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WDS Contacts: Steven J. Kempler.nasa.gov

Goddard Earth Science Data and Information Center (GES DISC)
http://disc.sci.gsfc.nasa.gov
Steve Kempler
NASA Goddard Space Flight Center

GES DISC Vision
To enable researchers and educators maximize knowledge of the Earth by engaging in understanding their goals, and by leading the advancement of remote sensing information services in response to satisfying their goals

The GES DISC Approach
• Engage Users
  – Communications must be frequent
  – Dedicated points of contact to gather/provide information are identified
• Build economically
  – Look for reuse, ways to save funds
  – Willing to take calculated risks; Otherwise low risk
• But also, build to integrate new technologies
• Engage employees
  – Ensure that employees realize the value of their contributions
  – Treat all employees equally

We will not: Build it and they will come.
We will: Build it because they come (collaborating on mutual interest)

Successes
• Up to date on all Mission reprocessing and documentation
• Successfully released first data products for newest missions: GPM, OCO-2, SNPP
• Completed transition to dynamic web page capability, driven by CMI web documentation
• Released new version of Giovanni (smoothing maps, download GeoTIFF maps, etc.)
• Delivered the first version of Unified User Interface with support for faceted navigation
• Completed population of HIROS data and documentation into preservation system; Other datasets in the works
• Deployed User Registration for GES DISC services and data access
• Recovered heritage data (Nimbus, etc.) from 1980’s vintage media. Rescuing data continues...
• GES DISC is now a recognized data repository by Scientific Data, an open-access, peer-reviewed journal for descriptions of scientifically valuable datasets

Challenges
• Efficiently adapting potentially useful advancing technologies to specific problems
• Facilitating science research or the masses, based on a handful of use cases
• Rapidly responding to the needs of users needs for value added products, tools, and services
• So much to do, so little time to do it.

Best Practices
• Implement in response to user driven needs
  – LEOIS, but also user feedback, user surveys, science meetings
• Seek opportunities for collaboration
  – EOSDIS drivers, but also new shareable initiatives
• Strategically utilize technology to enhance efficiency in the face of growing archived and number of users
  – Key element understanding looking forward relevant information technologies, but also engage science data users and information technologies
• ‘Partner’ with users and producers
  – Remain expert in Atmospheric, Hydrosystem, Climate Modeling data (both NASA and other) and data management services, but also engage science research and applications users to better understand their needs, and improve GES DISC services
• Publish results for the benefit of information science

What We Do
• Science User/Data Support
  – Receive and disposition data, science, service requires daily
  – Understand and develop new research driven tools and services
  – Analyze metrics to address research need priorities
  – Perform: Outreach, Documentation, Capturing data preservation artifacts
• Mission Support
  – Build scalable, archive, distribution, service systems to requirements of new project. Develop KDC. Ensure formats and metadata guidelines are met. Build have systems cost effective to spec, interfaces work
  – Spinnable/Unspin (Data/Field identifiers, Landing Pages)
• Software Engineering
  – Lead overall system architecture; planning/implementation
  – Implement/Integrate flexible system tools and services to enhance data usability, to accomplish evolving user needs
  – Build advanced SW Engineering techniques (Agile Methodologies)

What We Do
• Infrastructure
  – Perform System Administration (upgrades, patches, installations, backups, etc.) for main computers and desktops
  – Security, web, system configuration management
  – Virtual Machine to support IA
  – Implement and analyze cloud computing application prototyping
• Operations
  – Ensure data ingest, archive, and distribution
  – Apply system monitoring tools to enhance operations efficiency
• Management
  – Manage a diverse staff and set of functions: Contracts, cooperative agreements, budgets, ~60 people, new business, system ownership, etc.

Stewarding Mission Data

Current Operational Services/Tools
• Giovanni – Data Discovery, Visualization and Exploration
  – Wunder, search and access
• Simple Subset Wizard – Cross DISC effort to provide subsetting
• Data Recipes
• openDAF & GISDS Data Server
• DataGapCalc (OpenDAF Consortium): Web Map Service (WMS)
• Data provided in various formats (HDF, netCDF, ASCI, Int, others)
• Damage – Significant for applications
• Data Reduction – Submit desired measurements from data products
• Applications Contributions: Applied Remote Sensing Training (ARSET); Hyperspectral (CUI/GMI); USAID World Bank; Public Health
• User Registration
  – Digital Object Identifier and Landing Pages
• Data Stewardship
  – Curating
  – Cloud applications
  – Unified User Interface

Leadership Activities
ESDSWG Participation
• Leader: Virtual Collections (CPI)
• Task force – Contact
  – Data Interoperability (Core team)
  – Level 3 Data Handbook (Tech)
  – Atmospheric Science User Forum (Core lead, Tech)
• Participation
  – Data Recipes (Compiled)
• ESIP Participation
  – Leader
  – Earth Science Data Analytics
  – Agriculture and Climate
• Participant
  – Education, Preservation and Stewarding, Openness, Data Quality

The GES DISC is one of 12 Discipline-oriented NASA Data Centers

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Who We Are: Summary of Expertise
• Science Data Management – PhD scientists in applicable earth science disciplines who collaborate with researchers to develop data reduction/analysis tools to facilitate information extraction and multi-discipline data coordination; Who understand how data was generated and provide user support
• Mission Support – Engineers who understand the requirements for costing and using information management systems for new or existing missions
• Software Engineering – Engineers who support the development and maintenance of software for instrument and mission data systems management and usability
• Science User Support – Engineers who conduct web-based system assessment and systems training...