**INTRODUCTION**

The measurement of Stratospheric Aerosol Properties (SAGE) was a DO 1C-sponsored effort to present a systematic analysis of the state of knowledge concerning the extinction of stratospheric aerosols. It included the examination of personal communications and trends, measurements of stratospheric aerosol properties, trends in those properties, and modeling of aerosol formation, transport, and distribution in both background and volcanic conditions.

SAGE found that space-based and in-situ measurements of aerosol parameters are consistent with each other and indicated that SAGE is capable of detecting small aerosol enhancements. However, during periods of very low aerosol loading, this consistency breaks down and significant differences exist between systems for key parameters including aerosol surface area density and extinction. This led part of this problem arises from the fact that many parameters required for scientific or interpretative purposes are often derived independently from the basic measurements. This leads to biases in the derived quantities. The absolute size of this difference is small, but it is also true that in some cases it may be significant. It is also important to note that this problem exists not only for SAGE II but also for other systems such as POAM and HALOE.

While SAGE highlighted the differences among the various data sets, the ultimate sources of these differences were not determined. As a follow-up activity, we have initiated an in-depth review of the internal and mutual consistency of these long-term data sets: the Stratospheric Aerosol and Gas Experiment (SAGE II), the Halogen Occultation Experiment (HALOE), and the University of Wyoming Optical Particle Counter (OPC). The results from this study are shown in this paper.

**HALOE MEASUREMENTS**

The HALOE instrument is in an early stage. We will continue this study and extend it to derived quantities such as SAD. So far, we have examined the internal consistency of the aerosol extinction data and found a few issues.

**DO MODELS HELP CLEAR THE PICTURE UP?**

Five aerosol modeling groups participated in the Asap report. The models include both 2-D and 3-D models and models that either produce their own aerosol in the engine or require aerosol nuclei to be transported across the tropical tropopause. These include ARM (Weisenstein), MIPAS (OPC and HALOE), and SAGE II and HALOE. The figures below show the comparison between the aerosol extinction and SAD profile results (relative to the 'canonical' channels: 410 nm, 0.15, 0.25, 0.95, 1.20, 1.80 Microns).

**CONCLUSION**

The University of Wyoming has collected data from Laramie (USA) since the mid-1970s. While the basic instrument function has remained essentially the same, there have been several instrument modifications. This is applied to the 'canonical' channels: 410 nm, 0.15, 0.25, 0.95, 1.20, 1.80 Microns. The figures below show the comparison between the aerosol extinction and SAD profile results (relative to the 'canonical' channels: 410 nm, 0.15, 0.25, 0.95, 1.20, 1.80 Microns).