Columbia University
University of Wisconsin
Goddard Inst. (Science Co-Lead)
Texas A&M (Science Co-Lead)
USC/IMSC (Into Systems Lead)

Partners: JPL (Project Leader: Tom Yunck)

GPS: The Global Positioning System

Information System
GPS Environmental Earth Science

GENESIS
Earth Observing System (EOS) Announced

Science Priorities:
- Terrestrial & marine ecosystems
- Atmospheric chemistry (e.g., ozone)
- Causes of long-term (10-100 yr) climatic change
- Seasonal/interannual climate prediction (El Nino)

Mission to Planet Earth Inaugurated

Earth System Science At NASA
Objective of Genesis

- Participation in the WP-EISP Federation
- Online help and documentation
- Data migration from existing GPS archived data
- Data subscription service
- Interactive web/java-based data search & retrieval
- Data browsing using integrated visualization tools
  - Other ground-based GPS receivers
  - Space-borne Turboprop GPS Receivers for GPS science
- Products derived from:
  - Data archiving, searching & distribution for science data
Online publishing

Information: tutorials, papers, FAQs, help line
User-contributed products and tools
Experimental data mining functions
Downloadable science analysis tools
Powerful data visualization tools: VIs-AD
Data subscription: automated notification & delivery

Other User Services

Tropopause and boundary layer heights
Global pressure contours, gradients, and derived winds
User-specific time and spatial averages of the above
Profiles of reactivity, density, pressure, temp, moisture

Focus on Atmospheric Occultation Products

GENESIS Products & Services
Pattern recognition
Discriminant analysis
Feature extraction
Time series analysis

Future research to provide:
Object-oriented database technology (USC)
Data visualization tools (University of Wisconsin-Madison)

Others:
Data distribution via FTP
API and Web-based interface for search engine
File-based archive management system
JPL home grown & currently operational
Distributed object management (DOM) system

Baseline Technology
JPL
Enforces intelligent demand control
• Allows versatile subsetting and user-specified actions
• Metadata is human-readable, machine-parsable
• Web-based interface emphasizes Java applications
• Adopts Hierarchical Data Format (HDF)
  – Paradise (U. Wis.),
  – Oracle-8
  – INFORMIX Universal Server
• Will draw from latest commercial & research systems:
  – Will evolve into a true object-oriented system in 2 yrs
  – Search system based on high performance DBMS
  – Product system based initially on file management
  – Pilot derived from JPL’s Distributed Object Manager

Other GENESIS Features