

# AQUARIUS MISSION and SCIENCE

## OVERVIEW

National Aeronautics and Space Administration

*Gary Lagerloef<sup>1</sup>, and Aquarius Cal/Val/Algorithm Team*

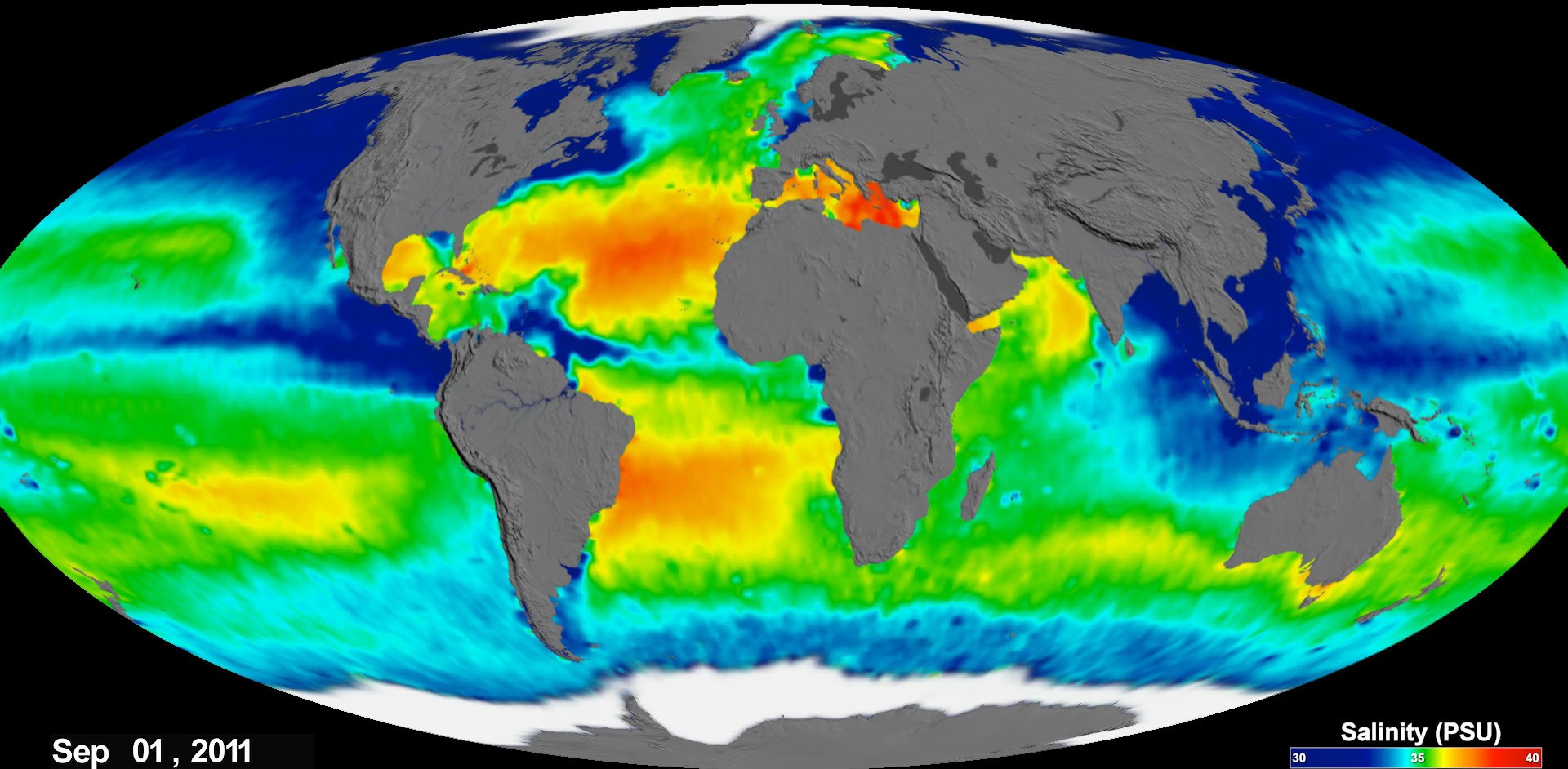
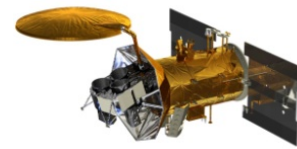
<sup>1</sup>Earth & Space Research, Seattle WA, USA

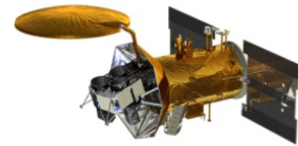
Understanding  
the Interaction  
Between Ocean  
Circulation, the  
Water Cycle,  
and Climate by  
Measuring  
Ocean Salinity



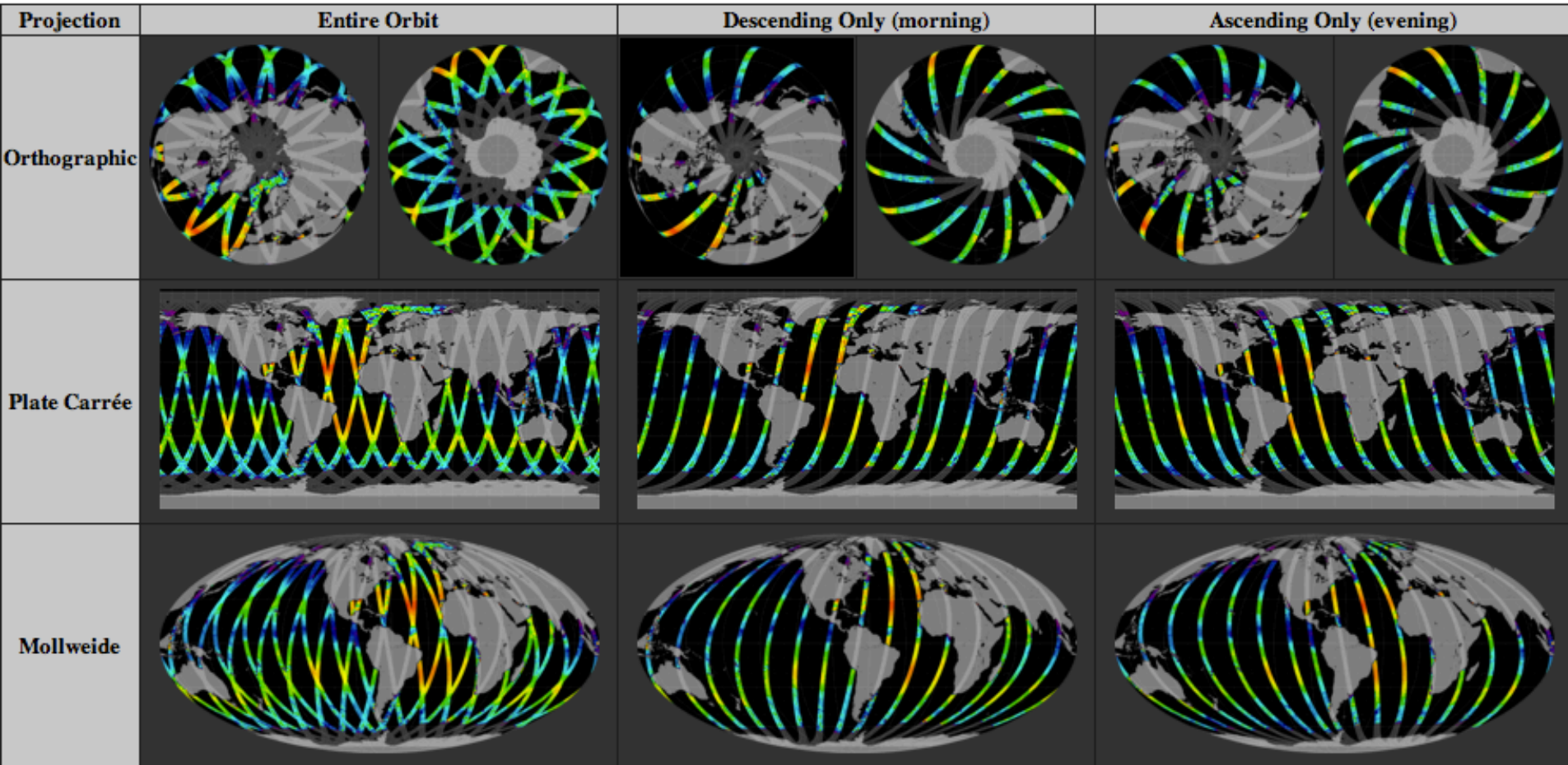
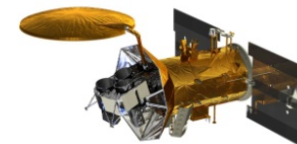
Aquarius/SAC-D







- **Version 1:** (Sep 2011) Initial calibration, but showed a calibration drift in the following months
- **Version 1.3:** (Apr 2012) Deflection Ratio (DR) calibration algorithm corrected drift and some variations, but left residual quasi-monthly oscillations.
- **Version 2.0:** (Feb 2013) Current operational version. Pointing correction applied. Empirical calibration method corrected quasi monthly oscillations. SSS errors are primarily seasonal residuals of the galaxy correction.
- **Version 3.0:** (May 2014) Corrects galaxy residual error. Improved wind roughness correction. Updated data quality flags. Reduced warm and cold end calibration biases. Next key problem is RFI.
- **Version 4.0 (TBD 2015) ~~Add MWR rain correction.~~ Address RFI (somehow). Improve L3 gridding algorithms (resolution, de-biasing, ...), other updates.**

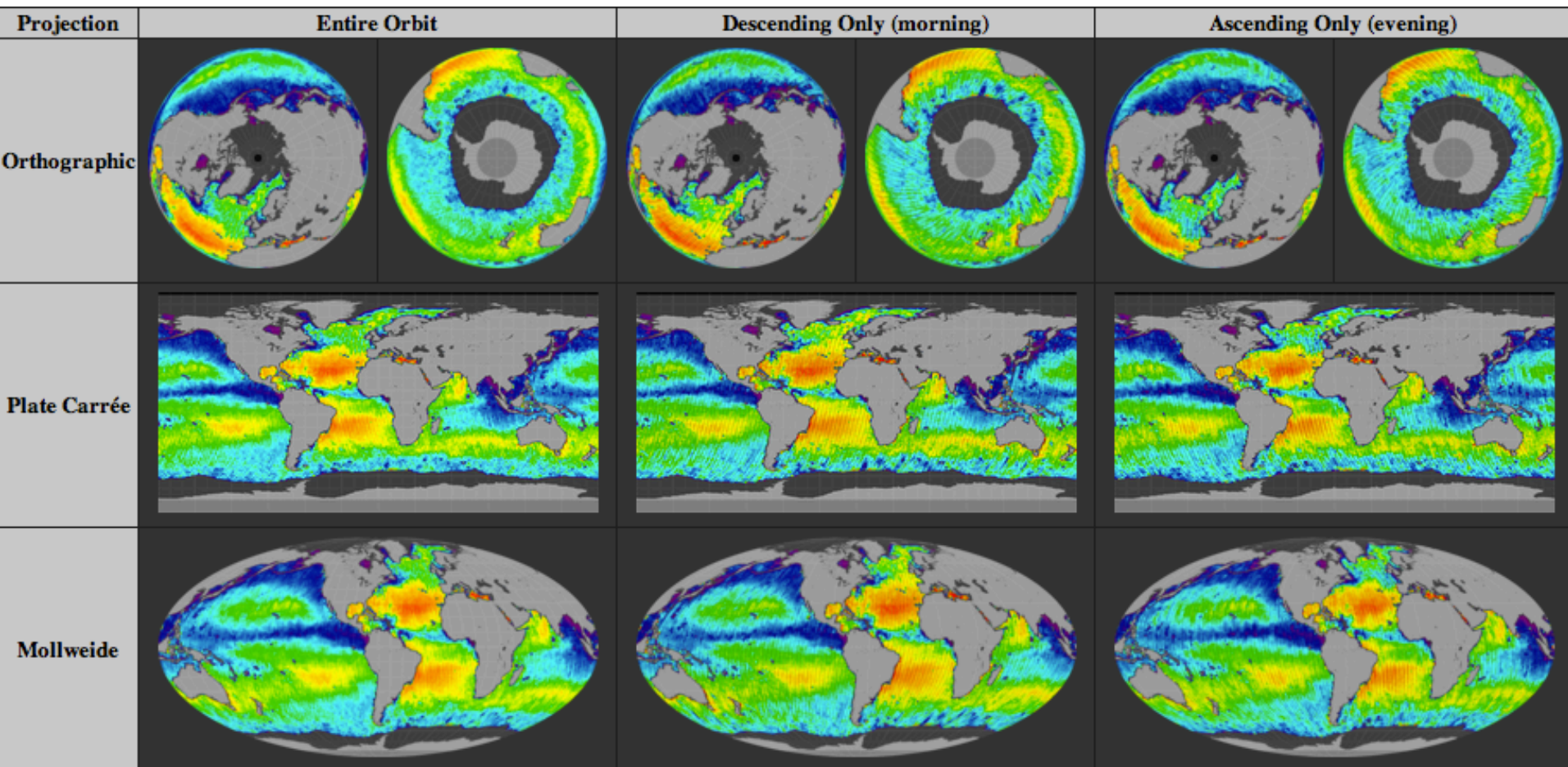


8 Nov 2014



Daily shown



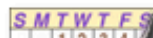


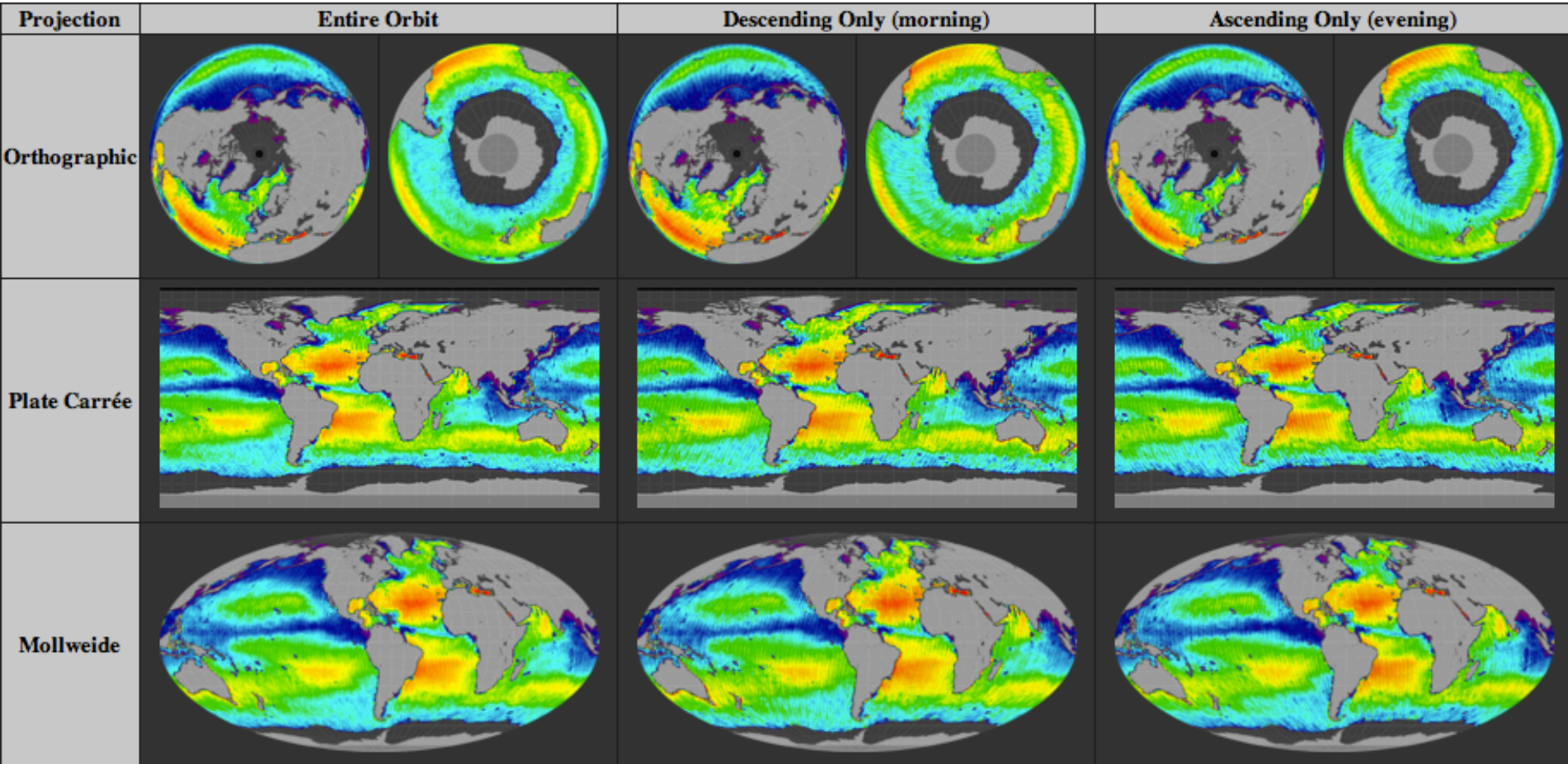
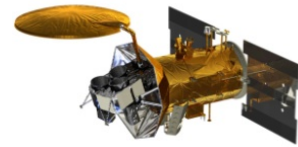
**Week 44**

**29 Oct — 4 Nov 2014**

[Show daily](#)

Weekly shown





**Oct 2014**



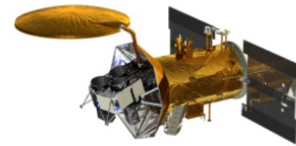
Show daily

Show weekly

Monthly shown

\*  
 8<sup>th</sup> Aquarius/SAC-D Science Meeting  
 Buenos Aires, 12-14 November 2013

G. Lagerloef, Aquarius PI



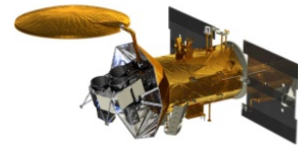
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## SAC-D Service Platform is presently in good health and operating normally

### Issues to report briefly

- Star Tracker and Attitude Control – Resolved
  - Frequent safe-hold anomalies in 2012; some data loss
  - Usually quarter moon disruption of star tracker performance
  - Resolved with adjustment to certain star tracker settings
  - No anomalies since July 2013
- Cold Sky Calibrations
- RTU1B (Power supply Side B for Attitude Control System)
  - Spontaneously powered off 12 Sep 2013; not responding
  - Switch to Side A was automatic; no disruption.
  - Investigation underway

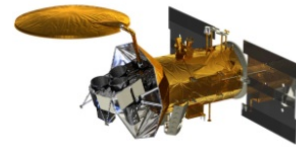


## GS-OIV-OPS-RP-30800-A SAC-D Aquarius Joint Weekly Report November 7th, 2014

Month	Time Spent in Planned Operations				Time Spent in Pointing Anomalies			
	days	hh:mm:ss	0 0.01% 0.1% 1% 10% %		days	hh:mm:ss	0 0.01% 0.1% 1% 10% %	
Dec 2011		00: 21:11		0.047		01: 08:16		0.153
Jan 2012		00: 00:00		0		01: 15:28		0.169
Feb 2012		00: 22:08		0.053		00: 08:56		0.021
Mar 2012		04: 46:05		0.641		08: 06:33		1.09
Apr 2012		00: 52:16		0.121		07: 43:43		1.073
May 2012		00: 44:26		0.1		02: 43:13		0.366
Jun 2012		00: 52:16		0.121		01: 11:12		0.165
Jul 2012		00: 52:16		0.117	1	22: 58:09		6.313
Aug 2012		06: 41:36		0.9		00: 59:43		0.134
Sep 2012		04: 12:11		0.584	1	12: 59:04		5.137
Oct 2012		14: 59:19		2.015		23: 09:57		3.114
Nov 2012	1	01: 22:29		3.524	1	20: 45:57		6.217
Dec 2012	1	11: 34:46		4.782		03: 52:01		0.52
Jan 2013	1	11: 15:49		4.74		01: 46:09		0.238
Feb 2013	1	10: 45:05		5.171		00: 29:43		0.074
Mar 2013	1	03: 51:04		3.743		02: 19:21		0.312
Apr 2013		22: 38:31		3.145		02: 22:46		0.33
May 2013		11: 44:47		1.579		02: 14:30		0.301
Jun 2013		08: 18:40		1.154		02: 11:33		0.305
Jul 2013		02: 37:30		0.353		00: 00:00		0
Aug 2013		00: 52:16		0.117		00: 00:00		0
Sep 2013		01: 35:50		0.222		00: 00:00		0
Oct 2013		00: 52:16		0.117		00: 00:00		0
Nov 2013		01: 14:46		0.173		00: 00:00		0
Dec 2013		00: 52:16		0.117		00: 00:00		0
Jan 2014		01: 37:11		0.218		00: 00:00		0
Feb 2014		00: 52:16		0.13		00: 00:00		0
Mar 2014		01: 14:31		0.167		00: 00:00		0
Apr 2014		01: 36:33		0.223		03: 16:00		0.454
May 2014		00: 52:16		0.117		00: 00:00		0
Jun 2014		01: 14:20		0.172		00: 00:00		0
Jul 2014		00: 52:16		0.117		00: 04:16		0.01
Aug 2014		01: 36:22		0.216		00: 00:00		0
Sep 2014		00: 52:16		0.121		00: 00:00		0
Oct 2014		01: 14:32		0.167		00: 00:00		0
Nov 2014		00: 22:19		0.052		00: 00:00		0
Mission to Date	1072 days	16: 44:41		0.997	8	01: 46:30		0.753
		11:53:57						





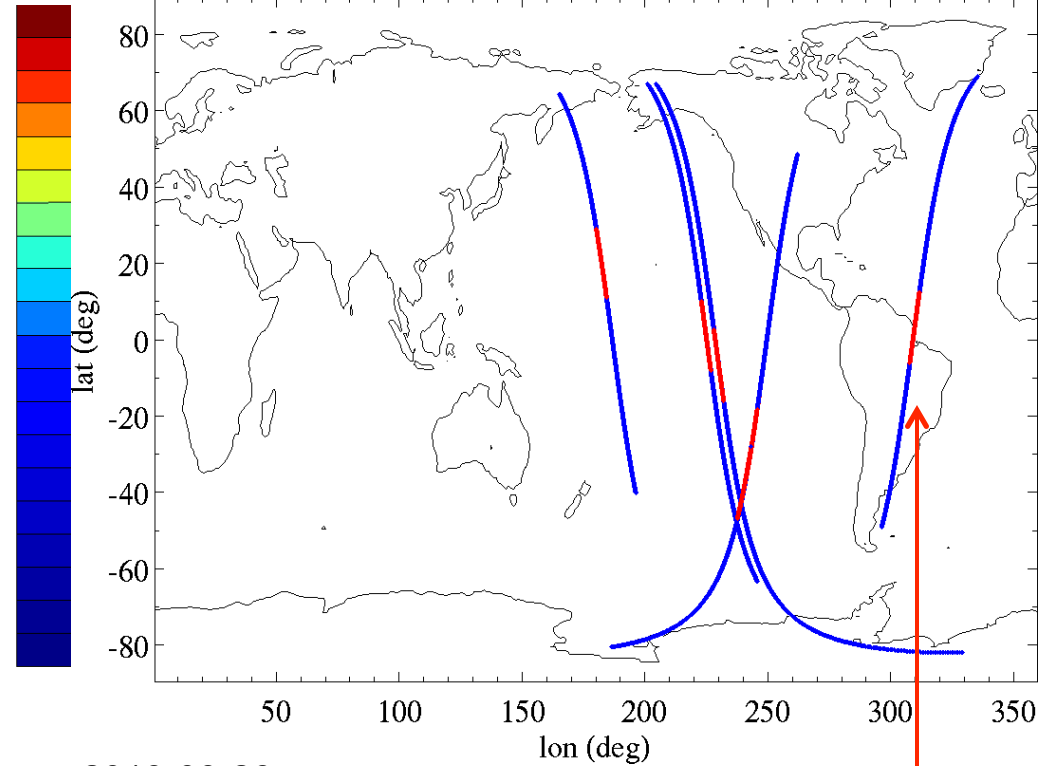
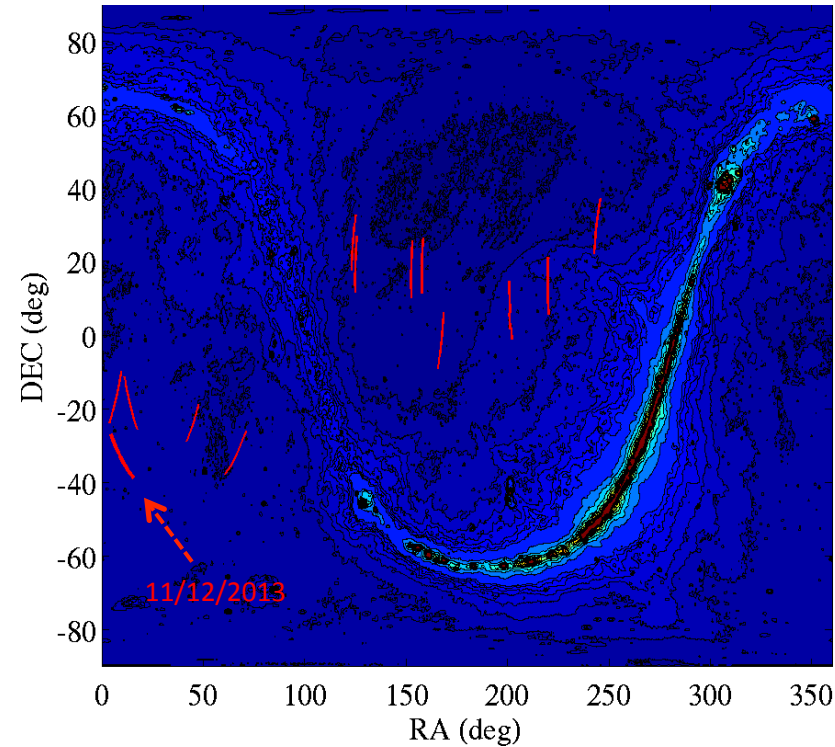
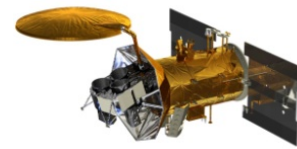


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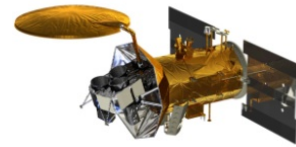
**Dates:**

- |                |            |
|----------------|------------|
| 2012-03-24     | 2013-03-26 |
| 2012-04-28     | 2013-04-23 |
| 2012-06-30     | 2013-06-11 |
| 2012-07-23     | 2013-08-06 |
| 2012-11-27     | 2013-09-17 |
| 2013-01-10 (*) | 2013-10-15 |
|                | 2013-11-12 |

(\*) Land Crossing

Emmanuel Dinnat; GSFC





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