

# Mercury – A Service Oriented Web-based system for finding and retrieving Metadata

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U.S. DEPARTMENT OF  
**ENERGY**



Climate Change  
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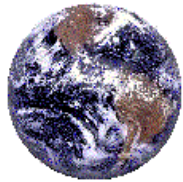
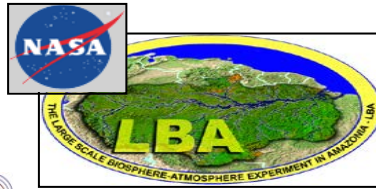
# Mercury - Metadata Search System

- Distributed metadata management, data discovery and access system
- Developed and managed as a Consortium
- Federal Agencies – NASA, USGS, DOE and NSF
- About 16 different projects are using Mercury
- Based on a combination of open source and ORNL developed software
- Standards based – FGDC, Dublin-Core, Darwin-Core, GCMD, EML and ISO19115

# What can Mercury do?

- Provide a **single portal** to information contained in disparate data management systems
- Provide **free text, fielded, spatial, and temporal** and **hierarchy search** capabilities
- Allow individuals and database managers to **distribute their data** while maintaining complete control and ownership
- **Leverage investment** in existing information systems and research

# Projects using Mercury



Centro de Previsão de Tempo e Estudos Climáticos  
Brazil



CDIAC

NASA

Project Office  
LBA-Hydrometeorology



Office of Science

Science for America's Future

www.science.doe.gov

U.S. Department of Energy



DADDI

a working prototype focused on arctic coastal data

North American Carbon Program  
MODELING AND SYNTHESIS THEMATIC DATA CENTER



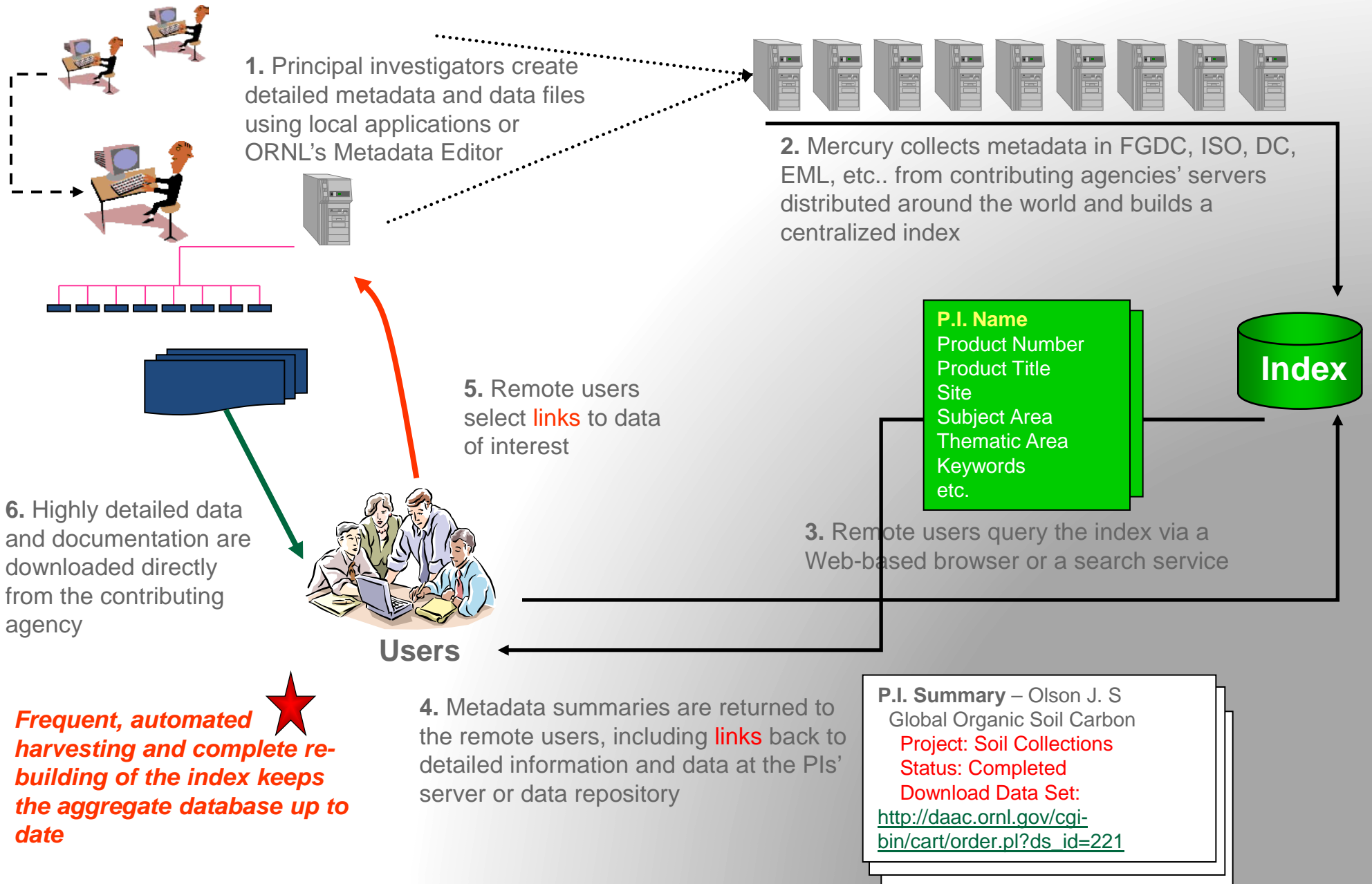
SAFARI 2000



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# Mercury : Virtual Internet Database



# A Virtual Aggregate Database via Mercury

Metadata exists in remote legacy databases using any platform, OS or RDBMS



Databases can be of different structures and content

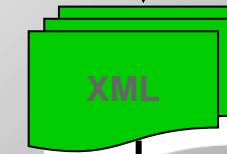
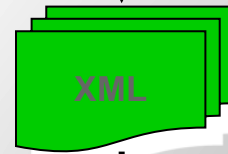
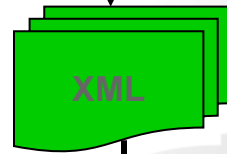
Export programs are easily written and automated



No re-programming of existing systems required

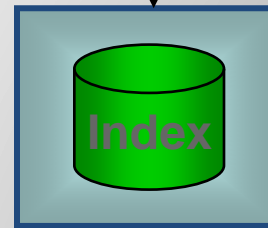
Business as usual for contributing databases

Metadata are extracted into XML files yielding standardized data objects



These files can be remotely harvested via the Internet

Harvested metadata are combined at the central site, transformed (if needed), and indexed



Frequent, automated harvesting and complete re-building of the index keeps the aggregate database up to date

Users work with a single, simple, web interface to access all data simultaneously



# Mercury - key features

- ORNL DAAC – Simple Search & Advanced Search
- Flexible architecture - can handle multiple search services, scalable, easily extendable
- Detailed results summary - Filtering, dynamics sorting, and book marking of search results
- Has the ability to provide the harvested metadata to other applications (e.g., Google, GCMD, GeoOneStop)
- Semantic web integration support (thesaurus service)
- Seamless data ordering/data extraction functionalities
- External data visualization tools integration
- User Statistics Collection

# Simple Mercury Search (google like search)

### Mercury: Metadata Search System

[Simple Search](#) [Advanced Search](#) [Browse](#)

Search for:

*Hint: boolean operators, wildcards and phrases are allowed. ex: precipitation or (rain\* and "moisture content")*

**Query**

*Not Editable*

Results/Page  ▾

[SEARCH](#) [CLEAR QUERY](#) [HELP](#)



# Advanced Mercury Search

**Mercury: Metadata Search System**

Simple Search | **Advanced Search** | Browse


**Search by Keywords**

Project  [Help](#) | [clear](#)

**Search by Date Range**

during  thru  [Help](#) | [clear](#)  
*mm/dd/yyyy*

**Search by Spatial-Coordinate**

 **List Areas in:**  
USA  WORLD   
  
Search Area:  
overlaps  encloses   
North   
West  East   
South   
[Help](#) | [clear](#)

**Search from Data Sources**

- ORNL DAAC Archived Data (ORNL DAAC) (i)
- Land Validation Data (LandVal) (i)
- Regional and Global Data (RGD) (i)
- LPDAAC - MODIS and ASTER Products (i)
- Long Term Ecological Research (LTER) Network (i)
- Organization of Biological Field Stations (i)

*\*deselect the boxes to limit the search*

**Query**

Not Editable `project = "bigfoot" and overlaps coordinates (n,w,s,e) = (-21.27,13.68,-35.9,33.98) and during 08/01/2000 to 08/26/2010 and from`

Results/Page

Type-a-head functionality

Date range search

Draw a bounding box

# Typical Mercury Search Results Screen

Search result can be bookmarked, emailed or used as an RSS feed

Filtering the search results

Sorting and navigating the results

Brief results with links to order the data or view full metadata record

DAAC Home -> MERCURY SEARCH

**ORNL DAAC** Distributed Active Archive Center for Biogeochemical Dynamics

NASA

About Us About Data Get Data Data Tools Help

Modify search **Metadata Summary** Bookmark Email Help Show Cart

Your search found: 318 documents.  
Query: text : climate text : change AND ( datasource :( daac landval rgd lpdaac lter obfs ) )

Choose records from: LTER DATA (123) REGIONAL AND GLOBAL DATA (113) LPDAAC - MODIS AND ASTER PRODUCTS (39) DAAC DATASETS (37) LAND VALIDATION DATA (6)

Filter by parameter	Filter by sensor	Filter by topic	Filter by project	Filter by keywords
precipitation amount (51)	analysis (90)	atmosphere (99)	vegetation-ecosystem	eosdis (117)
air temperature (38)	rain gauge (19)	biosphere (87)	modeling (vemap).. (9)	north america (90)
carbon (35)	pyranometer (12)	land surface (75)	nasa earth science.. (7)	climate change (66)
water vapor (28)	air thermometer (11)	hydrosphere (34)	lba (6)	climate (65)
solar radiation (27)	eddy correlation	agriculture (24)	eos land validation.. (4)	europa (46)
humidity (25)	apparatus (10)	cryosphere (17)	islsdp ii (4)	climate collections (44)
land cover (24)	fertilizer (9)	human dimensions (15)	model archive (4)	modis (44)

Viewing Documents 1 - 10 out of 318  
Prev 1 2 3 4 5 6 7 8 9 10 Next

Sort By: Index Rank Period of record Source Project

**MODIS LAND COVER/CHANGE (MOD12) SUBSETS FOR EOS LAND VALIDATION CORE SITES**  
Date: 01/01/2001 - 08/25/2010 Datasource: LAND VALIDATION DATA Project: EOS LAND VALIDATION  
Moderate-Resolution Imaging SpectroRadiometer (MODIS) data are available for EOS Land Validation Core Sites as 200 km x 200 km subsets from the original Level L3 and L4, 1200 km x 1200 km, MODIS Tiles. (Note: Subsets for the ARM/CART, Cascades, and Wisconsin sites are slightly larger to include a 100 km buffer around multiple locations with active validation work.) This data set provides 96-Day, 1 km land cover types (MOD12Q1) subsets for EOS Land Validation Sites. This product is used for biophysical and biogeochemical parameterization for input to global and regional scale models. The...  
★★★★★★★★★★

Find similar data View full metadata

**CLIMATE DATA AND MAPS FOR BOREAL ECOSYSTEM RESEARCH AND MONITORING SITES (BERMS), CANADA**  
Date: 12/01/1996 - 08/25/2010 Datasource: LAND VALIDATION DATA Project: BERMS  
The BERMS (Boreal Ecosystem Research and Monitoring Sites) project was designed as a 5-year partial follow-up to the BOREAS (Boreal Ecosystem-Atmosphere Study) experiment. The data set documented here, includes the near-surface meteorological measurements of three forest biomes in the southern boreal forest of Saskatchewan (referred to as the Southern Study Area in BOREAS). Prior to BERMS, the Saskatchewan Research Council maintained near-surface meteorological stations throughout the BOREAS study area from December, 1993 until December, 1996. After this, the Climate Research Branch in Saskato...  
★★★★★★★★★★

Find similar data View full metadata

# Demo

[DataONE – ONEMercury](#)

[USGS - Core Science Analytics and Synthesis \(CSAS\)](#)

[NASA - Distributed Active Archive Center \(DAAC\)](#)

FGDC Metadata Editor:

<http://www.fgdc.gov/metadata/geospatial-metadata-tools>

More Information: <http://mercury.ornl.gov>

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