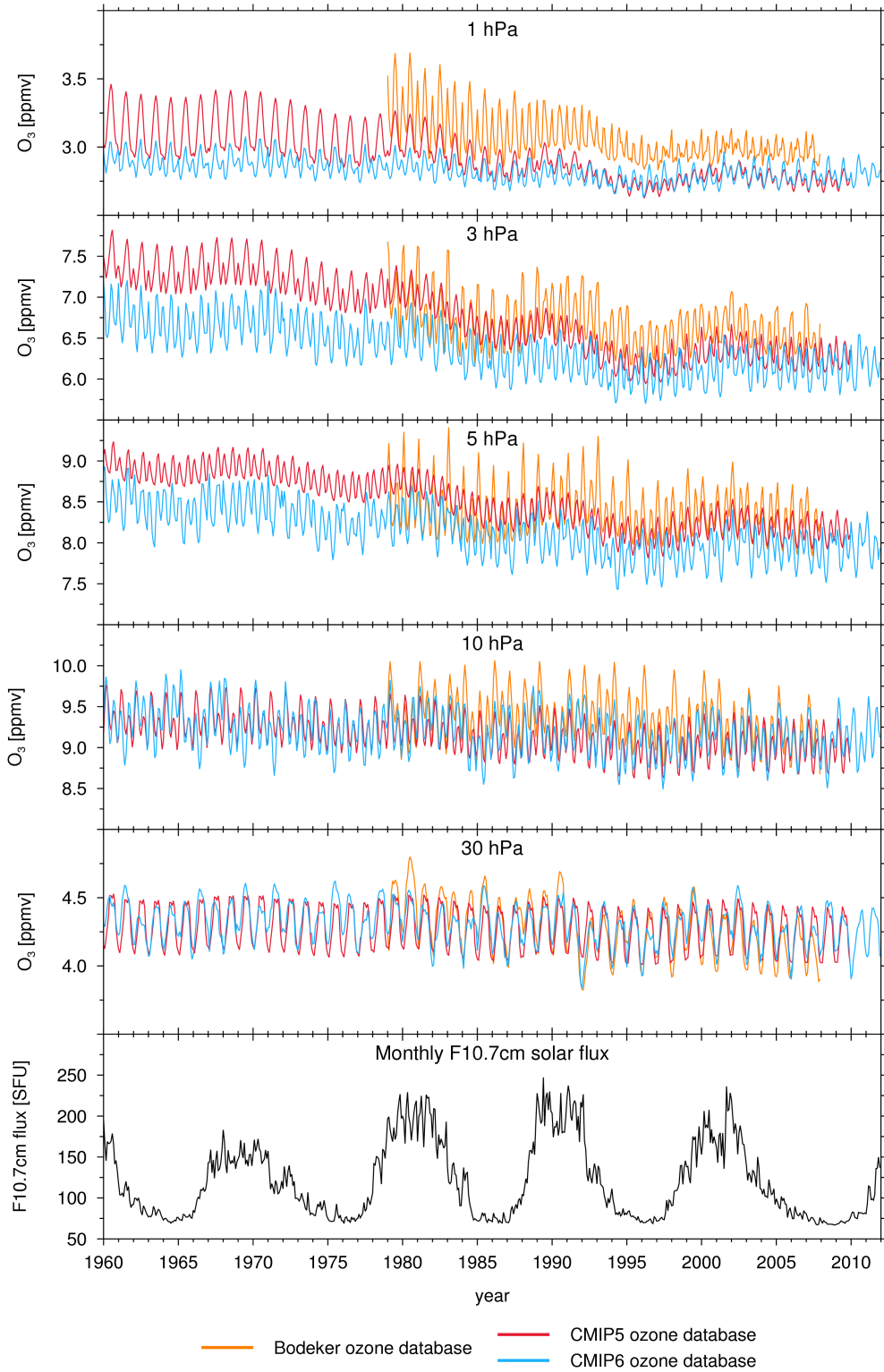


Figure S11: Timeseries of tropical mean (30°S-30°N) ozone mixing ratios [ppmv] in the Bodeker Scientific, CMIP5 and CMIP6 ozone databases for 1960-2012 at 1 hPa, 3 hPa, 5 hPa, 10 hPa and 30 hPa. The lowest panel shows the F10.7 cm solar flux.