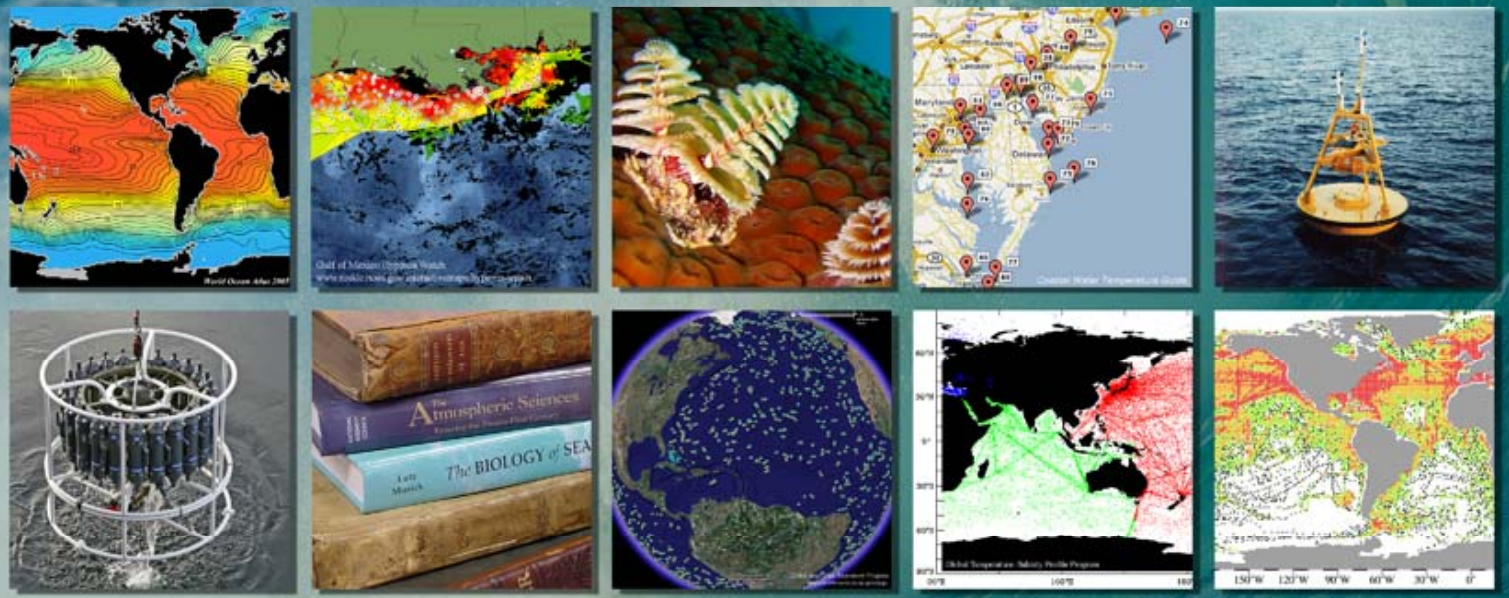
Cooperation between the US NODC and Ocean Data Portal

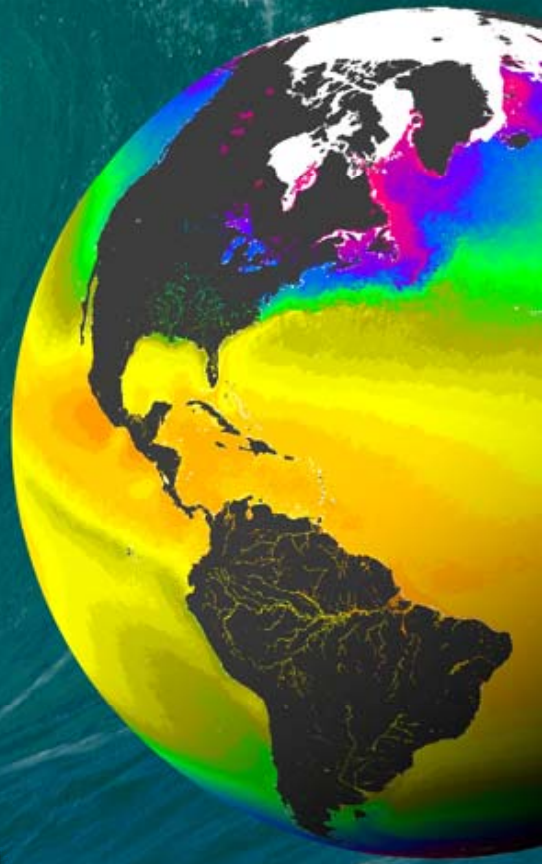
Kenneth S. Casey, Ph.D.
Technical Director
NOAA National Oceanographic Data Center

Kenneth.Casey@noaa.gov

NOAA National Oceanographic Data Center

An Ocean of Data and Information...





NODC Mission: To provide scientific stewardship of marine data and information

Scientific Stewardship?

- **Acquire**: receive ocean data from U.S. and foreign sources
- **Archive**: preserve those data assets for the long term
- **Access**: provide access to archived data for business, federal, science, and many other users
- **Add Value**: assemble easy-to-use, long term collections for science and applications

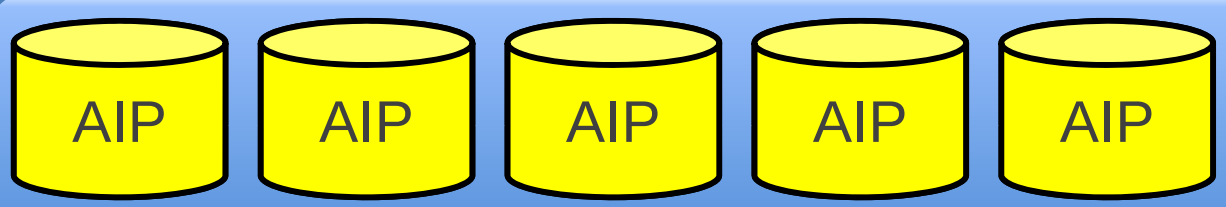
NODC *Archive* Paradigm

Human and machine interfaces to

Understand, Preserve, Discover,* and *Use

NODC Archive Holdings

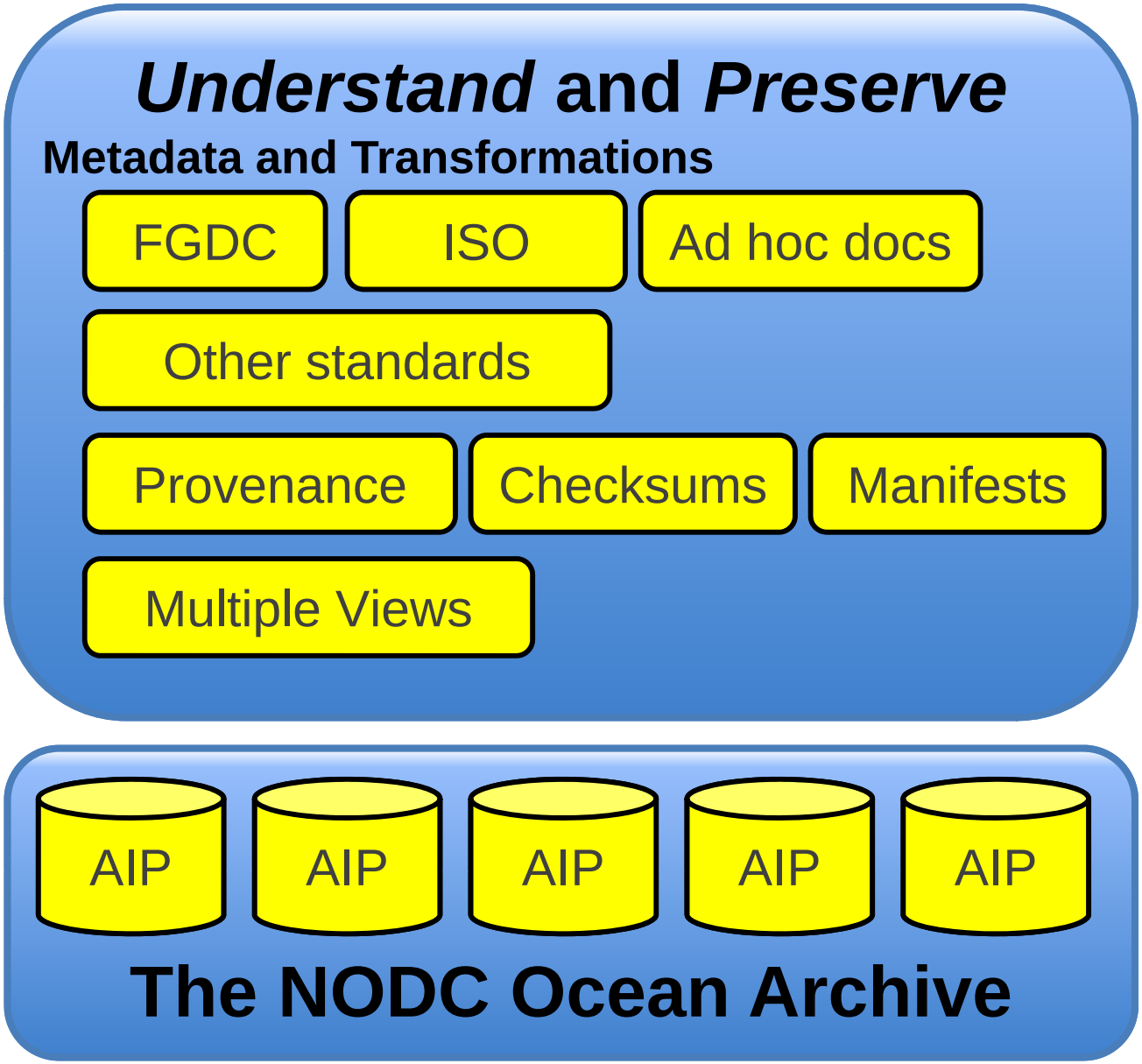
The Open Archival Information System (OAIS) Reference Model, the ISO standard for digital archives, specifies key functional entities of a "Capital A" Archive



The NODC Ocean Archive

In OAIS terminology, an archive preserves **Archival Information Packages (AIP)**. NODC refers to these AIPs as "Accessions".

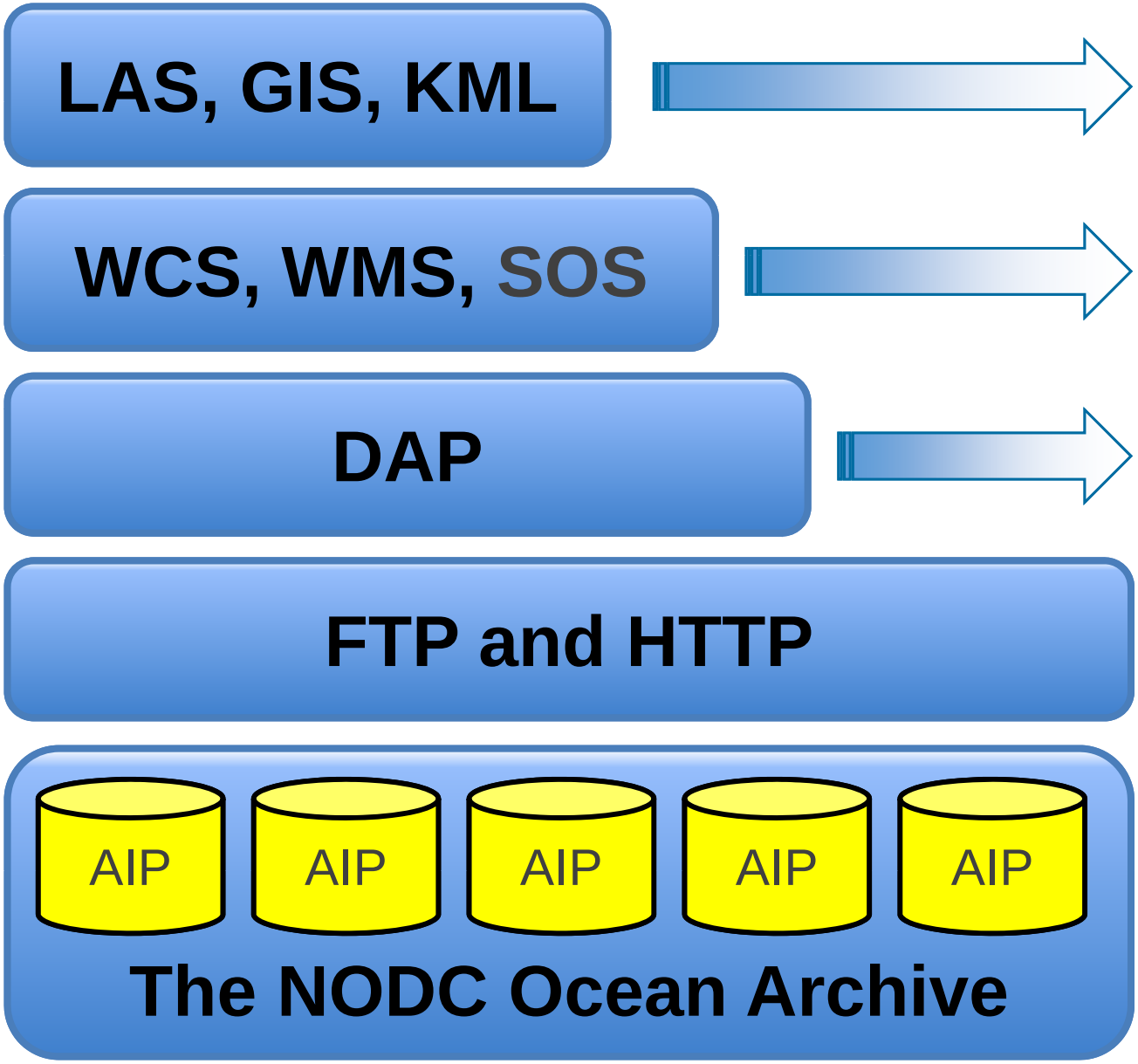
Understand and Preserve



Understanding and ***Preservation*** are enabled through a focus on standardized descriptions of "contents", their "containers", and where they have been.

Better documentation enables better understanding and long term preservation.

Access and Use

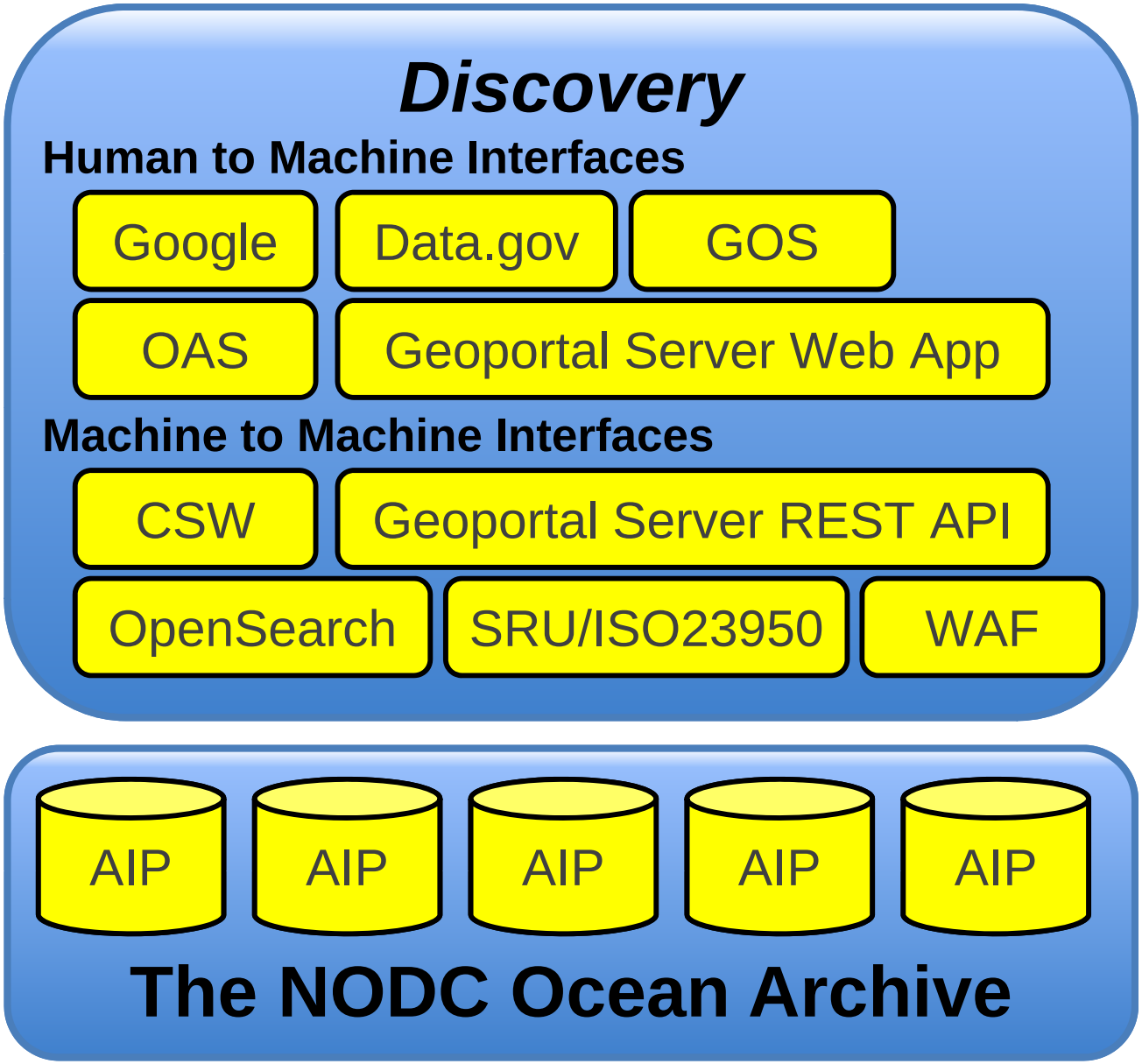


Enhanced online access, visualization, and analysis tools: These capabilities require more structured metadata and standardized file formats, so are available to the fewest archive holdings.

Distributed Access Protocol (DAP): Requires standard file formats so is available to fewer archive holdings.

Basic FTP/HTTP access for all Archival Information Packages (AIP) in the NODC Ocean Archive: These distribution methods have no format or metadata requirements so they work for all archive holdings, but they provide only basic download capability.

Discovery



Discovery is enabled through numerous interfaces designed for both humans and their machine clients.

Human-to-machine interfaces include government-mandated generalized portals like Data.gov and Geospatial One-Stop (GOS)

Discovery services are available for ALL of the NODC Archive holdings, but better metadata supports better discovery!

Access Services

Just released, NODC Geoportal…

- OGC's Catalog Service for the Web (CSW)
- Search/Retrieval via URL (SRU)
- Open Search
- ArcGIS Server
- and someday Sensor Observation Service (SOS)
- http://data.nodc.noaa.gov/geoportal

NOAA NATIONAL OCEANOGRAPHIC DATA CENTER (NODC)
UNITED STATES DEPARTMENT OF COMMERCE

SEARCH | BROWSE | SEARCH TIPS

Search

"UNIVERSITY OF MARYLAND; Center for Environment | Search

Reset Search

Records shown from: This Site
Click here to select different site or configure search.

WHEN
Click here to enter content date criteria.

Intersecting (•) Fully within

Start Date: 1995 (yyyy-mm-dd)

End Date: 1999 (yyyy-mm-dd)

WHERE
Click here to enter location criteria.

Results 1-3 of 3 record(s)

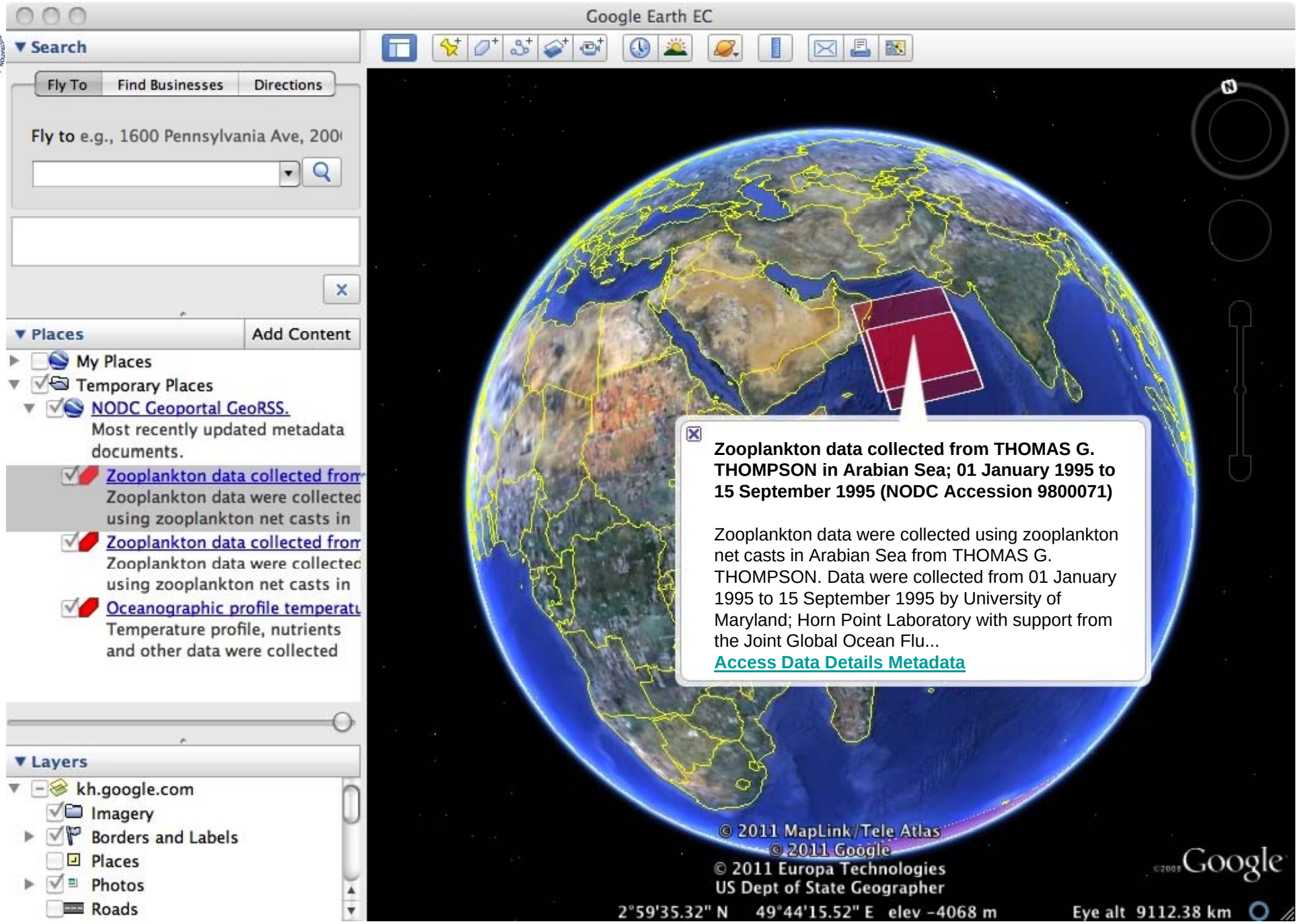
Expand results Zoom To Results Zoom To Searched Area

Zooplankton data collected from THOMAS G. THOMPSON in Arabian Sea; 01 January 1995 to 15 September 1995 (NODC Accession 9800071)

Zooplankton data collected from THOMAS G. THOMPSON in Arabian Sea; 01 January 1995 to 15 September 1995 (NODC Accession 9800072)

Oceanographic profile temperature, salinity, and other measurements collected using bottle from the NATHANIEL B. PALMER and ROGER REVELLE in the Antarctic and South Pacific from 1996 to 1998 (NODC Accession 0000519)

See results on this page through REST API: GEORSS ATOM HTML FRAGMENT KML JSON

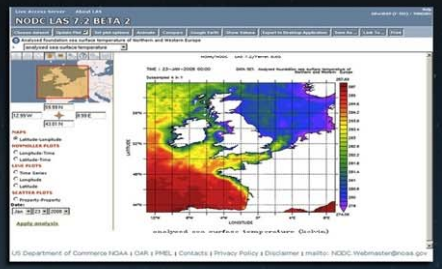

Google Earth EC
Search
Fly To
Find Businesses
Directions
Fly to e.g., 1600 Pennsylvania Ave, 200
Places
Add Content
My Places
Temporary Places
NODC Geoportal GeoRSS.
Most recently updated metadata documents.
Zooplankton data collected from
Zooplankton data were collected using zooplankton net casts in
Zooplankton data collected from
Zooplankton data were collected using zooplankton net casts in
Oceanographic profile temperatu
Temperature profile, nutrients and other data were collected
Layers
kh.google.com
Imagery
Borders and Labels
Places
Photos
Roads
Zooplankton data collected from THOMAS G. THOMPSON in Arabian Sea; 01 January 1995 to 15 September 1995 (NODC Accession 9800071)
Zooplankton data were collected using zooplankton net casts in Arabian Sea from THOMAS G. THOMPSON. Data were collected from 01 January 1995 to 15 September 1995 by University of Maryland; Horn Point Laboratory with support from the Joint Global Ocean Flu...
Access Data Details Metadata
© 2011 MapLink/Tele Atlas
© 2011 Google
© 2011 Europa Technologies
US Dept of State Geographer
Google
2°59'35.32" N 49°44'15.52" E elev -4068 m
Eye alt 9112.38 km

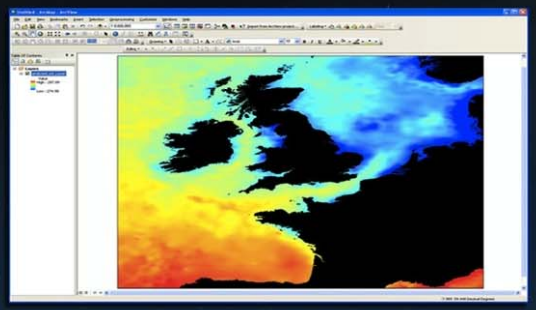
Beyond Human Web Interfaces

- However, the Geoportal goes beyond human web interfaces and enables interoperable *discovery* interfaces for software clients and applications…

REST: Everything is a URL!

- http://data.nodc.noaa.gov/geoportal/rest/find/document?searchText=+(Temperature)+(sdate:[1986 TO 1990]) + (edate:[1986 TO 1990])&start=1&max=25&spatialRel=esriSpatialRelWithin&bbox=137.72,33.36,143.29,36.14&f=html
- “Show me in HTML format the first 25 datasets with the keyword *temperature*, between 1986 and 1990, within the bounding box 137.72 E to 143.29 E and 33.36 N to 36.14 N”
- Want it in KML? Change the “html” to “kml”.





FGDC

DAP

WCS

OCEAN DATA ARCHIVE

ISO 19115

KML

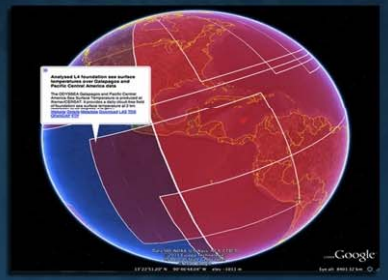
LAS

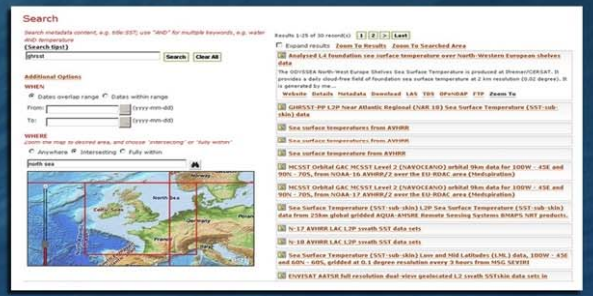
SRU

FTP

WMS

Ocean Data as a Platform





ODP and WIS

- So how do ODP and WIS fit into this idea of “ocean data as a platform”?
- First, the simpler case… WIS is focused on “collections” of data and relies on CSW/SRU to enable discovery of them.
- So, it is straightforward for NODC to now register as a Data Collection or Production Centre (DCPC) on the WIS

ODP and WIS

- But what about ODP? It goes a step further and attempts to enable “granule-level” or “inventory-level” discovery… finding just the specific files within a collection that the user wants.

NODC and ODP

- NODC manually registered a handful of datasets into ODP
- But with tens of thousands of collections, spanning millions of granules, we can’t hope to do it all manually
- We need to rely on REST interfaces with ODP!

NODC and ODP

- Several ideas are being explored
- Harvesting ISO 19115-2 metadata from THREDDS Data Servers (ncISO response) into GI-CAT or a two-tiered Geoportal
- Tapping ODP into NODC's catalog.xml files (one in every archive collection)

NODC and ODP

- NODC is looking forward to working with IODE and ODP on solving this problem!

Questions?

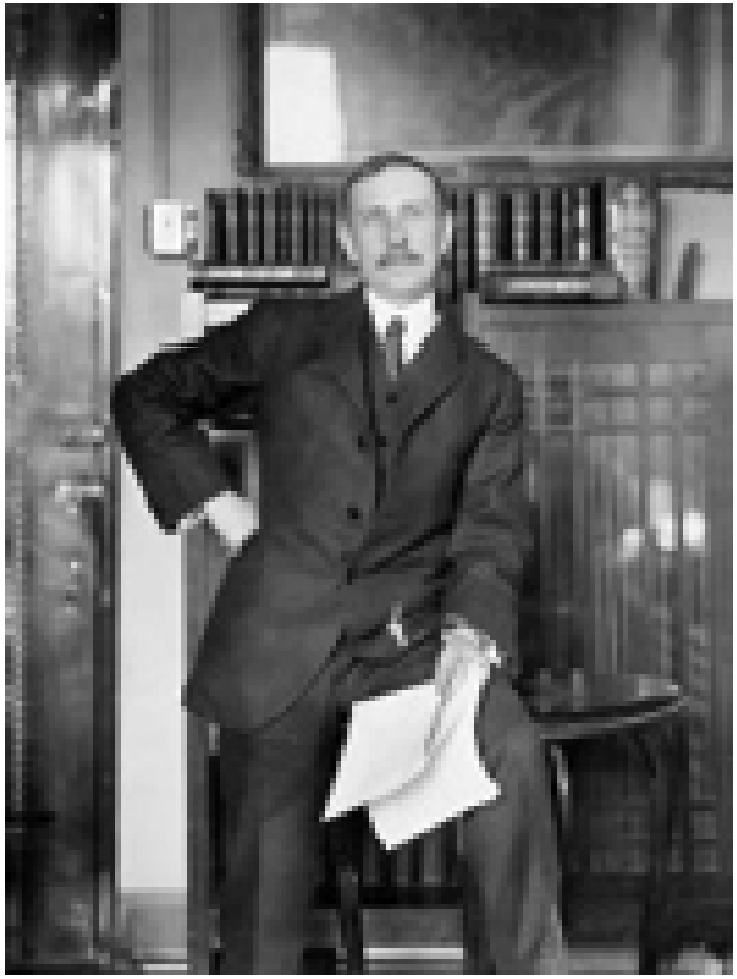


Photo circa 1912

Of all national assets, archives are the most precious; they are the gift of one generation to another and the extent of our care of them marks the extent of our civilization.

-Sir Arthur G. Doughty, Dominion Archivist, Canada (1860 – 1936)