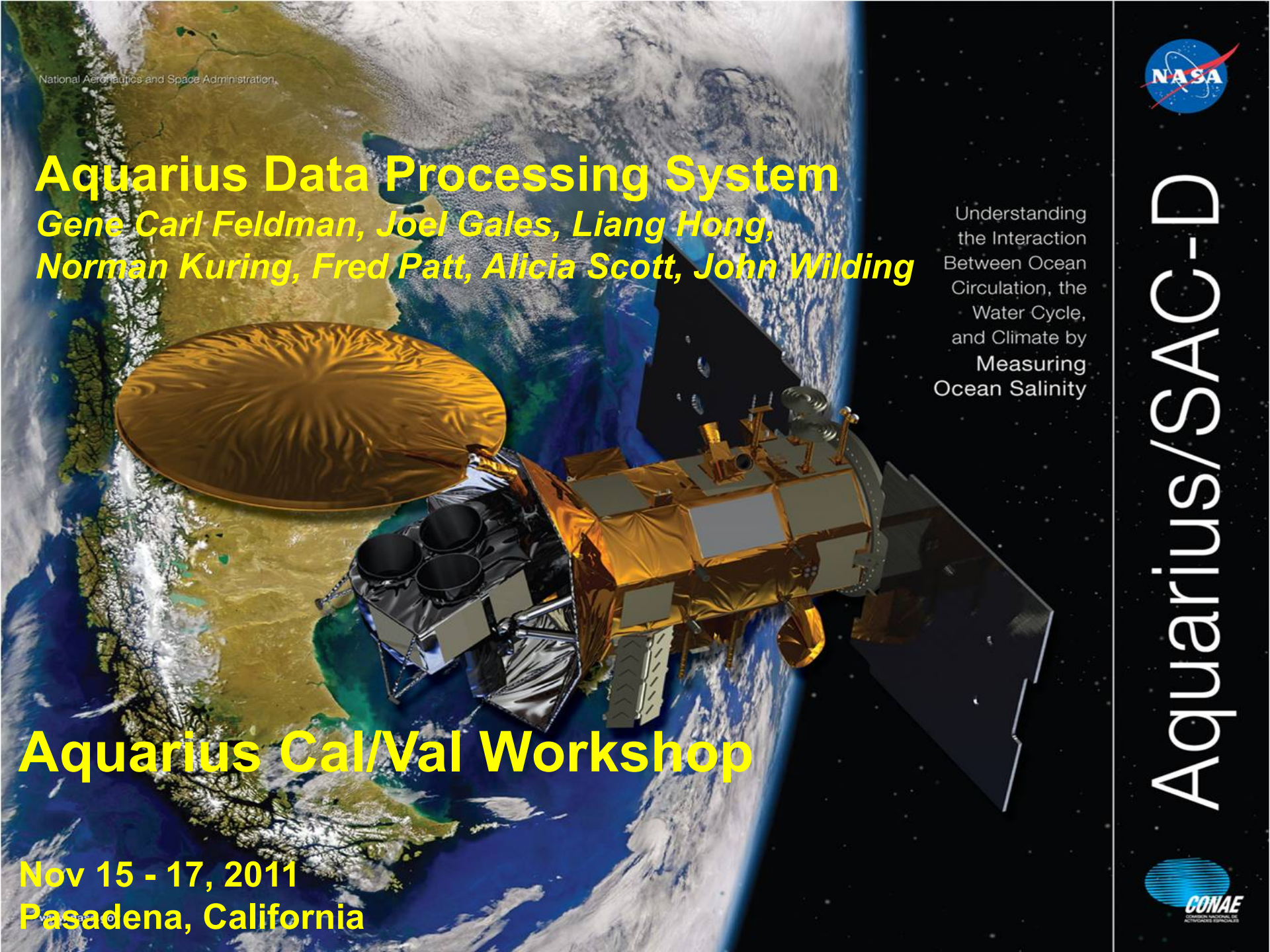
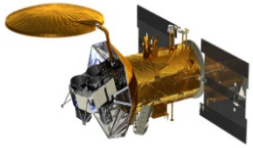

National Aeronautics and Space Administration
Aquarius Data Processing System
Gene Carl Feldman, Joel Gales, Liang Hong,
Norman Kuring, Fred Patt, Alicia Scott, John Wilding
Understanding the Interaction Between Ocean Circulation, the Water Cycle, and Climate by Measuring Ocean Salinity
Aquarius/SAC-D
Aquarius Cal/Val Workshop
Nov 15 - 17, 2011
Pasadena, California

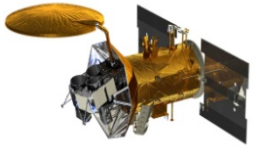
What We Need to Accomplish



Everyone understands and agrees with:

- The software development process
  - Use of Trac
  - Role of SOCB
  - Well-defined verification and approval of changes
  - Documentation of changes
- The process and mechanism for distributing science software within the team.
- The documentation required and who is responsible for providing and maintaining it.

Agenda



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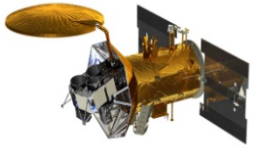
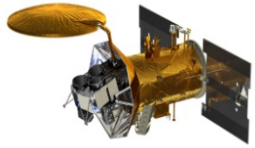
Aquarius Data Processing System OVERVIEW



The Aquarius Ground System at NASA/GSFC consists of the Aquarius Data Processing System **(ADPS)** and the Aquarius Command and Control System **(ACCS)**

- The ADPS supports the:
  - Acquisition and ingest of Aquarius/SAC-D data from CONAE.
  - Acquisition of dynamic ancillary required to support the science processing.
  - Processing of Aquarius data to standard and evaluation product levels using algorithms provided by the Science Team.
  - Quality control of data products using methods specified by the Science Team.
  - Match-up of Aquarius data with *in situ* salinity measurements and provide to AVDS.
  - Archive and distribution of all data products during the active life of the mission to the science team.
  - Delivery of ALL Aquarius data products to the PO.DAAC regardless of validation status.

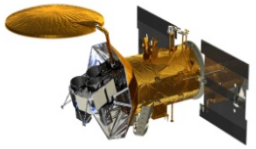
Aquarius Data Processing System STATUS



From the very first contact within hours of launch and when Aquarius was first turned on we could *Operationally* :

- Detect, transfer and ingest files from CONAE servers (Aquarius & SAC-D HKT)
- Process all SAC-D HKT data and perform automated telemetry monitoring
- Process Aquarius downlink files eliminating duplicate records
- Create temporary Level-1A data files and perform automated telemetry monitoring
- When subsequent downlinks were received, complete Level-1A orbit files produced
- Ingest and preprocess all required ancillary data
- Process to Level-2 salinity and wind speed products with best currently available algorithms and make products (Level-0, Level-1A & 2) available via a "quick-look" ftp method to support commissioning and later with the existing web browse/download tools
- Process Level-2 files to Level-3 maps and make products available via web browse/download tool.
- Make all data products available to the JPL PO.DAAC for ingest

Aquarius Data Processing System
CHANGES SINCE LAUNCH



Since the Launch we have made numerous changes to the operational software and updated many of our processes based on actual science data and telemetry values and have adapted to the "evolving" capabilities of the CONAE ground system. ALL of these changes are extensively documented and continuously updated and are available online at

http://oceancolor.gsfc.nasa.gov/WIKI/AQ(2f)GS(2f)SW(2f)UpdatesPostLaunch.html

http://aquarius.gsfc.nasa.gov/AQOPS/blog

Tuesday 8/23:

A new limits file, L1B_limits_loose-8-22-2011.txt, was installed for the l2gen_scatter program.

Wednesday 8/24:

The Aquarius commissioning was completed, with the scatterometer enabled to transmit on all three beams at 21:33 UTC.

Joel delivered new versions of l1agen_aquarius (1.04), to fix an error in the block number and frame number metadata; and and l2gen_aquarius (1.03), to add the RFI-filtered Ta fields to the output. The new versions were installed.

Thursday 8/25:

The radiometer DPU OpLUT was commanded from 0 (nominal) to 6 for the period 12:30 to 13:30 UTC.

Joel delivered an updates to l2gen_aquarius (1.04) to correct an error in the rad_samples field calculation, and (1.05) to correct and error in writing the rad_rfi_flag field. The latest version was installed and 51 L1A files were reprocessed.

Updated Aquarius HKT limits (v5) were delivered by the instrument team.

Friday 8/26:

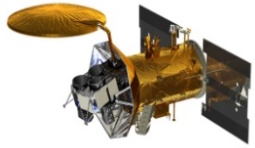
The Aquarius Commissioning CSR was held this morning.

Saturday 8/27:

A scheduled X-band downlink at Matera was missed due to antenna control unit problems.

EXAMPLE

Agenda



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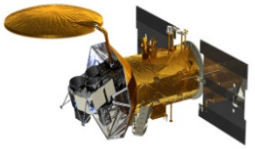
Aquarius Data Processing Overview

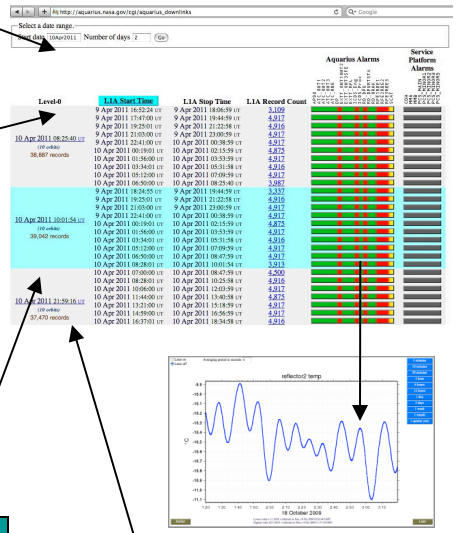


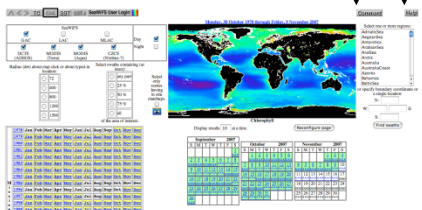
Standard Data Processing

Raw Level-0 Downlink File
Level-0 Preprocessor
Level-0
SAC-D HKT Data
Level-0 to 1A
Level-1A temp
Level-1A Merge
Level-1A orbit
Dynamic Ancillary Data
Level-1A to 2
Level-2
In-Situ Match-up Process
Static Ancillary Data
Bias Adjustment
AVDS
Level-2 Match-up
Level-2 to 3 Smoothing
Level-2 to 3 Binning
Level-3 Mapping
Level-3 Bin
Level-3 Binning
Level-3 Map

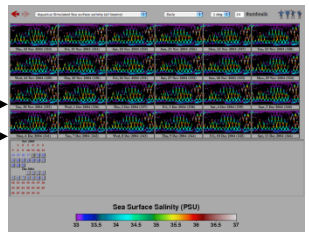
Web-Based Telemetry Monitoring Tools

Level-0 Report
Level-1a Report
Automated Telemetry Analysis Tool
Telemetry Report & Files
Automated Telemetry Alert
Predicted Downlink Times
SAC-D HKT Data
CONAE-provided Interactive Telemetry Analysis Tool



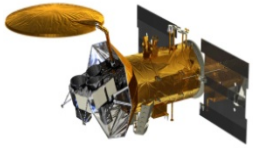


Web-Based Browse, Download and Order Tools



INPUT FILE
OUTPUT FILE
PROGRAM

Science Data Processing

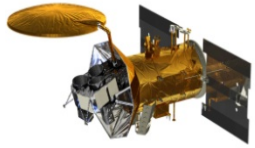


The Aquarius science data processing consists of the following steps:

- Level-0 Preprocessor – process each HRD downlink file to produce a single time-ordered set of Aquarius science blocks and removes duplicates– developed by Joel Gales - ADPS.
- Level-0-to-1A – separate Level-0 files into orbits, unpack science data, incorporate overlapping ephemeris and SAC-D HKT and convert Aquarius HKT – developed by Joel Gales - ADPS.
- Telemetry Analysis – HKT data from Level-1A files analyzed for web display on the Aquarius web site – developed by Norman Kuring and Liang Hong (ADPS/ACCS) and Aq. Inst. Team.
- Interactive Telemetry Analysis - HKT files analyze using CONAE-provided telemetry viewer.
- Level-1A Merge – consolidate Level-1A files from overlapping downlinks into a single, best-quality full orbit product – Joel Gales - ADPS.
- Level-1A-to-2 – perform calibration, atmospheric correction and salinity retrieval for Aquarius science data – radiometer and scatterometer code delivered by RSS and JPL, respectively; integration and input/output code developed by Joel Gales and Liang Hong - ADPS.
- Level-2-to-3 Binning – Level-2 salinity retrievals for one day geographically projected and collected into equal-area bins – existing OBPG software modified by Joel Gales- ADPS.
- Level-2-to-3 Smoothing – Level-2 salinity retrievals for one day optimally interpolated into equal-area bins – algorithm by Jonathan Lilly/ESR implemented by Joel Gales - ADPS.
- Level-3 Binning and Mapping – Level-3 binned files aggregated to longer time periods (weekly, monthly, etc.) and projected onto map grid – existing OBPG software.

All processing steps are run automatically when all input data sets are available.

Periodic Reprocessing



Development and test environments allow for multiple algorithm versions to be run concurrently on the entire mission data set to test the impacts of calibration and algorithm improvements.

The results of these evaluation runs are made immediately available to the science team members via web and ftp mechanisms and via the PO.DAAC

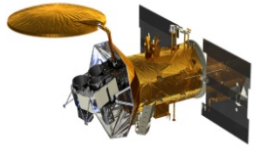
Once the calibration/algorithm changes have been validated and approved by the Science Operations Control Board, a mission-long reprocessing will be initiated and the new products will be made available to the PO.DAAC and science community.

File naming convention and metadata attributes allow traceability of all products to software version and reprocessing status with online documentation (defined in data product format specifications, data user's guide and wiki)

V1.2 reprocessing was recently performed - throughput was 4500x. With the new processing servers currently being installed, throughput should be around 8000x.

Full mission reprocessing in less than one day!

Agenda



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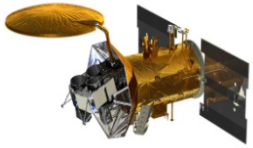
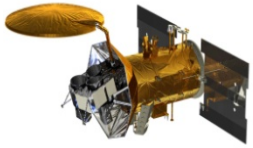
Trac Tool Description



- Problem report/special request tracking tool
- Utilized as the primary interface tool between AQ GS and other Aquarius groups (Agreement with CONAE is to use E-mail)
  - Science Team/SOCB
  - JPL
  - AIT
- Users submit "tickets" to report anomalies or request changes
  - Instrument
  - Ground System Software / Hardware
  - Data Products
- Software Developers submit tickets to document software updates
- Tickets are assigned/reassigned as they move through stages of implementation, testing and approval

Example Trac Ticket



AQUARIUS
Sea Surface Salinity from Space

Search

logged in as fred | Logout | Preferences | Help/Guide | About Trac

Wiki | Timeline | Roadmap | View Tickets | New Ticket | Search | Admin | Blog

← Previous Ticket | Back to Query | Next Ticket →

Ticket #32 (new Anomaly) Modify ↓

Aquarius time and pitch glitch

Opened 2 months ago
Last modified 5 days ago

Reported by:	fred	Owned by:	fred
Priority:	major	Component:	Spacecraft
Keywords:	time tag	Cc:	accs@seawifs.gsfc.nasa.gov, aqiops@list.jpl.nasa.gov

Description

Reply

A time tag anomaly was observed in the Aquarius data on 1 September 2011 at 01:46:24. One block had a GPS time tag offset of 4 seconds from the expected value based on the adjacent blocks. There was also a pitch transient of about 0.06 degree at the same time, indicating an AOCS OBT glitch that was not visible at the 8-second sample rate. A plot of the pitch angle is attached.

A similar event was observed on 16 August at 23:12:30. In this case the glitch was observed in the AOCS OBT, and was also accompanied by a pitch transient of about 0.02 degree. A plot of this event is attached.

Attachments

- pitch_spike_2011-09-01.png (111.8 KB) - added by *fred* 2 months ago.
- obt_and_pitch_glitch.png (5.1 KB) - added by *fred* 2 months ago.

Attach file

Change History

Changed 2 months ago by fred

- **attachment** *pitch_spike_2011-09-01.png* added

Changed 2 months ago by fred

- **attachment** *obt_and_pitch_glitch.png* added

Changed 8 weeks ago by fred — comment:1

Another instance of the AOCS and Aquarius 4-second time tag glitch was observed on 8 September at 12:22.

Reply | Edit

Changed 5 days ago by fred — comment:2

Here is the history of the 4-second time glitches observed in the AOCS OBT since the AOCS was commanded to Science mode.

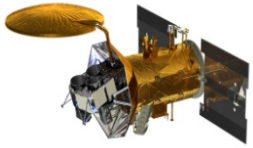
Reply | Edit

7/17 14:36
7/25 05:29
8/9 09:57
8/16 23:12
9/9 12:20
10/23 13:55

In addition, at the following times, pitch transients were observed that have the same signature as for the time glitches, suggesting that there were glitches between the 8-second samples.

9/1 01:46
9/23 10:54
9/30 23:30
10/16 01:02

Cold Sky Calibration



Planned in response to Science Team requests entered via the Aquarius GS Trac tool

Implemented using the ACCS CPT

Must be planned at least 21 days in advance (NEN coverage scheduling requirement)

Cancellation scenarios:

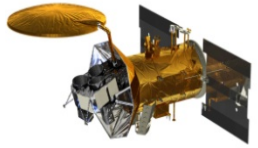
One week prior to maneuver – cancel the Action Request via the Scheduler Client

Four days (TBR) prior to maneuver – cancel via the Scheduler Client and contact the FOT via phone/E-mail

One pass prior to maneuver – emergency situation; contact the FOT coordinator

Not yet exercised on-orbit – tested on EM prior to launch

Ground System Staffing



NASA Management – Gene Carl Feldman: Oversight of the overall effort, communication/coordination with other NASA organizations and centers and CONAE; oversight of **science** support, algorithm integration, QC, validation and in situ data support.

Budget/Resources – Barbara Conboy: Financial oversight and reporting of Aquarius Project budget with interfaces to JPL, ESSP Program Office and NASA Headquarters.

Contractor Management – Fred Patt: Oversight of **contract** support staff, including hiring, tasking, review of deliverables and schedules; ADPS interface definition and product format specification.

Mission Planning and Instrument Operations, Instrument and Algorithm Analysis – Liang Hong and Alicia Scott: Instrument operations and commanding support; interface with Aquarius instrument engineers and CONAE mission operations. Working with the Instrument and Science Teams, develop methodologies, tools, procedures and reports for instrument operations and monitoring; ACCS documentation.

Data Systems Engineering – John Wilding: Technical lead for the data system integration effort; overall system design, implementation and testing.

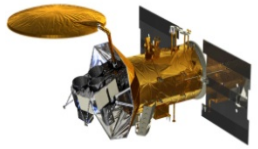
Software Engineering – Joel Gales: Technical lead for the level conversion / product generation software, including development of the Level 0-to-1 software and integration/packaging of the science (Level 2 and 3) processing software to be provided by the algorithm developers.

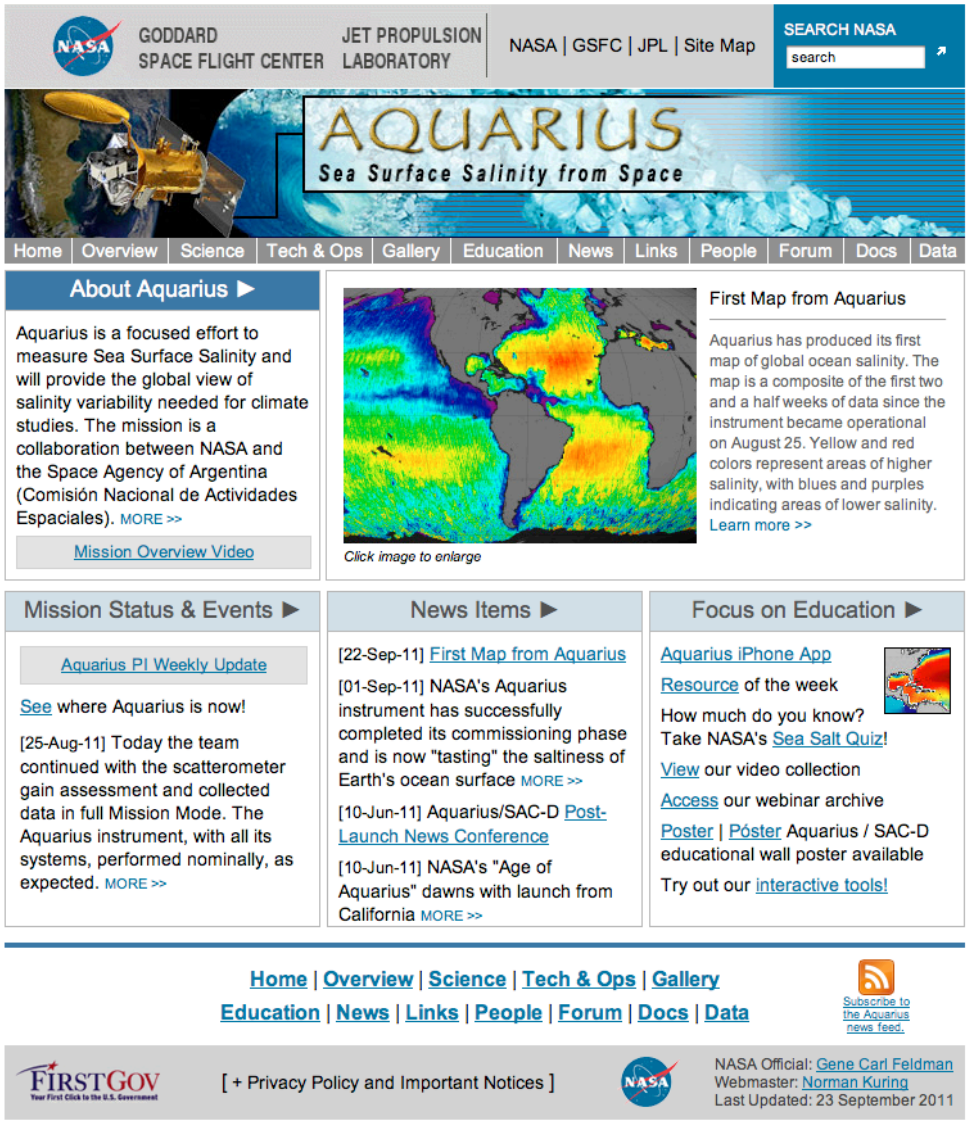
Systems Administration – Paul Smith: Specify and acquire new processing and data storage hardware, integrate into existing data processing facility, verify/upgrade network capability for external data transfers.

In Situ Data Support – Jeremy Werdell: Work with the Aquarius Validation Data System (AVDS) to develop methods and tools for data analysis and quality control, building upon the existing SeaWiFS Bio-optical Archive and Storage System (SeaBASS).

Archive and Distribution – Norman Kuring and Sean Bailey: Incorporate Aquarius product browse, search, order and distribution into existing web-based Ocean Color capability and work with JPL PO.DAAC regarding "institutional" archive support requirements.

Aquarius Web Site





Consolidated

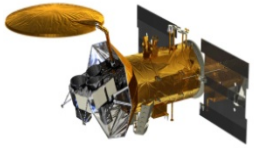
Data access,

Information,

Services and

Community Feedback

Key Aquarius Web Links



Aquarius webpage at Goddard:
http://aquarius.gsfc.nasa.gov/

Aquarius webpage at PO.DAAC:
http://podaac.jpl.nasa.gov/SeaSurfaceSalinity/Aquarius

Aquarius TRAC reporting tool: (account required – not for public use)
http://aquarius.gsfc.nasa.gov/AQOPS/

Processing software update wiki:
http://oceancolor.gsfc.nasa.gov/WIKI/AQ(2f)GS(2f)SW(2f)UpdatesPostLaunch.html

Bulk ftp data downloads for all data products from the JPL PO.DAAC
http://podaac.jpl.nasa.gov/salinity/data.html

Visual web browser/download for level-1 and level-2 data at Goddard:
http://oceancolor.gsfc.nasa.gov/cgi/aquarius

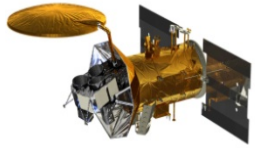
Visual web browser/download for level-3 data at Goddard:
http://oceancolor.gsfc.nasa.gov/cgi/l3?prd=SCI_V1.1_SSS&sen=Q&ctg=Evaluation

Aquarius downlink and data quality monitor:
http://aquarius.nasa.gov/cgi/aquarius_downlinks

SAC-D housekeeping telemetry and data quality monitor:
http://aquarius.gsfc.nasa.gov/cgi/service_platform_downlinks

Aquarius data processing status monitor (primarily internal use)
http://oceancolor.gsfc.nasa.gov/sdpscgi/registered/aquarius_data_monitor.cgi

Agenda



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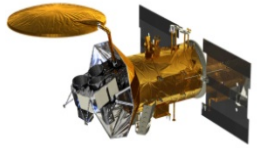
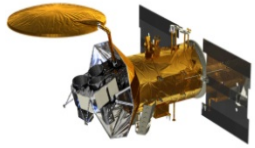
Moving Forward

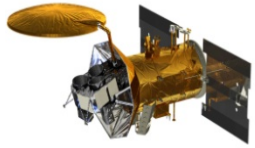


- All requests to ADPS to be made using the Trac tool:
  - Bug fix
  - Software/algorithm update
  - Table change
  - Reprocessing request
- All changes to be approved by the Science Operations Control Board:
  - Gary Lagerloef
  - David Levine
  - Simon Yueh
- Science software source re-alignment
- Process for verifying future changes
  - To be discussed in splinter

And Now…

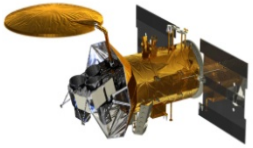


A word from the PO.DAAC about Software and Algorithm Documenation

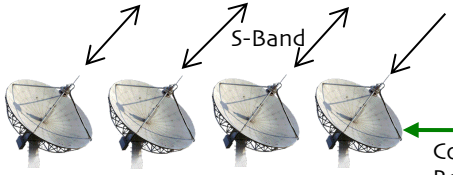


Backup Slides

Aquarius Data Processing System INTERFACES



S-Band



Wallops Svalbard Alaska McMurdo

NASA Ground Network

Commands
Real-Time
Telemetry &
Coordination

CONAE

Data Archive (CUSS | CODS)

Mission Operations Command Center

RF Services

ASI Malindi

S-Band

X-Band

X-Band

Cordoba

ASI Matera

Aquarius Data, SAC-D Telemetry and Orbit Products

Schedule Confirmation And Reports

Aquarius Command Schedules And Reports

Ancillary Data Sources

Algorithms & Science Code

Science Team and Algorithm Providers

Evaluation Products

ADPS Aquarius Data Processing System

ACCS Aquarius Command & Control System

Calibration & Instrument Configuration Change Requests

Principal Investigator and Science Planning Team

Anomaly Reports

Recovery Procedure and Timelines

Instrument Engineering Team

Aquarius Instrument Test bed Flight Software Updates

AVDS Aquarius Validation Data System

Insitu Data Bias Adjustments

Aquarius Match-up Data

Level 0, 1, 2, 3 Aquarius Data Documentation & Software

PO.DAAC

Aquarius L1, 2, 3 Data Ancillary Data Feedback

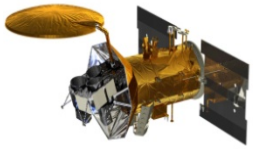
SeaDAS

Software

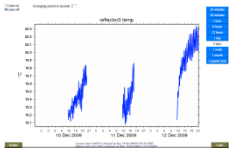
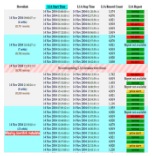
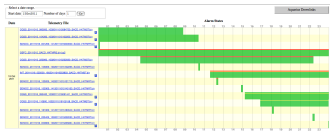
Data Users and Science Team

1- SAC-D Ground System to Aquarius Ground System ICD
2- SAC-D / NASA PSLA, Network Requirements Document & Scheduling Interface
3- SD - Observatory Ground IF Specification Document
4- Aquarius Science Team to Aquarius Ground System ICD
5- AQ - Aquarius Ground System – Aquarius Instrument Team Anomaly ICD and Aquarius Test bed User Manual
6- Aquarius Data Product User Guide (PO.DAAC) & Format Specification (ADPS)
7- Ocean Data Processing System Data and Software Management Plan, ATBD's and Software User's Guides
8- A V D S to A D P S ICD
9- Aquarius Ground System to PO.DAAC ICD

Data Quality Control



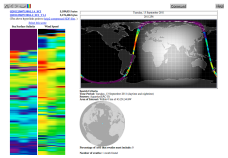
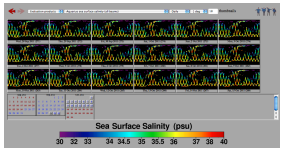
- Automated telemetry monitoring, alarm notification and web tools updated on every downlink

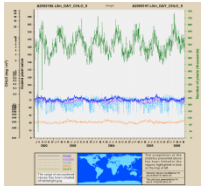
- Interactive telemetry monitoring tools

- Automated science data quality checks* to be performed on each file as defined by science team (*to be provided within 6 months post commissioning)

- Visual inspection via web tools for Level-2 and Level-3 data products

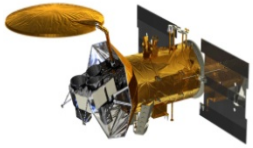



- Level-3 Long-term statistics monitoring tool



- AVDS data analysis by Science Team

Data Archive and Distribution



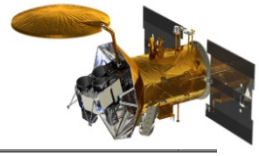
- Aquarius data product archiving is performed using the existing OBPG archive catalog database and RAID-based data storage system (> 3 PetaByte of current storage for SeaWiFS, MODIS (Terra and Aqua), MERIS, OCTS, CZCS, etc.)

- Aquarius data distribution to the Science Team will be performed during the active life of the mission using the existing OBPG browse, order and distribution system (examples to follow) which also serves as one of the data quality monitoring tools.

- ALL Aquarius data products **regardless of validation status** will be delivered to the JPL PO.DAAC for official and permanent archive, value-added services and long-term distribution as described in the PO.DAAC presentation.

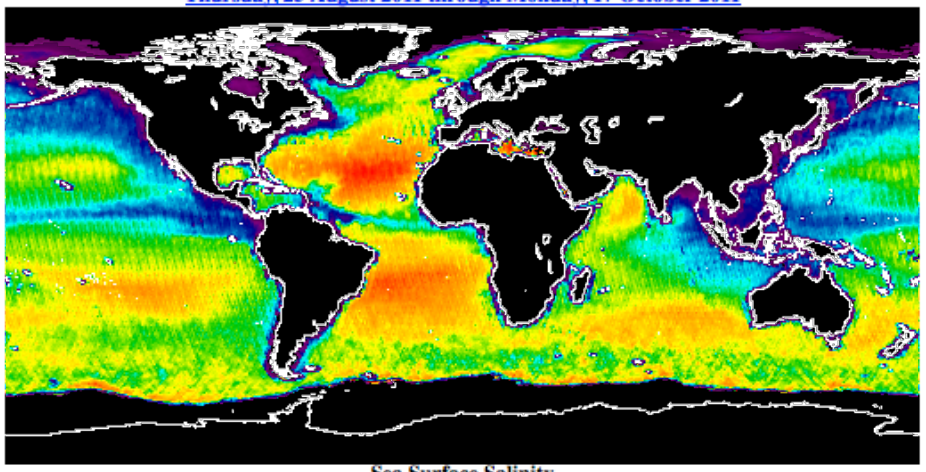
Aquarius Level-1-2 Data Browser

http://oceancolor.gsfc.nasa.gov/cgi/aquarius



Comment Help

Thursday, 25 August 2011 through Monday, 17 October 2011



Sea Surface Salinity

Radius (*km*) about map click or about typed-in location:

- (•) 72
- ( ) 400
- ( ) 800
- ( ) 1200
- ( ) 1500

Select swaths containing *(at least)*:

- (•) any part
- ( ) 25 %
- ( ) 50 %
- ( ) 75 %
- ( ) all

of the area of interest.

Select one or more regions:

AdriaticSea
AegeanSea
Antarctica
ArabianSea
AralSea
Arctic
Australia
AustraliaCoast
Azores
Bahamas
BalticSea

or specify boundary coordinates or a single location:

N:
W: :E
S:

Find swaths

Display results 10 at a time. Reconfigure page

Mission	2011	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

August 2011

S	M	T	W	T	F	S
	1 xxx	2 xxx	3 xxx	4 xxx	5 ^^^	6 ^^^
7 ^^^	8 ^^^	9 ^^^	10 ^^^	11 ^^^	12 ^^^	13 ooo
14 ooo	15 ooo	16 ooo	17 ooo	18 ooo	19 ooo	20 ooo
21 ***	22 ***	23 ***	24 ***	25 ***	26 ***	27 ***
28 ***	29 xxx	30 xxx	31 xxx			

September 2011

S	M	T	W	T	F	S
				1 xxx	2 xxx	3 xxx
4 xxx	5 xxx	6 ^^^	7 ^^^	8 ^^^	9 ^^^	10 ^^^
11 ^^^	12 ^^^	13 ^^^	14 ooo	15 ooo	16 ooo	17 ooo
18 ooo	19 ooo	20 ooo	21 ooo	22 ***	23 ***	24 ***
25 ***	26 ***	27 ***	28 ***	29 ***	30 xxx	

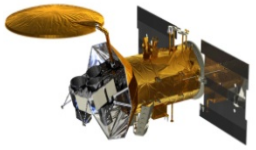
October 2011

S	M	T	W	T	F	S
						1 xxx
2 xxx	3 xxx	4 xxx	5 xxx	6 xxx	7 xxx	8 ^^^
9 ^^^	10 ^^^	11 ^^^	12 ^^^	13 ^^^	14 ^^^	15 ^^^
16 ooo	17 ooo	18 ooo	19 ooo	20 ooo	21 ooo	22 ooo
23 ooo	24 ***	25 ***	26 ***	27 ***	28 ***	29 ***
30 ***	31 ***					

AQUARIUS
Sea Surface Salinity from Space

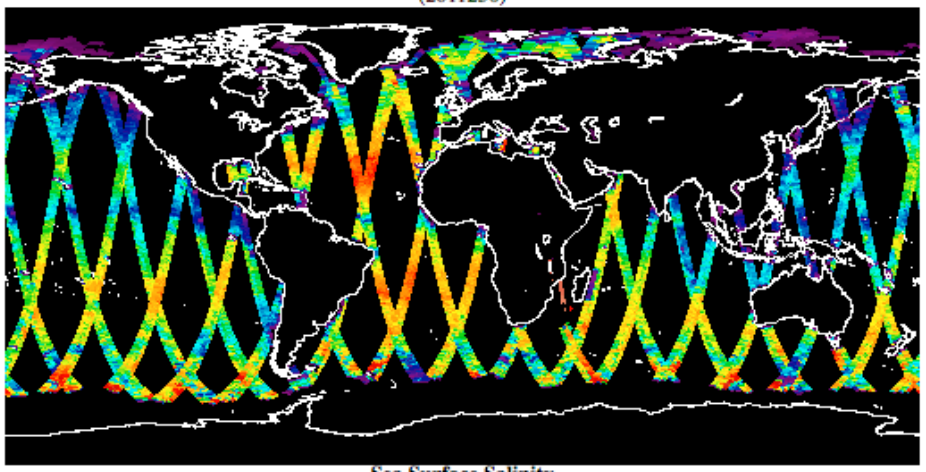
Aquarius Level-1-2 Data Browser

http://oceancolor.gsfc.nasa.gov/cgi/aquarius



Comment Help

Tuesday, 13 September 2011
(2011256)



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AustraliaCoast
Azores
Bahamas
BalticSea

or specify boundary coordinates or a single location:

N:
W: :E
S:

Find swaths

Display results 10 at a time. Reconfigure page

Mission | 2011 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec

August 2011

S	M	T	W	T	F	S
	1 xxx	2 xxx	3 xxx	4 xxx	5 ^^^	6 ^^^
7 ^^^	8 ^^^	9 ^^^	10 ^^^	11 ^^^	12 ^^^	13 ooo
14 ooo	15 ooo	16 ooo	17 ooo	18 ooo	19 ooo	20 ooo
21 ***	22 ***	23 ***	24 ***	25 ***	26 ***	27 ***
28 ***	29 xxx	30 xxx	31 xxx			

September 2011

S	M	T	W	T	F	S
				1 xxx	2 xxx	3 xxx
4 xxx	5 xxx	6 ^^^	7 ^^^	8 ^^^	9 ^^^	10 ^^^
11 ^^^	12 ^^^	13 ^^^	14 ooo	15 ooo	16 ooo	17 ooo
18 ooo	19 ooo	20 ooo	21 ooo	22 ***	23 ***	24 ***
25 ***	26 ***	27 ***	28 ***	29 ***	30 xxx	

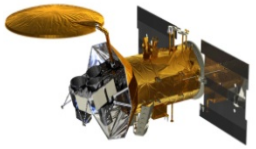
October 2011

S	M	T	W	T	F	S
						1 xxx
2 xxx	3 xxx	4 xxx	5 xxx	6 xxx	7 xxx	8 ^^^
9 ^^^	10 ^^^	11 ^^^	12 ^^^	13 ^^^	14 ^^^	15 ^^^
16 ooo	17 ooo	18 ooo	19 ooo	20 ooo	21 ooo	22 ooo
23 ooo	24 ***	25 ***	26 ***	27 ***	28 ***	29 ***
30 ***	31 ***					

AQUARIUS
Sea Surface Salinity from Space

Aquarius Level-1-2 Data Browser

http://oceancolor.gsfc.nasa.gov/cgi/aquarius

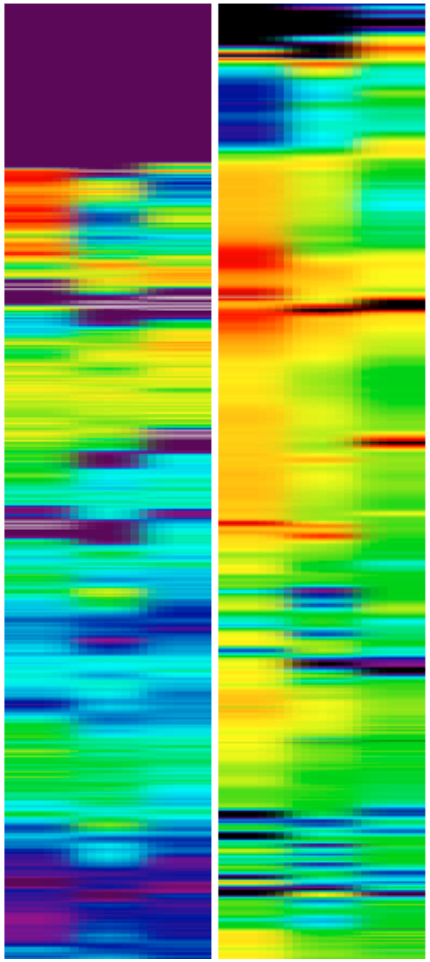


Comment Help

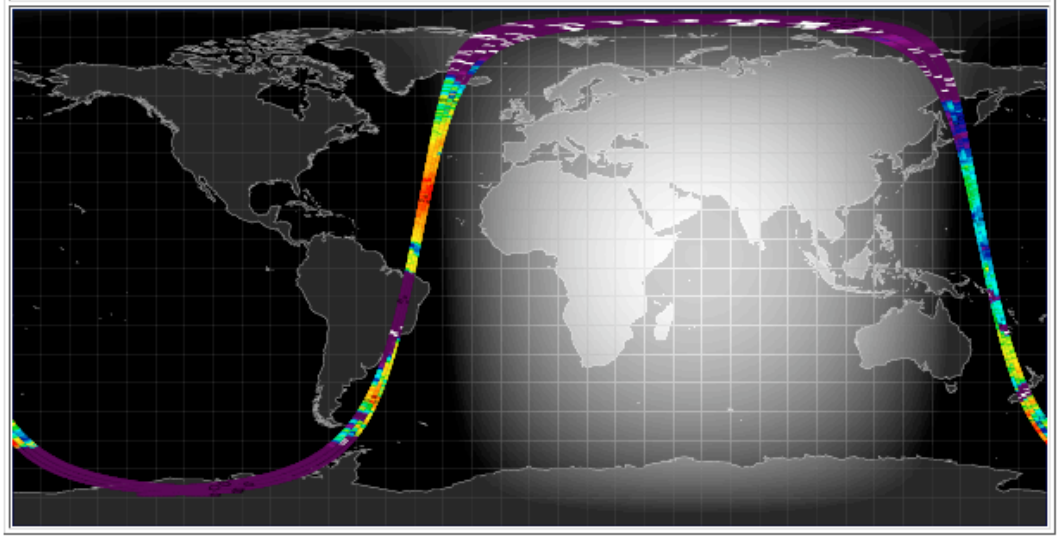
Q2011256071500.L1A_SCI 5,189,031 bytes
Q2011256071500.L2_SCI_V1.1 5,176,406 bytes
(The above hyperlinks point to bzip2-compressed HDF files.)

Select this scene

Sea Surface Salinity | Wind Speed



Tuesday, 13 September 2011
2011256



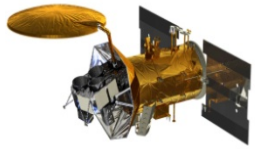
Search Criteria
Time Period: Tuesday, 13 September 2011 (daytime and nighttime)
Sensors: Aquarius(SAC-D)
Area of Interest: Within 0 km of 43.2N,34.8W

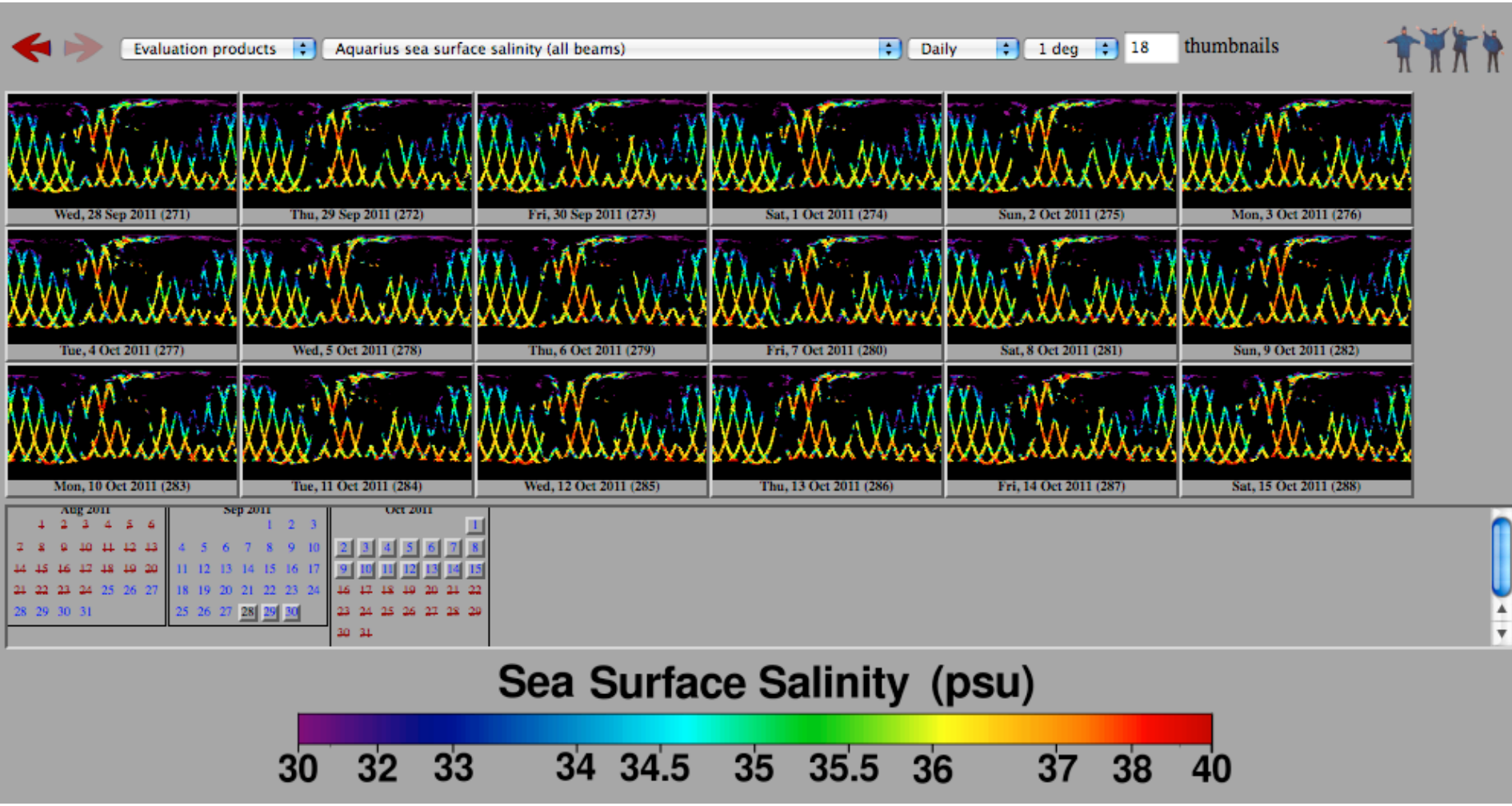
Percentage of AOI that swaths must include: 0

Number of swaths: 1 swath found

Aquarius Level-3 Data Browser

http://oceancolor.gsfc.nasa.gov/cgi/l3

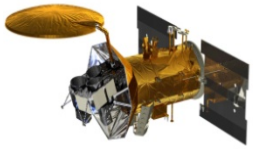


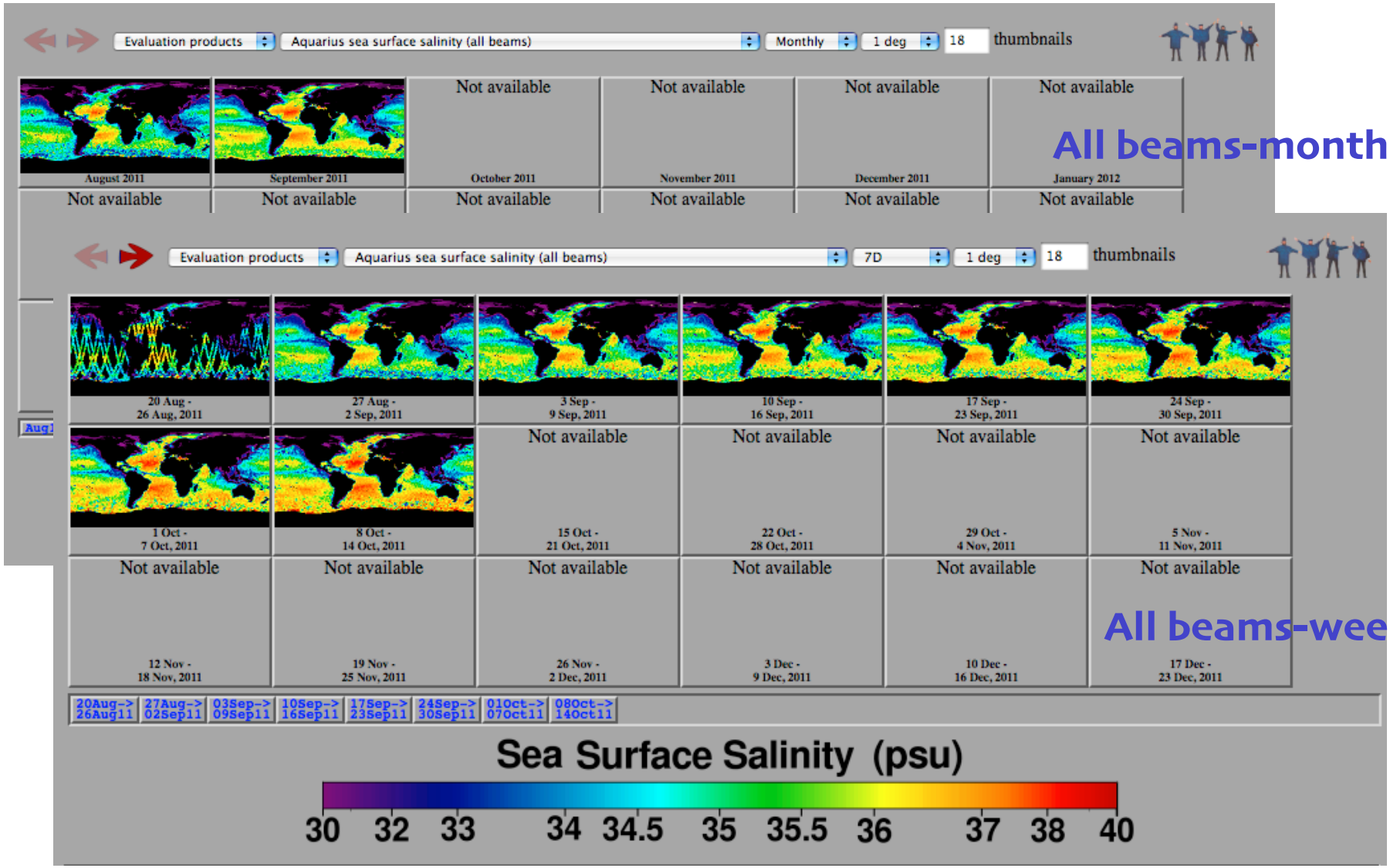


All Beams - daily

Aquarius Level-3 Data Browser

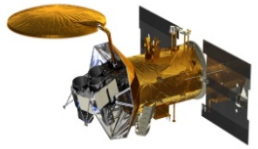
http://oceancolor.gsfc.nasa.gov/cgi/l3

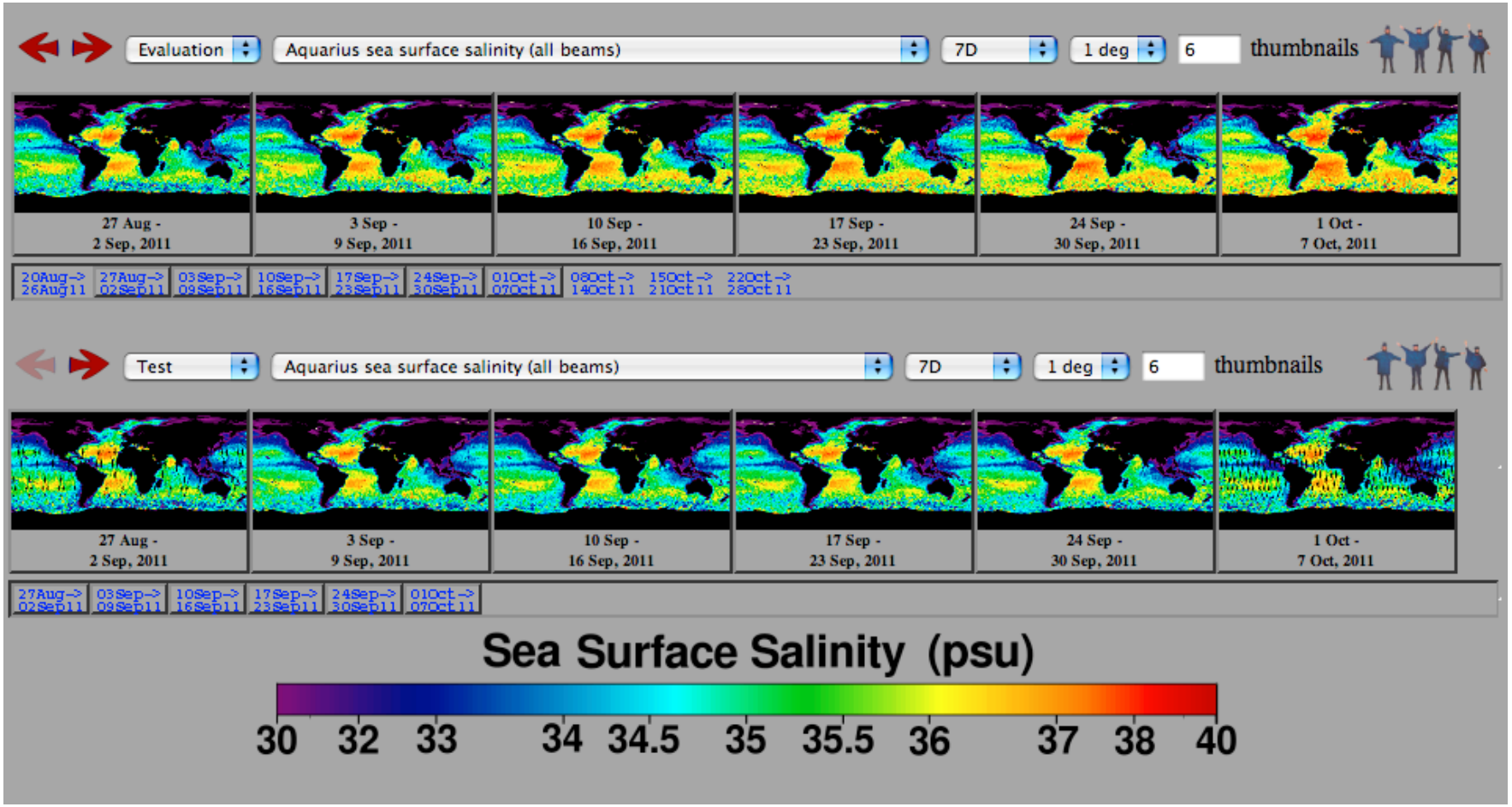




Aquarius Level-3 Data Browser

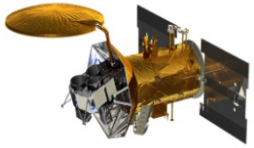
http://oceancolor.gsfc.nasa.gov/cgi/l3





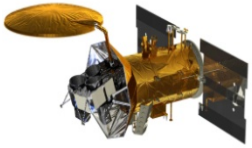
Can also be used as a data quality assessment tool

Drift correction and RFI flag update in "test" product as compared to operational products



Aquarius Ground System Hardware, Software and Security

OBPG Computing Facility



NASA Goddard Space Flight Center
Greenbelt, Maryland

Building 28 Room W220

- 900 square feet dedicated to the project

- Primary and backup A/C units

- 225 Kva Eaton Powerware UPS with dual PDUs, additional 6 Kva rack-mounted UPS units

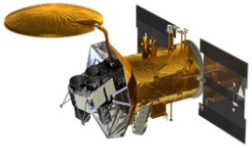
- Connections to GSFC high speed networks: SEN

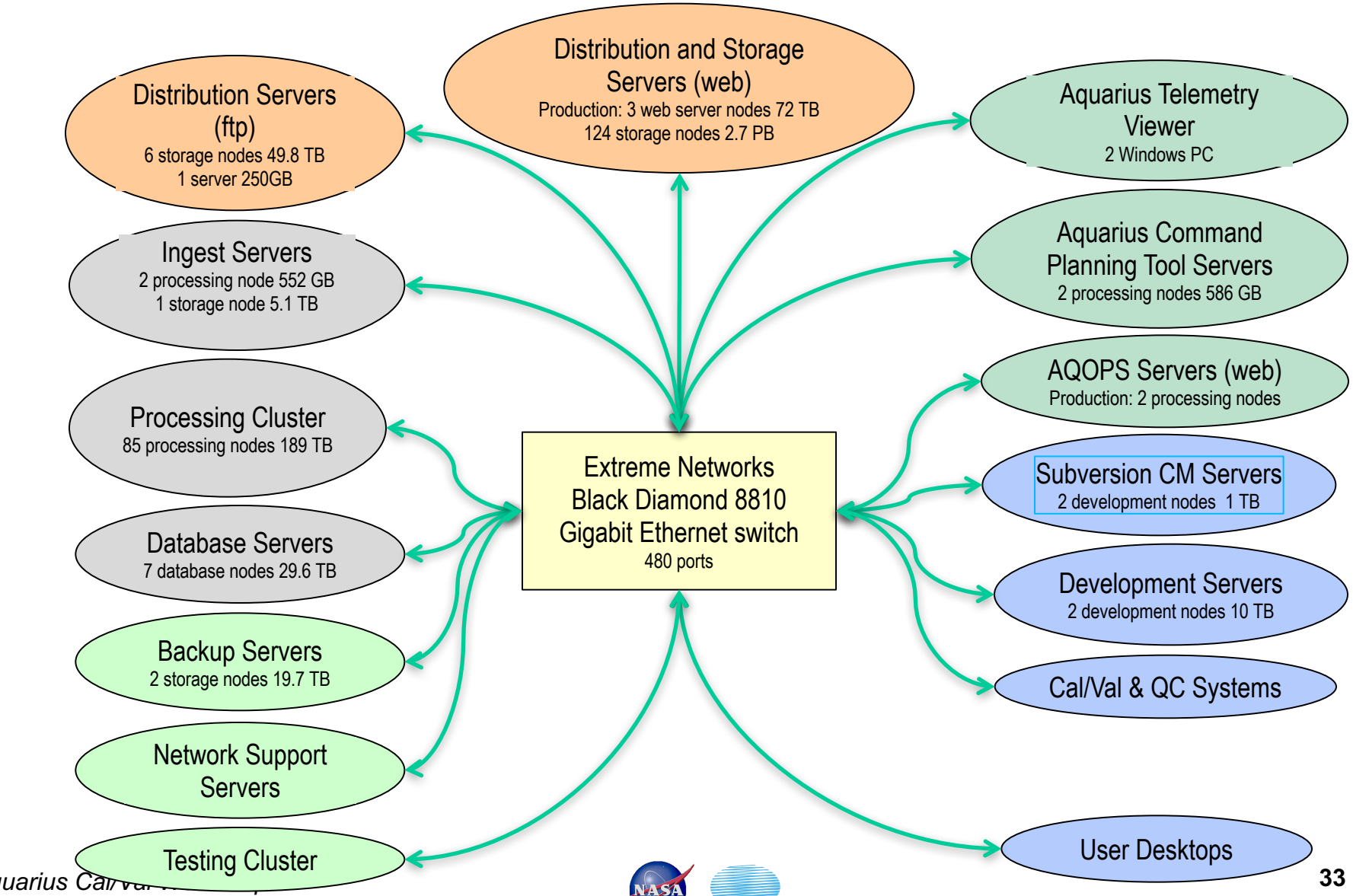
- 45 (85) processing nodes (linux PCs)

- 76 (124) RAID storage nodes (linux PCs)

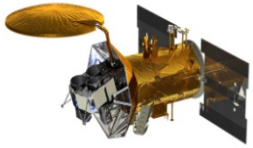
Typically we replace 50% of the system every 18 months, often just replacing drives. No significant down-time. No maintenance contracts.

Processing System Hardware





OBPG Hardware (Latest Generation)

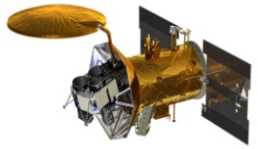


Processing servers
Intel Six-Core 2.4 Ghz CPU
16 GB DDR3-1333 MHz RAM
SATA 750 GB data drives (5)
SATA 250 GB system disk

Storage RAID servers
Intel Xeon Quad-core 2.13 GHz Low Voltage processor
8 GB DDR3-1333 MHz RAM
SATA 2 TB data drives (16)
SATA 250 GB system disk

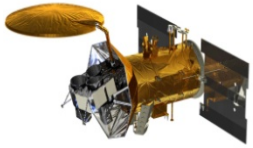
Analysis Servers
Intel Six-Core 2.4 Ghz CPU
24 GB DDR3-1333 MHz RAM
SATA 3 TB data drives (5)
SATA 250 GB system disk

Aquarius Backup Strategy



- Data
  - On-site
  - Downlinks, L0, L1a data files
    - primary copy on RAID6 storage node
    - mirror copy on separate RAID6 storage node, at file creation
  - Science Products
    - primary copy on RAID6 storage node
    - mirror copy if desired, or regenerated from L1a
  - Off-site
  - Downlinks: stored at CONAE
  - L1A archived at PO.DAAC
- Source Code
  - On-site
  - primary copy on subversion server, RAID6
  - mirror copy on backup Subversion server, RAID6, nightly mirror
  - Off-site
  - Subversion data copied to external disk, taken off-site every 1 month
  - Multiple copies, given to Project Manager, SE, Processing Manager
- Other
  - On-site
  - AQOPS, Forum: database mirrored to backup server nightly
  - Telemetry Viewer, other: image backups periodically, manual
  - Off-site
  - AQOPS, Forum: databases included in source code off-line backups
  - Telemetry Viewer, other: image backups stored off-line like source code

IT Security Plan



ADPS and ACCS: covered under the same plan as other Ocean Biology Processing Group (OBPG) systems.

NASA IT Security Plan Identification
System name: Sciences and Exploration Directorate (SED) Multi-Program/Project (MPP) IT Science Systems

System Abbreviation: SED MPP

System Unique Identifier: CD-014-L-GSF-6004

Information System Type: General Support System

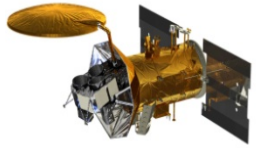
Information System Security Categorization: Low (transitioning to medium within the year)

Information System Operational Status: Operational

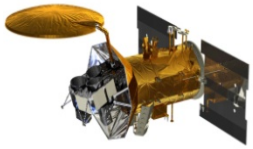
Effective 5/31/2007. Passed Certification & Accreditation in Summer 2007 - in process of being upgraded

Plan designated Sensitive But Unclassified by NASA

Implementation questions: addressed off-line



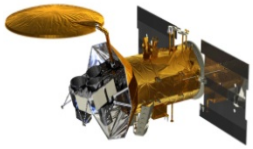
Data Files accessed by the ADPS



Data Types from CUSS (cuss.conae.gov.ar)

Data Type	Check Period	Purpose	# of Files
RawAQ	15 minutes	Raw Aquarius downlink	264
HKTMRT	15 minutes	Real-time housekeeping	1737
HKTMST	15 minutes	Stored housekeeping	522
TTBUPLD	15 minutes	Mission planning	244
TTBPTAFT	15 minutes	Mission planning	308
TTBPTBFR	15 minutes	Mission planning	309
CDHOPPAR	15 minutes	Mission planning	258
MANVRRP	15 minutes	Mission planning	0
MMOPPAR	15 minutes	Mission planning	0
PASSSCL	15 minutes	Mission planning	1845
PCEOPPAR	15 minutes	Mission planning	193
SPOPPAR	15 minutes	Mission planning	0
COLDSKYMR	15 minutes	Mission planning	0

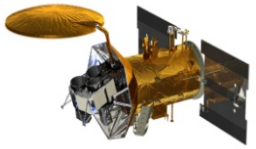
File counts as of 15:00 EDT, Oct 19, 2011



Data Types from CODS (cods.conae.gov.ar)

Data Type	Check Period	Purpose	# of Files
PREDEPHEM_GEOD_LLH	15 minutes	Archived	107
PREDEPHEM_MJ2K_XYZ	15 minutes	Archived	100
PREDEPHEM_TOD_XYZ	15 minutes	Archived	124
ORBEPHEM_GEOD_LLH	15 minutes	Archived	127
ORBEPHEM_MJ2K_XYZ	15 minutes	Archived	127
ORBEPHEM_TOD_XYZ	15 minutes	Archived	126
ECL	15 minutes	Mission planning	119
EVENTS	15 minutes	Mission planning	141
GSCONTACTS	15 minutes	Mission planning	100
MANLIST	15 minutes	Mission planning	74
Q	15 minutes	Mission planning	124
SAA	15 minutes	Mission planning	102
TLE	15 minutes	Mission planning	143

File counts as of 15:00 EDT, Oct 19, 2011



Ancillary Data Types for Aquarius Processing

Data Type	Source Host	Check Period	Purpose
HYCOMSAL	ftp.hycom.org	4 hours	Level-2 processing
IONEXTEC	cddis.gsfc.nasa.gov	4 hours	Level-2 processing (optimal)
CODETEC	ftp.unibe.ch	4 hours	Level-2 processing (non-optimal)
NCEPICE5	polar.ncep.noaa.gov	24 hours	Level-2 processing
NCEPMET	tads1u.ecs.nasa.gov	12 hours	Source for QMET data
OIV2AV	eclipse.ncdc.noaa.gov	1 hour	Level-2 processing
QMET		NA	Level-2 processing Source for QATM data
QATM		NA	Level-2 processing
SOLRAD (solar-flux)	ftp.swpc.noaa.gov	4 hours	Level-2 processing

File counts as of 15:00 EDT, Oct 19, 2011