Text referencing models and the SPARC report were added at the request of the editor,

In the Abstract

The newly calculated systematic latitude-dependent hemispherically asymmetric $T_A(\theta)$ shape currently does not appear in the suite of chemistry-climate models that are part of the Chemistry-Climate Model Validation Activity CCMVal, which combines the effects of photochemistry, volcanic eruptions, and dynamics in their estimate of ozone recovery.

In the Introduction

A comparison of several atmospheric chemistry and dynamics model studies as part of the Chemistry-Climate Model Validation (CCMVal) Activity (Eyring, et al. 2010a, their Fig. 1; Dhomse et al., 2018; Robertson et al., 2023) generally predict an ozone turnaround date T_A in the year 2000 with no systematic latitude dependence. In particular, Robertson et al. (2023) shows latitude dependence of long-term ozone recovery, but T_A = 2000 for all cases. Quoting from the Sparc Report No. 5 (Eyring, et al. 2010b), "Common systematic errors in CCM results include: tropical lower stratospheric temperature, water vapor, and transport; response to volcanic eruptions", which may affect the determination of T_A as a function of latitude and time. The results of this study may provide a convenient metric for model validation compared to T_A derived from ozone data.

In the Summary

The systematic hemispherically asymmetric latitude dependent pattern $T_A(\theta)$ should appear in atmospheric models that combine the effects of volcanic eruptions, photochemistry, and dynamics in their estimate of the end of ozone decrease. An examination of model studies that are part of CCMVal shows a nearly uniform T_A = 2000, suggesting that the several models' chemistry and dynamics including volcanic effects are incomplete.