



## **Comparison of recent modeled and observed trends in stratospheric total column ozone**

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A comparison of trends in total column ozone from ten two-dimensional and four three-dimensional models and SBUV satellite observations from the period 1979-2004 is presented. Trends for the past (1979-2000), the recent eight years (1996-2004), and the future (2000-2050) are compared. We have analyzed the data using both simple linear trends and linear trends derived with a hockey stick method including a turnaround point in 1996. If the last eight years, 1996-2004, are analyzed in isolation, the SBUV observations show no increase in ozone and most of the models predict continued depletion, although at a lesser rate. In sharp contrast to this the emerging data showing positive trends for the northern and the southern hemisphere if the hockey stick method with a turnaround point in 1996 is employed for the models and observations. The analysis shows that the observed positive trends in both hemispheres in the recent eight-year period are much larger than what is predicted by the models. This is particularly pronounced in the northern hemisphere. The trends derived with the hockey stick method are very dependent on the values just before the turnaround point. The analysis of the emerging data therefore depends greatly on these years being representative of the overall trend. Most models underestimate the past trends at mid- and high latitudes. Quantitatively there is much disagreement among the models concerning future trends. However, the models agree that future trends are expected to be positive and less than half the magnitude of the past downward trends. Examination of the model projections shows that there is virtually no correlation between the past and future trends from the individual models.