

## EOS Science Networks Performance Report

This is a summary of EOS QA SCF performance testing for the 4<sup>th</sup> quarter of 2008 -- 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](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 3.60 (was 3.75 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:** ↑: None

**Downgrades:** ↓:

LaTIS → Colo State: Good → Adequate

MODIS → UCSB: Excellent → Good

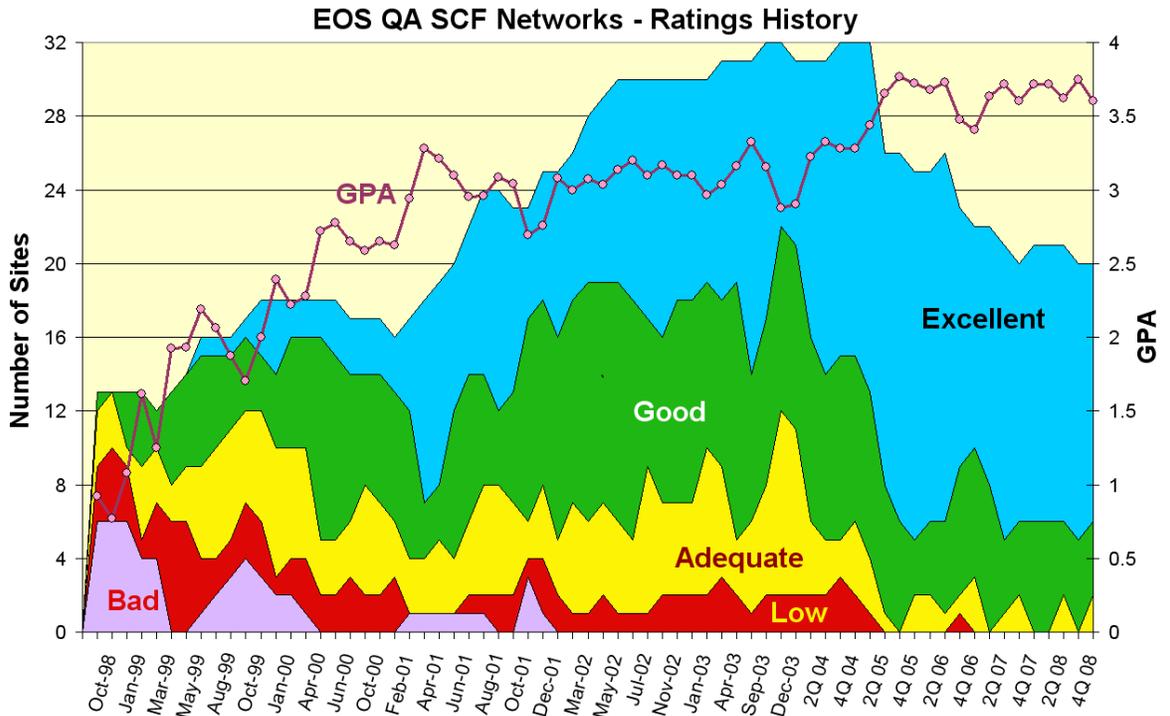
MODIS → Miami: Good → Adequate

**Testing Suspended: X:**

Oxford Univ: Replacement host being sought

**Ratings History:**

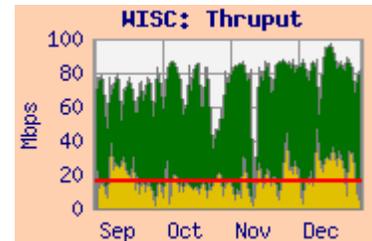
The chart below shows the number of sites in each classification since the testing started in 1998. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements. The GPA is calculated based on Excellent: 4, Good: 3, Adequate: 2, Low: 1, Bad: 0



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 thruptut 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.



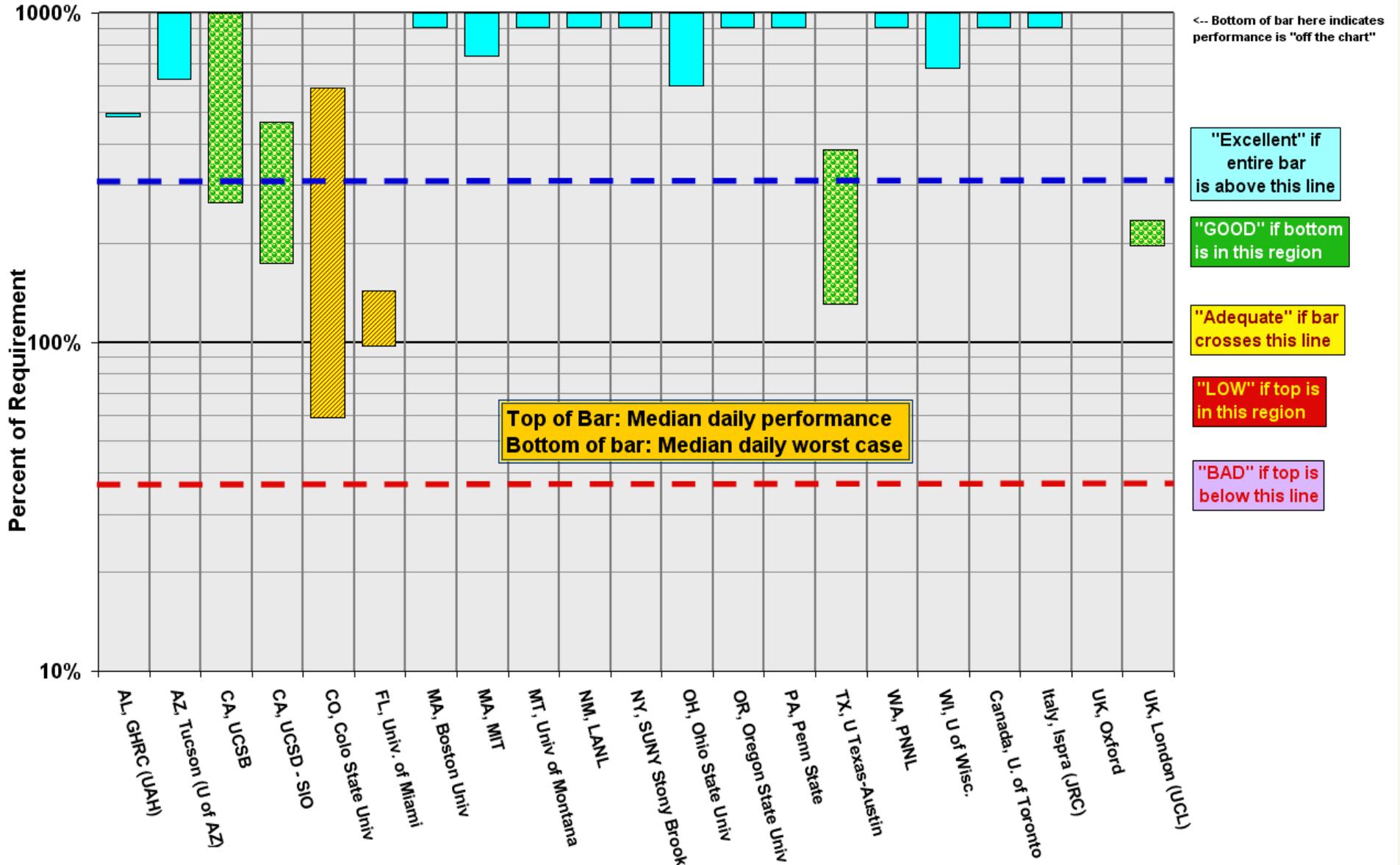
**Note:** User flow data is has not been available from LaRC since March 2007, so sites with requirements from LaRC will not include integrated graphs.

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

4 <sup>th</sup> 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					4 Q 2008	3 Q08	
AL, GHRC (UAH)	CERES, AMSR-E	6.9	LaTIS	34.9	33.9		Excellent	E	NISN / MAX / Internet2 / SOX
AZ, Tucson (U of AZ)	MODIS	2.6	EROS LPDAAC	34.8	17.6	0.37	Excellent	E	StarLight (Chicago) / Internet2
CA, UCSB	MODIS	3.1	GSFC-MTVS1	32.7	8.2	1.26	GOOD	E	MAX / Internet2 / CENIC
CA, UCSD - SIO	ICESAT, CERES	7.1	GSFC-ICESAT	33.0	12.2	0.2	GOOD	G	NISN / MAX / Internet2 / CENIC
CO, Colo State Univ	CERES	2.1	LaTIS	12.7	1.3		Adequate	G	NISN / MAX / Internet2 / FRGP
FL, Univ. of Miami	MODIS, MISR	18.8	GSFC-MTVS1	27.0	18.2	6.2	Adequate	G	MAX / Internet2 / SOX
MA, Boston Univ	MODIS, MISR	3.0	EROS LPDAAC	82.8	58.0	0.02	Excellent	E	StarLight (Chicago) / Internet2 / NOX
MA, MIT	ICESAT	7.0	GSFC-ICESAT	80.0	51.3	0.1	Excellent	E	NISN / MAX / Internet2 / NOX
MT, Univ of Montana	MODIS	0.8	EROS LPDAAC	26.7	21.1	1.42	Excellent	E	StarLight (Chicago) / Internet2 / PNW
NM, LANL	MISR	1.0	LaRC DAAC	61.0	28.8		Excellent	E	NISN / MAX / Internet2
NY, SUNY Stony Brook	CERES	0.6	LaTIS	37.9	24.7		Excellent	E	NISN / MAX / Internet2 / NYSERnet
NY, University of Buffalo	ICESAT		GSFC-ICESAT	87.3	59.9		n/a	n/a	NISN / MAX / Internet2 / NYSERnet
OH, Ohio State Univ	ICESAT	6.3	GSFC-ICESAT	63.9	37.7		Excellent	E	NISN / MAX / Internet2 / OARnet
OR, Oregon State Univ	CERES, MODIS	7.6	LaTIS	103.2	101.4		Excellent	E	NISN / MAX / Internet2 / PNW
PA, Penn State	MISR	2.6	LaRC DAAC	462.2	31.7		Excellent	E	NISN / MAX / 3ROX
TX, U Texas-Austin	ICESAT	11.1	GSFC-ICESAT	42.3	14.3	0.46	GOOD	G	NISN / MAX / Internet2
WA, PNNL	MISR	1.4	LaRC PTH	91.0	91.0		Excellent	E	NISN / MAX / ESNet
WI, U of Wisc.	MODIS, CERES, AIRS	16.5	GES DAAC	176.1	110.7	21.1	Excellent	E	MAX / Internet2 / MREN
Canada, U. of Toronto	MOPITT	0.6	LaRC DAAC	29.7	12.8		Excellent	E	NISN / StarLight (Chicago) / CA*net4
Italy, Ispra (JRC)	MISR	0.5	LaRC DAAC	23.8	7.7		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	2.4	2.0		GOOD	G	NISN / Teleglobe (SFO) / JAnet
<b>*Rating Criteria:</b>							<b>Rating</b>		
								<b>Current Nov-07</b>	<b>Prev Report</b>
<b>Excellent</b>	Median Daily Worst >= 3 *Requirement						<b>Excellent</b>	<b>14</b>	<b>15</b>
<b>GOOD</b>	Median Daily Worst >= Requirement						<b>GOOD</b>	<b>4</b>	<b>5</b>
<b>Adequate</b>	Median Daily Worst < Requirement <= Median Daily Median						<b>Adequate</b>	<b>2</b>	<b>0</b>
<b>LOW</b>	Median Daily Median < Requirement						<b>LOW</b>	<b>0</b>	<b>0</b>
<b>BAD</b>	Median Daily Median < Requirement / 3						<b>BAD</b>	<b>0</b>	<b>0</b>
							<b>Total</b>	<b>20</b>	<b>20</b>
							<b>GPA</b>	<b>3.60</b>	<b>3.75</b>

## 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

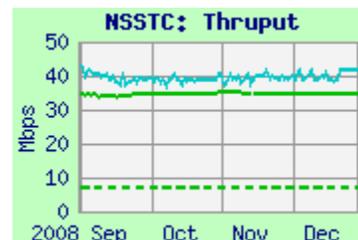
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/NSSTC.shtml>

Rating: Continued **Excellent**

Domain: nsstc.uah.edu

#### Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	35.0	34.9	33.9	NISN / MAX / I2 / SOX
GSFC-CNE	44.3	38.9	33.5	MAX / I2 / SOX



#### Requirements:

Source Node	FY	Mbps	Rating
LaRC LaTIS	'06 - '09	7.0	<b>Excellent</b>

**Comments:** Performance from LaTIS improved to the current level in July '08, related to a reduction in RTT. Thruput 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

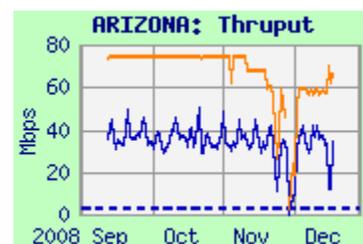
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/ARIZONA.shtml>

Rating: Continued **Excellent**

Domain: arizona.edu

#### Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS LPDAAC	49.0	34.3	17.6	StarLight / I2
GSFC	74.4	73.7	44.6	MAX / I2

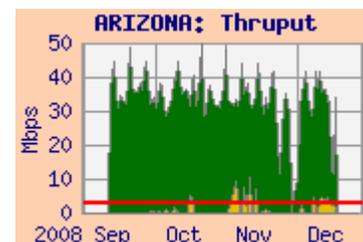


#### Requirements:

Source Node	FY	Mbps	Rating
EROS LPDAAC	'03 - '09	2.8	<b>Excellent</b>

**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. Otherwise, performance was stable from both sources, rating "Excellent".

The average user flow from EROS was 365 kbps (above the 125 kbps last quarter) – only about 13% of the stated requirement.



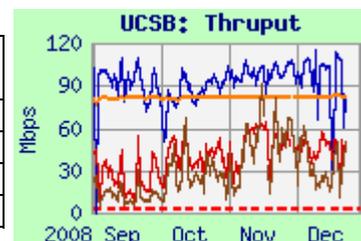
**3) CA, UCSB :**

Teams: MODIS

Domain: ucsb.edu

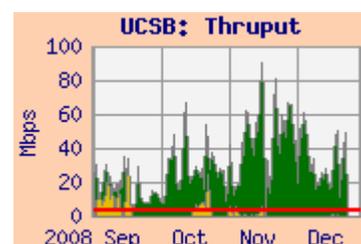
Web page: <http://ensight.eos.nasa.gov/Missions/terra/UCSB.shtml>Ratings: GSFC: ↓ Excellent → **Good**EROS: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MODIS	96.1	32.7	7.6	MAX / I2 / CENIC
GSFC-GES DAAC	68.6	45.6	16.2	MAX / I2 / CENIC
GSFC-ENPL	82.6	82.4	76.3	MAX / I2 / CENIC
EROS-LPDAAC	111.5	94.9	52.5	StarLight / I2 / CENIC

**Requirements:**

Source Node	FY	mbps	Rating
GSFC-MODIS	'04 - '09	3.1	<b>Good</b>
EROS-LPDAAC	'04 - '09	2.2	<b>Excellent</b>

**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 mostly stable since April '05. Testing from GSFC-ENPL avoids the congestion at GSFC and is much less noisy. The rating remains "Excellent" from EROS, **but drops to "Good" from GSFC-MODIS**. The user flow from GSFC averaged 1.3 mbps this period, lower than the requirement.

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

Teams: CERES, ICESAT

Domain: ucsd.edu

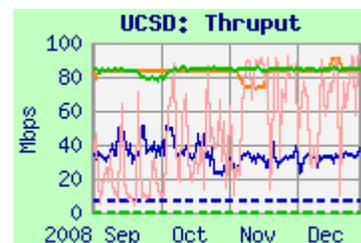
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/UCSD.shtml>Ratings: ICESAT: Continued **Good**LaTIS: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	50.5	33.0	11.8	NISN / MAX / I2 / CENIC
LaTIS	86.1	84.5	81.2	NISN / MAX / I2 / CENIC
GSFC-EBnet-PTH	91.3	62.6	10.2	MAX / I2 / CENIC
GSFC-ENPL	84.0	83.6	83.3	MAX / I2 / CENIC

**Requirements:**

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

**Comments:** 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 more noisy, **due to the EBnet to Doors congestion**. GSFC-ENPL avoids the GSFC campus congestion, and gets very steady thruput.



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

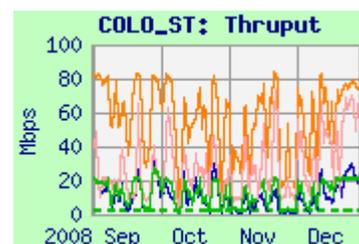
Web page: [http://ensight.eos.nasa.gov/Missions/terra/COLO\\_ST.shtml](http://ensight.eos.nasa.gov/Missions/terra/COLO_ST.shtml)Rating: ↓ Good → **Adequate**  
Domain: colostate.edu**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	21.6	12.7	1.3	NISN / MAX / I2 / FRGP
GSFC-ICESAT	31.6	8.2	0.6	NISN / MAX / I2 / FRGP
GSFC-EBnet-PTH	70.4	25.5	6.3	MAX / I2 / FRGP
GSFC-ENPL	82.8	62.2	11.6	MAX / I2 / FRGP

**Requirements:**

Source Node	FY	mbps	Rating
LaTIS	'04 - '09	2.15	<b>Adequate</b>

**Comments:** Performance was very noisy from all sources remains, suggesting congestion at Colo State. The daily worst from LaTIS dropped below the requirement, so the rating is reduced to “Adequate”. Thruput from GSFC-PTH and GSFC-ICESAT had higher peaks but was also noisy due to GSFC campus congestion. 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.

**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-MODIS	36.6	27.0	18.2	MAX / I2 / SOX
GSFC-ENPL	23.4	18.4	13.7	MAX / I2 / SOX
LaRC DAAC	29.2	20.2	6.7	NISN / MAX / I2 / SOX

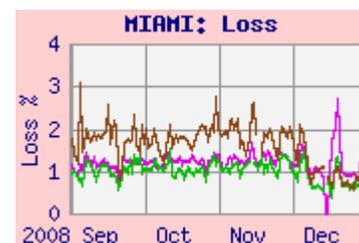
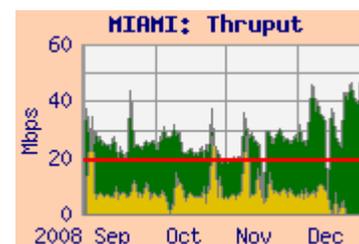
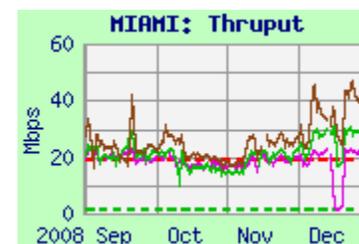
**Requirements:**

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

**Comments:** Due to the large user flow (6.2 mbps average), the rating from GSFC is based on the “Integrated” thrupt 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 dropped slightly below the requirement, so the rating drops to “Adequate”. The rating remains “Excellent” from LaRC, due to the much lower requirement.

The integrated graph shows that the user flow from GSFC. Note the dropoff in user flow during December, and the corresponding improvement in iperf results. The user flow was about 33% of the requirement (50% 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

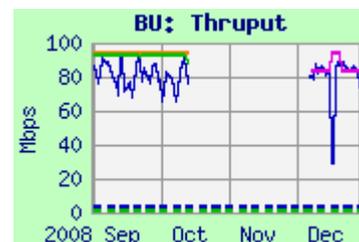
Domain: bu.edu

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	87.3	82.8	58.0	StarLight / I2 / NOX
GSFC ENPL	93.7	93.7	93.3	MAX / I2 / NOX
LaRC DAAC	93.4	93.3	64.2	NISN / MAX / I2 / NOX

**Requirements:**

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



**Comments:** Performance from all sources was stable for this period. The user flow from EROS averaged only 20 kbps for this period (< 1% of the requirement). The rating from both sources remains "Excellent".

Testing was switched to a new node at BU in December, after the old one was retired in October. Testing from LaRC has not resumed – waiting on a firewall change at LaRC.

**8) MA, MIT:**

Teams: ICESAT

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

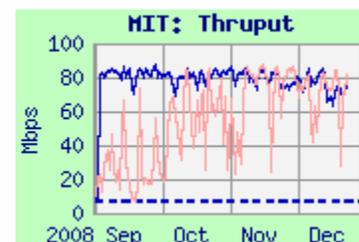
Domain: mit.edu

**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	87.6	80.0	51.3	NISN / MAX / I2 / NOX
GSFC-EB-PTH	88.9	70.8	21.7	MAX / I2 / NOX

**Requirements:**

Source Node	FY	mbps	Rating
GSFC	'05 - '09	7.0	<b>Excellent</b>



**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-EBnet-PTH the peak performance is similar, but the median and worst are lower, due to the EBnet to Doors congestion. The daily average user flow from ICESAT was only 85 kbps – only about 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

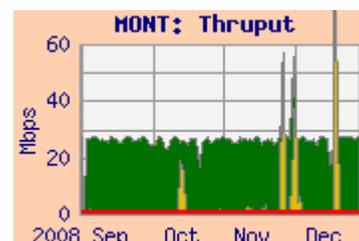
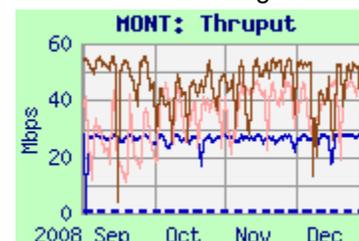
**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS LPDAAC	27.7	26.6	20.8	StarLight / I2 / PNW
GSFC-PTH	46.6	40.3	18.1	MAX / I2 / PNW
NSIDC	54.2	46.4	20.4	CU / FRGP / I2 / PNW

**Requirement:**

Source Node	FY	mbps	Rating
EROS LPDAAC	'04 - '09	0.82	<b>Excellent</b>

**Comments:** Performance was relatively stable this period. With the very low requirement, the rating remains "Excellent". The average user flow from EROS was 1.4 mbps – mostly in bursts, way above the requirement.



**10) NM, LANL:**

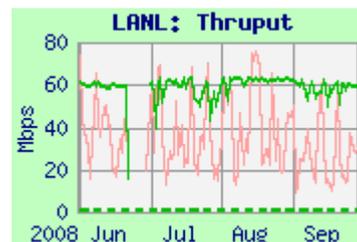
Teams: MISR

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

Domain: lanl.gov

**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	64.5	61.0	28.8	NISN / MAX / I2
GSFC-EBnet-PTH	78.7	53.8	19.3	MAX / ESnet

**Requirements:**

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'09	1.03	<b>Excellent</b>

**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:**

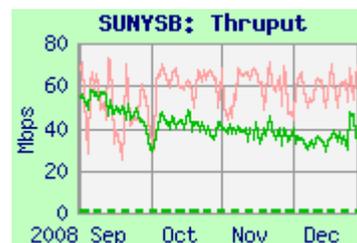
Teams: CERES, MODIS

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	63.8	37.9	24.7	NISN / MAX / I2 / NYSERnet
GSFC	77.7	61.4	36.0	MAX / I2 / NYSERnet

**Requirements:**

Source Node	FY	mbps	Rating
LaTIS	'02-'09	0.57	<b>Excellent</b>

**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:**

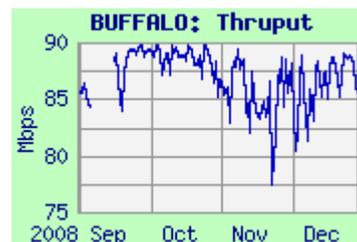
Team: ICESAT

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	89.1	87.3	59.9	NISN / MAX / I2 / NYSERnet



**Comments:** This node is planned to replace Ohio-State for ICESAT. Performance from ICESAT was quite stable (Note the expanded scale on the graph). 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.shtml](http://ensight.eos.nasa.gov/Missions/icesat/OHIO_STATE.shtml)Rating: Continued **Excellent**

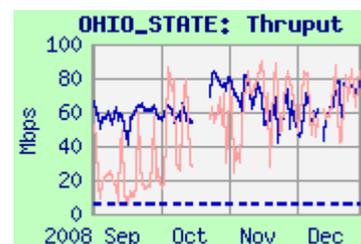
Domain: ohio-state.edu

**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
<a href="#">GSFC-ICESAT</a>	81.2	63.9	37.7	NISN / MAX / I2 / OARnet
<a href="#">GSFC-EBnet-PTH</a>	90.8	62.3	23.5	MAX / I2 / OARnet

**Requirements:**

Source Node	FY	mbps	Rating
GSFC-ICESAT	'05-'09	6.3	<b>Excellent</b>



**Comments:** Performance from ICESAT was a bit improved this month – still no typically 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

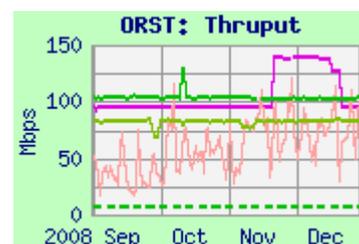
Domain: oce.orst.edu

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	
<a href="#">LaTIS</a>	105.2	103.2	101.4	NISN / MAX / I2 / PNW
<a href="#">JPL-PTH</a>	83.6	83.1	81.3	CENIC / I2 / PNW
<a href="#">GSFC-EBnet-PTH</a>	116.6	66.2	26.8	MAX / I2 / PNW
<a href="#">GSFC-ENPL</a>	96.0	95.9	95.8	MAX / I2 / PNW

**Requirements:**

Source Node	FY	mbps	Rating
LaTIS	'04 - '09	7.5	<b>Excellent</b>
GDAAC	'02 - '09	0.25	<b>Excellent</b>



**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 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.shtml](http://ensight.eos.nasa.gov/Missions/terra/PENN_STATE.shtml)Rating: Continued **Excellent**

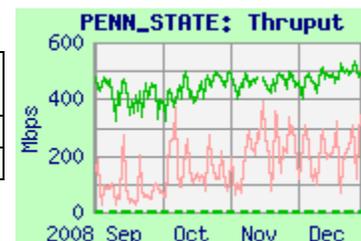
Domain: psu.edu

**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
<a href="#">LaRC DAAC</a>	540.1	462.2	31.7	NISN / MAX / I2 / 3ROX
<a href="#">GSFC-EBnet-PTH</a>	400.0	192.7	58.8	MAX / I2 / 3ROX

**Requirements:**

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'09	2.6	<b>Excellent</b>



**Comments:** Thruput from LaRC is generally exceptional, but seems to suffer a poor results on most days (note the 17:1 ratio between daily best and worst). But the median and worst 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:**

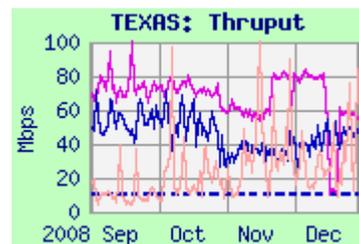
Team: ICESAT

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	78.2	42.3	14.3	NISN / MAX / I2 / TX
GSFC-ENPL	88.1	69.8	39.3	MAX / I2/ TX
GSFC-EBnet-PTH	113.6	23.9	6.9	MAX / I2/ TX

**Requirements:**

Source Node	FY	mbps	Rating
GSFC-ICESAT	05-'09	11.1	<b>Good</b>

**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 460 kbps, only about 4% of the requirement.

**17) WA, PNNL:**

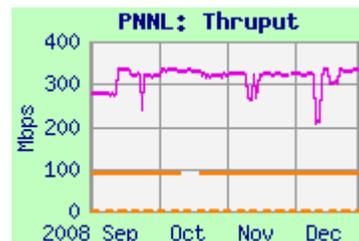
Team: MISR

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	91.0	91.0	91.0	NISN / MAX / ESnet
GSFC-ENPL	339.7	331.4	294.6	MAX / ESnet

**Requirements:**

Source Node	FY	mbps	Rating
LaRC	'04-'09	1.4	<b>Excellent</b>

**Comments:** 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 higher than the previous period, and remains **OUTSTANDING!**

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

Teams: MODIS, CERES, AIRS, NPP

Domain: ssec.wisc.edu

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

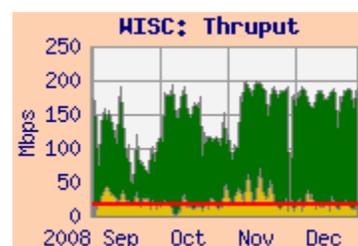
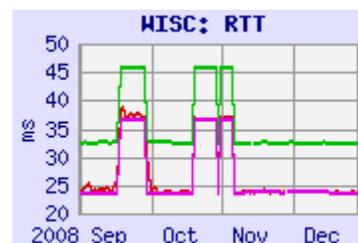
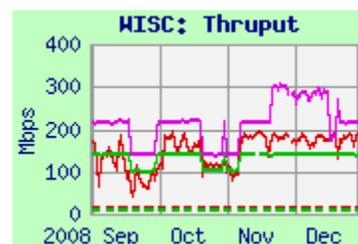
Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	195.3	176.1	110.7	MAX / I2 / MREN
LaTIS	141.7	141.0	136.1	NISN / MAX / I2 / MREN
GSFC-ENPL	219.0	218.0	194.9	MAX / I2 / MREN

**Requirements:**

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

**Comments:** Performance from all nodes was bimodal this period, corresponding 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 21.1 mbps this period, about 30% above the requirement, but lower than the 26 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 well above 3 x the requirement, so the rating remains "Excellent". Other than the RTT effect, thrupt 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**

Team: MOPITT

Domain: utoronto.ca

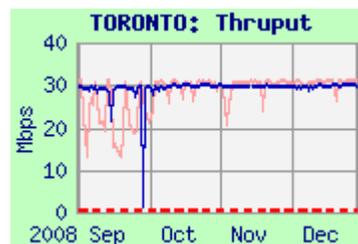
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/TORONTO.shtml>**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	30.6	29.7	12.8	NISN / StarLight / CA*net4
GSFC-EBnet-PTH	31.4	30.7	20.8	MAX / I2 / NY / CA*net4

**Requirements:**

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

**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 44 kbps this quarter.



**20) Italy, EC - JRC:**

Team: MISR

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

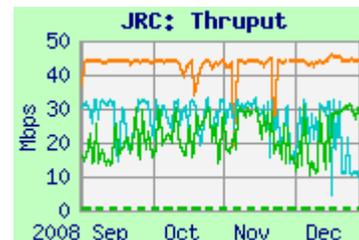
Domain: jrc.it

**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	31.6	23.8	7.7	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-NISN	33.7	28.6	8.6	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-ENPL	44.8	43.9	11.6	MAX / I2 / Géant / Garr

**Requirements:**

Source Node	FY	mbps	Rating
LaRC DAAC	'02 – '09	0.52	<b>Excellent</b>



**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 quite 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**

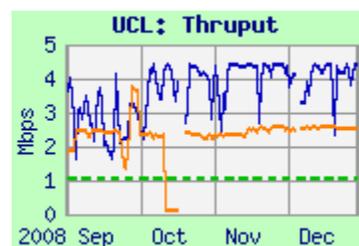
Domain: ucl.ac.uk

**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	2.54	2.42	2.01	NISN / PAIX (SFO) / Teleglobe / JAnet
GSFC EBnet-PTH	4.46	4.17	2.43	MAX / I2 / Géant (DC) / JAnet

**Requirements**

Source Node	FY	mbps	Rating
LaRC DAAC	'02 – '09	1.03	<b>Good</b>



**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 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](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	35.7	35.1	29.4	MAX / I2 / Géant (DC) / JAnet
GSFC-EBnet-PTH	35.6	28.0	12.3	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.

