

EOS Science Networks Performance Report

This is a summary of EOS QA SCF performance testing for the 2nd 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 Adequate
 - GPA 3.62 (was 3.71 last quarter)
- The Nov '07 requirements are used as the basis for the ratings

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: ↑:

LaTIS → Colo State: Good → Excellent

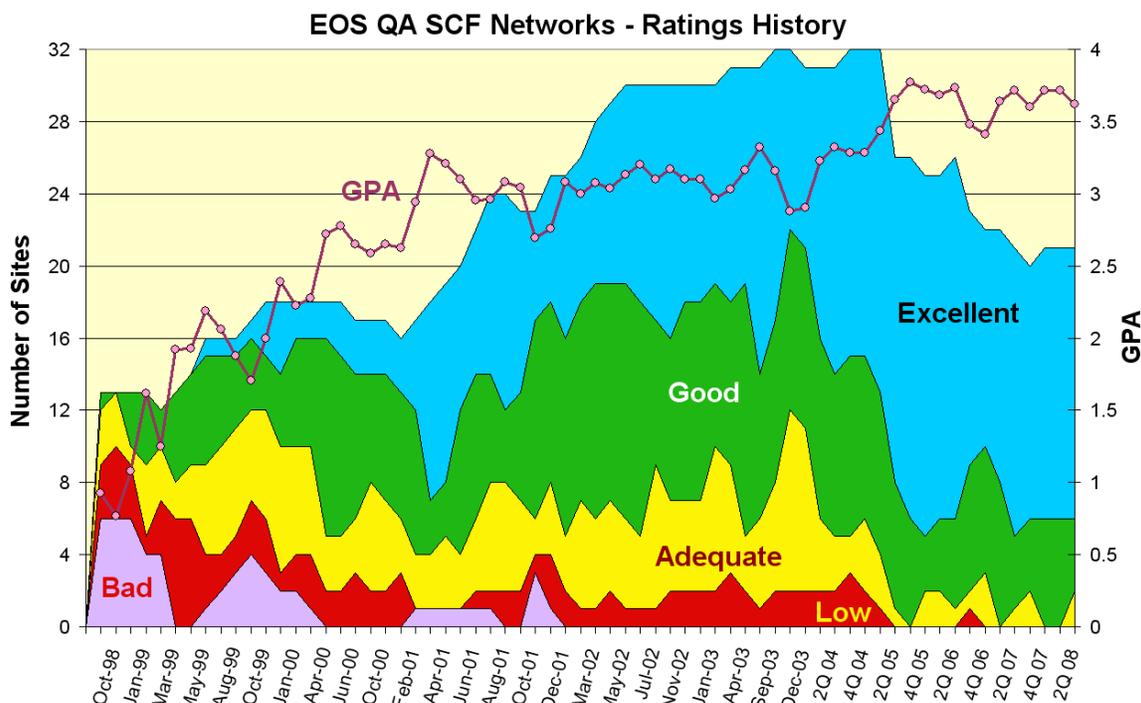
Downgrades: ↓:

GSFC-MODIS → Miami: Good → Adequate

GSFC-ICESAT → Ohio State: Excellent → Adequate

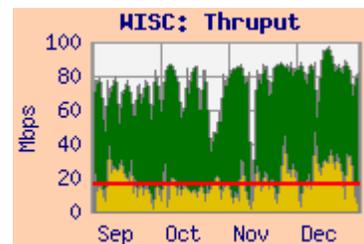
Ratings History:

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

2 nd 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					2 Q 2008	1Q08	
AL, GHRC (UAH)	CERES, AMSR-E	6.9	LaTIS	26.0	24.5		Excellent	E	NISN / MAX / Internet2 / SOX
AZ, Tucson (U of AZ)	MODIS	2.6	EROS LPDAAC	30.9	9.0	0.10	Excellent	E	StarLight (Chicago) / Internet2
CA, UCSB	MODIS	3.1	GDAAC	39.8	14.6	0.34	Excellent	E	MAX / Internet2 / CENIC
CA, UCSD - SIO	ICESAT, CERES	7.1	GSFC-ICESAT	50.4	15.9		GOOD	G	NISN / MAX / Internet2 / CENIC
CO, Colo State Univ	CERES	2.1	LaTIS	25.0	10.7		Excellent	G	NISN / MAX / Internet2 / FRGP
FL, Univ. of Miami	MODIS, MISR	18.8	MTVS1	26.5	12.9	8.1	Adequate	G	MAX / Internet2 / SOX
MA, Boston Univ	MODIS, MISR	3.0	EROS LPDAAC	76.0	41.4	0.20	Excellent	E	StarLight (Chicago) / Internet2 / NOX
MA, MIT	ICESAT	7.0	GSFC-ICESAT	84.4	52.4		Excellent	E	NISN / MAX / Internet2 / NOX
MT, Univ of Montana	MODIS	0.8	EROS LPDAAC	26.1	15.0	0.22	Excellent	E	StarLight (Chicago) / Internet2 / PNW
NM, LANL	MISR	1.0	LaRC DAAC	60.9	55.1		Excellent	E	NISN / MAX / Internet2
NY, SUNY Stony Brook	CERES	0.6	LaTIS	41.5	28.5		Excellent	E	NISN / MAX / Internet2 / NYSERnet
NY, University of Buffalo	ICESAT		GSFC-ICESAT	85.7	46.7		n/a	n/a	NISN / MAX / Internet2 / NYSERnet
OH, Ohio State Univ	ICESAT	6.3	GSFC-ICESAT	58.6	0.9		Adequate	E	NISN / MAX / Internet2 / OARnet
OR, Oregon State Univ	CERES, MODIS	7.6	LaTIS	127.4	108.7		Excellent	E	NISN / MAX / Internet2 / PNW
PA, Penn State	MISR	2.6	LaRC DAAC	348.1	275.8		Excellent	E	NISN / MAX / 3ROX
TX, U Texas-Austin	ICESAT	11.1	GSFC-ICESAT	37.3	14.8	0.29	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	78.2	49.1	51.6	GOOD	G	MAX / Internet2 / MREN
Canada, U. of Toronto	MOPITT	0.6	LaRC DAAC	29.2	24.5		Excellent	E	NISN / StarLight (Chicago) / CA*net4
Italy, Ispra (JRC)	MISR	0.5	LaRC DAAC	9.6	3.6		Excellent	E	NISN / Chicago / CA*net / Géant (NY) / GARR
UK, Oxford	HIRDLS	0.5	GSFC-PTH	18.7	7.7	0.13	Excellent	E	Internet2 / Géant (DC) / JAnet
UK, London (UCL)	MISR, MODIS	1.0	LaRC PTH	2.4	1.9		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	4	6
	Adequate	Median Daily Worst < Requirement <= Median Daily Median					Adequate	2	0
	LOW	Median Daily Median < Requirement					LOW	0	0
	BAD	Median Daily Median < Requirement / 3					BAD	0	0
							Total	21	21
							GPA	3.62	3.71

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>

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	26.2	26.0	24.5	NISN / MAX / I2 / SOX
GSFC-CNE	29.7	26.1	21.7	MAX / I2 / SOX

Requirements:

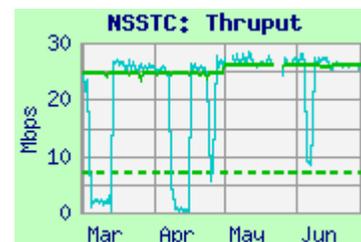
Source Node	FY	Mbps	Rating
LaRC LaTIS	'06 - '08	7.0	Excellent

Comments: Performance from LaTIS was very stable, above 3x the requirement, so the rating remains "Excellent". Dips from GSFC were due to node problems at GSFC

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

Rating: Continued **Excellent**

Domain: nsstc.uah.edu



2) AZ, Tucson (U of AZ):

Team: MODIS

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	41.9	30.9	9.0	StarLight / I2
GSFC	74.6	74.3	68.5	MAX / I2

Requirements:

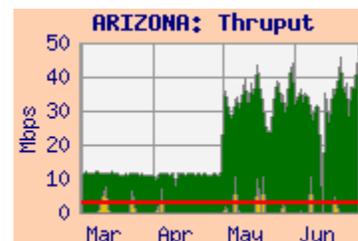
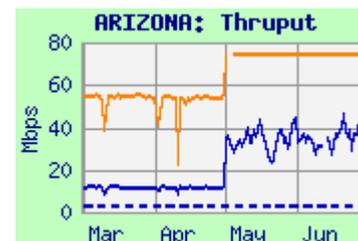
Source Node	FY	Mbps	Rating
EROS LPDAAC	'03 - '08	2.8	Excellent

Comments: The ratings are based on the MODIS flow from EROS. Performance improved in May due to a host upgrade at Arizona. Performance was stable from both sources, both before and after the upgrade; rating "Excellent".

The average user flow from EROS was 100 kbps (lower than 300 kbps last quarter) – only about 3.5% of the stated requirement.

Rating: Continued **Excellent**

Domain: arizona.edu



3) CA, UCSB :

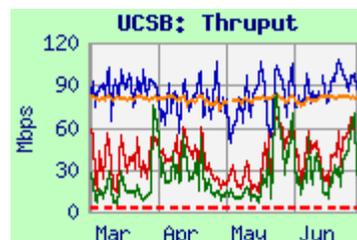
Teams: MODIS
Domain: ucsb.edu

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	72.9	39.8	14.6	MAX / I2 / CENIC
GSFC-MODIS	83.7	23.5	6.7	MAX / I2 / CENIC
GSFC-ENPL	83.1	80.4	65.3	MAX / I2 / CENIC
EROS-LPDAAC	108.8	82.1	42.6	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 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 averages only 350 kbps, but occasionally peaks at approximately the level of the requirement.

4) CA, UCSD (SIO):

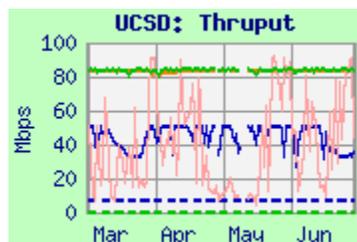
Teams: CERES, ICESAT
Domain: ucsd.edu

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	50.6	50.4	15.9	NISN / MAX / I2 / CENIC
LaTIS	86.0	84.0	79.6	NISN / MAX / I2 / CENIC
GSFC-PTH	90.9	42.0	7.9	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 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.

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

5) CO, Colo State Univ.:

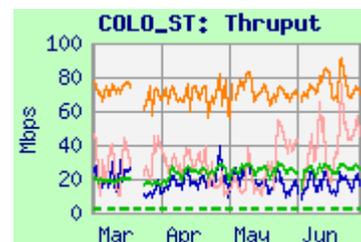
Teams: CERES, ICESAT

Web page: http://ensight.eos.nasa.gov/Missions/terra/COLO_ST.shtmlRating: Good → **Excellent**

Domain: colostate.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	28.3	25.0	10.7	NISN / MAX / I2 / FRGP
GSFC-ICESAT	37.4	17.9	4.5	NISN / MAX / I2 / FRGP
GSFC-PTH	60.1	30.0	10.2	MAX / I2 / FRGP
GSFC-ENPL	81.5	71.1	44.8	MAX / I2 / FRGP



Requirements:

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

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

6) FL, Univ. of Miami:

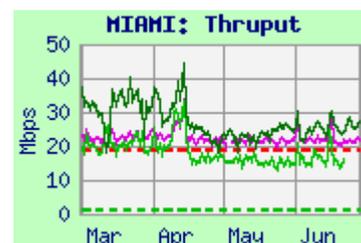
Teams: MODIS, MISR

Domain: rsmas.miami.edu

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

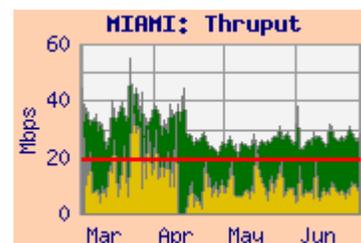
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MTVS1	32.0	24.8	9.1	MAX / I2 / SOX
GSFC-ENPL	27.2	21.8	17.8	MAX / I2 / SOX
LaRC DAAC	25.6	16.1	10.0	NISN / MAX / I2 / SOX



Requirements:

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



Comments: Testing from GSFC was switched to MODIS (MTVS1) in December ;08; thruput was mostly stable, but noisy due to EBnet congestion at GSFC. The daily worst from MODIS is now below the requirement, so the eating drops to “Adequate” The rating remains “Excellent” from LaRC, due to the much lower requirement.

The integrated graph shows that user flow from GSFC decreased to 8.1 mbps for this period (was 12.3 mbps 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 the same time. Since this loss is observed from all sources, the problem appears to be in or near Miami.

7) MA, Boston Univ:

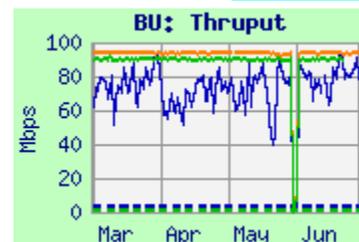
Teams: MODIS, MISR

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	91.4	76.0	41.4	StarLight / I2 / NOX
GSFC ENPL	93.7	93.7	82.5	MAX / I2 / NOX
LaRC DAAC	92.0	90.0	82.3	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 200 kbps for this period (7% of the requirement). The rating from both sources remains "Excellent".

8) MA, MIT:

Teams: ICESAT

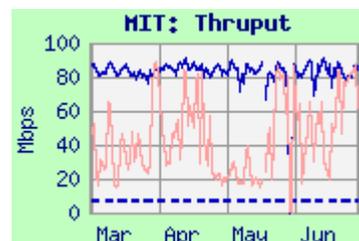
Web Page: <http://ensight.eos.nasa.gov/Missions/icesat/MIT.shtml>

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	90.4	84.4	52.4	NISN / MAX / I2 / NOX
GSFC-PTH	90.1	45.4	14.7	MAX / I2 / NOX

Rating: Continued **Excellent**

Domain: mit.edu



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

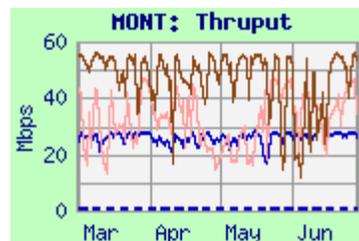
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/MONT.shtml>

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS LPDAAC	27.7	26.1	15.0	StarLight / I2 / PNW
GSFC-PTH	46.4	33.9	12.6	MAX / I2 / PNW
NSIDC	55.3	49.9	12.0	CU / FRGP / I2 / PNW

Rating: Continued **Excellent**

Domain: ntsg.umt.edu



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 225 kbps -- about 27% of the requirement.

10) NM, LANL:

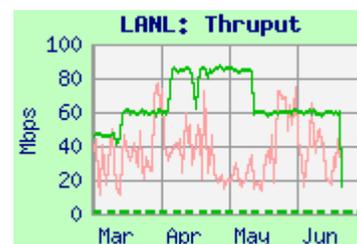
Teams: MISR

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	66.0	60.9	55.1	NISN / MAX / I2
GSFC-PTH	76.2	35.5	13.9	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:

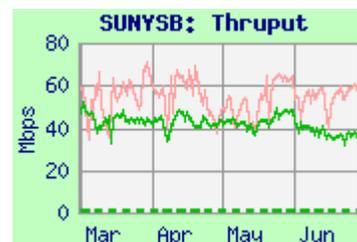
Teams: CERES, MODIS

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	55.6	41.5	28.5	NISN / MAX / I2 / NYSERnet
GSFC	69.4	54.2	29.9	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 noisy but also stable this period.

12) NY, University of Buffalo:

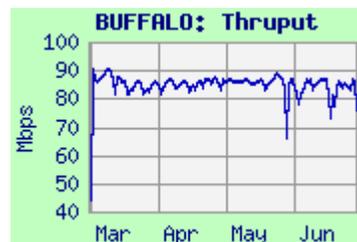
Team: ICESAT

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	87.6	85.7	46.7	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 be "Excellent".

13) OH, Ohio State Univ:Rating: ↓ Excellent → **Adequate**

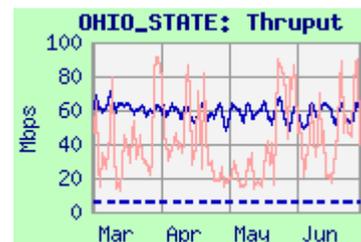
Teams: ICESAT

Domain: ohio-state.edu

Web Page: http://ensight.eos.nasa.gov/Missions/icesat/OHIO_STATE.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	70.1	58.6	0.9	NISN / MAX / I2 / OARnet
GSFC-PTH	91.0	39.4	13.4	MAX / I2 / OARnet



Requirements:

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

Comments: Performance from ICESAT was mostly stable, but on most days there were one or two tests with very low results – probably due to congestion at GSFC. This reduces the rating to “Adequate”. Performance from GSFC-PTH was noisy due to EBnet congestion at GSFC, but would be rated “Good”.

14) OR, Oregon State Univ:Ratings: LaTIS: Continued **Excellent**

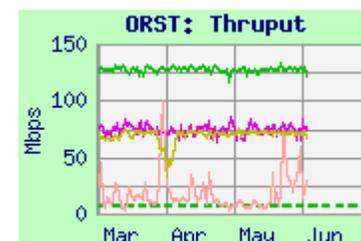
Teams: CERES, MODIS

Domain: oce.orst.edu

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

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	133.5	127.4	108.7	NISN / MAX / I2 / PNW
JPL	74.4	71.4	48.9	CENIC / I2 / PNW
GSFC-PTH	65.2	11.5	4.5	MAX / I2 / PNW
GSFC-ENPL	105.9	74.0	46.9	MAX / I2 / PNW



Requirements:

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

Comments: 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 JPL is limited by the Fast-E interface on the test node. Thruput from GSFC-ENPL is not subject to congestion at GSFC – its median and worst performance is higher. The ratings from both LaTIS and GSFC remain "Excellent". **The ORST test node went down at the end of May and has yet to be replaced.**

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

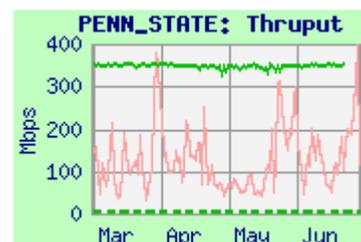
Team: MISR

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	362.4	348.1	275.8	NISN / MAX / I2 / 3ROX
GSFC-PTH	315.2	114.4	43.2	MAX / I2 / 3ROX



Requirements:

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

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

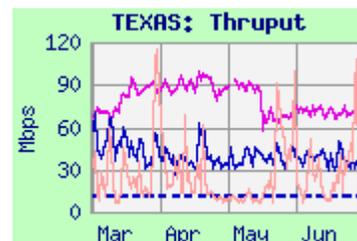
16) TX: Univ. of Texas - Austin:

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	63.5	37.3	14.8	NISN / MAX / I2 / TX
GSFC-ENPL	97.0	74.9	53.6	MAX / I2 / TX



Requirements:

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

Comments: Performance from ICESAT was noisy -- similar to last quarter. The daily worst thruput remains below 3 x the requirement; 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 290 kbps, well below the requirement.

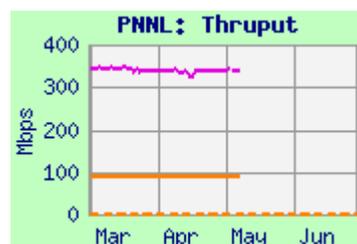
17) WA, PNNL:

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	344.9	339.7	280.1	MAX / ESnet



Requirements:

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

Comments: Performance from LaRC PTH has been extremely stable, limited by a 100 mbps Ethernet connection; the rating remains "Excellent". Performance from GSFC-ENPL is **OUTSTANDING!** The PNNL test node went down in May and has yet to be replaced.

18) WI, Univ. of Wisconsin:

Teams: MODIS, CERES, AIRS Domain: ssec.wisc.edu
 Web Page: <http://ensight.eos.nasa.gov/Missions/terra/WISC.shtml>

Ratings: GSFC: Continued **Good**
 LARC: Continued **Excellent**

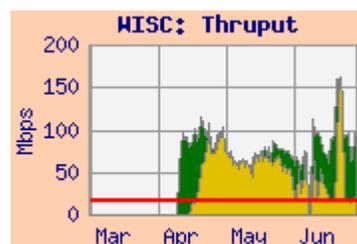
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	77.9	62.4	36.6	MAX / I2 / MREN
LaTIS	71.7	52.2	51.5	NISN / MAX / I2 / MREN
GSFC-ENPL	130.4	125.2	114.0	MAX / I2 / MREN

Requirements:

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

Comments: The Wisconsin test node went down in January, and was restored in April. Performance from GDAAC was similar to last quarter – somewhat noisy due to congestion at GSFC. *The user flow from GSFC averaged 51.6 mbps this period, more than 3 x the requirement.* So the rating is based on the integrated results from GSFC: a median of 78.2 mbps, and a daily worst of 49.2 mbps. The integrated daily worst remained slightly below 3 x the requirement, so the rating remains “Good”. Testing from all sources varied somewhat due to network changes in MREN. Thruput from LaTIS was otherwise very stable; the rating from LaTIS remains “Excellent”. Testing from ENPL avoided the GSFC congestion and was otherwise very stable.

**19) Canada, Univ of Toronto:**

Team: MOPITT
 Web Page: <http://ensight.eos.nasa.gov/Missions/terra/TORONTO.shtml>

Rating: Continued **Excellent**
 Domain: utoronto.ca

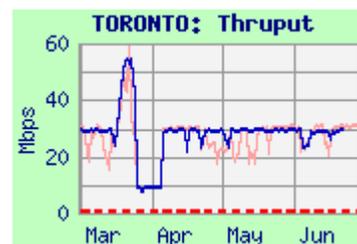
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	30.1	29.2	24.5	NISN / StarLight / CA*net4
GSFC-PTH	31.1	29.6	16.2	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 causing some noisiness. The ratings from both sources remain “Excellent”. The anomalies at the end of March cleared up in April. User flow from GSFC averaged about 70 kbps this quarter.



20) Italy, EC - JRC:

Team: MISR

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

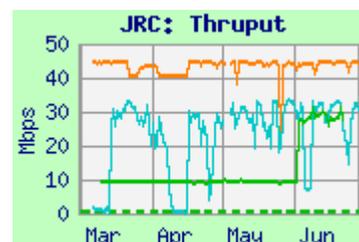
Domain: jrc.it

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	9.7	9.6	3.6	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-NISN	34.1	27.3	9.2	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-ENPL	44.9	44.4	15.5	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 via Canarie, peering with Géant in NY. The JRC test node was down for most of February, and was replaced by a new node in March.

Thruput from LaRC was quite stable in April and May; then testing 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**

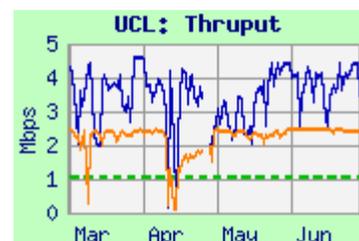
Domain: ucl.ac.uk

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	2.5	2.4	1.9	NISN / PAIX (SFO) / Teleglobe / JAnet
GSFC PTH	4.4	3.6	2.0	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 is better, and the thrupt as well.

22) UK, Oxford:

Rating: Continued **Excellent**

Team: HIRDLS

Domain: ox.ac.uk

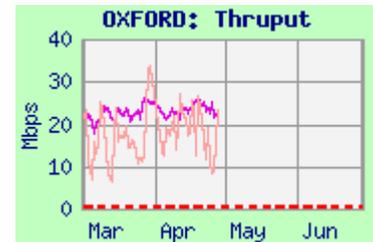
Web Page: <http://ensight.eos.nasa.gov/Missions/aura/OXFORD.shtml>

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ENPL	25.9	23.1	16.8	MAX / I2 / Géant (DC) / JAnet
GSFC-PTH	35.5	23.9	11.1	MAX / I2 / Géant (DC) / JAnet

Requirements: (IST Only)

Source Node	FY	kbps	Rating
GSFC	'03 – '08	512	Excellent



Comments: Performance has been mostly stable since October '06. The rating remains "Excellent". User flow is now measured; it averaged about 120 kbps for this period. Performance from GSFC-PTH is noisier but otherwise similar to GSFC-ENPL. **Testing to Oxford has been blocked by the Oxford firewall since late April..**

22A) Rutherford Appleton Laboratory

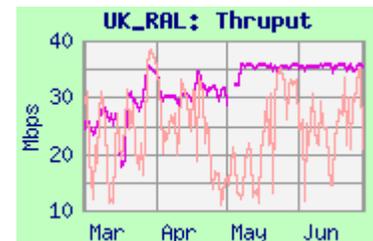
Rating: n/a

Team: HIRDLS

Domain: rl.ac.uk

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

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ENPL	35.7	35.1	25.6	MAX / I2 / Géant (DC) / JAnet
GSFC-PTH	35.5	23.9	11.1	MAX / I2 / Géant (DC) / JAnet



Comments: Thruput to RAL was somewhat variable. There is no stated requirement to RAL, so there is no rating. Performance from GSFC-PTH is has similar peaks, but is noisier than GSFC-ENPL, with a lower median and daily worst.