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Subject: Abstract for 7th International Workshop on Atmospheric Science
from Space Using Fourier Transform Spectroscopy

Charlotte and Rich,

Below is an abstract for an oral presentation to be given at the 7th International Workshop on Atmospheric Science from Space Using Fourier Transform spectroscopy in **mOberpfaffenhofen, Germany on 12 - 14 May, 1997**. I have submitted request for approval via the document review home page (<http://tecinfor/jpl/home/form1330.html>) and the abstract is included below as plain text and is attached as a Microsoft Word Document.

Thank You
David M. Rider

-----Abstract Starts Her----- --_____

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Preflight and Inflight Calibration of TES and AES

The Thermal Emission Spectrometer (TES), an EOS CHEM platform instrument, and its companion instrument, the Airborne Emission Spectrometer (AES), are both Fourier transform spectrometers designed for remote sensing of the troposphere. They both operate in the mid-infrared with similar spectral resolutions and fields-of-view. AES views in the near nadir, **while TES views both the limb and thenadir**. Over the last several years the TES/AES team has gained considerable experience in the characterization and calibration of AES that has influenced the both the design of TES and our plans for the characterization and calibration of TES.

While pre-flight calibration is a comprehensive and complex activity, its real objective is to characterize end-to-end instrument performance and to calibrate instrument calibration subsystems. Most of the information used to calibrate radiances measured in flight must be derived from in flight measurements to insure that time variations, over both long and short periods, don't compromise the quantitative integrity of the measured radiances. For TES, the major challenge is to maintain the integrity of the onboard calibration sources over the five year life time of the mission.

In broad terms the calibration of both instruments is separated into three categories: radiometric, spatial and spectral. Both instruments carry a radiometric calibration source, a variable blackbody, that is used to perform radiometric calibrations on time scales of the order of minutes. TES will also carry a spatial calibrator to determine the field-of-view response of the instrument. TES is designed to be highly stable in this regard, but will be checked on weekly intervals to verify detector alignment, and field-of-view response. The main objective of in flight spectral response measurements is to monitor the instrument line shape. Pre-flight calibrations of TES will use a series of low pressure gas spectra to determine instrument line shapes. In flight, atmospheric spectra will be used to monitor and track any changes in instrument line shape.

The talk will briefly describe AES and TES and will present our experience with the calibration and characterization of AES and our plans for the pre-flight and in flight calibration of TES.