

## EOS Science Networks Performance Report

This is a summary of EOS QA SCF performance testing for the 3<sup>rd</sup> 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](http://ensight.eos.nasa.gov/active_net_measure.html). Or click on any of the individual site links below.

### Highlights:

- Continued congestion on the EBnet GigE
  - Affects daily worst performance from MODIS, GSFC-PTH, ISIPS, OMISIPS, others
  - Compare with better performance from GSFC-GES DISC
    - GSFC-GES DISC was moved to 10 gig EBnet in early June.
- Otherwise, mostly stable performance.
  - ALL Nodes rated at least **Good**
  - GPA 3.76 (was 3.67 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:** ↑ **Colo State:** Adequate → **Good**  
**Arizona:** Good → **Excellent**

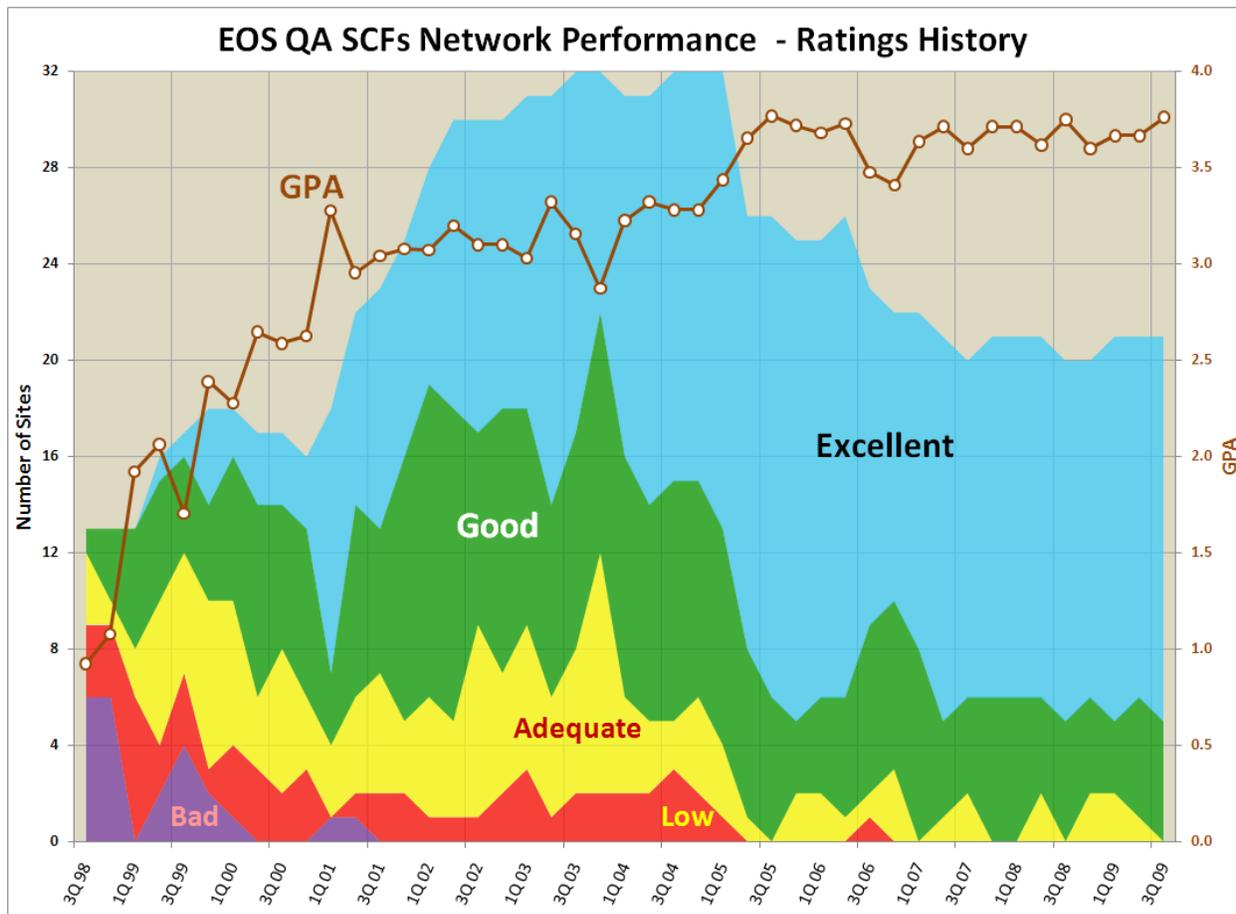
**Downgrades:** ↓ : None

**Testing Suspended:** X :

**Oxford Univ:** Replacement host being configured

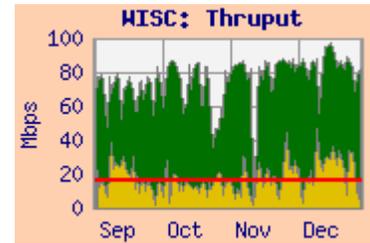
**Ratings History:**

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



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

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



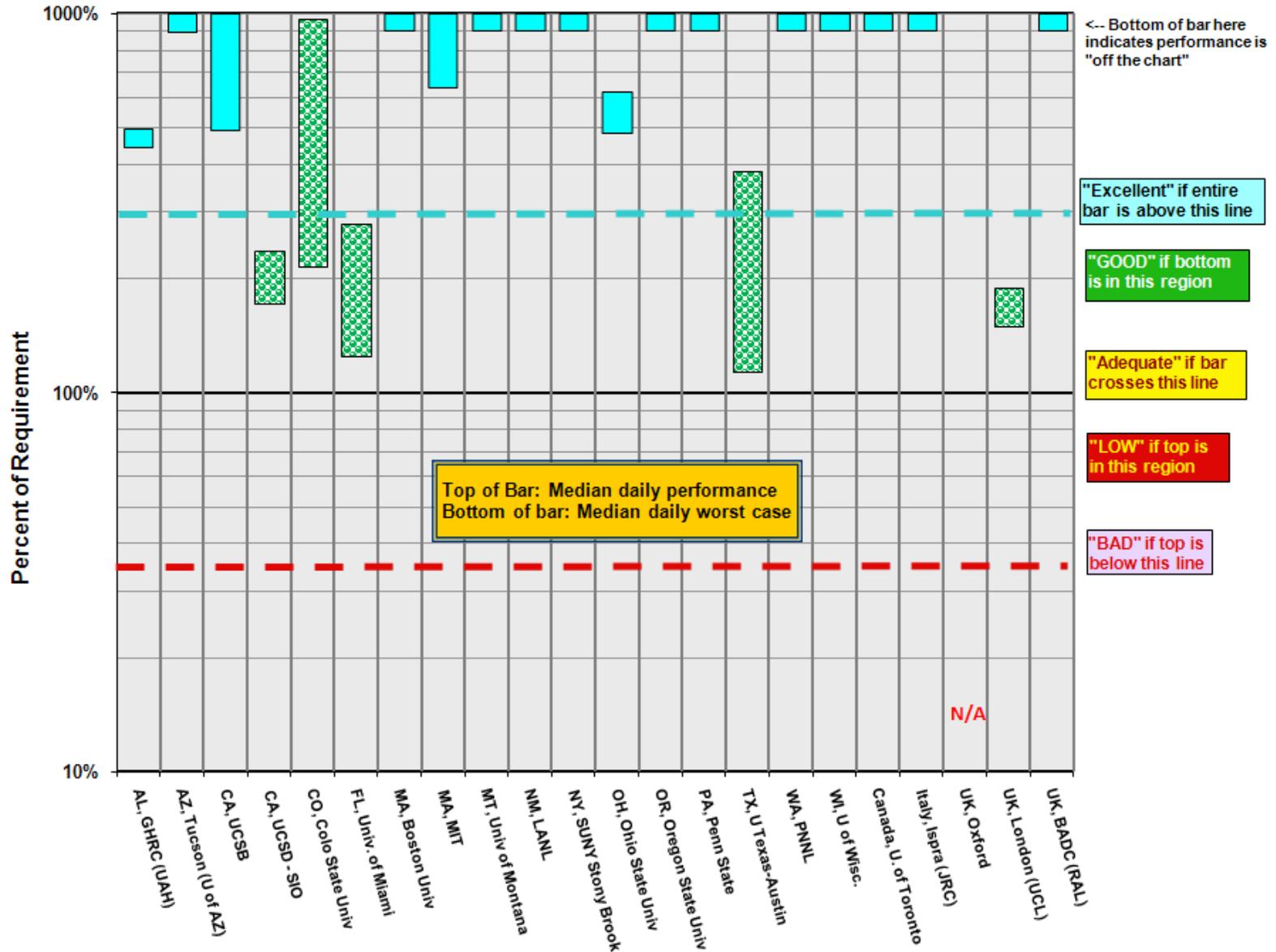
**Note:** User flow data is has not been available from LaRC since March 2007, so sites with primary requirements from LaRC will not include integrated graphs.

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

3 <sup>rd</sup> 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					3 Q 2009	2Q09	
AL, GHRC (UAH)	CERES, ASTER	6.9	LaTIS	34.2	30.8		Excellent	E	NISN / MAX / Internet2 / SOX
AZ, Tucson (U of AZ)	MODIS	2.6	EROS LPDAAC	40.7	25.1	6.7	Excellent	G	StarLight (Chicago) / Internet2
CA, UCSB	MODIS	3.1	GSFC-MODIS	51.3	15.3	0.4	Excellent	E	MAX / Internet2 / CENIC
CA, UCSD - SIO	ICESAT, CERES	7.1	GSFC-ICESAT	16.8	12.2	0.28	GOOD	G	NISN / MAX / Internet2 / CENIC
CO, Colo State Univ	CERES	2.1	LaTIS	20.8	4.6		GOOD	A	NISN / MAX / Internet2 / FRGP
FL, Univ. of Miami	MODIS, MISR	18.8	GSFC-MODIS	52.3	23.6	0.16	GOOD	G	MAX / Internet2 / SOX
MA, Boston Univ	MODIS, MISR	3.0	EROS LPDAAC	129.6	107.1	0.5	Excellent	E	StarLight (Chicago) / Internet2 / NOX
MA, MIT	ICESAT	7.0	GSFC-ICESAT	79.7	44.6	0.13	Excellent	E	NISN / MAX / Internet2 / NOX
MT, Univ of Montana	MODIS	0.8	EROS LPDAAC	41.3	31.0	0.1	Excellent	E	StarLight (Chicago) / Internet2 / PNW
NM, LANL	MISR	1.0	LaRC DAAC	49.7	24.0		Excellent	E	NISN / MAX / Internet2
NY, SUNY Stony Brook	CERES	0.6	LaTIS	44.5	26.3		Excellent	E	NISN / MAX / Internet2 / NYSERnet
NY, University of Buffalo	ICESAT		GSFC-ICESAT	87.8	48.5		n/a	n/a	NISN / MAX / Internet2 / NYSERnet
OH, Ohio State Univ	ICESAT	6.3	GSFC-ICESAT	39.0	30.4		Excellent	E	NISN / MAX / Internet2 / OARnet
OR, Oregon State Univ	CERES, MODIS	7.6	LaTIS	103.2	99.3		Excellent	E	NISN / MAX / Internet2 / PNW
PA, Penn State	MISR	2.6	LaRC DAAC	186.0	80.4		Excellent	E	NISN / MAX / 3ROX
TX, U Texas-Austin	ICESAT	11.1	GSFC-ICESAT	42.5	12.6	0.3	GOOD	G	NISN / MAX / Internet2
WA, PNNL	MISR	1.4	LaRC PTH	90.6	90.5		Excellent	E	NISN / MAX / ESNet
WI, U of Wisc.	MODIS, CERES, AIRS	16.5	GES DAAC	277.7	183.2	29.7	Excellent	E	MAX / Internet2 / MREN
Canada, U. of Toronto	MOPITT	0.6	LaRC DAAC	56.9	23.6		Excellent	E	NISN / StarLight (Chicago) / CA*net4
Italy, Ispra (JRC)	MISR	0.5	LaRC DAAC	56.7	36.5		Excellent	E	NISN / Chicago / CA*net / Géant (NY) / GARR
UK, Oxford	HIRDLS	0.0	GSFC-PTH				n/a	n/a	Internet2 / Géant (DC) / JANet
UK, BADC (RAL)	HIRDLS	0.2	GSFC-PTH	28.1	10.4		Excellent	E	Internet2 / Géant (DC) / JANet
UK, London (UCL)	MISR, MODIS	1.0	LaRC PTH	2.0	1.5		GOOD	G	NISN / Teleglobe (SFO) / JANet
<b>*Rating Criteria:</b>				<b>Rating</b>			<b>Current</b>	<b>Prev</b>	
							<b>3 Q 2009</b>	<b>Report</b>	
<b>Excellent</b>	Median Daily Worst >= 3 *Requirement			<b>Excellent</b>			<b>16</b>	<b>15</b>	
<b>GOOD</b>	Median Daily Worst >= Requirement			<b>GOOD</b>			<b>5</b>	<b>5</b>	
<b>Adequate</b>	Median Daily Worst < Requirement <= Median Daily Median			<b>Adequate</b>			<b>0</b>	<b>1</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>21</b>	<b>21</b>	
				<b>GPA</b>			<b>3.76</b>	<b>3.67</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

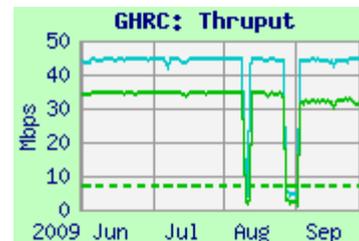
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/NSSTC.shtml>

Rating: Continued **Excellent**

Domain: nsstc.uah.edu

#### Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	34.8	34.2	30.8	NISN / MAX / I2 / SOX
GSFC-CNE	44.9	44.5	41.9	MAX / I2 / SOX



#### Requirements:

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

**Comments:** Performance from both sources was mostly verysteady; median daily worst 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

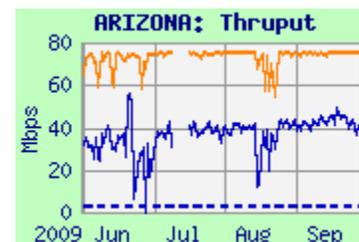
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/ARIZONA.shtml>

Rating: **Good** → **Excellent**

Domain: arizona.edu

#### Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS LPDAAC	52.1	40.7	25.1	StarLight / I2
GSFC ENPL	75.3	74.9	64.3	MAX / I2

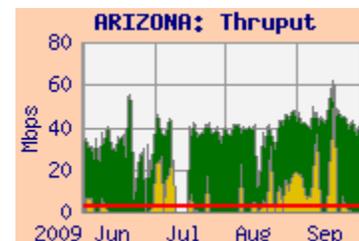


#### Requirements:

Source Node	FY	Mbps	Rating
EROS LPDAAC	'03 - '09	2.6	<b>Excellent</b>

**Comments:** The ratings are based on the MODIS flow from EROS. Performance was much less noisy from both sources -- the median daily worst from EROS increased way above 3 x the requirement, so the rating improves back to "Excellent".

The average user flow from EROS was 6.7 mbps (above the 2.0 mbps last quarter, and way above the 230 kbps previously) – now significantly exceeding the stated requirement.



**3) CA, UCSB :**

Teams: MODIS

Domain: ucsb.edu

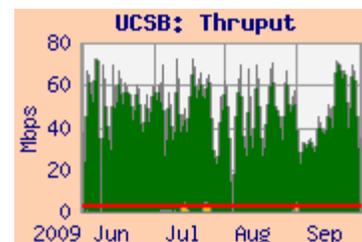
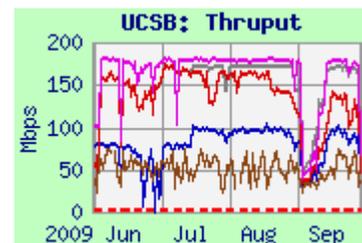
Web page: <http://ensight.eos.nasa.gov/Missions/terra/UCSB.shtml>Ratings: GSFC: Continued **Excellent**  
EROS: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MODIS	74.3	51.3	15.3	MAX / I2 / CENIC
GSFC-GES DISC	164.1	145.9	89.2	MAX / I2 / CENIC
GSFC-ENPL	181.5	178.8	131.1	MAX / I2 / CENIC
EROS-LPDAAC	103.6	92.4	65.9	StarLight / I2 / CENIC
EROS-PTH	172.1	170.7	141.2	StarLight / I2 / CENIC

**Requirements:**

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

**Comments:** The requirements are split between EROS and GSFC. Thruput from MODIS at GSFC **remains noisy due to the congested EBnet Gig-E**, while performance from ENPL and GES DISC (on the 10 gig EBnet backbone since June) is much less noisy (testing was retuned in June after the upgrade). EROS LPDAAC has been stable since 2005, while EROS-PTH (outside the ECS firewall) has lower packet loss and higher thruput. The rating remains "Excellent" from both EROS and GSFC-MODIS. The user flow from GSFC averaged only 370 kbps this period, much lower than the requirement.

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

Teams: CERES, ICESAT

Domain: ucsd.edu

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

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	17.1	16.8	12.2	NISN SIP / MAX / I2 / CENIC
LaTIS	127.4	125.3	121.4	NISN SPI / MAX / I2 / CENIC
GSFC-EBnet-PTH	178.7	110.3	21.9	MAX / I2 / CENIC
GSFC-ENPL	185.0	184.5	183.6	MAX / I2 / CENIC

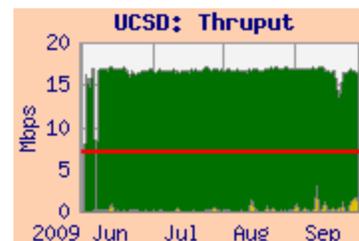
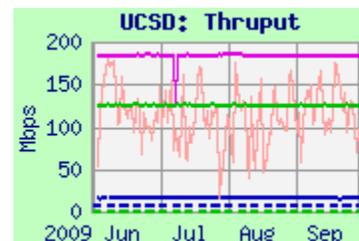
**Requirements:**

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

**Comments:** Performance from ICESAT is lower other sources, due to its inability to send multiple concurrent streams. 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, using multiple streams, but is also very noisy, **due to the 1 gig EBnet congestion**. GSFC-ENPL avoids the GSFC campus congestion, and gets very steady thruput. User flow from GSFC averaged only 285 kbps during the test period, **much lower than the requirement**.

Performance from LaTIS was also very stable. The LaTIS rating continues as "Excellent".



**5) CO, Colo State Univ.:**

Teams: CERES, ICESAT

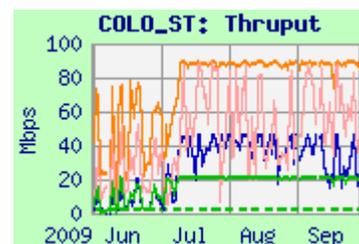
Web page: [http://ensight.eos.nasa.gov/Missions/terra/COLO\\_ST.shtml](http://ensight.eos.nasa.gov/Missions/terra/COLO_ST.shtml)Rating: ↑: Adequate → **Good**  
Domain: colostate.edu**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	20.9	20.8	4.6	NISN SIP / MAX / I2 / FRGP
GSFC-ICESAT	45.6	37.4	4.6	NISN SIP / MAX / I2 / FRGP
GSFC-EBnet-PTH	90.1	51.1	11.0	MAX / I2 / FRGP
GSFC-ENPL	90.8	88.2	46.1	MAX / I2 / FRGP

**Requirements:**

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

**Comments:** Noisy Performance from all sources was reduced in July (fewer students?), with much higher daily worst values from all sources. The daily worst from LaTIS improved to be above the requirement, so the rating improves to "Good". 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 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 **Good**  
LaRC: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MODIS	63.9	52.3	23.6	MAX / I2 / SOX
GSFC-ENPL	30.4	30.3	28.4	MAX / I2 / SOX
LaRC DAAC	13.9	10.9	8.9	NISN / MAX / I2 / SOX

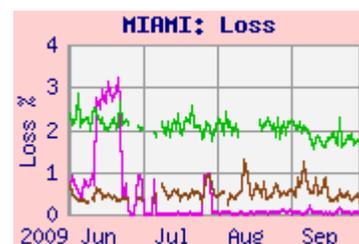
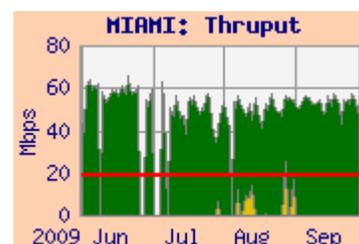
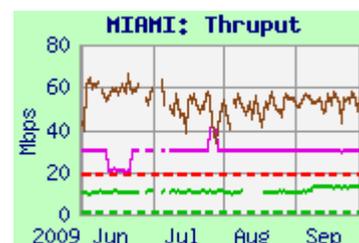
**Requirements:**

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

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

The integrated graph shows the user flow from GSFC averaged only 160 kbps, less than 1% of the requirement.

**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, and began from all sources at the same time, the problem appears to be in or near Miami.



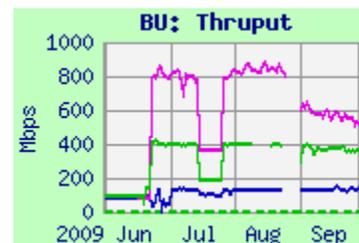
**7) MA, Boston Univ:**

Teams: MODIS, MISR

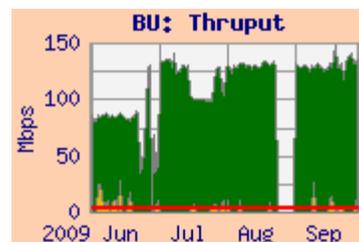
Domain: bu.edu

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	139.6	129.6	107.1	StarLight / I2 / NOX
GSFC ENPL	883.2	773.1	621.1	MAX / I2 / NOX
LaRC DAAC	401.0	391.4	244.3	NISN / MAX / I2 / NOX

**Requirements:**

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



**Comments:** The BU host was upgraded in late June, and the tests were retuned, with much higher thruput. The user flow from EROS averaged only about 0.5 mbps for this period (about 25% of the requirement without contingency), while there was an average of 1.4 mbps user flow from GSFC. The rating from both sources remains "Excellent".

**8) MA, MIT:**

Teams: ICESAT

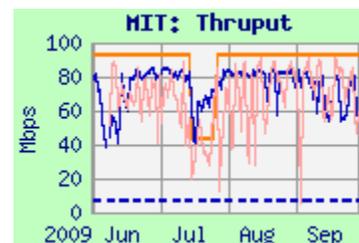
Web Page: <http://ensight.eos.nasa.gov/Missions/icesat/MIT.shtml>Rating: Continued **Excellent**  
Domain: mit.edu**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	84.8	79.7	44.6	NISN / MAX / I2 / NOX
GSFC-EBnet-PTH	90.9	69.5	17.5	MAX / I2 / NOX
GSFC-ENPL	93.5	93.5	81.3	MAX / I2 / NOX

**Requirements:**

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

**Comments:** Performance from GSFC ICESAT and GSFC-EBnet-PTH to MIT is noisy but stable. The median daily worst is well above 3 x the requirement; the rating remains "Excellent". Peak performance from GSFC-ENPL is a bit better than from ICESAT, but the median and worst are substantially higher. The daily average user flow from ICESAT was only 130 kbps – only about 2% 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

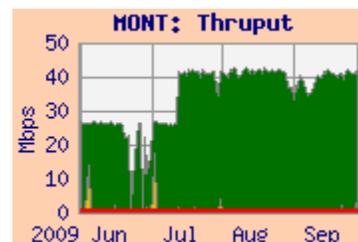
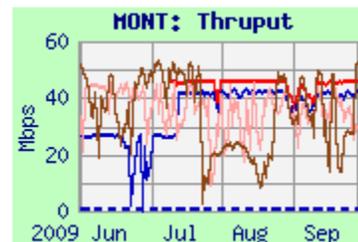
**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS LPDAAC	43.9	41.3	31.0	StarLight / I2 / PNW
EROS PTH	46.2	45.9	36.9	StarLight / I2 / PNW
GSFC-EB-PTH	45.5	35.8	10.1	MAX / I2 / PNW
NSIDC	50.3	31.0	14.7	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 about 100 kbps – mostly in occasional bursts (above the requirement).

**10) NM, LANL**

Teams: MISR

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

Domain: lanl.gov

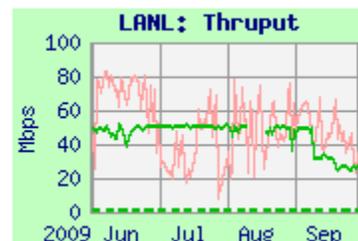
**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	52.1	49.7	24.0	NISN / MAX / I2
GSFC-EBnet-PTH	80.1	45.3	13.2	MAX / ESnet

**Requirements:**

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

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

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

Teams: CERES, MODIS

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

Domain: sunysb.edu

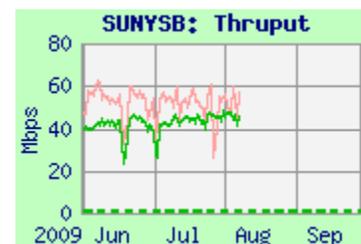
**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	54.5	44.5	26.3	NISN / MAX / I2 / NYSERnet
GSFC	67.7	53.1	23.3	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. The SUNY test host went down in August, but testing was restored in October.



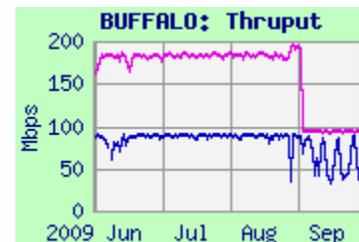
**12) NY, University of Buffalo:**

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	89.2	87.8	48.5	NISN / MAX / I2 / NYSERnet
GSFC-ENPL	186.3	181.9	119.0	MAX / I2 / NYSERnet

**Comments:** This node is planned to replace Ohio-State for ICESAT. Performance from both sources was quite stable until September. 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

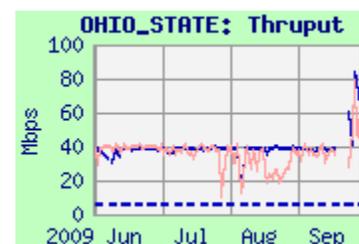
Web Page: [http://ensight.eos.nasa.gov/Missions/icesat/OHIO\\_STATE.shtml](http://ensight.eos.nasa.gov/Missions/icesat/OHIO_STATE.shtml)Rating: Continued **Excellent**  
Domain: ohio-state.edu**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	40.0	39.0	30.4	NISN / MAX / I2 / OARnet
GSFC-EBnet-PTH	41.4	36.2	15.9	MAX / I2 / OARnet

**Requirements:**

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

**Comments:** Performance from ICESAT was mostly stable this month, with a drop having occurred in May due to replacement of the test host (improved again in September). 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

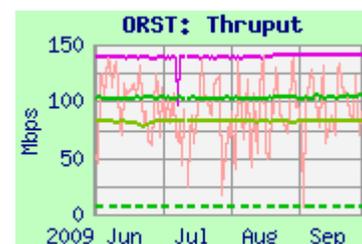
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/ORST.shtml>Ratings: LaTIS: Continued **Excellent**  
GSFC: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	104.6	103.2	99.3	NISN / MAX / I2 / PNW
JPL-PTH	83.5	82.9	80.3	CENIC / I2 / PNW
GSFC-EBnet-PTH	138.6	89.6	22.0	MAX / I2 / PNW
GSFC-ENPL	140.1	139.2	137.4	MAX / I2 / PNW

**Requirements:**

Source Node	FY	mbps	Rating
LaTIS	'04 - '09	7.5	<b>Excellent</b>
GES DISC	'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. Testing 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

Web Page: [http://ensight.eos.nasa.gov/Missions/terra/PENN\\_STATE.shtml](http://ensight.eos.nasa.gov/Missions/terra/PENN_STATE.shtml)

Domain: psu.edu

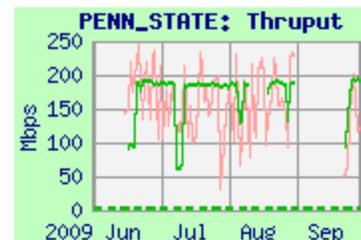
**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	189.5	186.0	80.4	NISN / MAX / I2 / 3ROX
GSFC-EBnet-PTH	237.2	147.1	45.3	MAX / I2 / 3ROX

**Requirements:**

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

**Comments:** Thruput from LaRC is generally very good; the rating remains "Excellent". Thruput from GSFC-PTH is very noisy due to EBnet 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

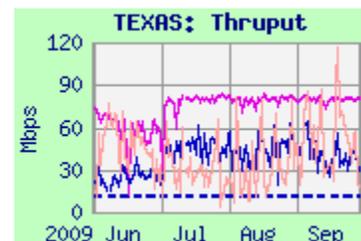
**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	75.5	42.5	12.6	NISN / MAX / I2 / TX
GSFC-ENPL	90.6	79.4	53.6	MAX / I2 / TX
GSFC-EBnet-PTH	126.6	31.0	5.9	MAX / I2 / TX

**Requirements:**

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

**Comments:** Performance from ICESAT was noisy – a bit higher than last quarter. The daily worst thruput remains above the requirement, but below 3 x; so the rating remains "Good". Testing from GSFC-EBnet-PTH is very noisy, due to EBnet 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 340 kbps, only about 3% 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

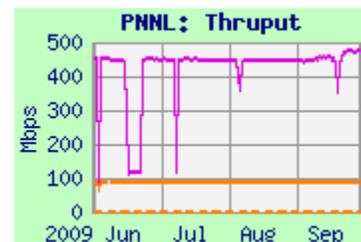
**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC-PTH	90.6	90.6	90.5	NISN / MAX / ESnet
GSFC-ENPL	455.1	447.2	423.1	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 at LaRC; the rating remains "Excellent". Performance from GSFC-ENPL was less noisy than the previous period, and remains **OUTSTANDING!**



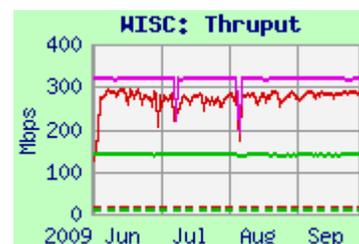
**18) WI, Univ. of Wisconsin:**

Teams: MODIS, CERES, AIRS, NPP

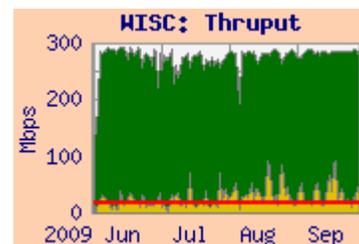
Domain: ssec.wisc.edu

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

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	303.0	281.6	197.1	MAX / I2 / MREN
LaTIS	141.7	140.9	136.8	NISN / MAX / I2 / MREN
GSFC-ENPL	319.7	318.7	315.5	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 very stable this period.

Thruput from GDAAC improved in June with GDAAC's move to the 10 gig EBnet, and was no longer noisy due to EBnet congestion at GSFC. The user flow from GSFC averaged 29.7 mbps this period, about 80% above the requirement, also more than the 21.3 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 remained 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 also avoids the GSFC congestion and was also stable.

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

Team: MOPITT

Domain: utoronto.ca

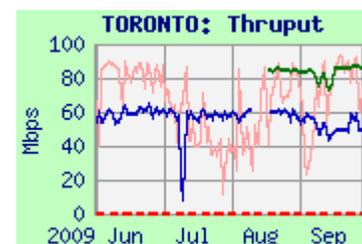
Web Page: <http://ensight.eos.nasa.gov/Missions/terra/TORONTO.shtml>Rating: GSFC: Continued **Excellent**LaRC: Continued **Excellent****Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	68.9	56.9	23.6	NISN / StarLight / CA*net4
LaRC PTH	86.5	84.7	48.3	NISN / StarLight / CA*net4
GSFC-EBnet-PTH	89.9	64.0	21.1	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:** Thruput from LaRC to Toronto was stable. Testing was added fro LaRC-PTH with improved results while waiting for firewall changes from LARC campus. Testing from GSFC-EBnet-PTH is very noisy, due to EBnet congestion. The ratings from both sources remain "Excellent", due to the low requirements. User flow from GSFC averaged only 3.6 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	59.1	56.7	36.5	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-NISN	52.9	52.5	50.1	NISN / StarLight / Canarie / NY / Géant / Garr
GSFC-ENPL	44.8	44.3	41.8	MAX / I2 / Géant / Garr

**Requirements:**

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

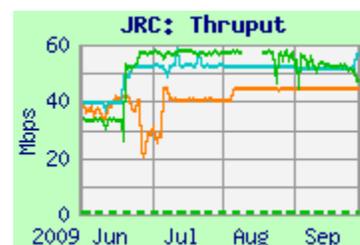
**Comments:** JRC was connected to Géant in June '07, with significant performance improvement. But since NISN did not peer with Géant (until late September '09), the route from LDAAC was via NISN to StarLight in Chicago, then Canarie's ITN, peering with Géant in NY (but a high performance route anyway).

Testing was returned in June '09, with improved results from all sources.

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: (University College)**

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	2.10	1.96	1.55	NISN / PAIX (SFO) / Teleglobe / JAnet
GSFC EBnet-PTH	4.40	3.60	1.80	MAX / I2 / Géant (DC) / JAnet

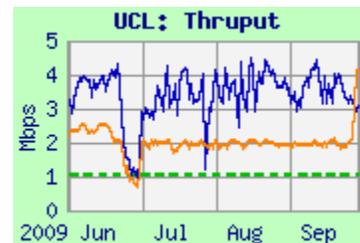
**Requirements**

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.

Since NISN did not peer with Géant (until October '09), the route from LaRC was via NISN, peering with Teleglobe on the US west coast, unnecessarily increasing RTT and reducing thruput. Although mostly stable, the median daily worst thruput from LaRC was below 3 x the requirement, so the rating remains "Good". Thruput from LaRC improved with NISN's peering with Géant in late September.

From GSFC the route (peering with Géant at MAX) is optimum. The thruput is better, but is noisy due EBnet 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 has been identified and configured, but testing is apparently blocked by a firewall. 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: Continued **Excellent**

Domain: rl.ac.uk

**Test Results:**

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ENPL	36.8	35.4	31.4	MAX / I2 / Géant (DC) / JAnet
GSFC-EBnet-PTH	35.5	28.1	10.4	MAX / I2 / Géant (DC) / JAnet

**Requirements:**

Source Node	FY	mbps	Rating
GSFC	'02 – '09	0.19	<b>Excellent</b>

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

