

EOS Science Networks Performance Report

This is a summary of EOS QA SCF performance testing for the 1st 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 GigE 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, mostly stable performance.
 - **ALL Nodes rated at least Adequate**
 - **GPA 3.65** (was 3.60 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: ↑: MODIS → UCSB: Good → **Excellent**

Downgrades: ↓: None

Testing Suspended: X:

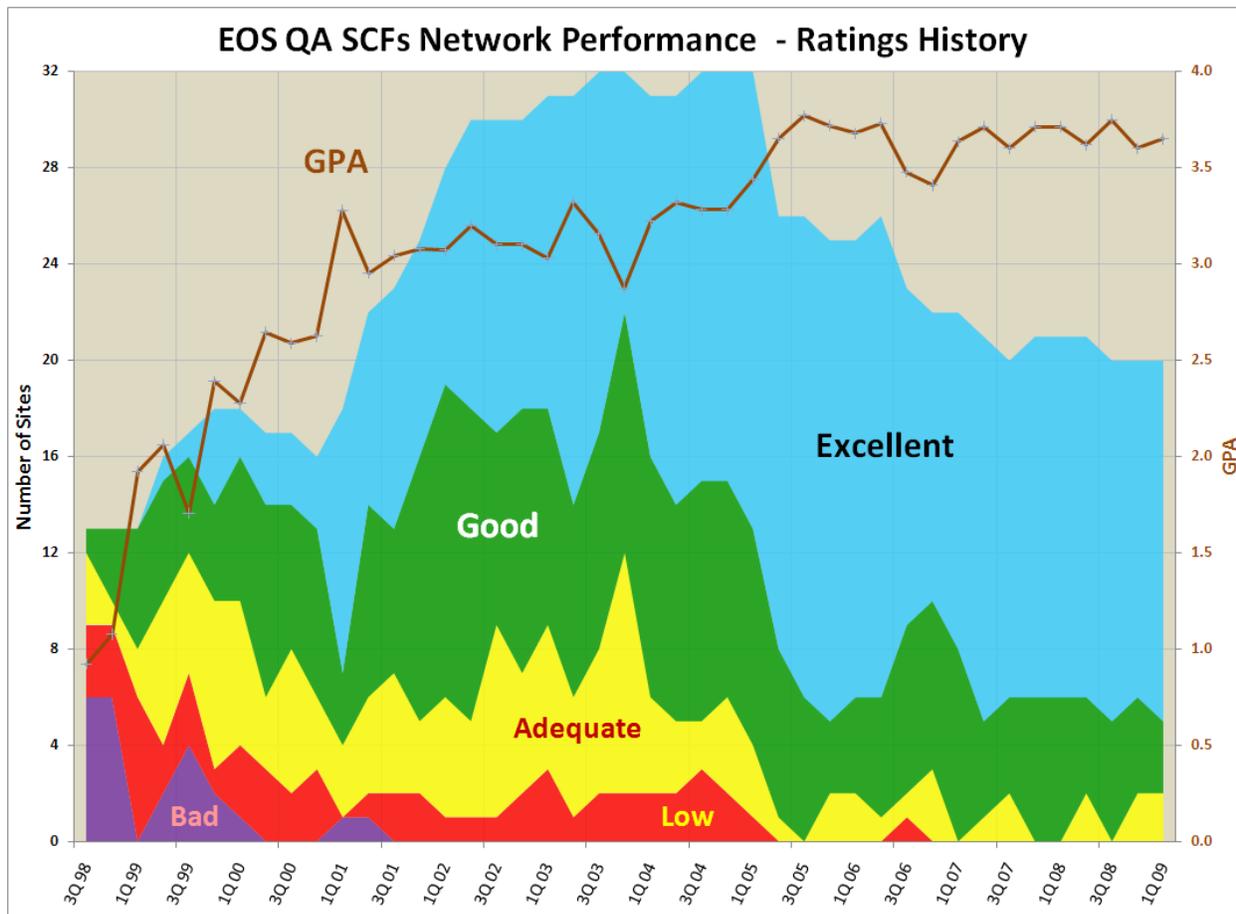
Oxford Univ: Replacement host being sought

UCSD: Testing stopped in early January

LaRC → BU: Resumed in April

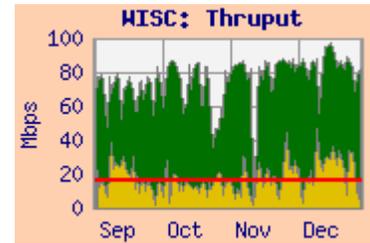
Ratings History:

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 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.



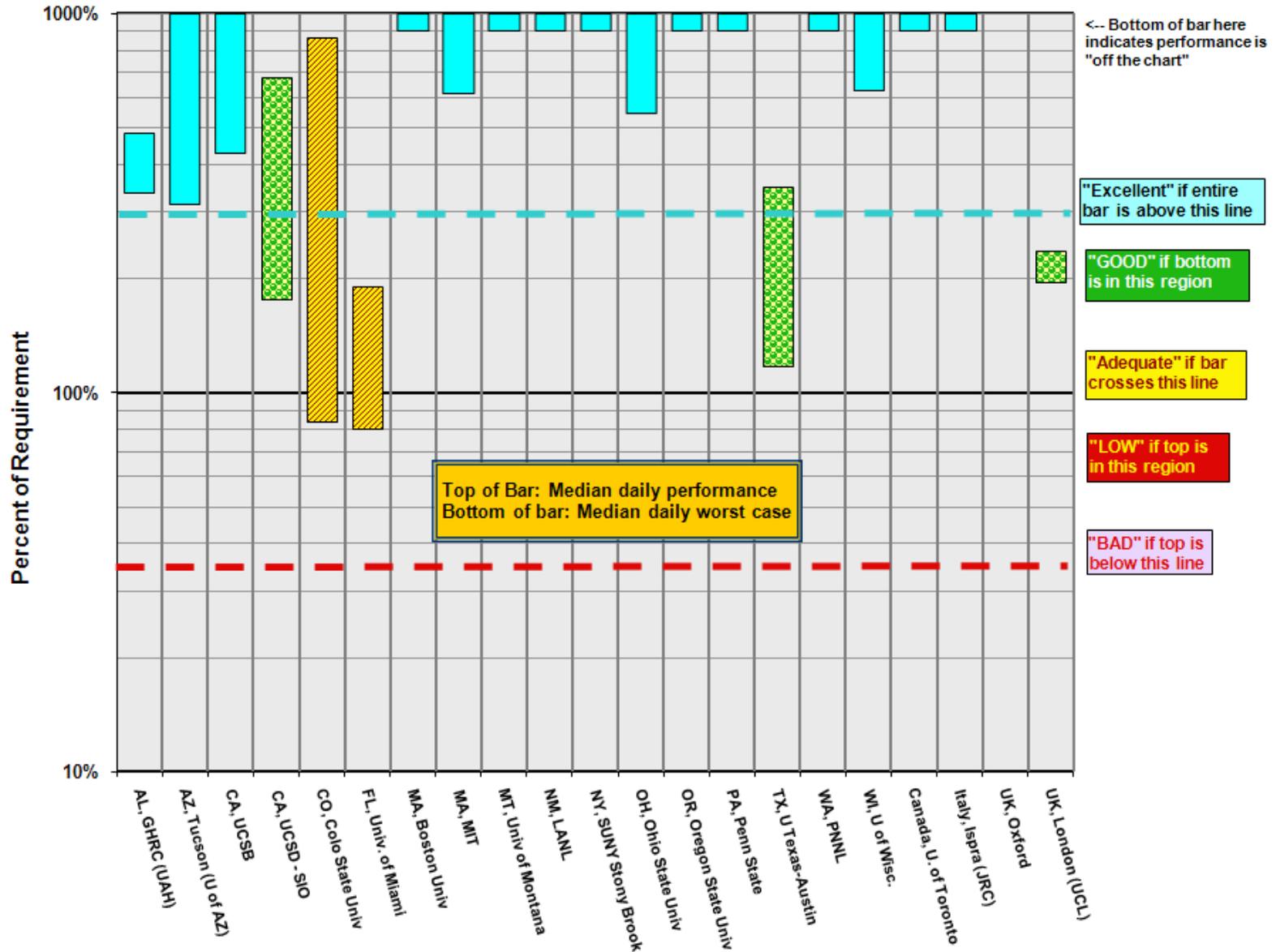
Note: User flow data is has not been available from LaRC since March 2007, so sites with primary requirements from LaRC will not include integrated graphs.

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

1 st 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					1 Q 2009	4Q08	
AL, GHRC (UAH)		6.9	LaTIS	33.5	23.2		Excellent	E	NISN / MAX / Internet2 / SOX
AZ, Tucson (U of AZ)	MODIS	2.6	EROS LPDAAC	34.6	8.0	0.23	Excellent	E	StarLight (Chicago) / Internet2
CA, UCSB	MODIS	3.1	GSFC-MTVS1	37.2	13.3	0.21	Excellent	G	MAX / Internet2 / CENIC
CA, UCSD - SIO	ICESAT, CERES	7.1	GSFC-ICESAT	48.5	12.5	0.1	GOOD	G	NISN / MAX / Internet2 / CENIC
CO, Colo State Univ	CERES	2.1	LaTIS	18.6	1.8		Adequate	A	NISN / MAX / Internet2 / FRGP
FL, Univ. of Miami	MODIS, MISR	18.8	GSFC-MTVS1	36.1	15.2	1.1	Adequate	A	MAX / Internet2 / SOX
MA, Boston Univ	MODIS, MISR	3.0	EROS LPDAAC	83.9	57.4	0.5	Excellent	E	StarLight (Chicago) / Internet2 / NOX
MA, MIT	ICESAT	7.0	GSFC-ICESAT	77.8	43.0	0.01	Excellent	E	NISN / MAX / Internet2 / NOX
MT, Univ of Montana	MODIS	0.8	EROS LPDAAC	27.1	20.9	0.01	Excellent	E	StarLight (Chicago) / Internet2 / PNW
NM, LANL	MISR	1.0	LaRC DAAC	46.0	26.5		Excellent	E	NISN / MAX / Internet2
NY, SUNY Stony Brook	CERES	0.6	LaTIS	41.3	26.9		Excellent	E	NISN / MAX / Internet2 / NYSERnet
NY, University of Buffalo	ICESAT		GSFC-ICESAT	77.0	26.9		n/a	n/a	NISN / MAX / Internet2 / NYSERnet
OH, Ohio State Univ	ICESAT	6.3	GSFC-ICESAT	67.4	34.3		Excellent	E	NISN / MAX / Internet2 / OARnet
OR, Oregon State Univ	CERES, MODIS	7.6	LaTIS	102.6	99.7		Excellent	E	NISN / MAX / Internet2 / PNW
PA, Penn State	MISR	2.6	LaRC DAAC	251.6	58.5		Excellent	E	NISN / MAX / 3ROX
TX, U Texas-Austin	ICESAT	11.1	GSFC-ICESAT	38.7	13.0	0.4	GOOD	G	NISN / MAX / Internet2
WA, PNNL	MISR	1.4	LaRC PTH	90.5	90.5		Excellent	E	NISN / MAX / ESNet
WI, U of Wisc.	MODIS, CERES, AIRS	16.5	GES DAAC	176.1	102.5	21.2	Excellent	E	MAX / Internet2 / MREN
Canada, U. of Toronto	MOPITT	0.6	LaRC DAAC	49.9	23.6		Excellent	E	NISN / StarLight (Chicago) / CA*net4
Italy, Ispra (JRC)	MISR	0.5	LaRC DAAC	27.3	13.0		Excellent	E	NISN / Chicago / CA*net / Géant (NY) / GARR
UK, Oxford	HIRDLS	0.5	GSFC-PTH				n/a	n/a	Internet2 / Géant (DC) / JAnet
UK, London (UCL)	MISR, MODIS	1.0	LaRC PTH	2.5	2.0		GOOD	G	NISN / Teleglobe (SFO) / JAnet
	*Rating Criteria:								
							Rating		
								Current Nov-07	Prev Report
	Excellent	Median Daily Worst >= 3 *Requirement					Excellent	15	14
	GOOD	Median Daily Worst >= Requirement					GOOD	3	4
	Adequate	Median Daily Worst < Requirement <= Median Daily Median					Adequate	2	2
	LOW	Median Daily Median < Requirement					LOW	0	0
	BAD	Median Daily Median < Requirement / 3					BAD	0	0
							Total	20	20
							GPA	3.65	3.60

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

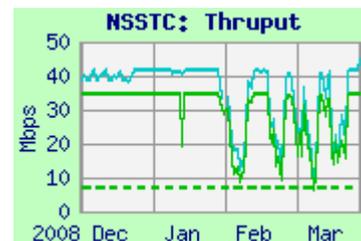
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/NSSTC.shtml>

Rating: Continued **Excellent**

Domain: nsstc.uah.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	34.9	33.5	23.2	NISN / MAX / I2 / SOX
GSFC-CNE	41.8	40.6	26.7	MAX / I2 / SOX



Requirements:

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

Comments: Performance from both sources became more variable, presumably due to user flows. But 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):

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	49.8	34.6	8.0	StarLight / I2
GSFC	74.2	65.1	12.0	MAX / I2

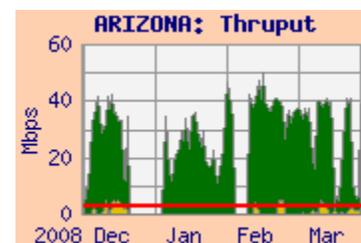


Requirements:

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

Comments: The ratings are based on the MODIS flow from EROS. Performance was noisy but stable from both sources, rating "Excellent".

The average user flow from EROS was 230 kbps (below the 340 kbps last quarter) – only about 9% of the stated requirement.



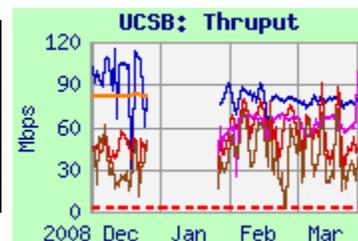
3) CA, UCSB :

Teams: MODIS

Domain: ucsb.edu

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

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MODIS	72.2	37.2	13.3	MAX / I2 / CENIC
GSFC-GES DAAC	88.9	57.2	24.8	MAX / I2 / CENIC
GSFC-ENPL	68.6	64.5	48.2	MAX / I2 / CENIC
EROS-LPDAAC	85.1	79.4	57.8	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 and GES DAAC at GSFC **remains noisy due to the congested EBnet to Doors Gig-E**, while performance from EROS has been much more stable since April '05. Testing from GSFC-ENPL avoids the congestion at GSFC and is also less noisy. The rating remains "Excellent" from EROS, **and improves to "Excellent" from GSFC-MODIS**. The user flow from GSFC averaged only 0.2 mbps this period, much lower than the requirement.

4) CA, UCSD (SIO):

Teams: CERES, ICESAT

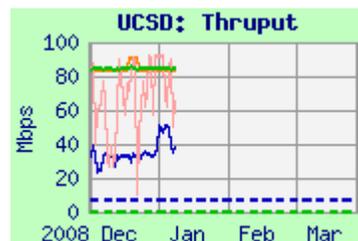
Domain: ucsd.edu

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	50.5	48.5	12.5	NISN / MAX / I2 / CENIC
LaTIS	86.3	84.7	81.3	NISN / MAX / I2 / CENIC
GSFC-EBnet-PTH	91.3	76.1	12.5	MAX / I2 / CENIC
GSFC-ENPL	83.9	83.6	83.3	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 has not been provided.** Thus the data below represents only these few days of testing.

The daily minimum thruput from GSFC-ICESAT remained below 3 x the requirement, so the rating continues "Good". Peak performance from GSFC-EBnet-PTH is better, 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 80 kbps during the test period.

Performance from LaTIS was also 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: Continued **Adequate**

Domain: colostate.edu

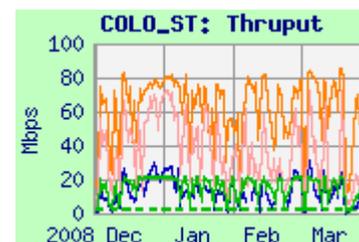
Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	21.3	18.6	1.8	NISN / MAX / I2 / FRGP
GSFC-ICESAT	38.1	11.6	0.9	NISN / MAX / I2 / FRGP
GSFC-EBnet-PTH	74.0	31.6	6.8	MAX / I2 / FRGP
GSFC-ENPL	84.3	69.6	16.0	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: Continued **Adequate**LaRC: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MODIS	58.2	36.1	15.2	MAX / I2 / SOX
GSFC-ENPL	24.8	21.3	15.8	MAX / I2 / SOX
LaRC DAAC	12.9	10.1	7.7	NISN / MAX / I2 / SOX

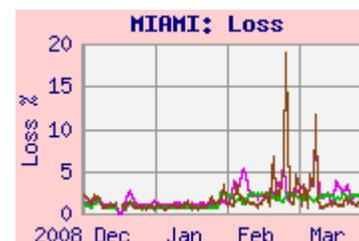
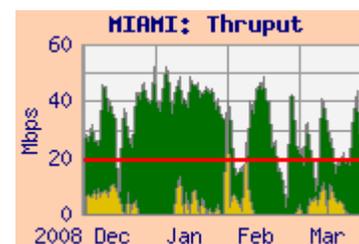
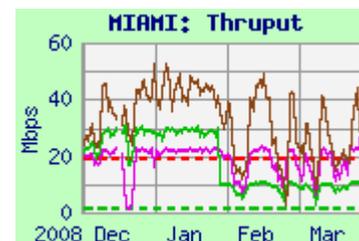
Requirements:

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

Comments: Due to the large user flow (1.1 mbps average), the rating from GSFC is based on the “Integrated” thruput from MODIS (MTVS1), combining the iperf and user flows. Thruput was mostly stable, but noisy due to EBnet congestion at GSFC. The integrated daily worst from MODIS remained slightly below the requirement, so the rating remains “Adequate”. 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.



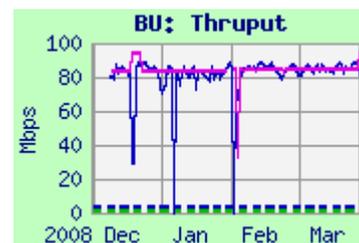
7) MA, Boston Univ:Ratings: EROS: Continued **Excellent**

Teams: MODIS, MISR

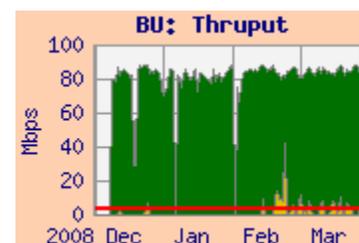
Domain: bu.edu

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

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS DAAC	88.2	83.9	57.4	StarLight / I2 / NOX
GSFC ENPL	84.7	84.4	81.0	MAX / I2 / NOX
LaRC DAAC	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	NISN / MAX / I2 / NOX

**Requirements:**

Source Node	FY	mbps	Rating
EROS DAAC	'04 - '09	3.0	Excellent
LaRC DAAC	'04 - '09	1.2	<i>n/a</i>



Comments: Performance from all sources was stable for this period. The user flow from EROS averaged 540 kbps for this period (about 18% of the requirement). The rating from EROS remains "Excellent". Testing was switched to a new node at BU in December, after the old one was retired in October. Testing from LaRC did not resume until April -- was waiting for a firewall change at LaRC.

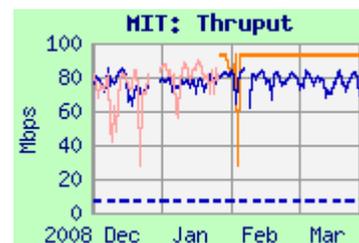
8) MA, MIT:Rating: Continued **Excellent**

Teams: ICESAT

Domain: mit.edu

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	84.8	77.8	43.0	NISN / MAX / I2 / NOX
GSFC-ENPL	93.4	93.4	91.0	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". Secondary testing was switched from GSFC-EBnet-PTH to GSFC-ENPL to avoid the EBnet to Doors congestion. Peak performance is a bit better than from ICESAT, but the median and worst are substantially higher. The daily average user flow from ICESAT was only 12 kbps – less than 1% of the requirement

9) MT, Univ of Montana:

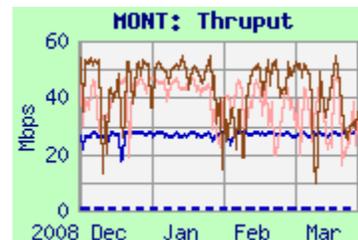
Teams: MODIS

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	27.8	27.1	20.9	StarLight / I2 / PNW
GSFC-PTH	46.5	40.2	15.2	MAX / I2 / PNW
NSIDC	54.7	46.9	18.0	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 12 kbps – mostly in sporadic bursts, close to the requirement.

10) NM, LANL

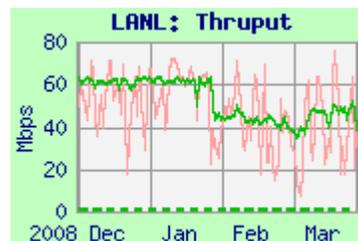
Teams: MISR

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	56.9	46.0	26.5	NISN / MAX / I2
GSFC-EBnet-PTH	72.9	45.4	15.3	MAX / ESnet

**Requirements:**

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

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

11) NY, SUNY-SB:

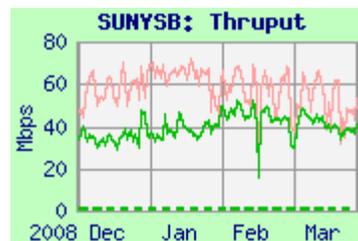
Teams: CERES, MODIS

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	57.1	41.3	26.9	NISN / MAX / I2 / NYSERnet
GSFC	77.6	60.5	31.8	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.

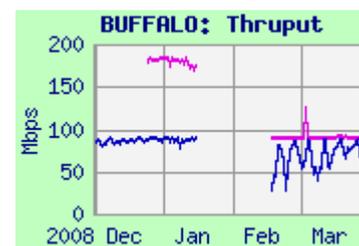
12) NY, University of Buffalo:

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	87.5	77.0	26.9	NISN / MAX / I2 / NYSERnet
GSFC-ENPL	92.5	90.2	85.6	MAX / I2 / NYSERnet

Comments: This node is planned to replace Ohio-State for ICESAT. The Buffalo test node was removed in January, and replaced in February. 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".

**13) OH, Ohio State Univ:**

Teams: ICESAT

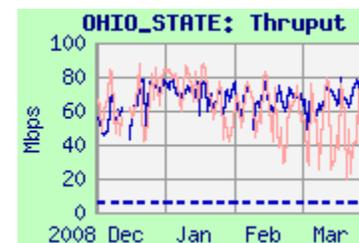
Web Page: http://ensight.eos.nasa.gov/Missions/icesat/OHIO_STATE.shtmlRating: Continued **Excellent**
Domain: ohio-state.edu**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	82.4	67.4	34.3	NISN / MAX / I2 / OARnet
GSFC-EBnet-PTH	89.1	61.7	20.6	MAX / I2 / OARnet

Requirements:

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

Comments: Performance from ICESAT was stable this month (previously there had typically been one or two tests every day with very low results). 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

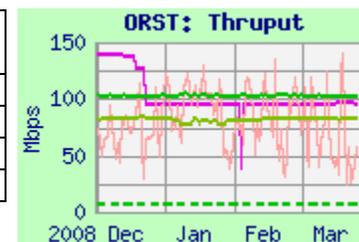
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/ORST.shtml>Ratings: LaTIS: Continued **Excellent**
GSFC: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	104.6	102.6	99.7	NISN / MAX / I2 / PNW
JPL-PTH	83.0	82.3	80.3	CENIC / I2 / PNW
GSFC-EBnet-PTH	132.0	79.2	24.2	MAX / I2 / PNW
GSFC-ENPL	95.9	95.7	95.6	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**. Thruput from GSFC-ENPL 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".



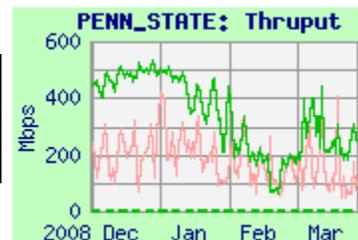
15) PA: Penn State Univ: Rating: Continued **Excellent**

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	496.4	251.6	58.5	NISN / MAX / I2 / 3ROX
GSFC-EBnet-PTH	363.6	161.3	49.2	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 8.5:1 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.**

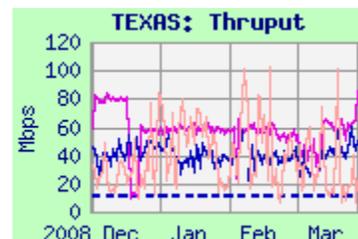
16) TX: Univ. of Texas - Austin:Rating: Continued **Good**

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	73.3	38.7	13.0	NISN / MAX / I2 / TX
GSFC-ENPL	73.4	57.8	26.0	MAX / I2 / TX
GSFC-EBnet-PTH	126.7	37.0	6.9	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 400 kbps, only about 3.6% of the requirement.

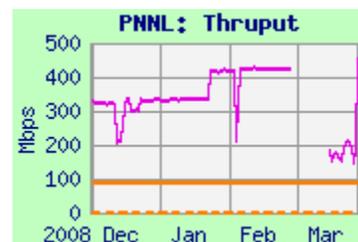
17) WA, PNNL:Ratings: Continued **Excellent**

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	90.5	90.5	90.5	NISN / MAX / ESnet
GSFC-ENPL	420.0	336.3	319.9	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 remains **OUTSTANDING!**

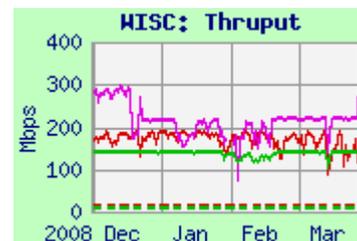
18) WI, Univ. of Wisconsin:Ratings: GSFC: Continued **Excellent**
LARC: Continued **Excellent**

Teams: MODIS, CERES, AIRS, NPP

Domain: ssec.wisc.edu

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

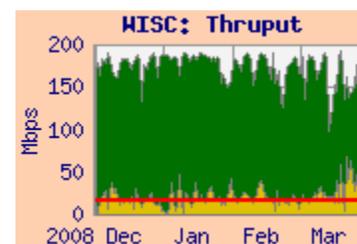
Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	198.0	181.3	110.4	MAX / I2 / MREN
LaTIS	141.6	140.9	134.8	NISN / MAX / I2 / MREN
GSFC-ENPL	218.2	215.4	182.4	MAX / I2 / MREN

**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, with the bimodal thrupt and RTT having stabilized.

Thruput from GDAAC was somewhat noisy **due to congestion at GSFC**. The user flow from GSFC averaged 21.2 mbps this period, about 30% **above the requirement**, the same as the 21.1 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**
Domain: utoronto.ca

Team: MOPITT

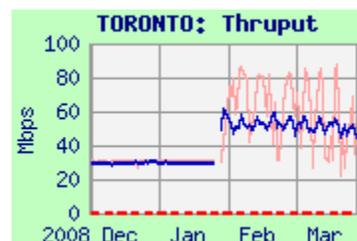
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/TORONTO.shtml>**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	65.3	49.9	23.6	NISN / StarLight / CA*net4
GSFC-EBnet-PTH	87.9	46.3	19.6	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 retuned in late January, with improved, but noisier performance -- thrupt from both sources had been mostly stable since December '06. The ratings from both sources remain "Excellent". User flow from GSFC averaged only 7 kbps this period.



20) Italy, EC - JRC:

Team: MISR

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

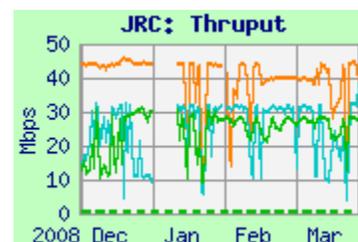
Domain: jrc.it

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	29.8	27.3	13.0	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-NISN	32.3	30.8	5.9	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-ENPL	44.4	40.0	10.5	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 is available at MAX), the route from LDAAC is via NISN to Chicago, then Canarie, peering with Géant in NY.

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..

21) UK, London: (UCL)

Teams: MODIS, MISR

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

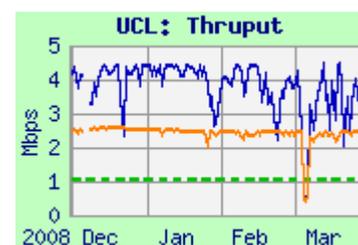
Domain: ucl.ac.uk

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	2.53	2.46	2.02	NISN / PAIX (SFO) / Teleglobe / JAnet
GSFC EBnet-PTH	4.46	3.94	1.91	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, 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.shtml

Rating: n/a

Domain: rl.ac.uk

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ENPL	35.6	34.7	30.3	MAX / I2 / Géant (DC) / JAnet
GSFC-EBnet-PTH	34.5	26.9	10.7	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.

