



Status of Aquarius/SAC-D Data Archival & Distribution Support at the PO.DAAC

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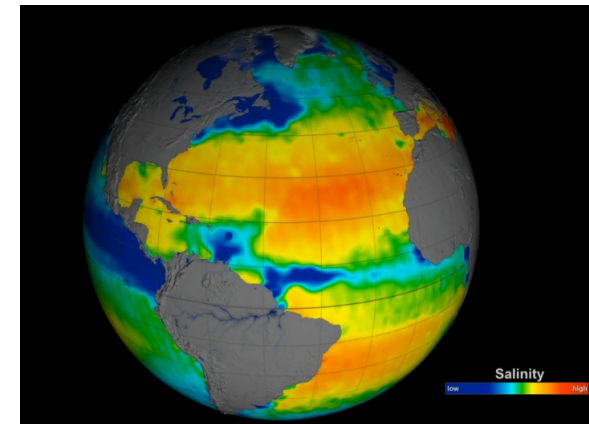
State of the Aquarius Mission Data 1/2



<http://podaac.jpl.nasa.gov>

Current Publicly Available Dataset: V4.0 “End-of-Prime Mission”

- Released: 17 July, 2015
- No foreword data streams due to mission ending power supply anomaly
- Series Length: 3 years, 9 months (8/25/2011 – 6/7/2015)
- Level 0, 1A
- V4.0 Data Product Highlights:
 - L2: includes new SSS-Uncertainty (random/systematic) & Density variables
 - L3m: 97 products total (includes new Density products & additional time intervals)
 - Variables: SSS, Density, Wind Speed, Ancillary-SST
 - Daily, 7day, 7day-rolling, Monthly/smoothed, 28day-rolling, Annual, Monthly/Seasonal Climatologies, Cumulative
 - Ascending/Descending/Combined
- Updated Technical Documentation for V4.0:
 - Improvements Summary, ATBD, User Guide, File Specs, Validation Analysis, SSS-Uncertainty & Density Estimation
- All v4.0 Data are:
 - Discoverable via PO.DAAC Portal and NASA GCMD/ECHO
 - Accessible via FTP and a range of Tools & Services
- Reader software (Matlab/IDL) provided

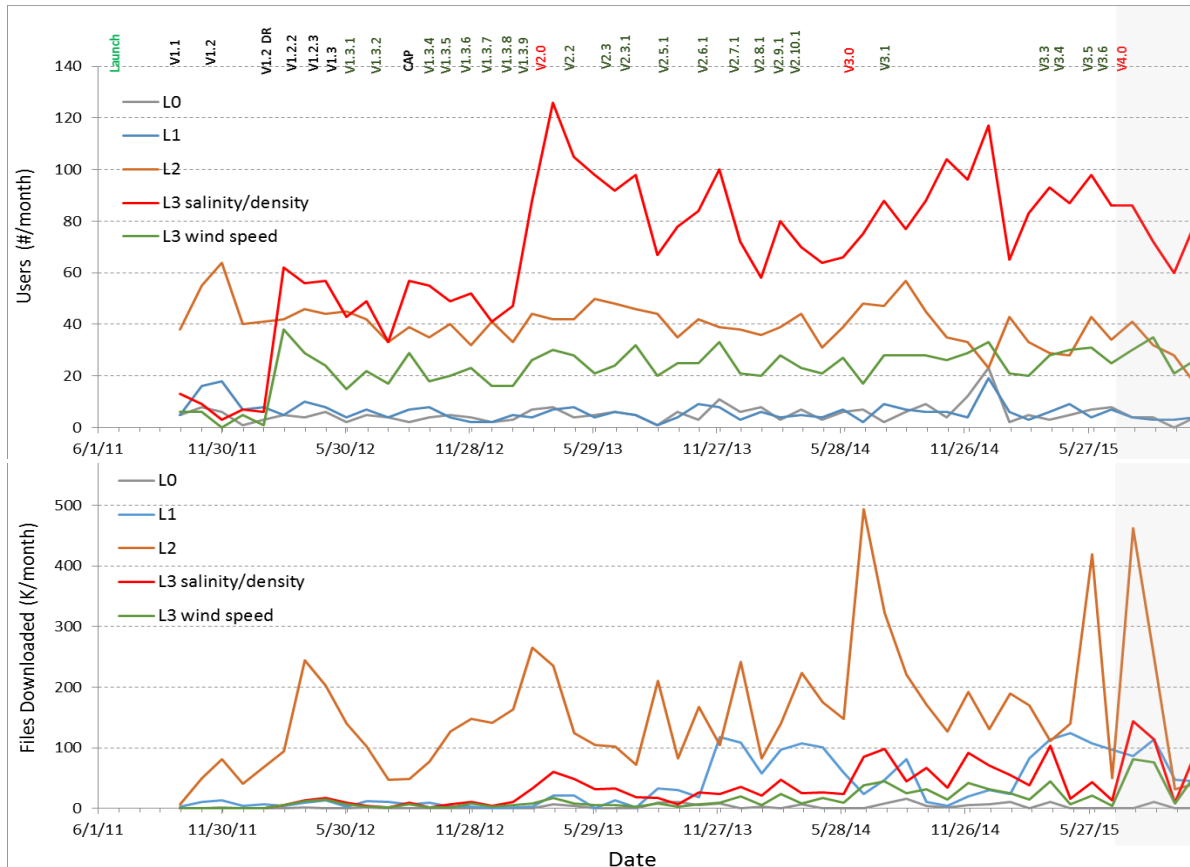


Aquarius Data Distribution Metrics

- PO.DAAC system provides advanced monitoring/reporting capability
By: access mode, dataset, granule, user
- Weekly automated email reports to Aquarius mission
- Registered Aquarius Users: **971** (*Registration required pre-v2.0*)
- **1,220** Total unique users in 2015, and growing weekly
- Distribution Metrics & Usage Patterns

Data Type	Year to Date			This Week		
	Users	GB	Files	New Users	GB	Files
Level 0	118	626.2	34392	0	0.0	0
Level 1	139	3815.1	855059	2	38.2	7927
Level 2	437	7374.7	2486131	17	15.8	3156
Level 3 Mapped Density	57	2.2	90037	1	0.0	406
Level 3 Mapped Salinity	885	95.2	1136271	13	1.8	27399
Level 3 Mapped Wind	303	15.0	354176	6	0.8	8805
Level 3 binned	0	0.0	0	0	0.0	0
Total for All Data Types	1220	11928.4	4956066	31	56.7	47693
Registered FTP Users	971			1		

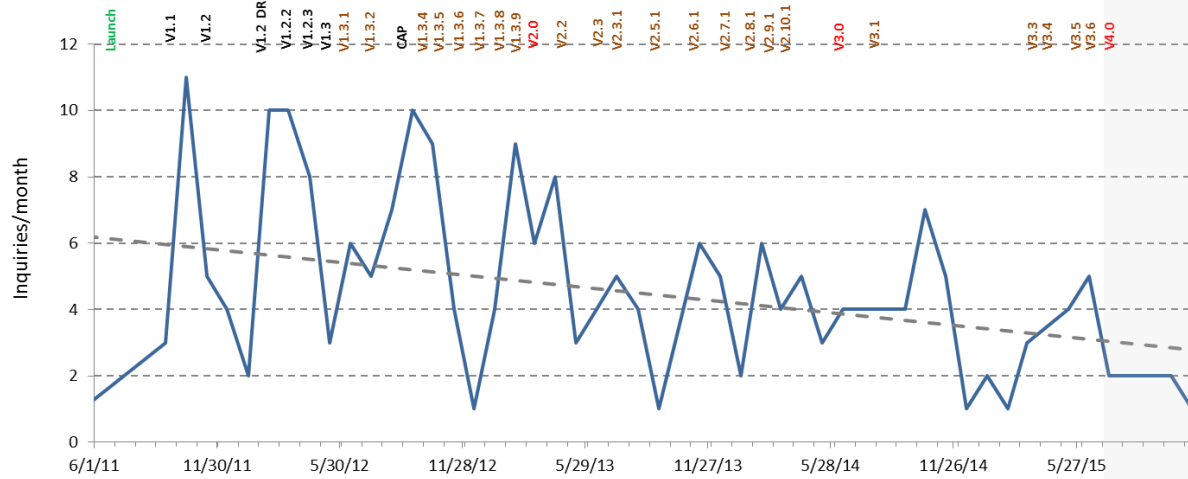
Aquarius FTP + OPeNAP Data Access by Product Level/Type



Weekly Reports to Mission

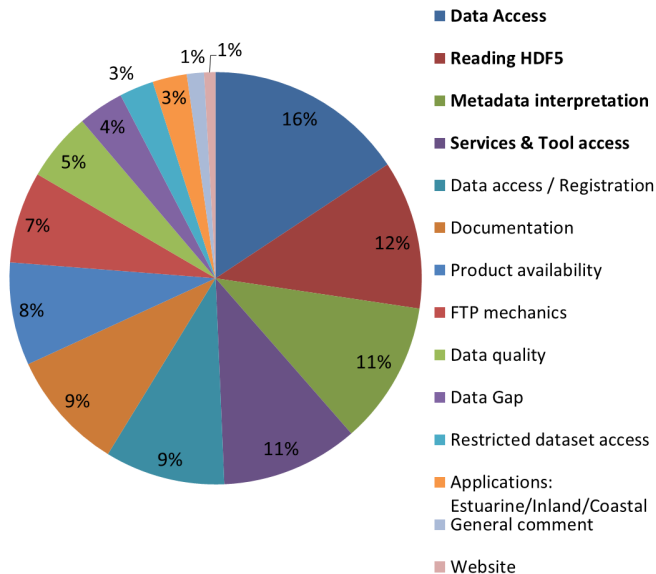
Aquarius Data User Support

- User support services: podaac@podaac.jpl.nasa.gov , salinity@podaac.jpl.nasa.gov
- Inquiries to date: **228** from **162** users
- Help-Desk System: catalog, assign, track status, report
- Aquarius User Inquiry Analytics:



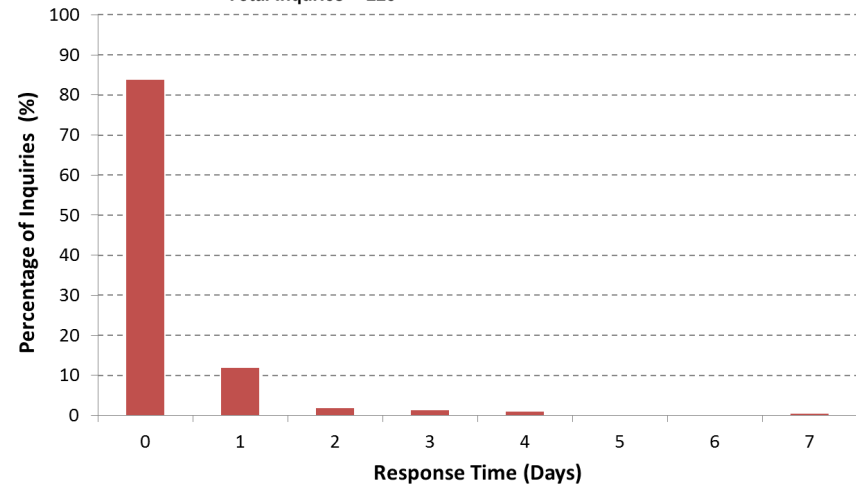
Types of Aquarius User Inquiries to PO.DAAC

Total Inquiries = 228 from 162 Users
4/14/2011 - 11/10/2013

































PO.DAAC Help-Desk Response Times to Aquarius Inquiries

Total Inquiries = 228



Summary of Available PO.DAAC Tools & Services for Aquarius

Functionality	Tool/Service	Registration Phase		Post-registration	
		pre-V2.0	V2.0	V3.0	V4.0
Data Discovery	PO.DAAC Portal				
	Consolidated Web-services (PO.DAAC-CWS)				
Data Access	FTP				
	THREDDS				
	OPeNDAP				
	W10N				
Visualization/Subsetting	PO.DAAC L3-Browser				
	PO.DAAC SOTO (L3)				<i>No forward stream</i>
	LAS (L3)				
	HiTIDE (L2)				
	PO.DAAC-CWS (L2 & 3)				

 *Aquarius mission data*

Web-Portal & Aquarius Mission Page

Faceted Data Search & Links to Aquarius Resources

<http://podaac.jpl.nasa.gov/datasetlist?search=aquarius>

Aquarius Image Browser

<http://podaac.jpl.nasa.gov/aquarius/gallery>

Level 2 Visualization/Subsetting

HiTIDE <http://podaac-tools.jpl.nasa.gov/hitide>

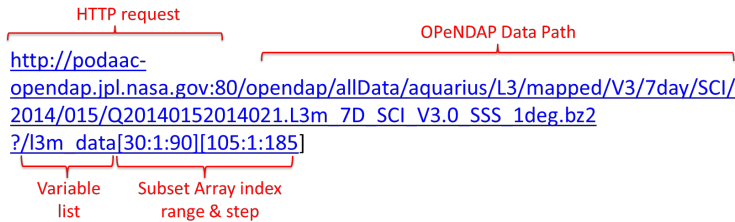
Level 3 Visualization/Subsetting

LAS (Live Access Server) <http://podaac.jpl.nasa.gov/las>

OPeNDAP (<http://opendap.jpl.nasa.gov/opendap/>)

- Data transport architecture and HTTP-based protocol widely used to serve & subset earth science data
- All Aquarius L1 - L3 data accessible OPeNDAP: <http://podaac-opendap.jpl.nasa.gov/opendap/allData/aquarius/>

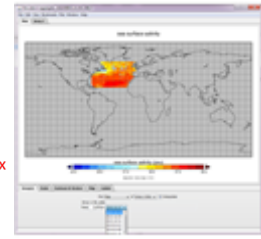
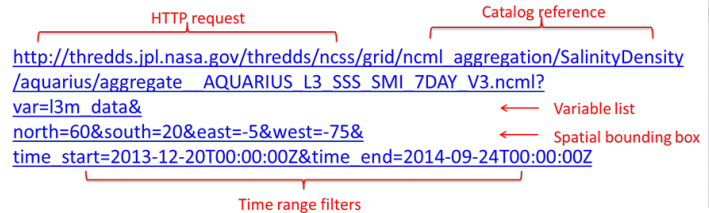
Granule subsetting via extended OPeNDAP URL with parameters



THREDDS (http://podaac.jpl.nasa.gov/podaac_thredds)

- HTTP-based Webservice protocol widely used to aggregate, serve and subset earth science data
- Subsetting by-value (*Lat/Lon/Time*) via NCSS service
- Supports OGC standards: WMS & WCS services
- All Aquarius L3 (Daily, 7d, Monthly) data in THREDDS

Spatio-Temporal subsetting via structured THREDDS URL with parameters



CWS (Consolidated Web-Services)

- Integrated set of PO.DAAC Web-services for dataset and granule search & subsetting
- General Form: <http://podaac.jpl.nasa.gov/ws/service?parameters>
- Returns: response as XML structure or in JSON format

PO.DAAC Web Services Overview

Introduction

PO.DAAC provides several ways to discover an user interfaces (see <http://podaac.jpl.nasa.gov>), efficient machine-to-machine communication and

What is PO.DAAC Web Services

PO.DAAC Web Services are application program Web Service in part as, "A software system designed to see <http://www.w3.org/TR/ws-arch/#whatis>). T over a Hypertext Transfer Protocol (HTTP) conn Markup Language (XML) structure or, optionally, A typical PODAAC Web service request is gener http://podaac.jpl.nasa.gov/ws/service?paramete Where service indicates the particular service r a call to the "search" service). The parameters, documentation.

WebServices

The following is the list of available PO.DAAC W

Name	Description
Dataset Metadata	Dataset metadata service retrieve datasetid, shortName, and form
Granule Metadata	Granule metadata service retrieve and other optional parameters.
Search Dataset	Dataset Search service searches parameters: datasetid, shortName
Search Granule	Search Granule does granule se gridded datasets (time average startTime, endTime, bbox, and o

Example Aquarius use case & CWS workflow:

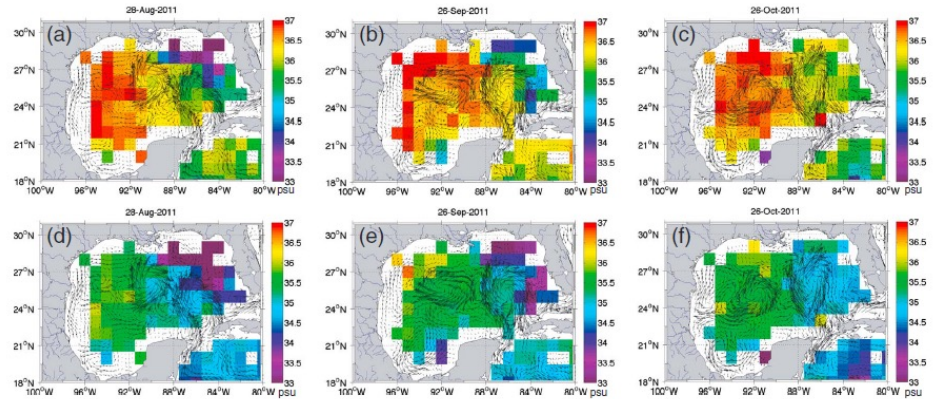
Step	CWS Request	Response / Result
1. List Aquarius datasets	http://podaac.jpl.nasa.gov/ws/search/dataset/?keyword=aquarius	
2. Get dataset metadata for monthly SSS product	http://podaac.jpl.nasa.gov/ws/metadata/dataset/?format=cmd&shortName=AQUARIUS_L3_SSS_SMI_MONTHLY_V2	
3. List all related granules within a date range	http://podaac.jpl.nasa.gov/ws/search/granule/?shortName=AQUARIUS_L3_SSS_SMI_MON_THLY_V2&startTime=2013-01-01T08:3A10%3A07Z&endTime=2013-06-30T23:3A10%3A07Z&format=html&pretty=1	
4. Get metadata for a specific granule	http://podaac.jpl.nasa.gov/ws/metadata/granule/?format=iso&shortName=AQUARIUS_L3_SSS_SMI_MONTHLY_V2&granuleName=Q201302201909.L3m_MO_SCI_V2.0_SSS_1deg	
5. Get spatial subset of granule data (CWS L2-SSS)		

- Research application of Aquarius data in marginal seas

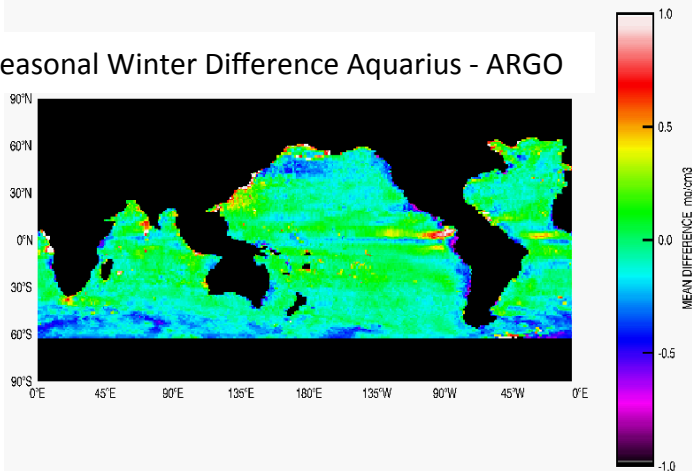
- Density Validation Analyses for v4.0:
ARGO – Aquarius comparisons

Aquarius and SMOS detect effects of an extreme Mississippi River flooding event in the Gulf of Mexico

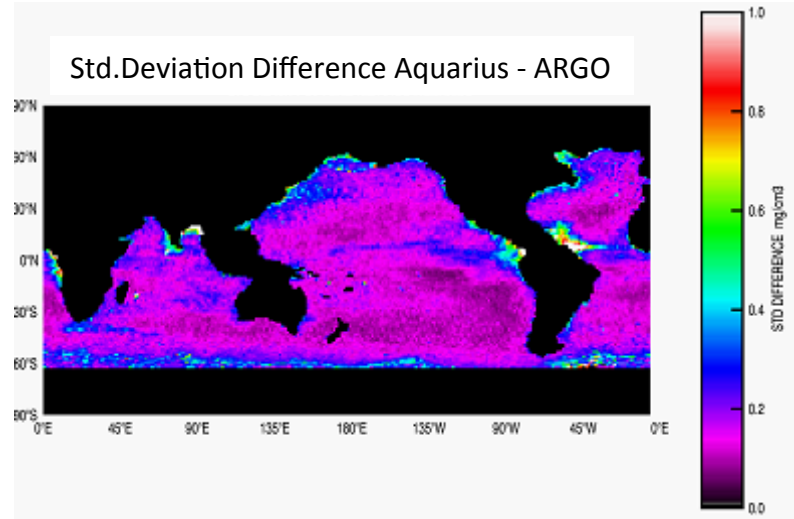
Michelle M. Gierach,¹ Jorge Vazquez-Cuervo,¹ Tong Lee,¹ and Vardis M. Tsontos¹



Seasonal Winter Difference Aquarius - ARGO



Std.Deviation Difference Aquarius - ARGO





Phase-F Mission Closeout Support

Artifact Preservation for Mission Closeout

- Inventory of mission artifacts currently at the PO.DAAC relative to EOSDIS preservation guideline (*completed*)
- In coordination with the mission, compile any outstanding materials to be physically preserved at the PO.DAAC, or in lieu of this provide pointers to such resources where they may already be maintained at OBPB-DAAC

Cal/Val support en route to Aquarius v5.0

- Archival and restricted distribution (via protected FTP-site) of evaluation datasets for Aquarius cal/val team
- Product format/metadata recommendations
- Product evaluation and support for science data quality assessments
- Also includes support for any interim V4..... Data sets.

Support for the Aquarius v5.0 Validated, Public Data

- Archival and public distribution services for v5.0 data, including tool/service integration
- Metrics Reporting Services
- Discoverability Services (PODAAC Portal & NASA ECHO/GCMD/CMR)

Documentation Services

- v5.0 User Guide development
- Curation of v5.0 technical documentation (ATBD, Product specs, Validation document, etc)

User Support Services

- User forum and inquiry Help-desk with associated metrics

GRACIAS!

PREGUNTAS