

KEYNOTE ADDRESS

Access to Data in NASA's Earth Observing System

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Experience has demonstrated clearly the need for a functional data system for collecting, processing, managing, and distributing Earth science data, particularly satellite remote sensing data. The start of NASA's Earth Observing System (EOS) has created a new need for a comprehensive data system to handle the large amount of remotely sensed data anticipated from the EOS instruments, the related in situ observations, measurements from other satellites, and scientific data products. The estimated data volume at the end of the century exceeds 1 TB/day. The information system (EOSDIS) to store, manage, and provide access to these data is as critical to the success of the mission as the measurements from the satellites. EOSDIS has evolved through several stages, establishing a precedent for continued evolution of a system whose goal is to provide useful data and information to working Earth scientists.

Our model of EOSDIS is similar on the large scale to the way we set up our own computing environments: workstations on each desk and "centralized" file server and file management. Similarly, we want to leave data storage and data management to the EOSDIS system. Data management includes such functions as providing meta data, search programs, browse tools, and ordering. These data must be cared for in a facility where there is scientific and technological expertise. This approach benefits from some technological advances in the next few years, particularly network bandwidth and reliability. We adopt the model of institutionalized data management because we want to preserve integrity of the data.

To the extent possible, we want to build on each other's expertise in interpreting remote sensing data. "Standard" products, spacecraft measurements of radiance that have been converted to geophysical and biological information, will be available. If, for example, a scientist is interested in ozone, he/she will be able to query the system on what products are available from appropriate instruments, order data based on search criteria, and then use them as input into local analysis tools.