

The Data Archive, Calibration, and Distribution Subsystem of the Airborne Visible/Infrared Imaging Spectrometer (AVIRIS)

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The AVIRIS data subsystem at the Jet Propulsion Laboratory was the first of its kind for imaging spectrometer measurements. Imaging spectrometer data present unique challenges with more than 100 spectral channels and corresponding spectral, radiometric, and spatial calibration characteristics. The primary objectives of the AVIRIS data subsystem are to archive, calibrate, and distribute data to requesting investigators. The data system also plays a critical role in monitoring the day-to-day performance of AVIRIS and detecting trends in instrument performance over time. At present more than 5 terabytes of AVIRIS data are archived spanning the years from 1992 to 2003. In addition, the data subsystem must track and account for the changes in the instrument over this span of time. In each of the recent years, more than 1 terabyte of AVIRIS data have been calibrated and distributed. This paper presents the historical and current configuration of the AVIRIS data subsystem from both the hardware and software perspective. The full suite of software modules as well as the architectural philosophy is described. Critical lessons learned and the implications for future imaging spectrometer data subsystem are offered.