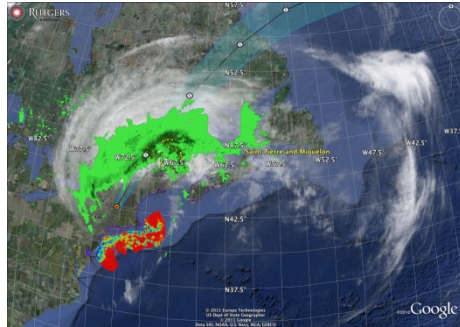


U.S. Integrated Ocean Observing System (IOOS®)



MEOPAR Data Management Workshop
Derrick Snowden, System Architect, U.S. IOOS Program
March 24-25, 2014

IOOS At a glance



Operated By:
Federal Component:



Regional Component:



Value chain for the regional efforts



National program priorities → funding
Data coordination, policy,
infrastructure development
National/International coordination

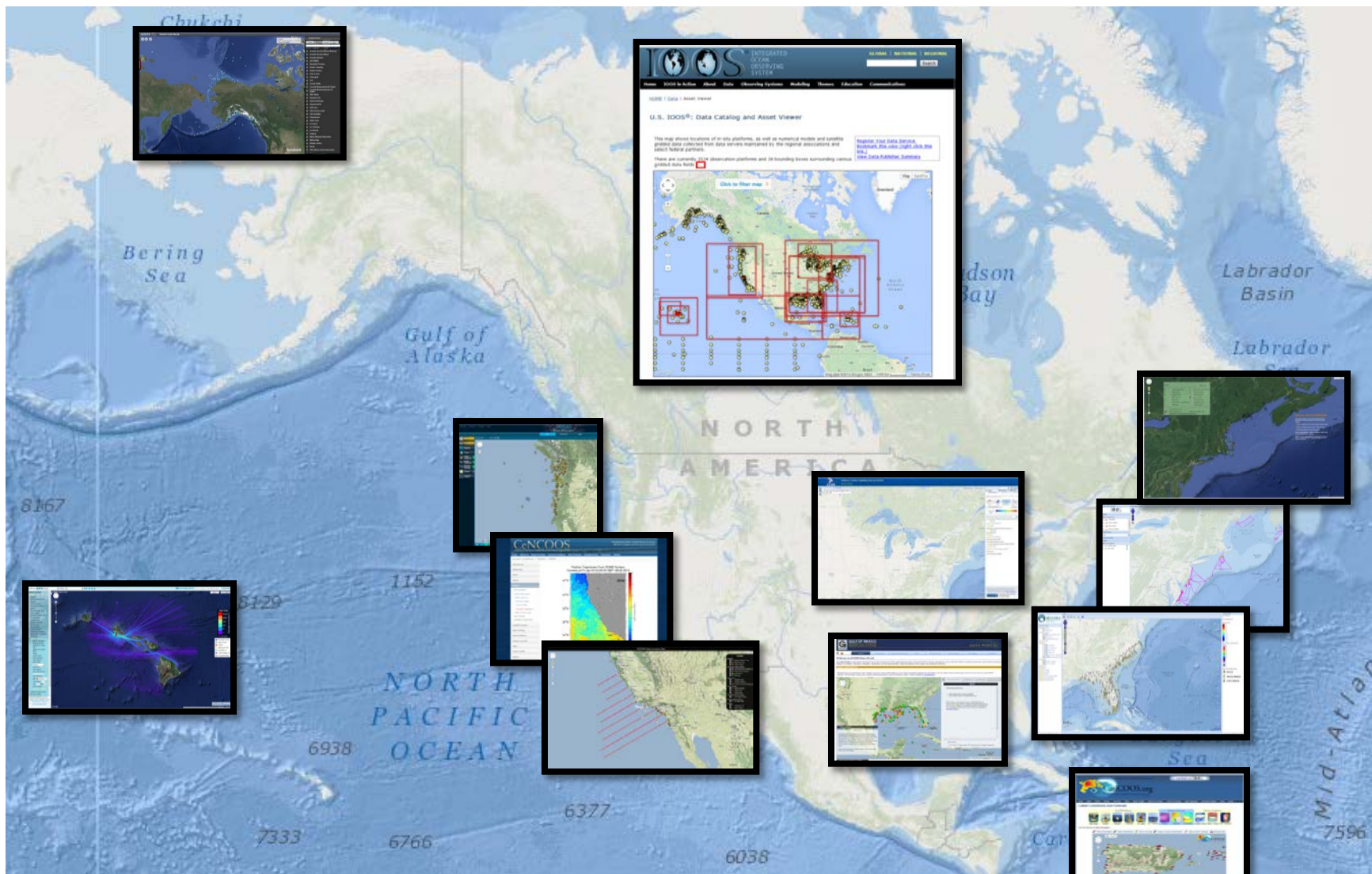
Regional Associations are the implementers

- Data integration/ingestion
- Data stewardship/curation
- Data product development
- Data distribution through web services

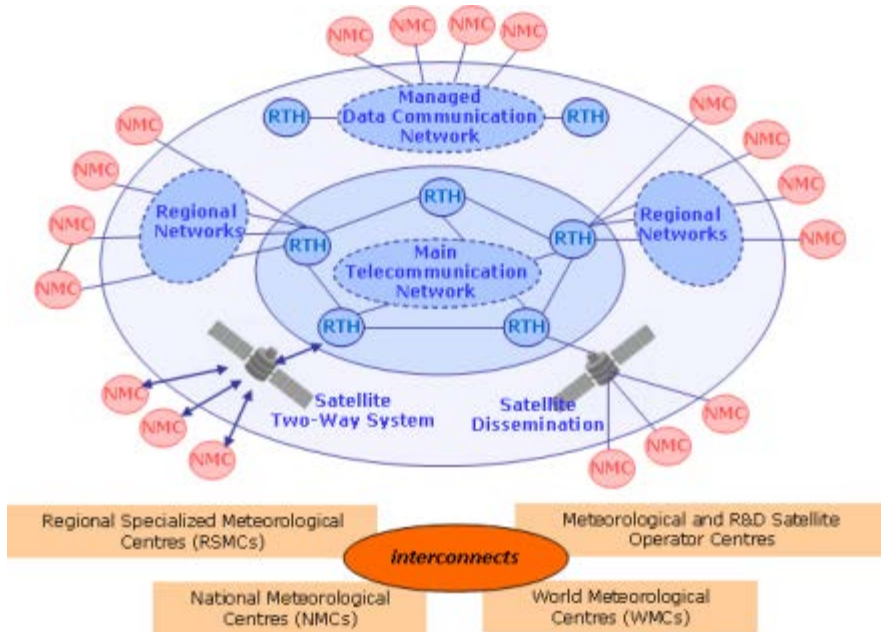
RAs amplify impact of national office investments by leveraging state, local, and other federal funds and activities



Exposing Data!



Use the systems in place today, maximally

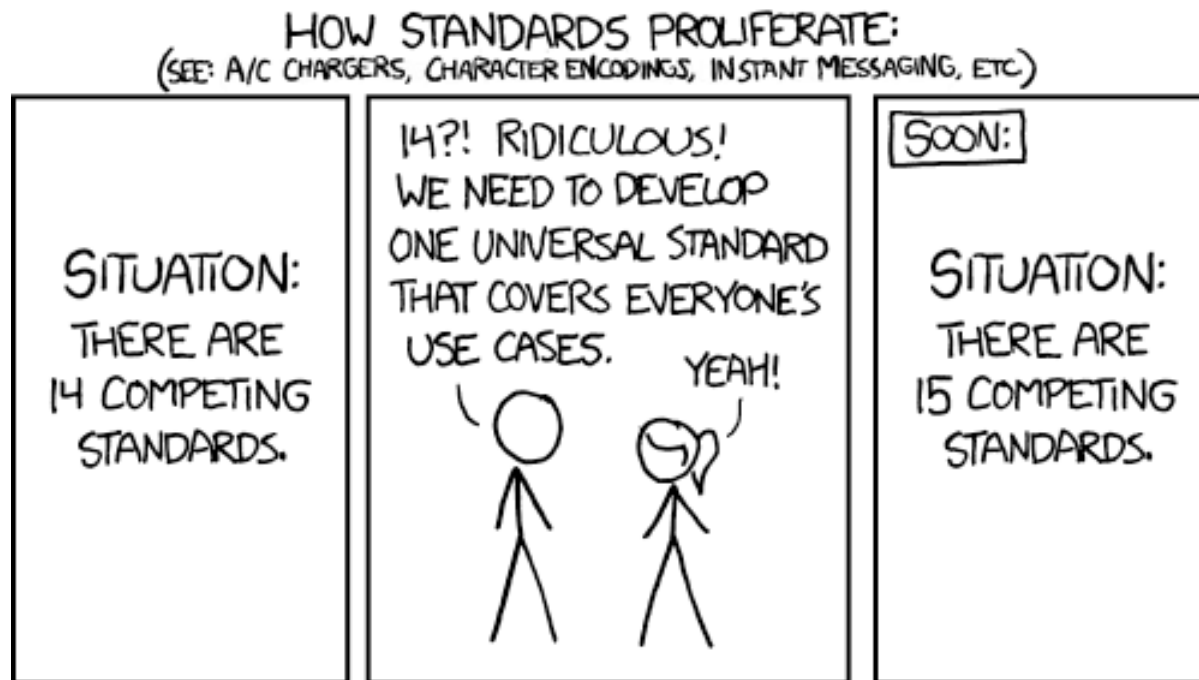


WMO Global Telecommunications System (GTS) to operational users should be a foundation

Approximately 50% of the coastal observations in the NCEP data tanks come from IOOS partnerships → We supplement the federal observing systems substantially!

Standards based infrastructure

Standards are a necessary component of the systems of systems approach to development



What are the things we need to agree on, so that we can disagree on everything else?

Technical Foundations and the Web as Platform

OpenLayers, Ajax, d3,
node.js, FLEX, Google
Maps/Earth Engine etc

Customer
products through
web applications

THREDDS, 52North.org,
Geoportal Server,
ERDDAP, Geoserver, Hyrax

Interoperability
through web services

OPeNDAP, SOS, WMS,
WCS, CS/W

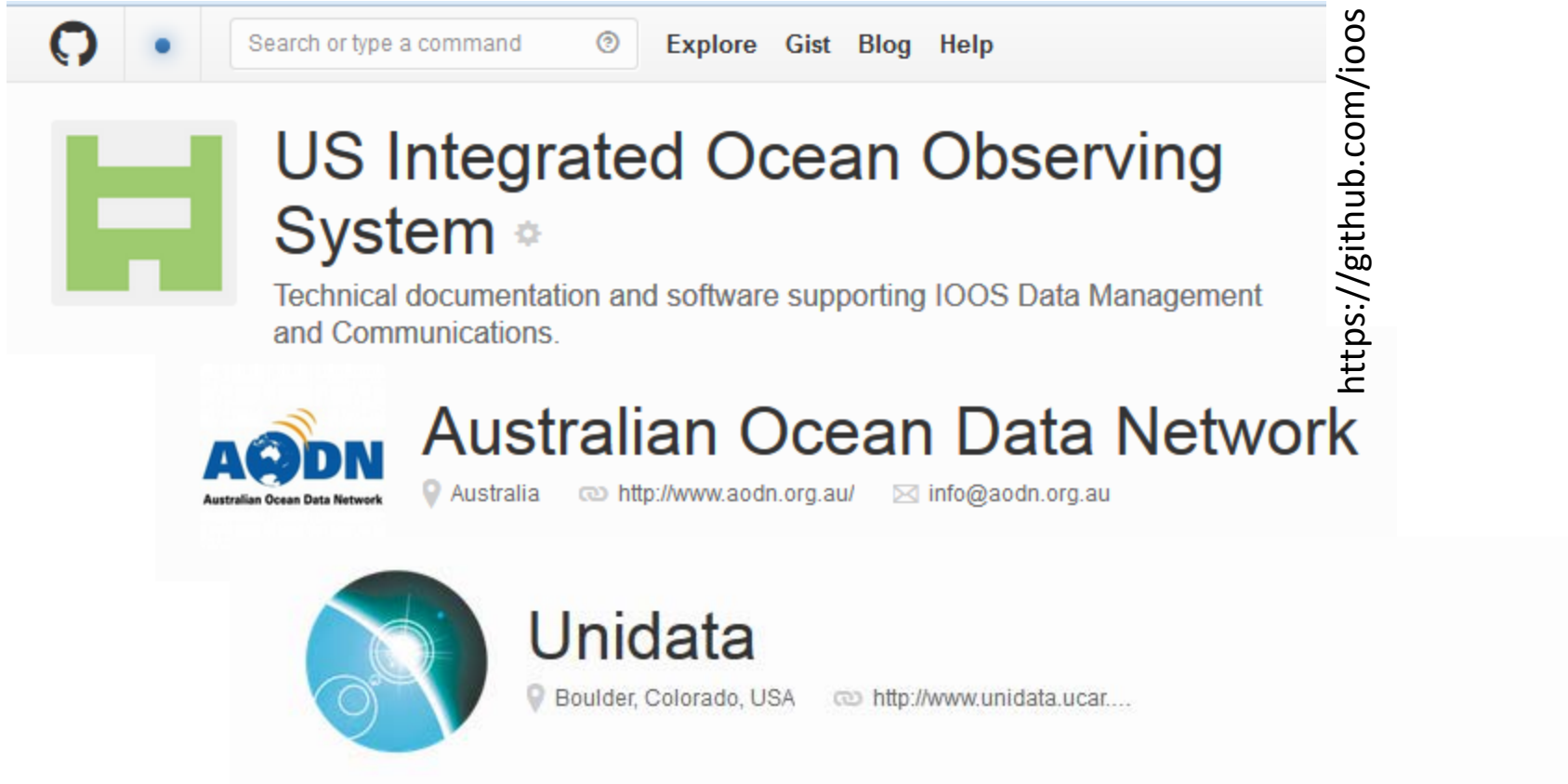
netCDF,
CSV,
RDBMS,
HDF

Data Formats/Models/Metadata

CF
Conventions,
Obs &
Measurement
s, GML,
WaterML

Software drives your infrastructure

Reduce/reuse/recycle on Github.com



The screenshot shows the GitHub interface for the repository 'US Integrated Ocean Observing System'. The repository description is 'Technical documentation and software supporting IOOS Data Management and Communications.' Below this, two other repositories are visible: 'Australian Ocean Data Network' (AODN) and 'Unidata'. The AODN repository is located in Australia and has a website at http://www.aodn.org.au and an email at info@aodn.org.au. The Unidata repository is located in Boulder, Colorado, USA and has a website at http://www.unidata.ucar....

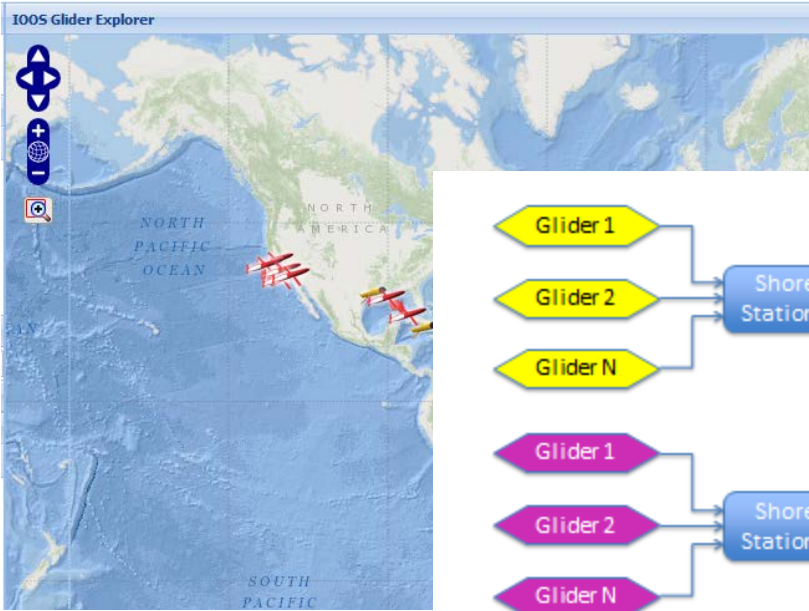
<https://github.com/ioos>



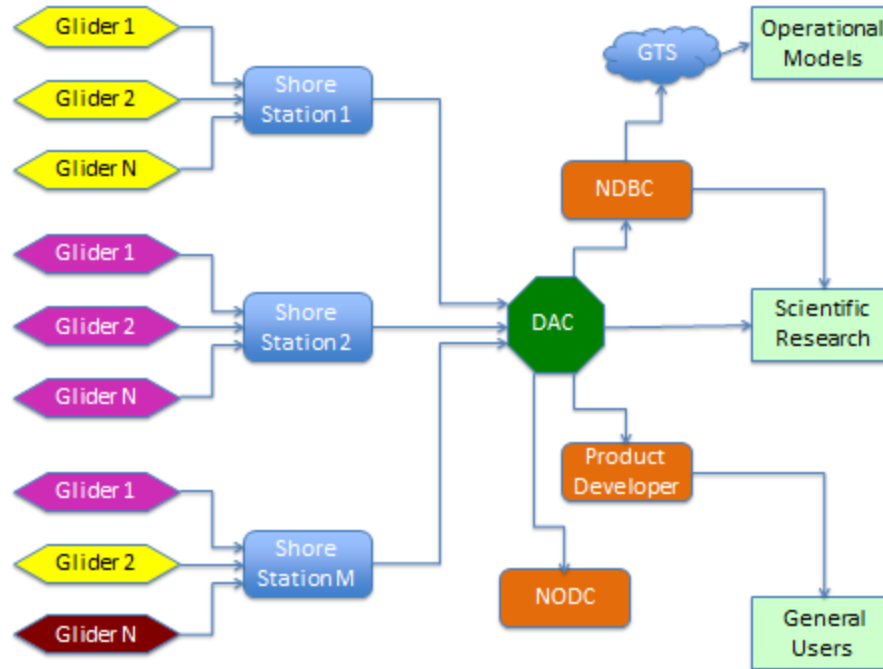
<https://github.com/aodn>, <https://github.com/BobSimons/erddap>, <https://github.com/osgeo>

Gliders as an example (v1.0)

Migrating towards a



http://www.ioos.noaa.gov/observing_assets/glider_as



Operational
and data
category.

IT driven
advertise.

Gliders as an example (v1.0)

<https://gliders.ioos.us>

Backend management interface

Glider DAC Login

Recent Uploads

Mission	File	Updated
ru29-20131110T1400	ru29-20140323T221445_rt0.nc	1 hour ago
ru29-20131110T1400	ru29-20140323T081741_rt0.nc	1 hour ago
ru29-20131110T1400	ru29-20140322T181053_rt0.nc	1 hour ago
ru29-20131110T1400	ru29-20140322T040218_rt0.nc	1 hour ago
ru29-20131110T1400	ru29-20140321T134520_rt0.nc	1 hour ago
ru29-20131110T1400	ru29-20140320T234429_rt0.nc	1 hour ago
ru29-20131110T1400	ru29-20140320T094445_rt0.nc	1 hour ago
ru29-20131110T1400	ru29-20140319T193342_rt0.nc	1 hour ago
ru29-20131110T1400	ru29-20140319T051616_rt0.nc	1 hour ago
ru29-20131110T1400	ru29-20140318T192716_rt0.nc	4 days ago

At a Glance

Missions	17
Dives	3136

Operators

University of Massachusetts Dartmouth	1 missions
Woods Hole Oceanographic Institute	1 missions
Dalhousie University	2 missions
University of Delaware	1 missions
University of South Florida	1 missions
North Carolina State University	1 missions
University of Maine	1 missions

Backend management interface

Technologies in use:

1. CF Compliant netCDF files (<https://github.com/IOOSProfilingGliders/Real-Time-File-Format/wiki>)
2. THREDDS Data Server with aggregations (thousands of profiles → one virtual trajectory) (<http://tds.gliders.ioos.us/>)
3. FTP (GTS distribution via NDBC)

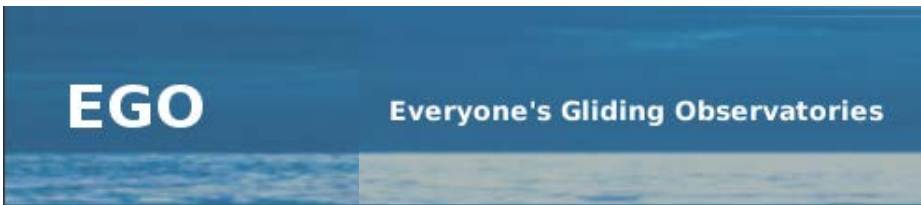
Next Steps for Glider Data Management (v2.0)



V1.0: <https://github.com/IOOSProfilingGliders/Real-Time-File-Format/wiki>



http://imos.org.au/fileadmin/user_upload/shared/ANFOG/ANFOG_data_management3_1.pdf



<http://www.ego-network.org/dokuwiki/doku.php?id=public:datamanagement>

Harmonizing national programs

JCOMM

ODIP

IODE [Oceandatastandards.org](http://oceandatastandards.org)



Opportunities

- Solidify the software development collaborations for international research infrastructures
- Replication/Federation of discovery metadata in national repositories (data.gov, ocean.data.gov etc)
- Quality Control
 - QARTOD (www.ioos.noaa.gov/qartod,
<http://www.linkedin.com/groups/QARTOD-2521409>)