Coupled Simulations of Ozone-Climate: 1950-2100

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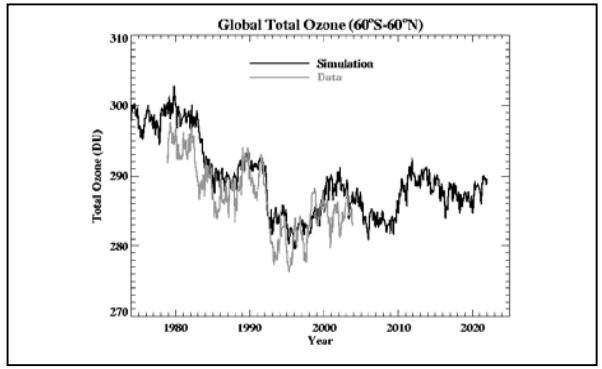
Objective of Columbia Usage

- How do ozone and climate evolve through the 21st century?
- How and when will the Antarctic ozone hole recover?
- What impact do year-to-year variations have on the detection of trends?

Codes to be run on Columbia

- GEOS-4 GCM: atmospheric general circulation model
- Strat chem: middle atmospheric chemistry code



Time series of modeled (black) and observed (gray, for 1979-2003) global O_3 (Stolarski et al., sub. to J. Atmos. Sci,., 2005). The model was the "uncoupled equivalent" of the coupled chemistry-circulation model to be used in this work

Key Milestones

- Perform and analyze a model run for the period 1950-2005, using observed SSTs and known growth rates of greenhouse gases and chlorine species 4mo/yr
- Perform and analyze three runs, using boundary conditions and emissions scenarios developed by the international community, for the period 2005-2050 8mo/yr

Scientific Impact

This study will give some of the first estimates of future ozone change using comprehensive circulation and chemistry modules. Results will be assessed in terms of dynamical and chemical changes, combining expertise of the team. Results will be contributed to the next WMO/UNEP assessment of ozone in the atmosphere.

Co-Is/Partners

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