

EOS Science Networks Performance Report

This is a summary of EOS QA SCF performance testing for the 2nd quarter of 2009 -- comparing the performance against the requirements, including Terra, TRMM, QuikScat, Aqua, Aura, ICESat, and GEOS requirements

Up to date graphical results can be found on the EOS network performance web site: http://ensight.eos.nasa.gov/active_net_measure.html. Or click on any of the individual site links below.

Highlights:

- Continued congestion on the EBnet GigE
 - Affects daily worst performance from MODIS, GSFC-PTH, ISIPS, OMISIPS, others
 - Compare with better performance from GSFC-GES DISC
 - GSFC-GES DISC was moved to 10 gig EBnet in early June.
- Requirement added for BADC (UK-RAL): 0.2 mbps
 - Rated “Excellent” (retroactive).
- Otherwise, mostly stable performance.
 - ALL Nodes rated at least Adequate
 - GPA 3.67 (same as last quarter)
- The Nov '07 requirements are used as the basis for the ratings
 - Requirements update is in progress

Ratings:

Rating Categories:

Excellent : median of daily worst cases > 3 x requirement

Good : median of daily worst cases > requirement

Adequate : median of daily worst cases < requirement
and
median of daily medians > requirement

Low : median of daily medians < requirement.

Bad : median of daily medians < 1/3 of the requirement.

Ratings Changes:

Upgrades: ↑ : Miami: Adequate → **Good**

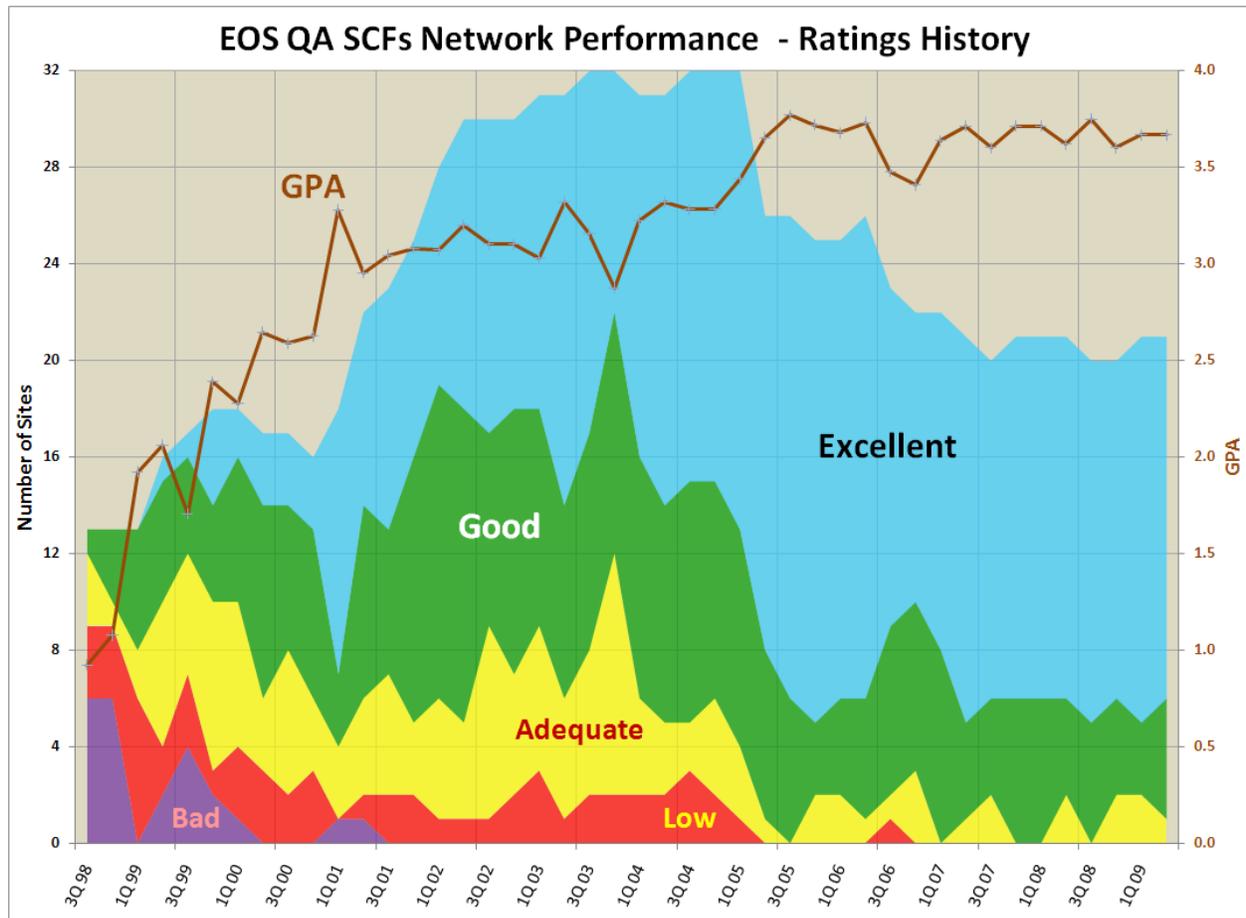
Downgrades: ↓ : Arizona: Excellent → **Good**

Testing Suspended: X :

Oxford Univ: Replacement host being sought

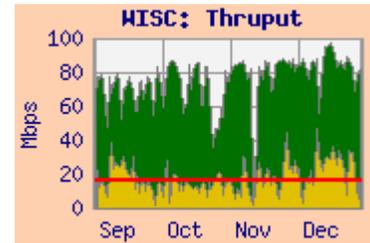
Ratings History:

The chart below shows the number of sites in each classification since the testing started in 1998. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements. The GPA is calculated based on Excellent: 4, Good: 3, Adequate: 2, Low: 1, Bad: 0



Note that there are fewer sites included in this chart since 1Q'05 due to stopping of testing to U Washington (5/07) and UIUC (4Q06), discontinuation of tests to NOAA and UMD (3Q06), discontinuation of tests to SAGE III Nodes (2Q06), and moving the reporting for SIPS sites to the "EOS Production sites" performance report (2Q05). BADC was added in 2009.

Integrated Charts: Integrated charts are now included for selected sites with the site details. These charts are “Area” charts, with a pink background. A sample Integrated chart is shown here. The yellow area at the bottom represents the daily average of the user flow from the source facility (e.g., GSFC, in this example) to the destination facility (e.g., Wisconsin, in this example) obtained from routers via “netflow”. The green area is stacked on top of the user flow, and represents the “adjusted” daily average iperf thruput between the source-destination pair most closely corresponding to the requirement. This iperf measurement essentially shows the circuit capacity remaining with the user flows active. The adjustments are made to compensate for various systematic effects, and are best considered as an approximation. The red line is the requirement for the flow from the source to destination facilities.



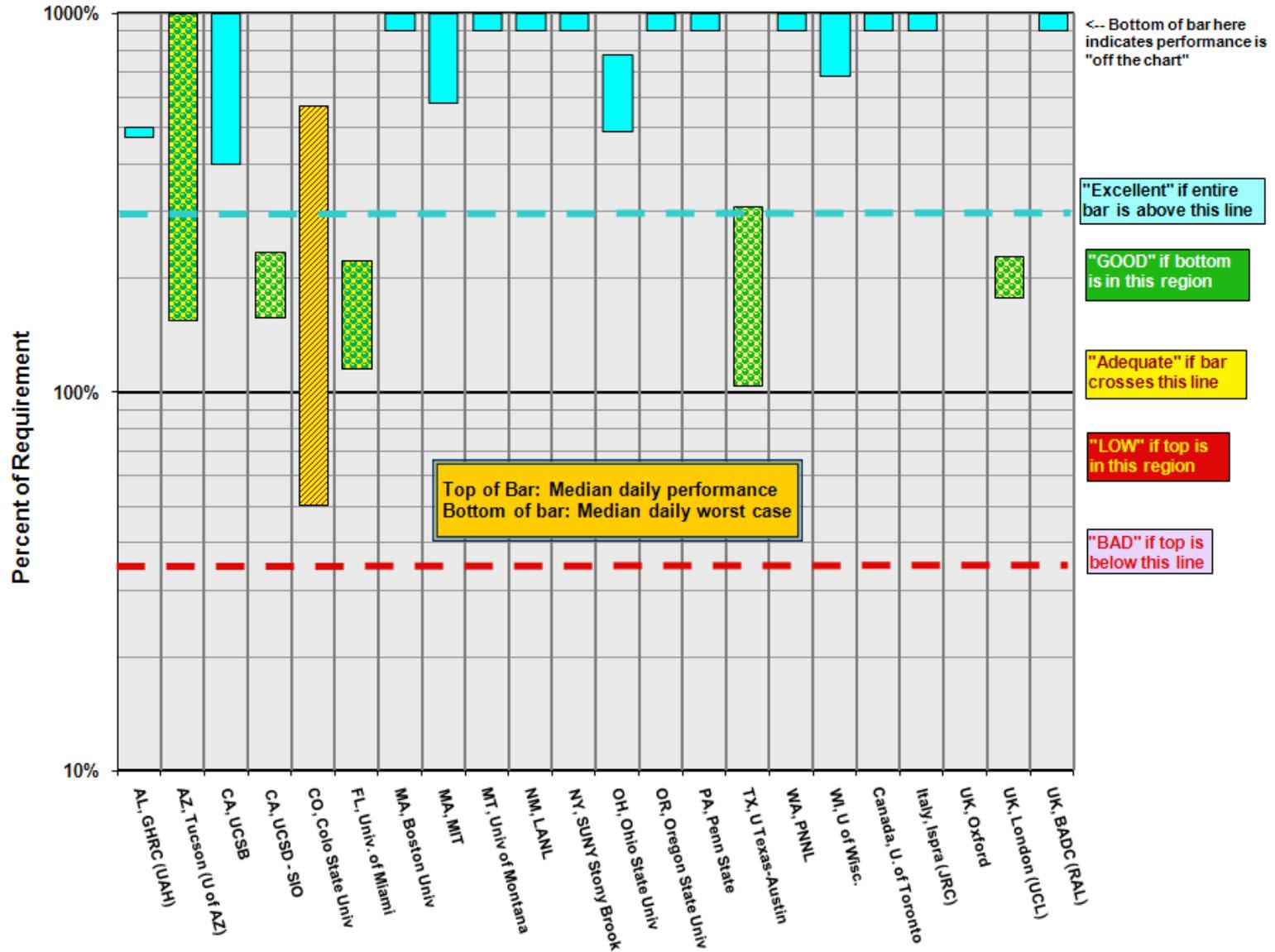
Note: User flow data is has not been available from LaRC since March 2007, so sites with primary requirements from LaRC will not include integrated graphs.

EOS QA SCF Sites Summary: Network Requirements vs. Measured Performance

2 nd Quarter 2009			Testing						
Destination	Team (s)	Requirement	Source Node	Median mbps	Median Daily Worst	Average User Flow	Rating re Current Requirements		Route Tested
		Nov-07					2 Q 2009	1Q09	
AL, GHRC (UAH)		6.9	LaTIS	34.7	32.6		Excellent	E	NISN / MAX / Internet2 / SOX
AZ, Tucson (U of AZ)	MODIS	2.6	EROS LPDAAC	30.1	4.0	2.0	GOOD	E	StarLight (Chicago) / Internet2
CA, UCSB	MODIS	3.1	GSFC-MODIS	47.2	12.5	0.04	Excellent	E	MAX / Internet2 / CENIC
CA, UCSD - SIO	ICESAT, CERES	7.1	GSFC-ICESAT	16.7	11.2	0.17	GOOD	G	NISN / MAX / Internet2 / CENIC
CO, Colo State Univ	CERES	2.1	LaTIS	12.2	1.1		Adequate	A	NISN / MAX / Internet2 / FRGP
FL, Univ. of Miami	MODIS, MISR	18.8	GSFC-MODIS	42.0	21.9	0.12	GOOD	A	MAX / Internet2 / SOX
MA, Boston Univ	MODIS, MISR	3.0	EROS LPDAAC	83.9	56.0	1.5	Excellent	E	StarLight (Chicago) / Internet2 / NOX
MA, MIT	ICESAT	7.0	GSFC-ICESAT	78.5	40.5	0.04	Excellent	E	NISN / MAX / Internet2 / NOX
MT, Univ of Montana	MODIS	0.8	EROS LPDAAC	26.5	16.8	2.9	Excellent	E	StarLight (Chicago) / Internet2 / PNW
NM, LANL	MISR	1.0	LaRC DAAC	48.4	34.1		Excellent	E	NISN / MAX / Internet2
NY, SUNY Stony Brook	CERES	0.6	LaTIS	42.9	29.7		Excellent	E	NISN / MAX / Internet2 / NYSERnet
NY, University of Buffalo	ICESAT		GSFC-ICESAT	80.4	31.4		n/a	n/a	NISN / MAX / Internet2 / NYSERnet
OH, Ohio State Univ	ICESAT	6.3	GSFC-ICESAT	48.8	30.6		Excellent	E	NISN / MAX / Internet2 / OARnet
OR, Oregon State Univ	CERES, MODIS	7.6	LaTIS	102.6	99.3		Excellent	E	NISN / MAX / Internet2 / PNW
PA, Penn State	MISR	2.6	LaRC DAAC	196.6	66.0		Excellent	E	NISN / MAX / 3ROX
TX, U Texas-Austin	ICESAT	11.1	GSFC-ICESAT	34.2	11.6	0.9	GOOD	G	NISN / MAX / Internet2
WA, PNNL	MISR	1.4	LaRC PTH	90.6	90.5		Excellent	E	NISN / MAX / ESNet
WI, U of Wisc.	MODIS, CERES, AIRS	16.5	GES DAAC	180.1	111.9	21.3	Excellent	E	MAX / Internet2 / MREN
Canada, U. of Toronto	MOPITT	0.6	LaRC DAAC	57.9	24.6		Excellent	E	NISN / StarLight (Chicago) / CA*net4
Italy, Ispra (JRC)	MISR	0.5	LaRC DAAC	28.6	16.2		Excellent	E	NISN / Chicago / CA*net / Géant (NY) / GARR
UK, Oxford	HIRDLS	0.0	GSFC-PTH				n/a	n/a	Internet2 / Géant (DC) / JAnet
UK, BADC (RAL)	HIRDLS	0.2	GSFC-PTH	26.4	9.9		Excellent	E	Internet2 / Géant (DC) / JAnet
UK, London (UCL)	MISR, MODIS	1.0	LaRC PTH	2.4	1.8		GOOD	G	NISN / Teleglobe (SFO) / JAnet
	*Rating Criteria:						Rating		Current Prev
								Nov-07	Report
	Excellent	Median Daily Worst >= 3 *Requirement		Excellent				15	16
	GOOD	Median Daily Worst >= Requirement		GOOD				5	3
	Adequate	Median Daily Worst < Requirement <= Median Daily Median		Adequate				1	2
	LOW	Median Daily Median < Requirement		LOW				0	0
	BAD	Median Daily Median < Requirement / 3		BAD				0	0
				Total				21	21
				GPA				3.67	3.67

EOS QA SCF Sites

Daily Median and Worst Performance as a Percent of Requirements



Details on individual sites:

Each site listed below is the DESTINATION for all the results reported in that section. The first test listed is the one on which the rating is based -- it is from the source most relevant to the driving requirement. Other tests are also listed. The three values listed are derived from [nominally] 24 tests per day. For each day, a daily best, worst, and median is obtained. The values shown below are the medians of those values over the test period.

1) AL, GHRC (UAH) (aka NSSTC)

Rating: Continued **Excellent**

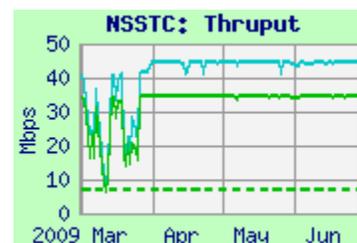
Teams: CERES, AMSR

Domain: nsstc.uah.edu

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/NSSTC.shtml>

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	34.9	34.7	32.6	NISN / MAX / I2 / SOX
GSFC-CNE	44.9	44.6	43.1	MAX / I2 / SOX



Requirements:

Source Node	FY	Mbps	Rating
LaRC LaTIS	'06 – '09	7.0	Excellent

Comments: Performance from both sources became less variable; median daily worst thrupt remains above 3x the requirement, so the rating remains "Excellent".

Note: Testing between GHRC and NSIDC for AMSR-E (AQUA) is included in the "Production Sites" report.

2) AZ, Tucson (U of AZ):

Rating: ↓ Excellent → **Good**

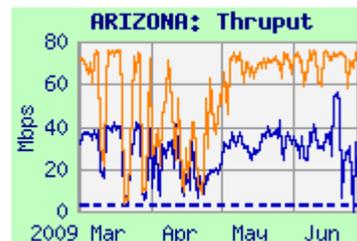
Team: MODIS

Domain: arizona.edu

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/ARIZONA.shtml>

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS LPDAAC	48.2	30.1	4.0	StarLight / I2
GSFC ENPL	75.2	68.1	8.0	MAX / I2

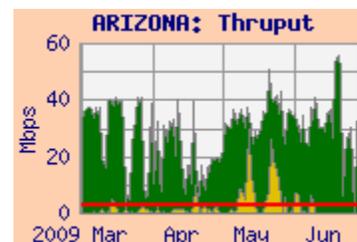


Requirements:

Source Node	FY	Mbps	Rating
EROS LPDAAC	'03 - '09	2.6	Good

Comments: The ratings are based on the MODIS flow from EROS. Performance was noisy from both sources -- the median daily worst from EROS dropped below 3 x the requirement, so the rating drops to "Good".

The average user flow from EROS was 2.0 mbps (way above the 230 kbps last quarter) – consistent with the stated requirement.



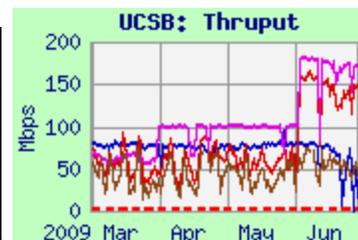
3) CA, UCSB :

Teams: MODIS

Domain: ucsb.edu

Web page: <http://ensight.eos.nasa.gov/Missions/terra/UCSB.shtml>Ratings: GSFC: Continued **Excellent**
EROS: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MODIS	74.0	47.2	12.5	MAX / I2 / CENIC
GSFC-GES DISC	94.4	68.8	27.8	MAX / I2 / CENIC
GSFC-ENPL	101.8	100.3	89.0	MAX / I2 / CENIC
EROS-LPDAAC	83.2	76.4	38.0	StarLight / I2 / CENIC

**Requirements:**

Source Node	FY	mbps	Rating
GSFC-MODIS	'04 - '09	3.1	Excellent
EROS-LPDAAC	'04 - '09	2.2	Excellent

Comments: The requirements are split between EROS and GSFC. Performance from MODIS at GSFC remains noisy due to the congested EBnet to Doors Gig-E, while performance from GES DISC (now on the 10 gig backbone) is less noisy. EROS has been stable since April '05. Testing from GSFC-ENPL avoids the congestion at GSFC and is also less noisy. The rating remains "Excellent" from both EROS and GSFC-MODIS. The testing was returned in June, with improvements from GSFC GES DISC and GSFC-ENPL. The user flow from GSFC averaged only 43 kbps this period, much lower than the requirement.

4) CA, UCSD (SIO):

Teams: CERES, ICESAT

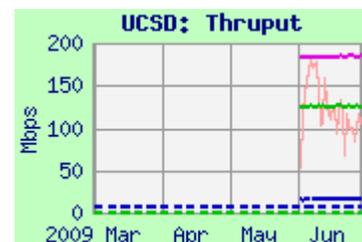
Domain: ucsd.edu

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/UCSD.shtml>Ratings: ICESAT: Continued **Good**
LaTIS: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	17.1	16.7	11.2	NISN SIP / MAX / I2 / CENIC
LaTIS	127.8	125.7	121.9	NISN SPI / MAX / I2 / CENIC
GSFC-EBnet-PTH	183.5	115.0	30.9	MAX / I2 / CENIC
GSFC-ENPL	185.0	184.6	184.2	MAX / I2 / CENIC

Requirements:

Source Node	FY	mbps	Rating
GSFC-ICESAT	'05 - '09	7.0	Good
LaTIS	'02 - '09	0.26	Excellent



Comments: The UCSD test node was retired in early January, and a replacement was installed in June. Thus the data above represents only the testing in June.

Performance from ICESAT is lower than the median to the old host (about 50 mbps), due to a lower window size at UCSD, and the inability to use multiple streams from ICESAT. The daily minimum thruput from GSFC-ICESAT remained below 3 x the requirement, so the rating continues "Good".

Peak performance from GSFC-EBnet-PTH to the new host is better, using multiple streams, but is also noisy, due to the EBnet to Doors congestion. GSFC-ENPL avoids the GSFC campus congestion, and gets very steady thruput. User flow from GSFC averaged only 174 kbps during the test period.

Performance from LaTIS was also very stable and higher than to the previous host (was 85 mbps). The LaTIS rating continues as "Excellent".

5) CO, Colo State Univ.:

Teams: CERES, ICESAT

Web page: http://ensight.eos.nasa.gov/Missions/terra/COLO_ST.shtmlRating: Continued **Adequate**

Domain: colostate.edu

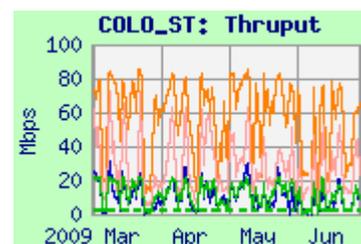
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	20.8	12.2	1.1	NISN SIP / MAX / I2 / FRGP
GSFC-ICESAT	34.2	9.1	0.4	NISN SIP / MAX / I2 / FRGP
GSFC-EBnet-PTH	66.9	24.8	5.1	MAX / I2 / FRGP
GSFC-ENPL	84.6	64.3	11.8	MAX / I2 / FRGP

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'04 - '09	2.15	Adequate

Comments: Performance was noisy from all sources remains, suggesting congestion at Colo State. The daily worst from LaTIS remained below the requirement, so the rating remains "Adequate". Thruput from GSFC-PTH and GSFC-ICESAT had higher peaks but was also noisy due to congestion at both Colo and GSFC. Testing from GSFC-ENPL is outside most campus firewalls, and is also noisy, but shows that the true capacity of the WAN is higher than seen from either the CNE or EBnet nodes (would be rated "Excellent").

**6) FL, Univ. of Miami:**

Teams: MODIS, MISR

Domain: rsmas.miami.edu

Web page: <http://ensight.eos.nasa.gov/Missions/terra/MIAMI.shtml>Rating: GSFC: ↑ Adequate → **Good**LaRC: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MODIS	66.8	42.0	21.9	MAX / I2 / SOX
GSFC-ENPL	30.3	30.3	27.4	MAX / I2 / SOX
LaRC DAAC	13.2	10.4	8.7	NISN / MAX / I2 / SOX

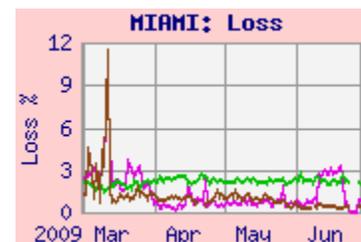
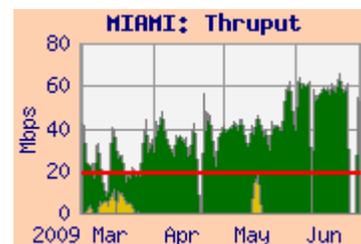
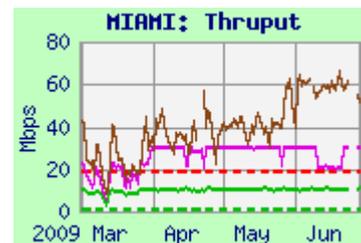
Requirements:

Source Node	FY	mbps	Rating
GSFC	'04 - '09	18.8	Good
LaRC DAAC	'04 - '09	1.1	Excellent

Comments: Thruput from GSFC-MODIS was mostly stable, but noisy due to EBnet congestion at GSFC. The integrated daily worst from MODIS increased to above the requirement, so the rating improves to "Good". The rating remains "Excellent" from LaRC, due to the much lower requirement.

The integrated graph shows the user flow from GSFC.

Note: Thruput was about 133 mbps from GSFC and 38 mbps from LaRC until Aug '05. An increase in packet loss was observed at that time. Since this loss is observed from all sources, the problem appears to be in or near Miami.



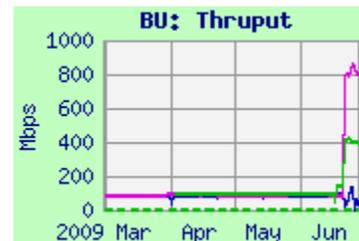
7) MA, Boston Univ:

Teams: MODIS, MISR

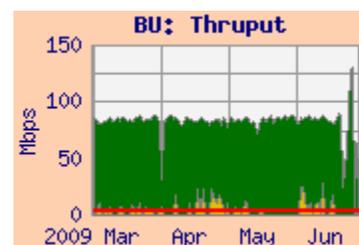
Domain: bu.edu

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/BU.shtml>Ratings: EROS: Continued **Excellent****X** LaRC: n/a**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS DAAC	88.5	83.9	56.0	StarLight / I2 / NOX
GSFC ENPL	94.0	93.8	84.3	MAX / I2 / NOX
LaRC DAAC	93.5	93.5	86.8	NISN / MAX / I2 / NOX

**Requirements:**

Source Node	FY	mbps	Rating
EROS DAAC	'04 - '09	3.0	Excellent
LaRC ASDC DAAC	'04 - '09	1.2	Excellent



Comments: Performance from all sources was stable until the end of this period – the BU test host was upgraded at that time, with improved results (but this improvement is not reflected in the values above, due to the short time they were observed). The user flow from EROS averaged 1.5 mbps for this period (about 66% of the requirement without contingency). The rating from EROS remains “Excellent”. Testing from LaRC resumed in April with very stable results, also rated “Excellent”.

8) MA, MIT:

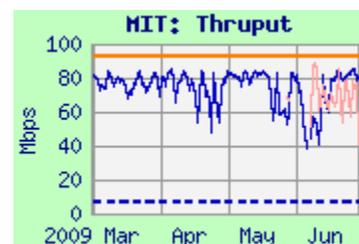
Teams: ICESAT

Web Page: <http://ensight.eos.nasa.gov/Missions/icesat/MIT.shtml>Rating: Continued **Excellent**

Domain: mit.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	85.0	78.5	40.5	NISN / MAX / I2 / NOX
GSFC-ENPL	93.5	93.5	89.0	MAX / I2 / NOX

**Requirements:**

Source Node	FY	mbps	Rating
GSFC	'05 – '09	7.0	Excellent

Comments: Performance from GSFC ICESAT to MIT is stable. The median daily worst is well above 3 x the requirement; the rating remains “Excellent”. Peak performance from GSFC-ENPL is a bit better than from ICESAT, but the median and worst are substantially higher. The daily average user flow from ICESAT was only 35 kbps – only about 0.5% of the requirement

9) MT, Univ of Montana:

Teams: MODIS

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/MONT.shtml>Rating: Continued **Excellent**

Domain: ntsg.umt.edu

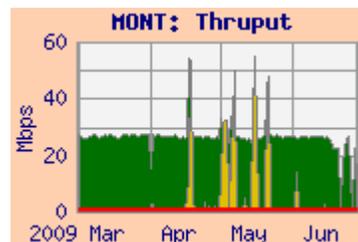
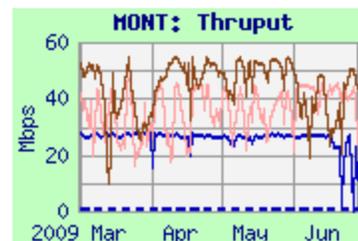
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS LPDAAC	27.1	26.5	16.8	StarLight / I2 / PNW
GSFC-PTH	45.5	40.2	11.4	MAX / I2 / PNW
NSIDC	54.4	47.9	23.6	CU / FRGP / I2 / PNW

Requirement:

Source Node	FY	mbps	Rating
EROS LPDAAC	'04 - '09	0.82	Excellent

Comments: Performance was relatively stable this period. With the very low requirement, the rating remains "Excellent". The average user flow from EROS was 2.9 kbps – mostly in occasional bursts (above the requirement).

**10) NM, LANL**

Teams: MISR

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/LANL.shtml>Rating: Continued **Excellent**

Domain: lanl.gov

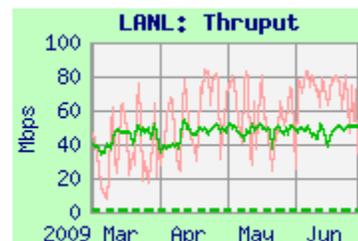
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	56.1	48.4	34.1	NISN / MAX / I2
GSFC-EBnet-PTH	83.9	65.7	15.0	MAX / ESnet

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'09	1.03	Excellent

Comments: Performance from LaRC was relatively stable. With the low requirement, the rating remains "Excellent". From GSFC performance was noisier due to EBnet congestion at GSFC.

**11) NY, SUNY-SB:**

Teams: CERES, MODIS

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/SUNYSB.shtml>Rating: Continued **Excellent**

Domain: sunysb.edu

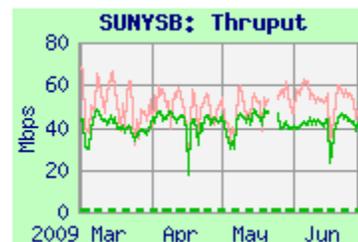
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	56.4	42.9	29.7	NISN / MAX / I2 / NYSERnet
GSFC	73.4	52.7	26.3	MAX / I2 / NYSERnet

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02-'09	0.57	Excellent

Comments: Performance from LaTIS has been stable since March '07. Due to the very low requirement, the rating remains "Excellent". Performance from GSFC was noisier but mainly stable this period.

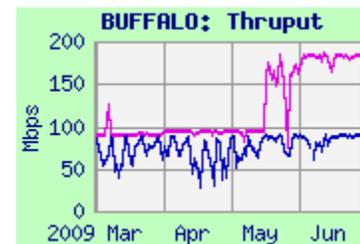


12) NY, University of Buffalo:

Team: ICESAT

Web Page: <http://ensight.eos.nasa.gov/Missions/icesat/BUFFALO.shtml>Rating: **N/A**
Domain: buffalo.edu**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	87.9	80.4	31.4	NISN / MAX / I2 / NYSERnet
GSFC-ENPL	127.9	93.4	92.0	MAX / I2 / NYSERnet



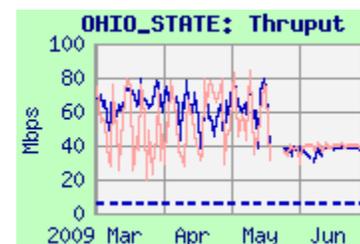
Comments: This node is planned to replace Ohio-State for ICESAT. Performance from ICESAT was quite stable. No requirement is specified at this time, but if the requirement is the same 6.3 mbps as to Ohio State, the rating would remain "Excellent". Thruput improved in May from ENPL with retuning.

13) OH, Ohio State Univ:

Teams: ICESAT

Web Page: http://ensight.eos.nasa.gov/Missions/icesat/OHIO_STATE.shtmlRating: Continued **Excellent**
Domain: ohio-state.edu**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	79.5	48.8	30.6	NISN / MAX / I2 / OARnet
GSFC-EBnet-PTH	81.4	40.5	18.5	MAX / I2 / OARnet

**Requirements:**

Source Node	FY	mbps	Rating
GSFC-ICESAT	'05-'09	6.3	Excellent

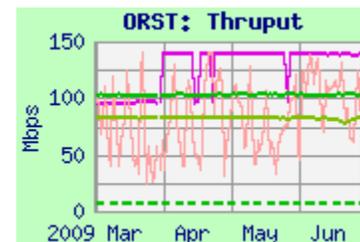
Comments: Performance from ICESAT was noisy but stable this month, with a drop occurring in May due to replacement of the test host. The rating therefore remains "Excellent". Performance from GSFC-EBnet-PTH was noisier due to EBnet congestion at GSFC.

14) OR, Oregon State Univ:

Teams: CERES, MODIS Domain: oce.orst.edu

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/ORST.shtml>Ratings: LaTIS: Continued **Excellent**
GSFC: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	104.6	102.6	99.3	NISN / MAX / I2 / PNW
JPL-PTH	83.1	82.6	80.0	CENIC / I2 / PNW
GSFC-EBnet-PTH	136.0	89.2	22.1	MAX / I2 / PNW
GSFC-ENPL	140.2	139.5	138.0	MAX / I2 / PNW

**Requirements:**

Source Node	FY	mbps	Rating
LaTIS	'04 - '09	7.5	Excellent
GDAAC	'02 - '09	0.25	Excellent

Comments: Thruput from LaTIS was very stable for this period, well above the requirement. Thruput from GSFC-EBnet-PTH is noisy due to EBnet to Doors congestion. Testing from GSFC-ENPL was retuned in April. It is not subject to congestion at GSFC – its median and worst performance is higher. Thruput from JPL-PTH is also very stable. The ratings from both LaTIS and GSFC remain "Excellent".

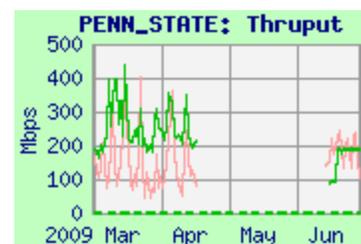
15) PA: Penn State Univ: Rating: Continued **Excellent**

Team: MISR

Domain: psu.edu

Web Page: http://ensight.eos.nasa.gov/Missions/terra/PENN_STATE.shtml**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	378.9	196.6	66.0	NISN / MAX / I2 / 3ROX
GSFC-EBnet-PTH	252.8	162.6	46.9	MAX / I2 / 3ROX

**Requirements:**

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'09	2.6	Excellent

Comments: Thruput from LaRC is generally exceptional, but seems to suffer a poor results on most days, probably due to congestion at Penn State (note the 5.4:1 ratio between median daily best and worst). But these values are still way above the requirement, so the rating remains "Excellent". **Thruput from GSFC-PTH is also noisy due to the EBnet-Doors congestion.**

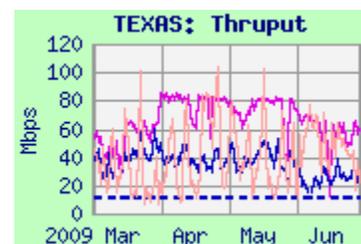
16) TX: Univ. of Texas - Austin:Rating: Continued **Good**

Team: ICESAT

Domain: utexas.edu

Web Page: <http://ensight.eos.nasa.gov/Missions/icesat/TEXAS.shtml>**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	71.8	34.2	11.6	NISN / MAX / I2 / TX
GSFC-ENPL	90.0	74.6	47.0	MAX / I2/ TX
GSFC-EBnet-PTH	143.3	41.2	6.2	MAX / I2/ TX

**Requirements:**

Source Node	FY	mbps	Rating
GSFC-ICESAT	05-'09	11.1	Good

Comments: Performance from ICESAT was noisy – similar to last quarter. The daily worst thrupt remains above the requirement, but below 3 x; so the rating remains "Good". **Testing from GSFC-EBnet-PTH is very noisy, due to EBnet-Doors congestion.** But GSFC-ENPL is outside most of the congested GSFC campus infrastructure – so it is much less noisy. The average user flow this period was only 940 kbps, only about 8.5% of the requirement.

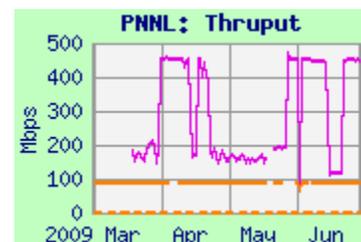
17) WA, PNNL:Ratings: Continued **Excellent**

Team: MISR

Domain: pnl.gov

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/PNNL.shtml>**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC-PTH	90.6	90.6	90.5	NISN / MAX / ESnet
GSFC-ENPL	454.8	398.9	182.3	MAX / ESnet

**Requirements:**

Source Node	FY	mbps	Rating
LaRC	'04-'09	1.4	Excellent

Comments: Performance from LaRC PTH has been extremely stable, limited by a 100 mbps Ethernet connection at LaRC; the rating remains "Excellent". Performance from GSFC-ENPL was a bit higher than the previous period, and was bimodal this period, but remains **OUTSTANDING!**

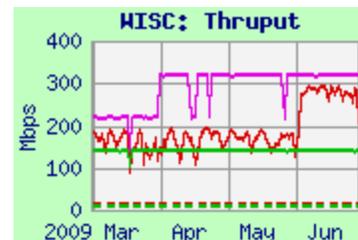
18) WI, Univ. of Wisconsin:Ratings: GSFC: Continued **Excellent**

Teams: MODIS, CERES, AIRS, NPP

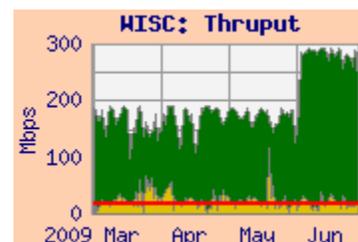
Domain: ssec.wisc.edu

LARC: Continued **Excellent**Web Page: <http://ensight.eos.nasa.gov/Missions/terra/WISC.shtml>**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	209.7	184.3	118.6	MAX / I2 / MREN
LaTIS	142.1	141.5	140.3	NISN / MAX / I2 / MREN
GSFC-ENPL	320.0	319.1	316.7	MAX / I2 / MREN

**Requirements:**

Source Node	FY	mbps	Rating
GSFC	'04 - '09	16.5	Excellent
LaRC Combined	'05 - '09	7.9	Excellent



Comments: Performance from all nodes was mostly stable this period. Thruput from GDAAC was somewhat noisy due to congestion at GSFC, but improved in June with GDAAC's move to the 10 gig EBnet. The user flow from GSFC averaged 21.3 mbps this period, about 30% above the requirement, the same as the 21.2 mbps last period. Due to this high user flow, the rating is based on the integrated results from GSFC, shown above. The integrated daily worst improved to well above 3 x the requirement, so the rating remains "Excellent". Thruput from LaTIS was very stable; the rating from LaTIS remains "Excellent". Testing from ENPL avoided the GSFC congestion and was also stable.

19) Canada, Univ of Toronto:Rating: Continued **Excellent**

Team: MOPITT

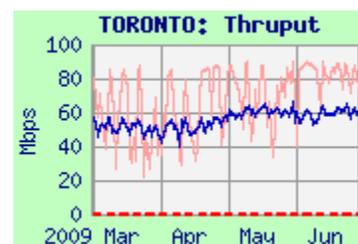
Domain: utoronto.ca

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/TORONTO.shtml>**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	70.3	57.9	24.6	NISN / StarLight / CA*net4
GSFC-EBnet-PTH	91.0	79.3	21.9	MAX / I2 / NY / CA*net4

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 - '09	100	Excellent
GSFC EOC	'02 - '09	512	Excellent



Comments: Testing to Toronto was returned in January '09, with improved, but noisier performance -- thruput from both sources had been mostly stable since December '06. The ratings from both sources remain "Excellent". User flow from GSFC averaged only 2.5 kbps this period.

20) Italy, EC - JRC:

Team: MISR

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/JRC.shtml>Rating: Continued **Excellent**

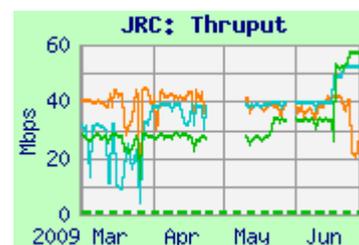
Domain: jrc.it

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	33.3	28.6	16.2	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-NISN	39.2	38.8	32.8	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-ENPL	42.8	38.6	25.1	MAX / I2 / Géant / Garr

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02 – '09	0.52	Excellent



Comments: JRC was connected to Géant in July '07. But since NISN does not peer with Géant (peering request is in process), the route from LDAAC is via NISN to Chicago, then Canarie, peering with Géant in NY (but a high performance route anyway).

The median daily worst thruput from LaRC remained well above 3 x the requirement, so the rating remains "Excellent".

The route from GSFC campus via NISN is similar to that from LaRC, thruput is also similar.

Performance is higher from GSFC-ENPL, which connects directly to MAX and Géant.

Testing was returned in June, with improved results.

21) UK, London: (UCL)

Teams: MODIS, MISR

Web Page: <http://ensight.eos.nasa.gov/Missions/terra/UCLSCF.shtml>Rating: Continued **Good**

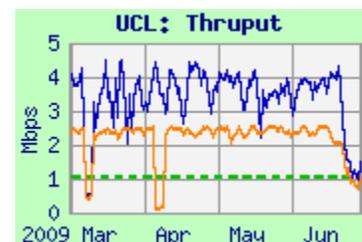
Domain: ucl.ac.uk

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	2.57	2.37	1.85	NISN / PAIX (SFO) / Teleglobe / JAnet
GSFC EBnet-PTH	4.46	3.74	1.88	MAX / I2 / Géant (DC) / JAnet

Requirements

Source Node	FY	mbps	Rating
LaRC DAAC	'02 – '09	1.03	Good



Comments: In September '06 the testing was modified due to a new firewall at UCL – now using ftp pulls by UCL instead of iperf from GSFC and LaRC.

Results are much lower using this method – previous iperf thruput was 9.5 mbps from LaRC and 32 mbps from GSFC.

The route from LaRC is via NISN, peering with Teleglobe on the US west coast, unnecessarily increasing RTT and reducing thruput. Although mostly stable, the median daily worst thruput from LaRC is below 3 x the requirement, so the rating remains "Good".

From GSFC the route (peering with Géant at MAX) is optimum. The thruput is better as well, but is noisy due to congestion at GSFC.

22) UK, Oxford:

Team: HIRDLS

Web Page: <http://ensight.eos.nasa.gov/Missions/aura/OXFORD.shtml>Rating: **X** Continued **Down**

Domain: ox.ac.uk

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ENPL				MAX / I2 / Géant (DC) / JAnet
GSFC-EBnet-PTH				MAX / I2 / Géant (DC) / JAnet

Requirements: (IST Only)

Source Node	FY	kbps	Rating
GSFC	'03 – '09	512	n/a

Comments: Testing to Oxford has been down since the Oxford test host was retired in April '08— a new host is being sought. Previously, performance had been mostly stable at about 25 mbps since October '06, rating “Excellent”.

22A) Rutherford Appleton Laboratory (BADC)

Team: HIRDLS

Web Page: http://ensight.eos.nasa.gov/Missions/aura/UK_RAL.shtmlRating: Continued **Excellent**

Domain: rl.ac.uk

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ENPL	35.6	32.9	27.8	MAX / I2 / Géant (DC) / JAnet
GSFC-EBnet-PTH	33.2	26.4	9.9	MAX / I2 / Géant (DC) / JAnet

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02 – '09	0.19	Excellent

Comments: Thruput to RAL was very stable from GSFC-ENPL, but noisier. from GSFC-PTH, **due to congestion at GSFC**. There is now a stated requirement to RAL: 0.19 mbps. The thruput has consistently been much higher than that, so the rating is “Excellent” (and was also “Excellent” retroactively).

