

**Near IR Balloon-borne Measurements in Support of SAGE III
(NAG5-6467)**

Progress Report

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The goal of this project is to measure the absorption spectrum of the Oxygen A-band (near 760nm), which is used by SAGE III to sense tangent pressure. Although accurate laboratory measurements have been carried out, the actual atmospheric path is orders of magnitude larger than can be achieved with closed cells. A balloon measurement, with a high resolution spectrometer carried to about 35km altitude, will provide measurements at nearly the same geometry and paths as SAGE III will see in orbit.

We will be using a small FTIR system, which has been flown on balloon payloads many times. It is a two channel system. After consultation with the SAGE III team, we have set the instrument to cover about 20nm around the center of the A band, and about 25nm around the center of the 960nm H₂O band (used by SAGE III for water vapor sensing). The spectrometer will be operated at a spectral resolution of 0.05 cm⁻¹ (~ 0.003nm). The spectrometer will view the central 0.1 degree of the solar disk, and the pointing will be monitored by a television camera. Spectra will be recorded every 20 seconds as the sun sets.

The instrument is being tested for a scheduled flight in early July, 1999.