

EOS Science Networks Performance Report

This is a summary of EOS QA SCF performance testing for the 3rd quarter of 2008 -- comparing the performance against the requirements from BAH, 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 from the EBnet router at GSFC to the “Doors”
 - Affects daily worst performance from GES-DAAC, MODIS, GSFC-PTH
 - Compare with better performance from GSFC-ENPL.
- Otherwise, very stable performance.
 - ALL Nodes rated at least **Good**
 - GPA 3.75 (was 3.62 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: ↑:

GSFC-MODIS → Miami: Adequate → **Good**

GSFC-ICESAT → Ohio State: Adequate → **Excellent**

GSFC-GES DAAC → Wisconsin: Good → **Excellent**

Downgrades: ↓:

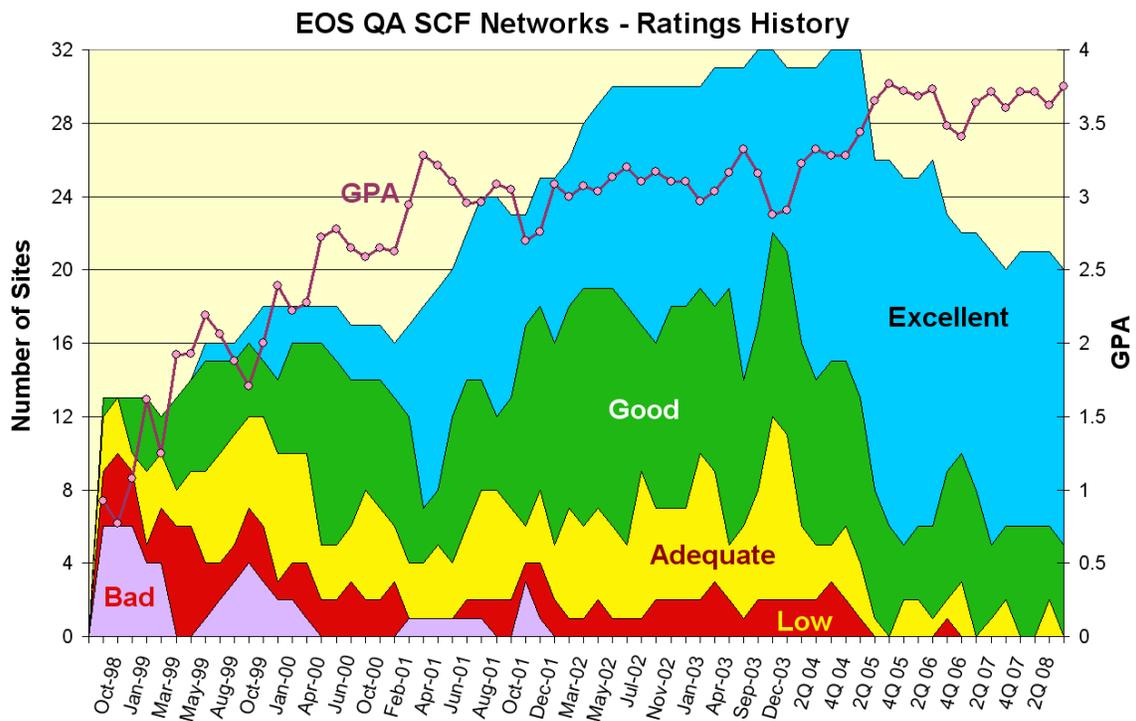
LaTIS → Colo State: Excellent → **Good**

Testing Suspended: X:

Oxford Univ: Replacement host being sought

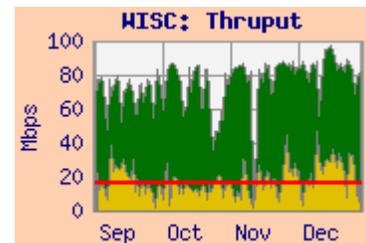
Ratings History:

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).

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 thrupt 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.



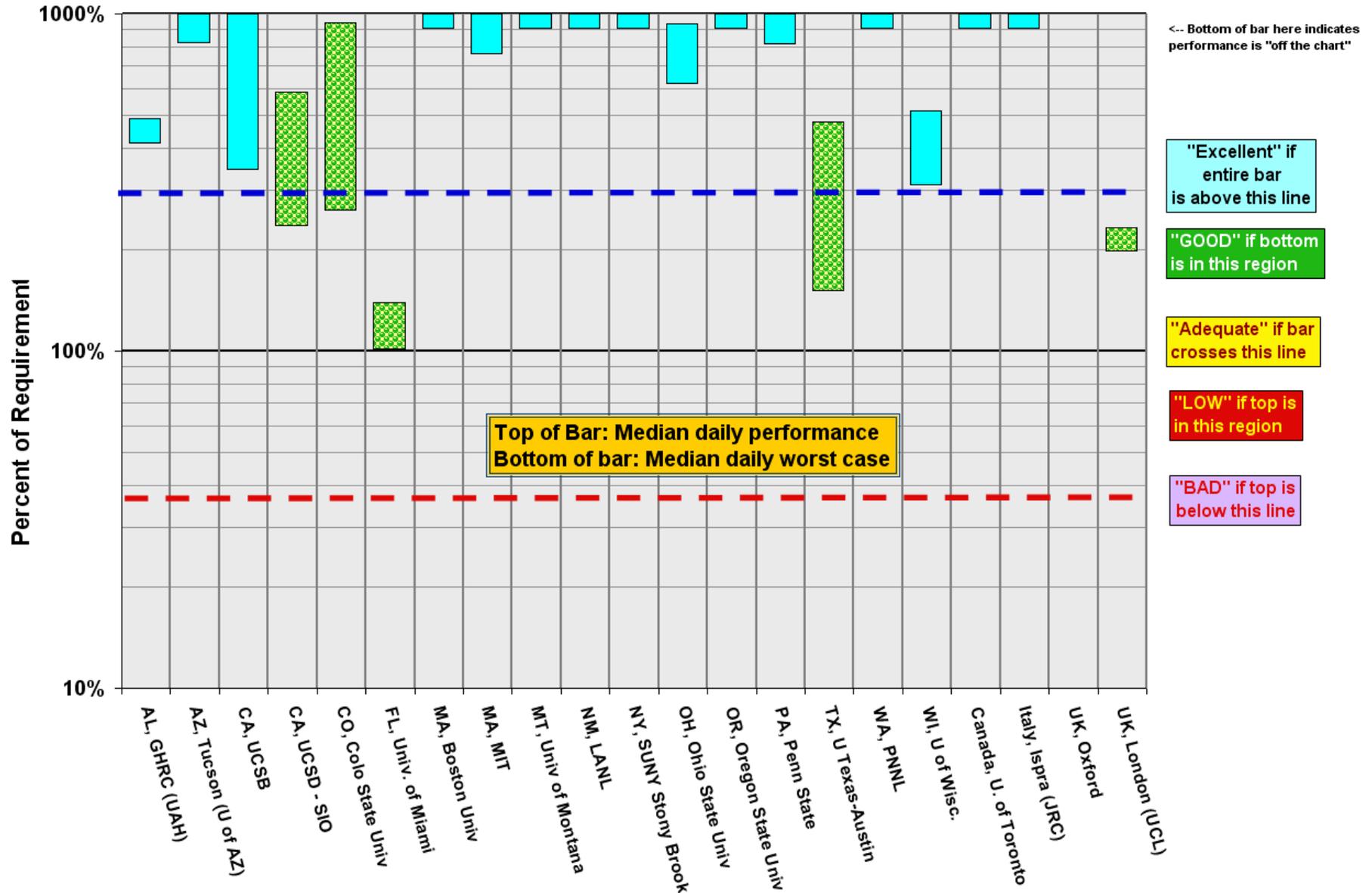
Note: User flow data is not available from LaRC, so sites with requirements from LaRC will not include integrated graphs.

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

3 rd Quarter 2008		Testing							
Destination	Team (s)	Requirement	Source Node	Median mbps	Median Daily Worst	Average User Flow	Rating re Current Requirements		Route Tested
		Nov-07					3 Q 2008	2Q08	
AL, GHRC (UAH)	CERES, AMSR-E	6.9	LaTIS	34.5	29.0		Excellent	E	NISN / MAX / Internet2 / SOX
AZ, Tucson (U of AZ)	MODIS	2.6	EROS LPDAAC	36.3	23.0	0.13	Excellent	E	StarLight (Chicago) / Internet2
CA, UCSB	MODIS	3.1	GDAAC	33.4	10.8		Excellent	E	MAX / Internet2 / CENIC
CA, UCSD - SIO	ICESAT, CERES	7.1	GSFC-ICESAT	41.6	16.6		GOOD	G	NISN / MAX / Internet2 / CENIC
CO, Colo State Univ	CERES	2.1	LaTIS	20.1	5.6		GOOD	E	NISN / MAX / Internet2 / FRGP
FL, Univ. of Miami	MODIS, MISR	18.8	MTVS1	26.2	19.0	8.1	GOOD	A	MAX / Internet2 / SOX
MA, Boston Univ	MODIS, MISR	3.0	EROS LPDAAC	80.1	52.3	0.70	Excellent	E	StarLight (Chicago) / Internet2 / NOX
MA, MIT	ICESAT	7.0	GSFC-ICESAT	83.5	53.2		Excellent	E	NISN / MAX / Internet2 / NOX
MT, Univ of Montana	MODIS	0.8	EROS LPDAAC	26.8	18.9	0.06	Excellent	E	StarLight (Chicago) / Internet2 / PNW
NM, LANL	MISR	1.0	LaRC DAAC	60.5	21.3		Excellent	E	NISN / MAX / Internet2
NY, SUNY Stony Brook	CERES	0.6	LaTIS	48.7	28.1		Excellent	E	NISN / MAX / Internet2 / NYSERnet
NY, University of Buffalo	ICESAT		GSFC-ICESAT	86.6	62.1		n/a	n/a	NISN / MAX / Internet2 / NYSERnet
OH, Ohio State Univ	ICESAT	6.3	GSFC-ICESAT	58.9	39.1		Excellent	A	NISN / MAX / Internet2 / OARnet
OR, Oregon State Univ	CERES, MODIS	7.6	LaTIS	103.4	100.4		Excellent	E	NISN / MAX / Internet2 / PNW
PA, Penn State	MISR	2.6	LaRC DAAC	446.0	21.4		Excellent	E	NISN / MAX / 3ROX
TX, U Texas-Austin	ICESAT	11.1	GSFC-ICESAT	52.8	16.6	0.35	GOOD	G	NISN / MAX / Internet2
WA, PNNL	MISR	1.4	LaRC PTH	90.8	90.8		Excellent	E	NISN / MAX / ESNet
WI, U of Wisc.	MODIS, CERES, AIRS	16.5	GDAAC	84.7	50.9	26.6	Excellent	G	MAX / Internet2 / MREN
Canada, U. of Toronto	MOPITT	0.6	LaRC DAAC	29.4	5.8		Excellent	E	NISN / StarLight (Chicago) / CA*net4
Italy, Ispra (JRC)	MISR	0.5	LaRC DAAC	22.5	6.8		Excellent	E	NISN / Chicago / CA*net / Géant (NY) / GARR
UK, Oxford	HIRDLS	0.5	GSFC-PTH				n/a	E	Internet2 / Géant (DC) / JAnet
UK, London (JCL)	MISR, MODIS	1.0	LaRC PTH	2.4	2.0		GOOD	G	NISN / Teleglobe (SFO) / JAnet
	*Rating Criteria:								
							Rating		
								Current Nov-07	Last Report
	Excellent	Median Daily Worst >= 3 *Requirement					Excellent	15	15
	GOOD	Median Daily Worst >= Requirement					GOOD	5	4
	Adequate	Median Daily Worst < Requirement <= Median Daily Median					Adequate	0	2
	LOW	Median Daily Median < Requirement					LOW	0	0
	BAD	Median Daily Median < Requirement / 3					BAD	0	0
							Total	20	21
							GPA	3.75	3.62

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)

Teams: CERES, AMSR

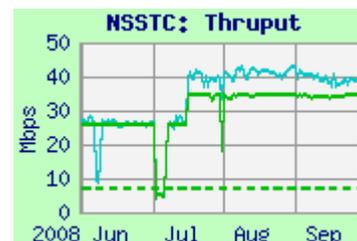
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/NSSTC.shtml>

Rating: Continued **Excellent**

Domain: nsstc.uah.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	34.9	34.5	29.0	NISN / MAX / I2 / SOX
GSFC-CNE	44.0	39.5	32.1	MAX / I2 / SOX



Requirements:

Source Node	FY	Mbps	Rating
LaRC LaTIS	'06 - '08	7.0	Excellent

Comments: Performance from LaTIS improved in mid July, related to a reduction in RTT. It 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):

Team: MODIS

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

Rating: Continued **Excellent**

Domain: arizona.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS LPDAAC	49.5	36.3	23.0	StarLight / I2
GSFC	74.6	74.3	66.5	MAX / I2

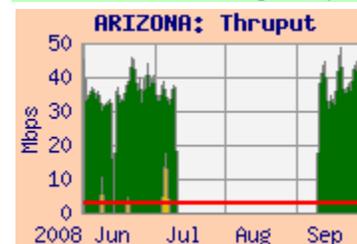


Requirements:

Source Node	FY	Mbps	Rating
EROS LPDAAC	'03 - '08	2.8	Excellent

Comments: The ratings are based on the MODIS flow from EROS. The Arizona test host was down for about 2 months from July to September. Performance was stable from both sources, rating "Excellent".

The average user flow from EROS was 125 kbps (similar to the 100 kbps last quarter) – only about 4.5% of the stated requirement.



3) CA, UCSB :

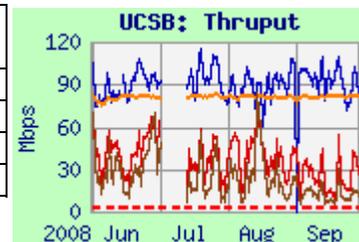
Teams: MODIS
Domain: ucsb.edu

Web page: <http://ensight.eos.nasa.gov/Missions/terra/UCSB.shtml>

Ratings: GSFC: Continued **Excellent**
EROS: Continued **Excellent**

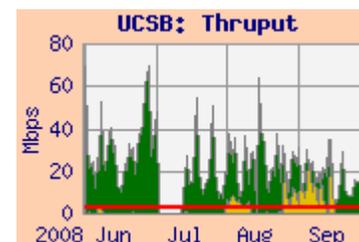
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-GES DAAC	63.9	33.4	10.8	MAX / I2 / CENIC
GSFC-MODIS	68.0	14.9	6.3	MAX / I2 / CENIC
GSFC-ENPL	83.1	81.3	74.9	MAX / I2 / CENIC
EROS-LPDAAC	111.8	91.7	53.1	StarLight / I2 / CENIC

**Requirements:**

Source Node	FY	mbps	Rating
GSFC-DAAC	'04 - '08	3.1	Excellent
EROS-LPDAAC	'04 - '08	2.2	Excellent

Comments: The requirements are split between EROS and GSFC. Performance from MODIS and GES DAAC at GSFC was noisy **due to the congested EBnet to Doors Gig-E**, while performance from EROS has been mostly stable since April '05. Testing from GSFC-ENPL avoids the congestion at GSFC and is much less noisy. The rating remains "Excellent" from both sites. The user flow from GSFC averaged 3.8 mbps this period, moderately consistent with the requirement.

**4) CA, UCSD (SIO):**

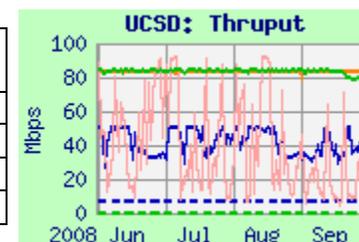
Teams: CERES, ICESAT
Domain: ucsd.edu

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	50.7	41.6	16.6	NISN / MAX / I2 / CENIC
LaTIS	85.9	84.0	78.9	NISN / MAX / I2 / CENIC
GSFC-PTH	91.2	24.3	6.2	MAX / I2 / CENIC
GSFC-ENPL	84.1	83.7	83.2	MAX / I2 / CENIC

**Requirements:**

Source Node	FY	mbps	Rating
GSFC-ICESAT	'05 - '08	7.0	Good
LaTIS	'02 - '08	0.26	Excellent

Comments: The daily minimum thrupt from GSFC-ICESAT remained below 3 x the requirement, so the rating continues "Good". Peak performance from GSFC-PTH is better, but more noisy, **due to the EBnet to Doors congestion**. GSFC-ENPL avoids the GSFC campus congestion, and gets very steady thrupt.

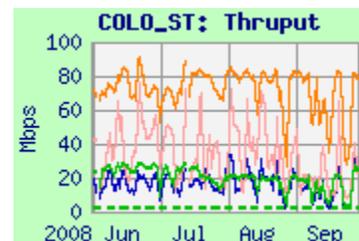
Performance from LaTIS was very stable and similar to the previous period. The LaTIS rating continues as "Excellent".

5) CO, Colo State Univ.:

Teams: CERES, ICESAT

Web page: http://ensight.eos.nasa.gov/Missions/terra/COLO_ST.shtmlRating: ↓ Excellent → **Good**
Domain: colostate.edu**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	21.6	20.1	5.6	NISN / MAX / I2 / FRGP
GSFC-ICESAT	34.8	15.3	2.2	NISN / MAX / I2 / FRGP
GSFC-PTH	68.7	26.3	9.1	MAX / I2 / FRGP
GSFC-ENPL	85.4	77.6	38.1	MAX / I2 / FRGP

**Requirements:**

Source Node	FY	mbps	Rating
LaTIS	'04 - '08	2.15	Good

Comments: Performance from all sources remains noisy, but the daily worst from LaTIS dropped below 3 x the requirement, so the rating is reduced to “Good”. Thruput from GSFC-PTH and GSFC-ICESAT had higher peaks **but was very noisy due to GSFC campus congestion**. Testing from GSFC-ENPL is outside most campus firewalls, and shows that the true capacity of the WAN is higher than seen from either the CNE or EBnet nodes.

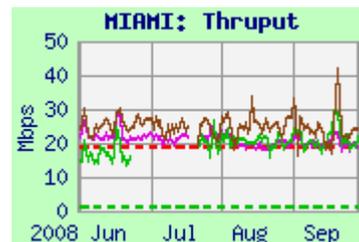
6) FL, Univ. of Miami:

Teams: MODIS, MISR

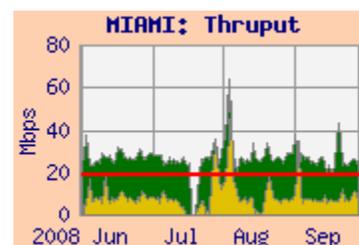
Domain: rsmas.miami.edu

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-MTVS1	34.4	26.2	19.0	MAX / I2 / SOX
GSFC-ENPL	26.4	20.4	16.2	MAX / I2 / SOX
LaRC DAAC	29.7	20.3	2.8	NISN / MAX / I2 / SOX

**Requirements:**

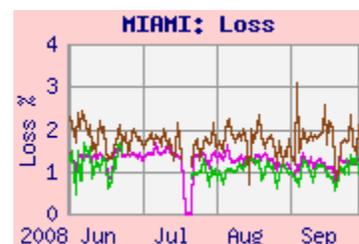
Source Node	FY	mbps	Rating
GSFC	'04 - '08	18.8	Good
LaRC DAAC	'04 - '08	1.1	Excellent



Comments: Due to the large user flow, the rating from GSFC is based on the “Integrated” thrupt from MODIS (MTVS1). The integrated values combine the iperf and user flows, and account for the interference in the iperf measurements due to the user flow. Thruput was mostly stable, but noisy due to EBnet congestion at GSFC. The integrated daily worst from MODIS is now 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 that the average user flow from GSFC was 8.1 mbps for this period (about the same as last period); this is about 50% of the requirement (75% of requirement without contingency).

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.



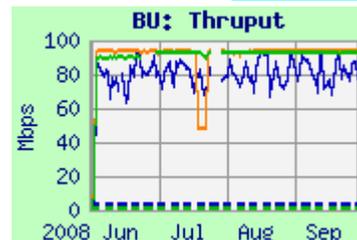
7) MA, Boston Univ:

Teams: MODIS, MISR Domain: bu.edu
 Web Page: <http://ensight.eos.nasa.gov/Missions/terra/BU.shtml>

Ratings: EROS: Continued **Excellent**
 LaRC: Continued **Excellent**

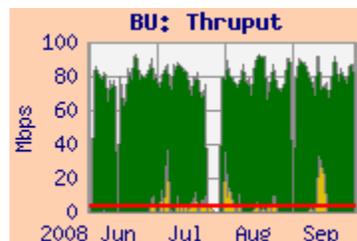
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS DAAC	92.4	80.1	52.3	StarLight / I2 / NOX
GSFC ENPL	93.7	93.7	90.8	MAX / I2 / NOX
LaRC DAAC	93.4	93.3	38.3	NISN / MAX / I2 / NOX



Requirements:

Source Node	FY	mbps	Rating
EROS DAAC	'04 - '08	3.0	Excellent
LaRC DAAC	'04 - '08	1.2	Excellent



Comments: Performance from all sources was stable for this period. The user flow from EROS averaged about 700 kbps for this period (23% of the requirement). The rating from both sources remains "Excellent".

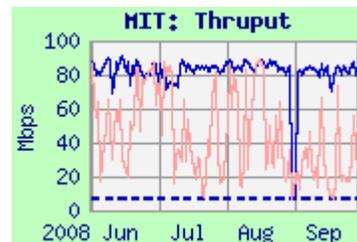
8) MA, MIT:

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	89.6	83.5	53.2	NISN / MAX / I2 / NOX
GSFC-PTH	87.2	30.9	12.1	MAX / I2 / NOX



Requirements:

Source Node	FY	mbps	Rating
GSFC	'05 - '08	7.0	Excellent

Comments: Performance from GSFC ICESAT to MIT is stable (Best:worst ratio is only 1.7:1). The median daily worst is well above 3 x the requirement; the rating remains "Excellent". From GSFC-PTH the peak performance is similar, but the median and worst are lower, **due to the EBnet to Doors congestion**.

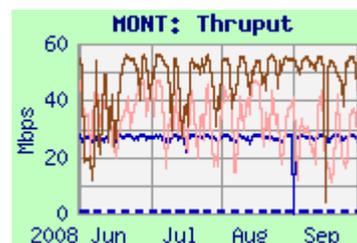
9) MT, Univ of Montana:

Teams: MODIS Web Page: <http://ensight.eos.nasa.gov/Missions/terra/MONT.shtml>

Rating: Continued **Excellent**
 Domain: ntsg.umt.edu

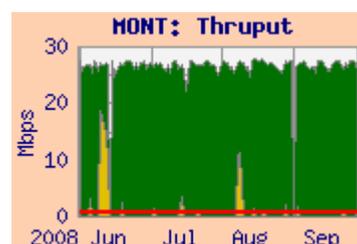
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS LPDAAC	27.7	26.8	18.9	StarLight / I2 / PNW
GSFC-PTH	46.6	32.1	12.6	MAX / I2 / PNW
NSIDC	55.3	51.9	24.9	CU / FRGP / I2 / PNW



Requirement:

Source Node	FY	mbps	Rating
EROS LPDAAC	'04 - '08	0.82	Excellent



Comments: Performance was quite stable this period -- the diurnal cycle is much weaker now (Daily Max:Min ratio from EROS is now only 1.6:1 -- was about 9:1 until November '06). With the very low requirement, the rating remains "Excellent". The daily average user flow from EROS was only 60 kbps -- only 7% of the requirement.

10) NM, LANL:

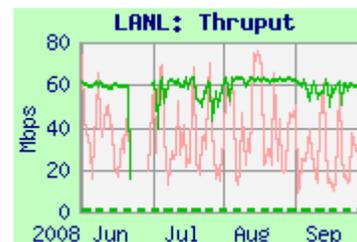
Teams: MISR

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	64.4	60.5	21.3	NISN / MAX / I2
GSFC-PTH	71.8	28.7	12.8	MAX / ESnet

**Requirements:**

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'08	1.03	Excellent

Comments: The route from LaRC switched in Sept '07 from NISN to ESnet to NISN to Internet2 -- performance from LaRC improved a bit at that time. With the low requirement, the rating remains "Excellent". From GSFC the route remained via MAX to ESnet; performance was noisy due to EBnet congestion at GSFC, but mostly stable this period.

11) NY, SUNY-SB:

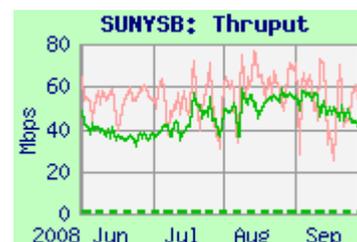
Teams: CERES, MODIS

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	63.7	48.7	28.1	NISN / MAX / I2 / NYSERnet
GSFC	75.3	55.9	29.6	MAX / I2 / NYSERnet

**Requirements:**

Source Node	FY	mbps	Rating
LaTIS	'02-'08	0.57	Excellent

Comments: Performance from LaTIS has been stable since March '07 (when NISN fixed their routing to NYSERnet). 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:

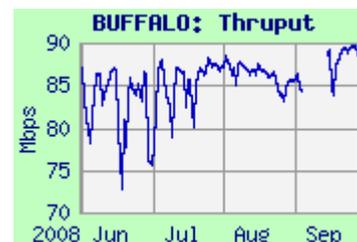
Team: ICESAT

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	88.9	86.6	62.1	NISN / MAX / I2 / NYSERnet



Comments: This node might replace Ohio-State for ICESAT. Performance from ICESAT was 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".

13) OH, Ohio State Univ:

Teams: ICESAT

Web Page: http://ensight.eos.nasa.gov/Missions/icesat/OHIO_STATE.shtmlRating: ↑ Adequate → **Excellent**

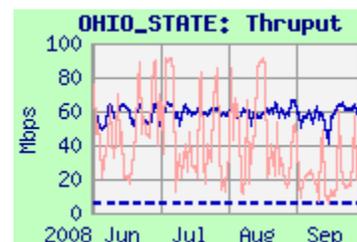
Domain: ohio-state.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	70.2	58.9	39.1	NISN / MAX / I2 / OARnet
GSFC-PTH	88.2	30.2	11.0	MAX / I2 / OARnet

Requirements:

Source Node	FY	mbps	Rating
GSFC-ICESAT	'05-'08	6.3	Excellent



Comments: Performance from ICESAT was much more stable this month – no more typically one or two tests every day with very low results. The rating therefore improves back to “Excellent”. Performance from GSFC-PTH was noisy due to EBnet congestion at GSFC.

14) OR, Oregon State Univ:

Teams: CERES, MODIS

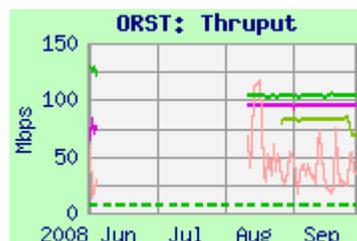
Domain: oce.orst.edu

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	105.4	103.4	100.4	NISN / MAX / I2 / PNW
JPL-PTH	83.7	83.5	80.1	CENIC / I2 / PNW
GSFC-PTH	84.7	37.1	19.4	MAX / I2 / PNW
GSFC-ENPL	96.0	95.9	95.8	MAX / I2 / PNW

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'04 - '08	7.5	Excellent
GDAAC	'02 - '08	0.25	Excellent



Comments: The ORST test node went down at the beginning of June and was replaced in August – and the testing returned. Thruput to the new node is much steadier than the old one. Thruput from LaTIS was stable for this period, well above the requirement. Thruput from GSFC-PTH is noisy due to EBnet to Doors congestion. Thruput from GSFC-ENPL is not subject to congestion at GSFC – its median and worst performance is higher. Thruput from JPL-FE is limited by the Fast-E interface on the test node. The ratings from both LaTIS and GSFC remain "Excellent".

15) PA: Penn State Univ:

Team: MISR

Web Page: http://ensight.eos.nasa.gov/Missions/terra/PENN_STATE.shtmlRating: Continued **Excellent**

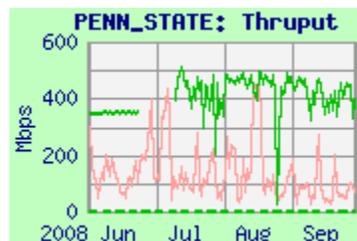
Domain: psu.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	529.9	446.0	21.4	NISN / MAX / I2 / 3ROX
GSFC-PTH	293.3	95.1	36.3	MAX / I2 / 3ROX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'08	2.6	Excellent



Comments: Performance from LaRC is noisy, but way above the requirement; the rating remains “Excellent”. Thruput from GSFC-PTH is also noisy due to the EBnet-Doors congestion.

16) TX: Univ. of Texas - Austin:

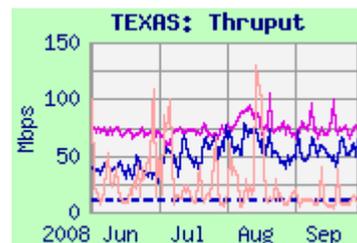
Team: ICESAT

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

Domain: utexas.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	89.4	52.8	16.6	NISN / MAX / I2 / TX
GSFC-ENPL	94.5	72.2	37.8	MAX / I2 / TX

**Requirements:**

Source Node	FY	mbps	Rating
GSFC-ICESAT	05-'08	11.1	Good

Comments: Performance from ICESAT was noisy – a bit better than last quarter. The daily worst thruput remains above the requirement, but below 3 x; so the rating remains “Good”. Testing from GSFC-PTH is very noisy, due to EBnet-Doors congestion, but GSFC-ENPL is outside most of the congested GSFC campus infrastructure – so it is higher performing and less noisy. The average user flow this period was only 350 kbps, well below the requirement.

17) WA, PNNL:

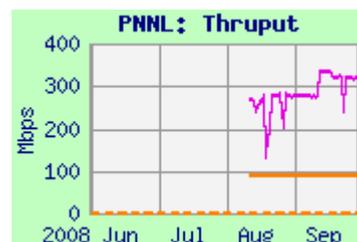
Team: MISR

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

Domain: pnnl.gov

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC-PTH	90.8	90.8	90.8	NISN / MAX / ESnet
GSFC-ENPL	291.3	277.6	260.1	MAX / ESnet

**Requirements:**

Source Node	FY	mbps	Rating
LaRC	'04-'08	1.4	Excellent

Comments: The PNNL test node went down in May and was replaced in August. Performance from LaRC PTH has been extremely stable, limited by a 100 mbps Ethernet connection; the rating remains “Excellent”. Performance from GSFC-ENPL was a bit lower than the previous PNNL test node (averaged 340 mbps), but remains **OUTSTANDING!**

18) WI, Univ. of Wisconsin:Ratings: GSFC: ↑ Good → **Excellent**
LARC: Continued **Excellent**

Teams: MODIS, CERES, AIRS, NPP

Domain: ssec.wisc.edu

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

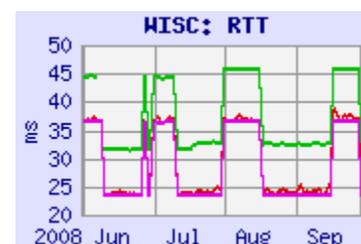
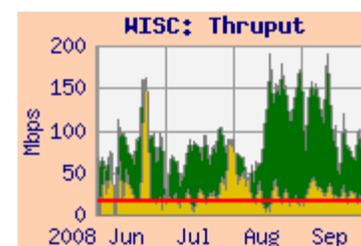
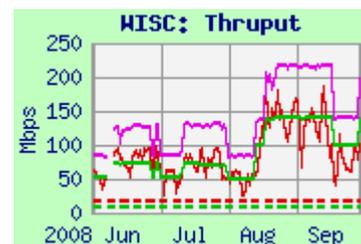
Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	124.9	84.7	50.9	MAX / I2 / MREN
LaTIS	101.4	101.0	95.0	NISN / MAX / I2 / MREN
GSFC-ENPL	141.0	137.6	120.3	MAX / I2 / MREN

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04 - '08	16.5	Excellent
LaRC Combined	'05 - '08	7.9	Excellent

Comments: Performance from all nodes was bimodal this period, varying inversely with the RTT, which showed abrupt transitions between two stable values. The RTT difference appears to be between Chicago and MREN, as the RTT to the Internet2 node in Chicago is the same in both cases.

Thruput from GDAAC was somewhat noisy due to congestion at GSFC. The user flow from GSFC averaged 26.6 mbps this period, more than 50% above the requirement, but lower than the 52 mbps last month. Due to this high user flow, the rating is based on the integrated results from GSFC, shown above. The integrated daily worst improved to slightly above 3 x the requirement, so the rating improves to “Excellent”. Other than the RTT effect, thruput from LaTIS was very stable; the rating from LaTIS remains “Excellent”. Testing from ENPL avoided the GSFC congestion and was also otherwise very stable.

**19) Canada, Univ of Toronto:**Rating: Continued **Excellent**
Domain: utoronto.ca

Team: MOPITT

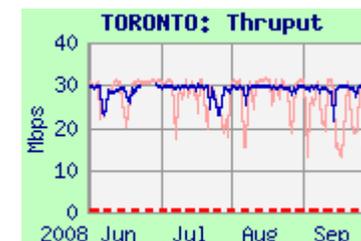
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/TORONTO.shtml>**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	30.5	29.4	5.8	NISN / StarLight / CA*net4
GSFC-PTH	31.4	27.7	14.0	MAX / I2 / NY / CA*net4

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 - '08	100	Excellent
GSFC EOC	'02 - '08	512	Excellent

Comments: Performance from both sources has been mostly stable since December '06, with congestion at GSFC and LaRC causing some noisiness. The ratings from both sources remain “Excellent”. User flow from GSFC averaged about 63 kbps this quarter.



20) Italy, EC - JRC:

Team: MISR

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

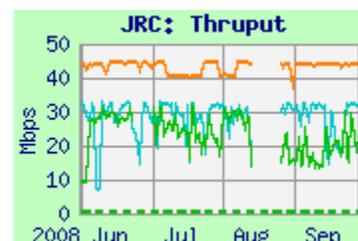
Domain: jrc.it

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	32.0	22.5	6.8	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-NISN	34.0	30.3	10.3	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-ENPL	44.7	44.0	15.3	MAX / I2 / Géant / Garr

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02 – '08	0.52	Excellent



Comments: Routing to JRC was switched to Géant in July '07. But since NISN does not peer with Géant (peering is available at MAX), the route is via NISN to Chicago, then Canarie, peering with Géant in NY.

Testing from LaRC was returned in June, with a big improvement. The median daily worst 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. Performance was similar until it was returned in March, and improved with the JRC node replacement.

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

21) UK, London: (UCL)

Teams: MODIS, MISR

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

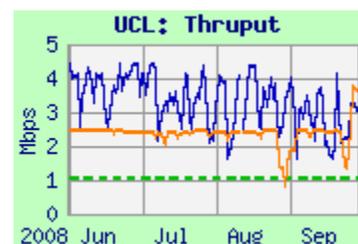
Domain: ucl.ac.uk

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	2.5	2.4	2.0	NISN / PAIX (SFO) / Teleglobe / JAnet
GSFC PTH	4.3	3.2	1.7	MAX / I2 / Géant (DC) / JAnet

Requirements

Source Node	FY	mbps	Rating
LaRC DAAC	'02 – '08	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 thrupt was 9.5 mbps from LaRC and 32 mbps from GSFC. The route from LaRC is via NISN, peering with Teleglobe on the west coast, unnecessarily increasing RTT and reducing thrupt. Although stable, thrupt from LaRC is below 3 x the requirement, so the rating remains "Good".

From GSFC the route (see above) is better. The thrupt 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** Excellent → **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-PTH				MAX / I2 / Géant (DC) / JAnet

Requirements: (IST Only)

Source Node	FY	kbps	Rating
GSFC	'03 – '08	512	n/a

Comments: Testing to Oxford has been down since the Oxford test host was retired in April – 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

Team: HIRDLS

Web Page: http://ensight.eos.nasa.gov/Missions/aura/UK_RAL.shtml

Rating: n/a

Domain: rl.ac.uk

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ENPL	35.2	35.0	30.5	MAX / I2 / Géant (DC) / JAnet
GSFC-PTH	32.8	18.8	9.3	MAX / I2 / Géant (DC) / JAnet

Comments: Thruput to RAL was very stable from GSFC-ENPL, but noisier. from GSFC-PTH, due to congestion at GSFC. There is no stated requirement to RAL, so there is no rating.

