EOS Production Sites
Network Performance Report

This is a monthly summary of EOS network performance testing between production sites for June 2007 -- comparing the measured performance against the requirements.

Highlights:

- Highly stable flows
- Only 2 flows below "Good":
  - GSFC GES DAAC to EROS ("Almost Adequate")
  - GSFC GES DAAC to NSIDC ("Adequate")
- Bottlenecks:
  - GSFC: EBnet to Doors Gig-E
  - JPL: NISN PIP to campus Fast-E
  - GSFC: MODIS to EBnet
- Requirements Basis:
  - December '03 requirements from BAH.
  - Updated to handbook 1.4.1 (3/22/06)
  - Additional Updates Incorporated:
    - New AIRS reprocessing flows (8/06)
    - GEOS requirements – Flows began in Nov '06
    - All LaRC "Backhaul" Requirements removed
    - Extension of TRMM, QuikScat missions
  - **Requirements Update is in Progress – based on "Actuals"**
- Significant changes in testing are indicated in Blue, Problems in Red

Ratings Changes:

Upgrade: ↑**:** None

Downgrade: ↓ :

GSFC → NSIDC: Good → **Adequate**

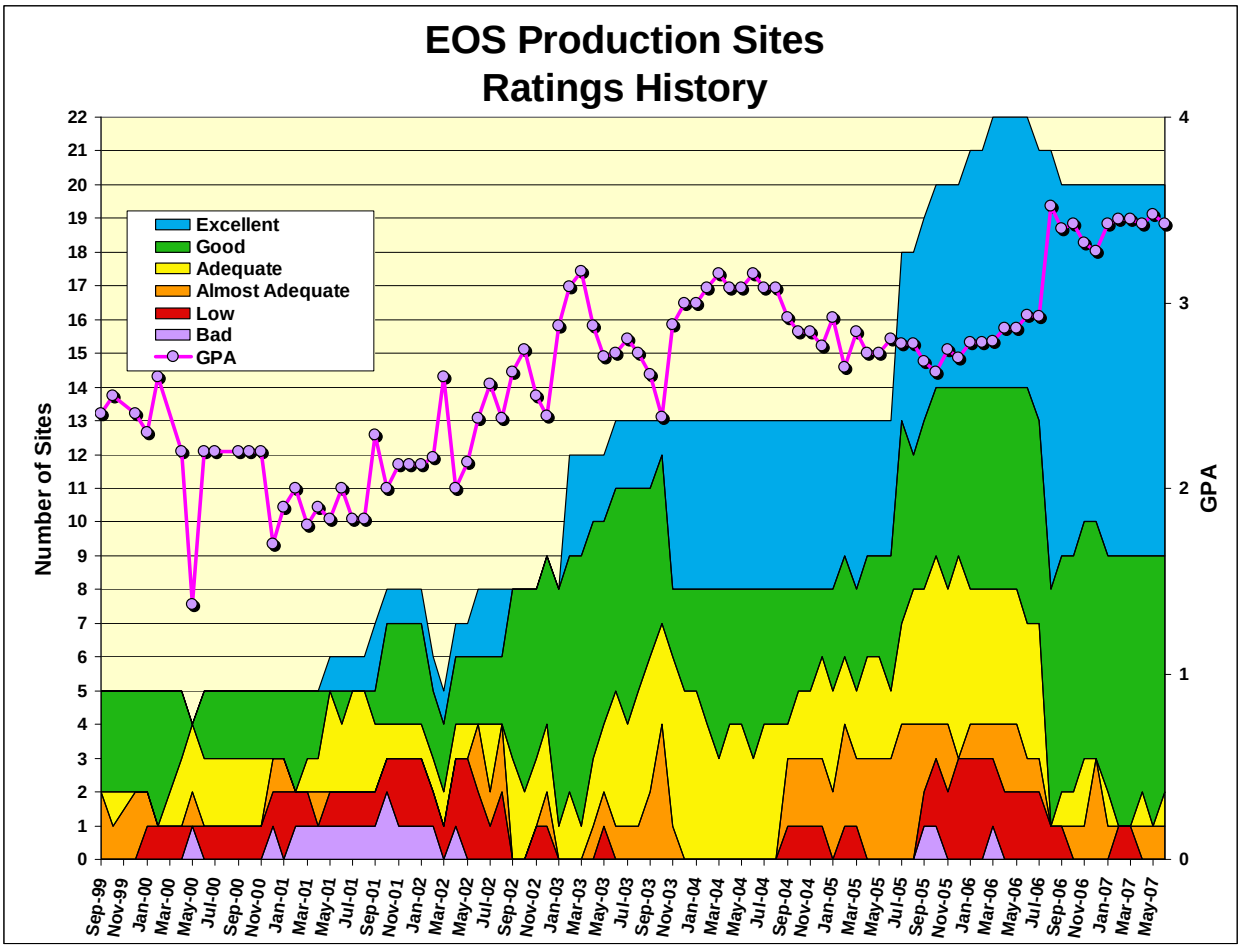
(See site discussion below for details)

Ratings Categories:

Rating	Value	Criteria
Excellent:	**4**	**Total Kbps** > Requirement * 3
Good:	**3**	1.3 * Requirement <= **Total Kbps** < Requirement * 3
Adequate:	**2**	Requirement < **Total Kbps** < Requirement * 1.3
Almost Adequate:	**1.5**	Requirement / 1.3 < **Total Kbps** < Requirement
Low:	**1**	Requirement / 3 < **Total Kbps** < Requirement / 1.3
Bad:	**0**	**Total Kbps** < Requirement / 3

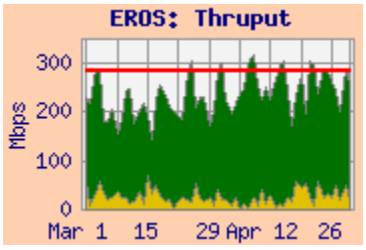
Where Total Kbps = Integrated Kbps (where available), otherwise just iperf

Ratings History:



The chart above shows the number of sites in each classification since EOS Production Site testing started in September 1999. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements.

Integrated Charts: Integrated charts are included with site details, where available. 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., EROS, 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.



Network Requirements vs. Measured Performance

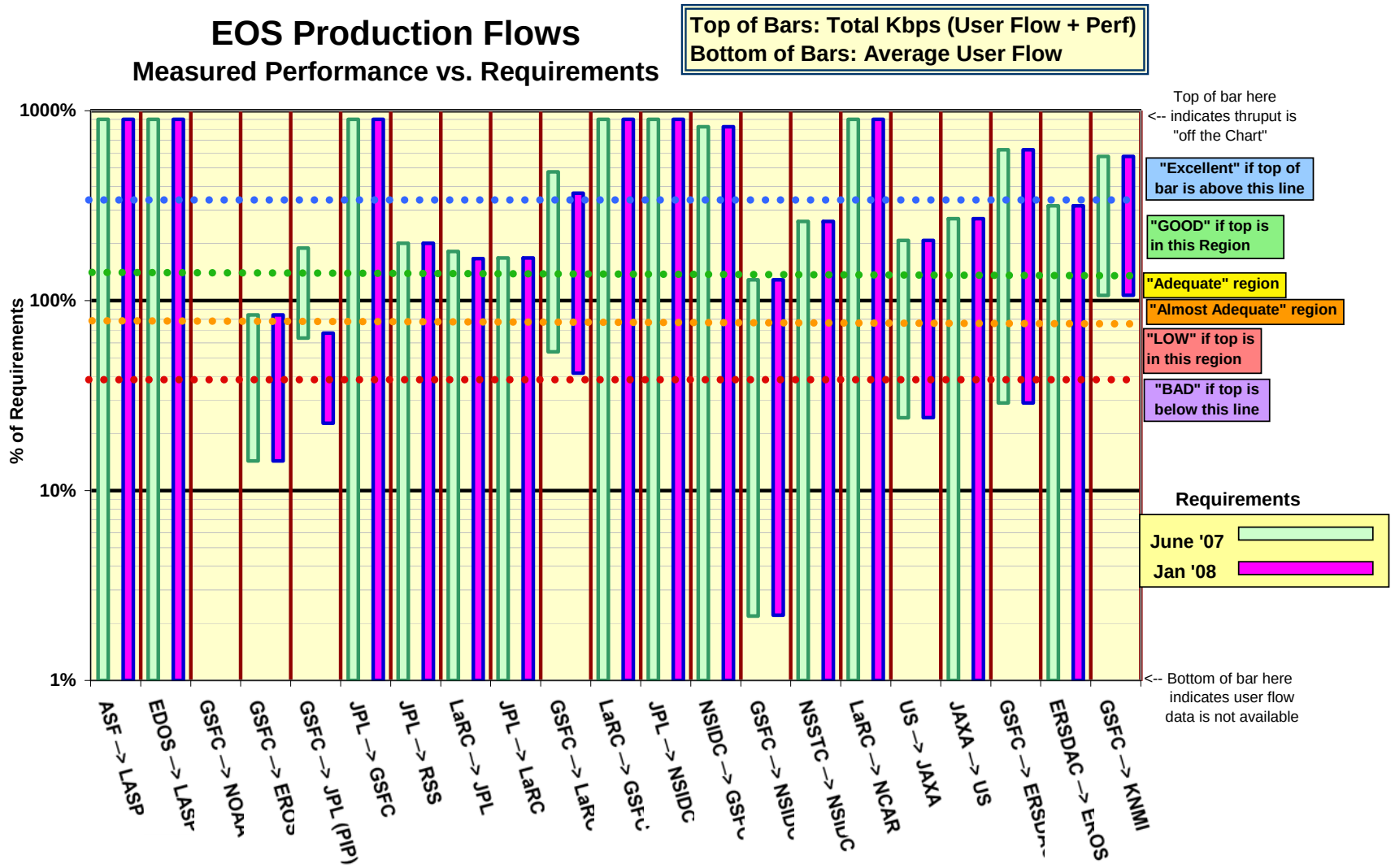
June 2007		Requirements (mbps)		Testing				Ratings		
Source → Destination	Team (s)	Current	Future	Source → Dest Nodes	Avg User Flow mbps	iperf Avg mbps	Integrated mbps	Rating re Current Requirements		Rating re
		Jun-07	Jan-08					Jun-07	Last Month	Jan-08
GSFC –> ASF	QuikScat, Radarsat	n/a	n/a	GSFC-PTH → ASF		1.44		n/a	n/a	n/a
ASF –> LASP	QuikScat	0.02	0.02	ASF → LASP [via IOnet]		1.11		Excellent	E	Excellent
EDOS –> LASP	ICESat, QuikScat	0.4	0.4	EDOS --> LASP [via IOnet]		13.4		Excellent	E	Excellent
GSFC –> NOAA	QuikScat	0.0	0.0	n/a		n/a		n/a	n/a	n/a
GSFC –> EROS	MODIS, LandSat	285.4	285.4	GDAAC → EROS LPDAAC	40.8	229.3	240.3	A A	A A	A A
GSFC –> JPL (PIP)	AIRS, ISTs	40.5	113.8	GDAAC → JPL-AIRS	25.7	66.8	76.7	GOOD	G	LOW
JPL –> GSFC	AMSR-E, MISR, etc.	7.4	7.4	JPL-PTH → GSFC-PTH		89.1		Excellent	E	Excellent
JPL –> RSS	AMSR-E	2.5	2.5	JPL-PODAAC → RSS		4.99		GOOD	G	GOOD
LaRC –> JPL	TES, MISR	39.6	43.2	LARC-DAAC → JPL-TES		72.0		GOOD	G	GOOD
JPL –> LaRC	TES	52.6	52.6	JPL-PTH → LARC-PTH		88.1		GOOD	G	GOOD
GSFC –> LaRC	CERES, MISR, MOPITT	67.2	86.9	GDAAC → LDAAC	36.1	305.1	320.1	Excellent	E	Excellent
LaRC –> GSFC	MODIS, TES	0.2	0.2	LDAAC → GDAAC		222.3		Excellent	E	Excellent
JPL –> NSIDC	AMSR-E	1.3	1.3	JPL-PTH → NSIDC SIDADS		88.7		Excellent	E	Excellent
NSIDC –> GSFC	MODIS, ICESAT, QuikScat	13.3	13.3	NSIDC DAAC → GDAAC	0.1	109.7	109.7	Excellent	E	Excellent
GSFC –> NSIDC	MODIS, ICESAT, QuikScat	64.1	64.1	GDAAC → NSIDC-DAAC	1.4	82.4	82.5	Adequate	G	Adequate
NSSTC –> NSIDC	AMSR-E	7.5	7.5	NSSTC → NSIDC DAAC		19.6		GOOD	G	GOOD
LaRC –> NCAR	HIRDLS	5.4	5.4	LDAAC → NCAR		105.6		Excellent	E	Excellent
US –> JAXA	QuikScat, TRMM, AMSR	2.0	2.0	GSFC-PTH → JAXA DDS	0.5	4.10	4.12	GOOD	G	GOOD
JAXA –> US	AMSR-E	1.3	1.3	JAXA DDS → JPL-QSCAT		3.46		GOOD	G	GOOD
GSFC –> ERSDAC	ASTER	12.5	12.5	EDOS → ERSDAC	3.6	77.4	77.6	Excellent	E	Excellent
ERSDAC –> EROS	ASTER	26.8	26.8	ERSDAC → EROS PTH		84.8		Excellent	E	Excellent
GSFC –> KNMI	OMI	3.3	3.3	GSFC-OMISIPS → OMI-PDR	3.5	18.9	18.9	Excellent	E	Excellent

*Criteria:		
	Excellent	**Total Kbps** > Requirement * 3
	GOOD	1.3 * Requirement <= **Total Kbps** < Requirement * 3
	Adequate	Requirement < **Total Kbps** < Requirement * 1.3
	Almost Adequate	Requirement / 1.3 < **Total Kbps** < Requirement
	LOW	Requirement / 3 < **Total Kbps** < Requirement / 1.3
	BAD	**Total Kbps** < Requirement / 3

Ratings Summary	Jun-07 Score	Reg Prev	Jan-08 Score
Excellent	11	11	11
GOOD	7	8	6
Adequate	1	0	1
Almost Adequate	1	1	1
LOW	0	0	1
BAD	0	0	0
Total Sites	20	20	20
GPA	3.43	3.48	3.33

Notes: Flow Requirements include:
TRMM, Terra, Aqua, Aura, ICESAT, QuikScat, GEOS

This graph shows two bars for each source-destination pair. Each bar uses the same actual measured performance, but compares it to the requirements for two different times (June '07 and January '08). Thus if the requirements increase, the same measured performance will be lower in comparison.



Interpretation: The bottom of each bar is the average measured user flow to a site. Thus the bottom of each bar indicates the relationship between the requirements and actual flows. Note that the requirements include a 50% contingency factor above what was specified by the projects, so a value of 66% would indicate that the project is flowing as much data as requested. The top of each bar represents the integrated measurement – this value is used to determine the ratings.

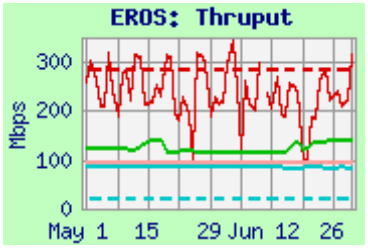
1) EROS:

Ratings: GSFC → EROS: Continued **Almost Adequate**
ERSDAC→ EROS: Continued **Excellent**

Web Page: http://ensight.eos.nasa.gov/Organizations/production/EROS.shtml
http://ensight.eos.nasa.gov/Organizations/production/EROS_PTH.shtml

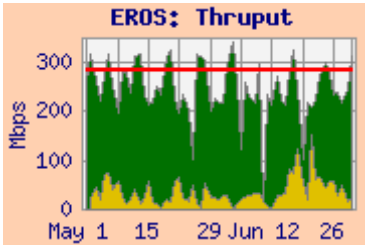
Test Results:

Source → Dest	Medians of daily tests (mbps)				
	Best	Median	Worst	User Flow	Integrated
GSFC-DAAC → EROS LPDAAC	341.1	229.3	91.3	40.8	240.3
GSFC-PTH → EROS PTH	465.2	266.5	59.3		
GSFC-ENPL → EROS PTH	487.0	475.7	290.5		
ERSDAC→ EROS	87.4	84.8	72.3		
NSIDC→ EROS	120.6	117.7	113.3		
LaRC→ EROS	92.9	92.9	92.9		
EROS LPDAAC → GSFC DAAC	134.0	118.3	64.5		
EROS PTH→ GSFC PTH	467.1	451.9	413.1		



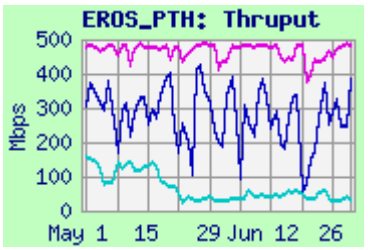
Requirements:

Source → Dest	Date	mbps	Rating
GSFC→ EROS	→ Mar '08	285	**Almost Adequate**
ERSDAC→ EROS	FY '06, '07	26.8	**Excellent**



Comments:

GSFC → EROS: The rating is based on the DAAC to DAAC measurement. The route from the GDAAC and GSFC-PTH hosts to EROS was changed in April. It formerly was from GSFC to MAX to Internet2 then via the Internet2 backbone to StarLight, in Chicago, where it peered with the EROS private OC-12 (622 mbps). The new route is via NISN SIP, on the NISN OC-48 (2.5 gbps) backbone, to the NISN Chicago CIEF, then via GigE to StarLight, again peering with the EROS OC-12. Note that the EROS OC-12 is the limiting circuit in both cases. No performance change has been observed as a result of this route change.



The user flow this month was a bit higher than last month, but is still far below the recent averages and the nominal requirement, apparently due to the use of compression on the MODIS collection 5 data (began at the end of 2006). The user flow had only a small contribution to the integrated measurement on which the rating is based. There is often significant congestion on the EBnet to Doors Gig-E circuit, as shown by the large best:worst ratio seen from these hosts. The performance is about the same as last month, the rating continues "Almost Adequate". However, the requirement is in process of being reviewed due to the MODIS collection 5 compression.

The GSFC-ENPL host has a direct connection to the MAX, bypassing the congested EBnet to Doors Gig-E circuit, and using the previous Abilene route. It does not experience similar congestion to the DAAC. From ENPL, the performance would be rated "Good".

ERSDAC → EROS: The median thruput from ERSDAC to EROS-PTH (in support of the ASTER flow) remained stable on the APAN / Abilene route (limited by the ERSDAC 100 mbps tail circuit), and is more than 3 times the 26.8 mbps requirement, resulting in an "Excellent" rating.

NSIDC → EROS: The median thruput from NSIDC-SIDADS to EROS-PTH was also stable this month.

LaRC → EROS: The thruput from LaRC-PTH to EROS-PTH was very stable this month.

EROS → GSFC: The thruput for tests from EROS to GSFC (both DAAC to DAAC and PTH to PTH) were mostly stable this month, but note that the DAAC to DAAC flow cannot use a significant portion of the WAN capability.

2) JPL:

2.1) JPL ←→ GSFC:

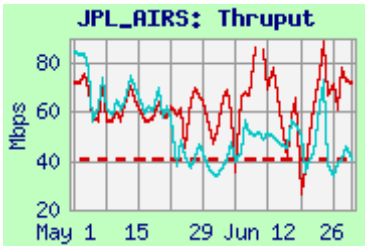
Ratings: GSFC → JPL: Continued **Good**
JPL → GSFC: Continued **Excellent**

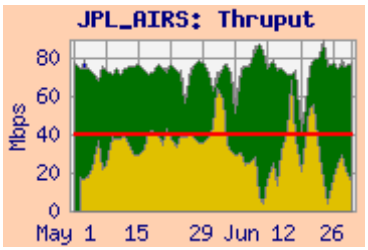
Web Pages:

http://ensight.eos.nasa.gov/Missions/aqua/JPL_AIRS.shtml
http://ensight.eos.nasa.gov/Organizations/production/JPL_QSCAT.shtml
http://ensight.eos.nasa.gov/Organizations/production/JPL_PODAAC.shtml

Test Results:

Source → Dest	NET	Medians of daily tests (mbps)				
		Best	Median	Worst	User Flow	Integrated
GSFC-DAAC → JPL-AIRS	PIP	88.0	66.8	34.2	25.7	74.7
GSFC-CNE → JPL-AIRS	SIP	59.4	46.2	29.6		
GSFC-PTH → JPL-QSCAT	PIP	86.5	66.7	33.4		
GSFC-PTH → JPL-PODAAC	PIP	91.4	80.6	45.1		
GSFC-PTH → JPL-MLS	PIP	70.9	49.9	12.8		
GSFC-PTH → JPL-MISR	SIP	81.0	50.4	16.6		
JPL-PTH→ GSFC PTH	PIP	89.1	89.1	73.3		
JPL-PODAAC→ GSFC DAAC	PIP	39.6	34.5	11.4		





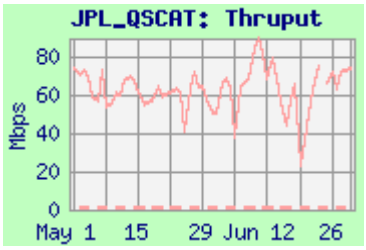
Requirements:

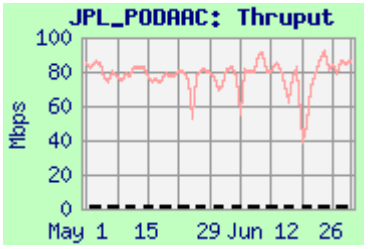
Source → Dest	Date	Mbps	Rating
GSFC → JPL Combined	March '07	46.3	**Good**
JPL → GSFC combined	CY '06-09	7.4	**Excellent**

Comments:

GSFC → JPL: The NISN PIP to JPL campus connection is currently Fast-E (100 mbps). This circuit is now acting as a bottleneck for GSFC to JPL and LaRC to JPL flows. This was not an issue before the NISN WANR upgrade (summer '06 when the NISN tail circuit to JPL was OC-3 (155 mbps). But the tail circuit is now OC-12 (622 mbps), and this interface has become the bottleneck. An upgrade to GigE is planned for August.

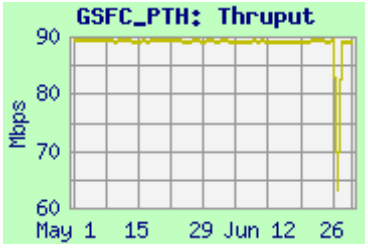
AIRS: MODIS flow increased significantly in May (was only 9 mbps in April); thruput was about the same as last month. The combined requirement dropped from 57.6 mbps in February, due to lower GEOS flows to MLS. The rating remains "Good".





QSCAT and PODAAC: Median thruput from GSFC-PTH increase slightly this month, while the daily worst decreased, indicating more variable user flows and EBnet to Doors congestion.

MISR, MLS: Testing from GSFC-PTH to MISR and MLS was stable this month. See section 2.2 (below) for the graphs.



JPL → GSFC: The previous JPL-PODAAC to GSFC-DAAC testing was replaced by JPL-PTH to GSFC-PTH testing to better reflect the network capabilities. Thruput was very stable in May and June. With the modest requirement, the rating remains "Excellent".

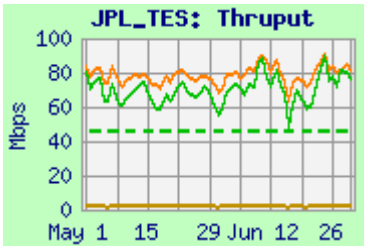
2.2) JPL ←→ LaRC

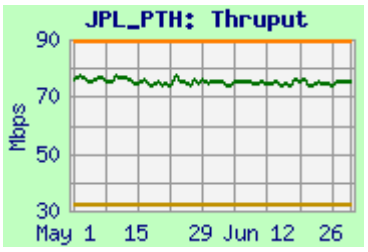
Ratings: LaRC → JPL: Continued **Good**
JPL→ LaRC: Continued **Good**

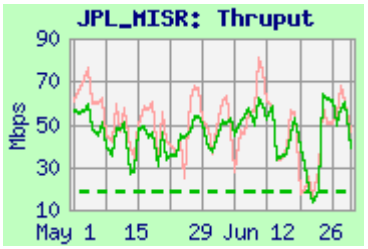
Web Pages:
http://ensight.eos.nasa.gov/Organizations/production/JPL_TES.shtml
http://ensight.eos.nasa.gov/Missions/terra/JPL_MISR.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	**Median**	**Worst**
LaRC DAAC → JPL-TES	88.3	72.0	48.8
LaRC PTH → JPL-TES	90.0	80.3	62.8
LaRC PTH → JPL-TES sftp	1.79	1.78	1.65
LaRC PTH → JPL-PTH sftp	32.0	32.0	31.9
LaRC PTH → JPL-MLS	89.3	80.7	66.5
LaRC DAAC → JPL-MISR	63.2	51.1	24.3
JPL-PTH → LaRC PTH	88.5	88.1	86.5





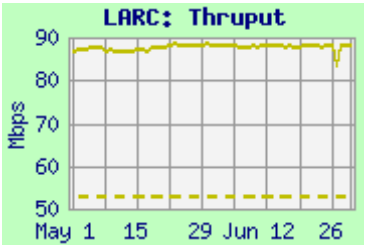


Requirements:

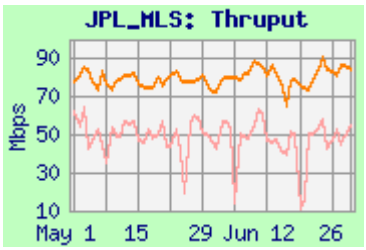
Source → Dest	Date	Mbps	Rating
LaRC DAAC → JPL-TES	FY '07	29.8	**Good**
LaRC DAAC → JPL-MISR	FY '07	18.5	**Good**
LaRC DAAC → JPL-Combined	FY '07	45.8	**Good**
JPL → LaRC	FY '07	52.6	**Good**

Comments: LDAAC was moved to campus address space in March. **User flow data is no longer available from LaRC (has been requested but not approved)**. Thus no integrated graphs are available for these flows.

LaRC→ JPL: Performance for all tests increased slightly from last month, probably due to the increased flow from GSFC; the rating remains "Good". The combined requirement increased in November '06, with the addition of GEOS flows (was 39.6 mbps previously). Sftp results are much lower than iperf, due to TCP window limitations, but improved in late April from LaRC-PTH to JPL-PTH via a patch to increase this window size.



JPL → LaRC: This requirement is for TES products produced at the TES SIPS at JPL, being returned to LaRC for archiving. The thruput cleared up at the end of April, similar to the JPL to GSFC performance. The rating remains "Good".



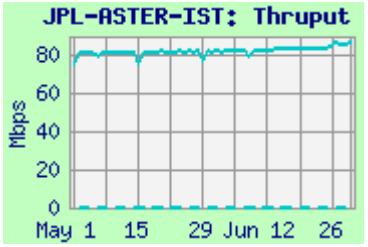
2.3) ERSDAC → JPL ASTER IST

Rating: Continued **Excellent**

Web Page:http://ensight.eos.nasa.gov/Organizations/production/JPL_PTH.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	**Median**	**Worst**
ERSDAC → JPL-ASTER-IST	83.7	83.4	48.5



Comments: This test was initiated in March '05, via APAN replacing the EBnet circuit. The very stable 83 mbps must be well in excess of the requirements (IST requirements are generally 311 kbps).

3) Boulder CO:

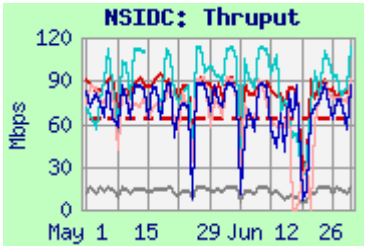
3.1) GSFC ← → NSIDC DAAC:

Ratings: NSIDC → GSFC: Continued **Excellent**
GSFC → NSIDC: ↓ Good → **Adequate**

Web Page: http://ensight.eos.nasa.gov/Organizations/production/NSIDC.shtml

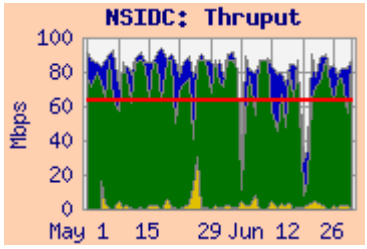
Test Results:

Source → Dest	Medians of daily tests (mbps)				
	Best	**Median**	**Worst**	**User Flow**	**Integrated**
GSFC-DAAC→ NSIDC-DAAC	100.0	82.4	30.7	1.4	82.4
GSFC-PTH → NSIDC-DAAC	95.6	73.7	18.0		
GSFC-ISIPS → NSIDC (iperf)	112.8	92.1	24.7		
GSFC-ISIPS → NSIDC (ftp)	21.5	12.6	4.4		
NSIDC DAAC → GSFC-DAAC	121.8	109.7	42.3		
NSIDC → GSFC-ISIPS (iperf)	87.1	79.6	32.7		

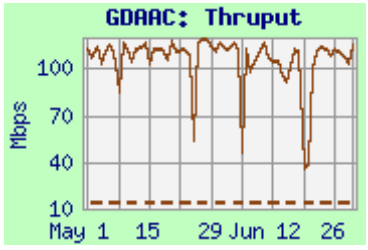


Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → NSIDC	CY '07	64.1	**Good**
NSIDC → GSFC	CY '06 – '07	13.3	**Excellent**



Comments: GSFC → NSIDC: This rating is based on testing from GDAAC to the NSIDC DAAC. The iperf and integrated thruput values were slightly lower this month. This requirement varies, based on planned ICESAT reprocessing. This month the reprocessing **IS NOT** included. The Integrated thruput is above this lower requirement but by less than 30%, so the rating drops to "Adequate". Note that in November and December '06 the reprocessing **was** included – the requirement was higher (78 mbps), and the rating would still have been "Adequate" **Note that the integrated graph shows that the user flow is MUCH lower than the requirement**.



NSIDC → GSFC: Performance from NSIDC to GSFC remained stable, after improving dramatically with the NISN WANR upgrade in August '06; the rating remains "Excellent".

GSFC-ISIPS ← → NSIDC: Performance between ISIPS and NSIDC is at nominal levels for the circuit capacity. Iperf thruput was much higher than ftp due to window size limitations.

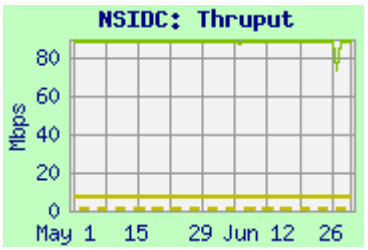
3.2) JPL → NSIDC:

Ratings: JPL → NSIDC: Continued **Excellent**

Test Results:

Source → Dest	Medians of daily tests (mbps)			
	Best	**Median**	**Worst**	**Requirement**
JPL PTH → NSIDC-PTH	88.8	88.7	52.0	1.34
JPL PODAAC → NSIDC-SIDADS	7.2	7.2	6.6	1.34

Comments: The test from JPL-PTH to NSIDC-SIDADS more fully assesses the true network capability – the thruput is much higher than from PODAAC. Thruput from PODAAC was again stable this month after the previous improvement from the NISN WANR upgrade. The rating remains "Excellent".



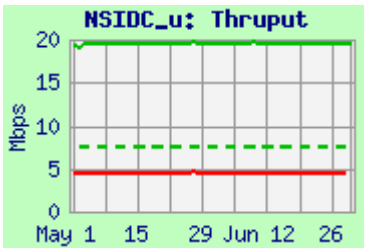
3.3) GHRC → NSIDC:

Ratings: GHRC → NSIDC: Continued **Good**

Web Pages: http://ensight.eos.nasa.gov/Missions/aqua/NSIDC_u.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			
	Best	**Median**	**Worst**	**Req.**
GHRC → NSIDC DAAC (iperf)	19.7	19.6	7.9	7.5
GHRC → NSIDC DAAC (ftp)	4.6	4.6	4.4	



Comments: GHRC (NSSTC, UAH, Huntsville, AL) sends AMSR-E L2/L3 data to NSIDC. Median Iperf thruput was stable this month, and remains more than 30 % over the requirement, so is rated "Good"

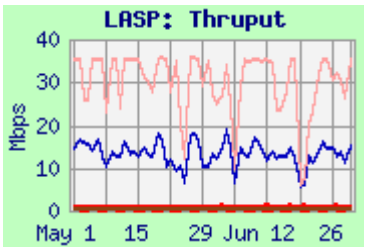
3.4) LASP:

Ratings: GSFC → LASP: Continued **Excellent**
ASF → LASP: Continued **Excellent**

Web Page: http://ensight.eos.nasa.gov/Organizations/production/LASP.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			
	Best	**Median**	**Worst**	**Req**
ASF → LASP	1.33	1.11	0.42	0.024
GSFC EDOS → LASP	27.1	13.4	4.9	0.4
GSFC PTH → LASP (iperf)	35.7	31.2	6.6	
GSFC PTH → LASP (sftp)	0.50	0.50	0.49	



Comments: The requirements are divided into ASF and GSFC sources: Performance continues noisy from all sources.

ASF → LASP: Thruput from ASF to LASP is limited by ASF T1 circuit, rating "Excellent", due to the modest requirement.

GSFC → LASP: GSFC → LASP iperf thruput is noisy but well above the requirement; the rating continues "Excellent. But sftp thruput is MUCH lower than iperf, due to window size limitations. A patch is available.

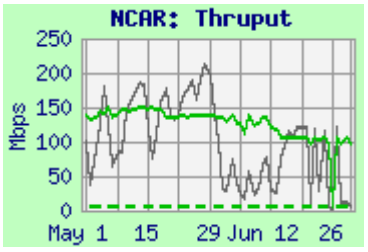
3.5) NCAR:

Ratings: LaRC → NCAR: Continued **Excellent**
GSFC → NCAR: Continued **Excellent**

Web Pages http://ensight.eos.nasa.gov/Missions/terra/NCAR.shtml

Test Results:

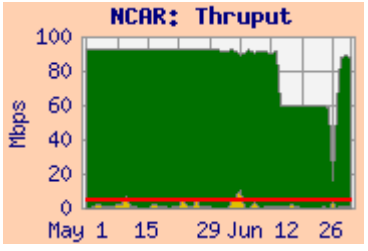
Source → Dest	Medians of daily tests (mbps)			
	Best	**Median**	**Worst**	**Requirement**
LaRC → NCAR	115.4	105.6	77.5	5.4
GSFC → NCAR	90.9	88.0	73.3	5.1



Comments: NCAR (Boulder, CO) is a SIPS for MOPITT (Terra, from LaRC), and has MOPITT and HIRDLS QA (Aura, from GSFC) requirements. The thruput from both sources improved in early March, then declined in mid March, due to routing changes, apparently in Colorado. It improved again in April with retuning. Thruput from LaRC is well above 3 x the requirement, so the rating remains "Excellent".

From GSFC the median thruput is also well over 3 x the requirement, so that rating also remains "Excellent".

The Integrated graph shows that the user flow from GSFC is moderately consistent with the stated requirement.



4) GSFC ←→ LaRC:

Ratings: GSFC → LaRC: Continued **Excellent**
LDAAC → GDAAC: Continued **Excellent**

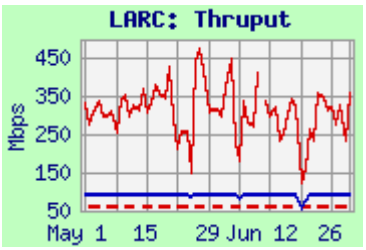
Web Pages: http://ensight.eos.nasa.gov/Organizations/production/LARC.shtml
http://ensight.eos.nasa.gov/Organizations/production/LATIS.shtml

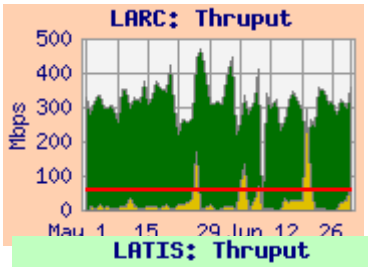
Test Results:

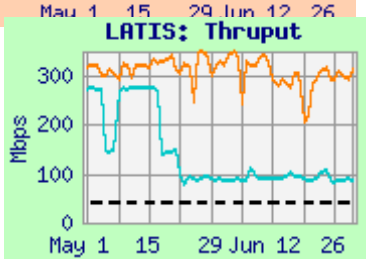
Source → Dest	Medians of daily tests (mbps)				
	Best	**Median**	**Worst**	**User Flow**	**Integrated**
GDAAC → LDAAC	473.1	305.1	134.6	36.1	320.0
GSFC-PTH → LaRC-PTH	93.4	92.8	74.8		
GSFC-NISN → LaTIS	102.3	90.5	81.4		
GSFC-PTH → LaRC-ANGe	330.0	304.6	215.2		
LDAAC → GDAAC	367.8	222.3	79.8		
LARC-ANGe → GSFC-PTH	346.5	332.2	281.6		

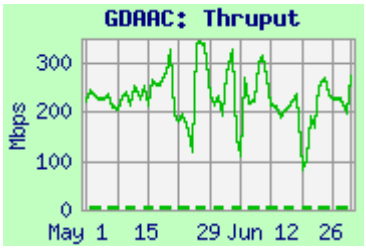
Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → LARC (Combined)	Nov '06 – Dec '07	67.2	**Good**
LDAAC → GDAAC	FY '07	0.2	**Excellent**









Comments:

GSFC → LaRC: The "Excellent" rating is based on the GDAAC to LaRC ECS DAAC thruput, compared to the combined requirement. Note: the lower thruput (around 90 mbps) to LaRC-PTH is limited by its 100 mbps LAN connection.

The user flow was about double last month's flow. But the integrated graph shows that this was due to a few short (but large volume) bursts.

LaTIS: The thruput to LaTIS via PIP (from GSFC-PTH) was stable this month, but via SIP (from GSFC-NISN) dropped in mid May.

LaRC → GSFC: Performance from LDAAC → GDAAC remained much more than 3 x the requirement, so the rating continues as "Excellent".

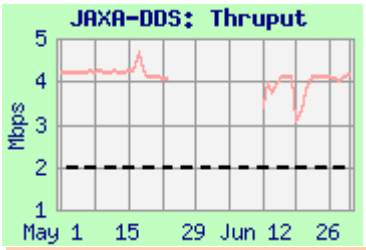
5) US ←→ JAXA:

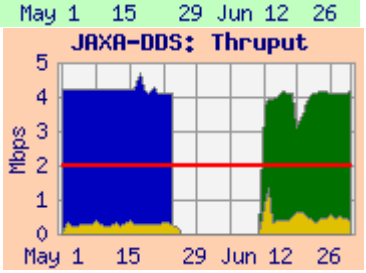
Ratings: JAXA → US: Continued **Good**
US → JAXA: Continued **Good**

Web Pages http://ensight.eos.nasa.gov/Organizations/production/JAXA_EOC.shtml
http://ensight.eos.nasa.gov/Organizations/production/JAXA_HEOC.shtml
http://ensight.eos.nasa.gov/Organizations/production/JPL_QSCAT.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)				
	Best	Median	Worst	User Flow	Integrated
GSFC-PTH → JAXA-DDS	4.17	4.10	2.97	0.48	4.12
GSFC-ENPL → JAXA-azusa	73.2	57.8	33.5		
GSFC-PTH → JAXA-azusa	52.1	32.7	14.2		
GSFC-PTH → JAXA (sftp)	0.84	0.82	0.75		
JAXA-DDS → JPL-QSCAT	3.49	3.46	2.83		
JAXA-DDS → GSFC-DAAC	1.84	1.77	1.29		
JAXA-azusa→ GSFC-MAX	61.2	40.0	13.9		





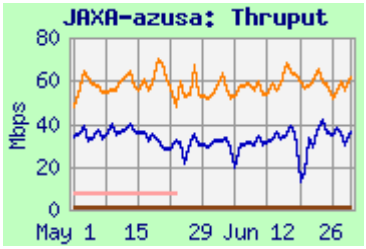
Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → JAXA	Nov '03 – Mar '08	1.99	Good
JAXA → US	Nov '03 – Mar '08	1.28	Good

Comments:

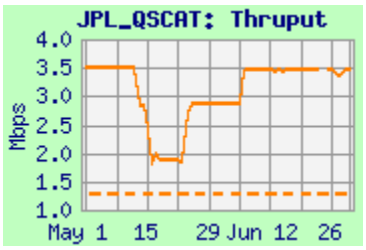
US → JAXA: DDS: Testing to DDS stopped in late May when the EDOS-Mail node was retired. It resumed on June 12 from GSFC-PTH. Performance from GSFC is limited by TCP window size and the 10 mbps Ethernet at JAXA. Thruput continued to be above the requirement, but below 3 x the requirement; so the rating remains "Good".

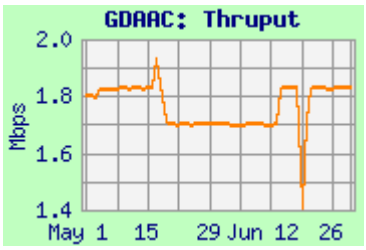
The integrated graph shows consistent user flow, well below the requirement.

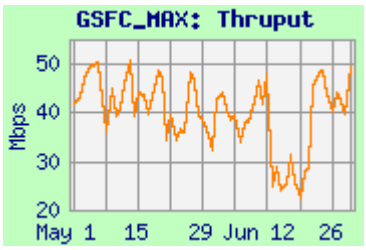


Azusa: Performance from GSFC-PTH and GSFC-ENPL to the JAXA azusa test node is not limited by a 10 mbps Ethernet, so its much higher performance more accurately shows the capability of the networks. But thruput using sftp between these same nodes is much lower, limited by ssh window size. A patch is available, but is not installed

JAXA → US: Thruput from DDS is limited by the DDS node's TCP window size and 10 mbps Ethernets (which has not yet been tuned to fully utilize the increased network capability). The thruput from JAXA to JPL was more than 30% over the requirement, but less than 3 x, so the rating remains "Good". Thruput was much higher from Azusa, with a 100 mbps Ethernet connection, and larger TCP windows..







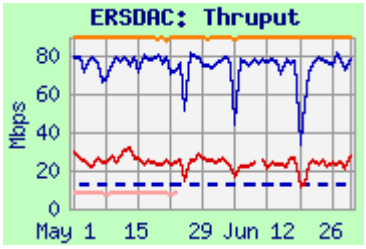
6) ERSDAC ←→ US:

Rating: Continued **Excellent**

Web Page :http://ensight.eos.nasa.gov/Organizations/production/ERSDAC.shtml

US → ERSDAC Test Results

Source → Dest	Medians of daily tests (mbps)				
	Best	Median	Worst	User Flow	Integrated
GSFC-EDOS → ERSDAC	84.3	77.4	35.5	3.6	77.6
GDAAC → ERSDAC	33.2	23.4	11.7		
GSFC ENPL (FE) → ERSDAC	89.7	89.7	80.6		

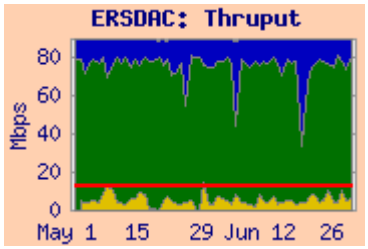


Requirements:

Source → Dest	FY	Mbps	Rating
GSFC → ERSDAC	'03 - '07	12.5	**Excellent**

Comments: Dataflow from GSFC to ERSDAC was switched to APAN in February '05, and the performance above is via that route.

Testing from EDOS to ERSDAC was switched to use a FastE interface around April 10 (was previously limited by a 10 mbps Ethernet at EDOS). This resulted in a big improvement in performance – this test is now used as the basis for the "Excellent" rating. Performance is now similar to GSFC-ENPL, but somewhat lower due to EBnet to Doors congestion.



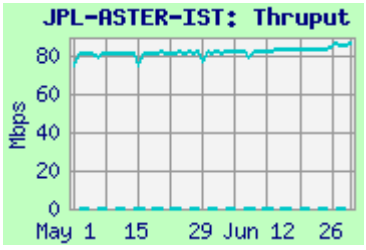
The integrated chart shows that the user flow is below the requirement, but not by a huge factor.

The thruput from GDAAC appears to be limited by packet loss at the GigE to FastE switch at Tokyo-XP. The GigE GDAAC source does not see any bottlenecks until this switch (The Abilene and APAN backbones are 10 Gbps), and thus exceeds capacity of the switch's FastE output circuit. But the FastE connected EDOS and GSFC-ENPL nodes are limited to 100 mbps by their own interfaces, so do not suffer performance degrading packet loss – and the performance is much higher.

The requirement now includes the level 0 flows which used to be sent by tapes. The thruput increased in Nov '06 (and got steadier from GSFC-ENPL at the same time). It continues to be more than 3 x this requirement, so the rating remains "Excellent".

ERSDAC → US Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ERSDAC → JPL-ASTER IST	83.7	83.4	48.5
ERSDAC → EROS	87.4	84.8	72.3

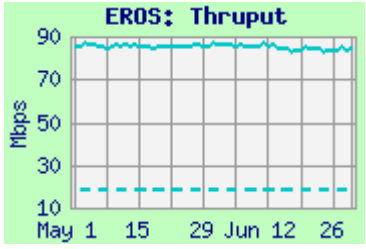


Requirements:

Source → Dest	Date	mbps	Rating
ERSDAC→ EROS	FY '06	26.8	**Excellent**

Comments:

ERSDAC → JPL-ASTER-IST: This test was initiated in March '05, via APAN replacing the EBnet circuit. The results are much higher than previously via the 1 mbps ATM circuit, and should be considered "Excellent" (no requirement is specified at this time – but other IST requirements are 311 kbps)



ERSDAC → EROS: The results from this test (in support of the ERSDAC to EROS ASTER flow, replacing tapes) were again very stable this month. Thruput improved to these present values in April '05 after the Abilene to NGIX-E connection was repaired. The median thruput is more than 3 x the requirement, so the rating remains "Excellent"

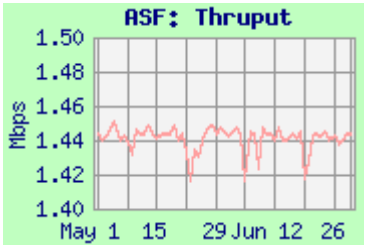
7) ASF

Rating: Continued **Excellent**

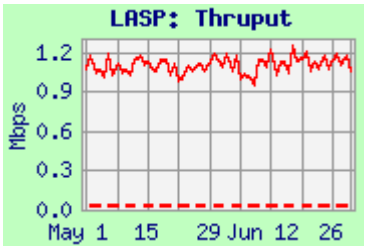
Web Page: http://ensight.eos.nasa.gov/Organizations/production/ASF.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	**Median**	**Worst**
GSFC-PTH → ASF	1.46	1.44	1.29
ASF → LASP	1.33	1.11	0.42



Comments: **GSFC to ASF**: Testing to ASF transitioned to IOnet in April '06. Performance to ASF has been consistent with the T1 (1.5 mbps) circuit capacity. Testing was switched to GSFC-PTH in March '07, with very similar results to CSAFS.



ASF to LASP: Performance was stable, also limited primarily by the ASF T1; the rating remains "Excellent".

Requirements:

Source → Dest	Date	kbps	Rating
ASF→ LASP	FY '07	24	**Excellent**

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8) Other SIPS Sites:

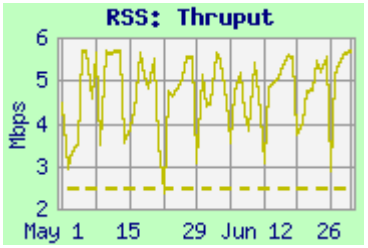
Web Pages http://ensight.eos.nasa.gov/Missions/aqua/RSS.shtml
http://ensight.eos.nasa.gov/Missions/aura/KNMI_OMIPDR.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)				
	Best	**Median**	**Worst**	**Requirement**	**Rating**
JPL → RSS	5.7	5.0	2.4	2.4	Continued **Good**
OMISIPS → KNMI-ODPS	19.0	18.9	15.3	3.3	Continued **Excellent**

Comments:

8.1 RSS: RSS (Santa Rosa, CA) is a SIPS for AMSR-E (Aqua), receiving data from JPL, and sending its processed results to GHRC (aka NSSTC) (Huntsville, AL). The NISN dedicated circuit from JPL to RSS was upgraded in August '05 from 2 T1s (3 mbps) to 4 T1s (6 mbps) to accommodate the larger RSS to GHCC flow. This month the thruput was again noisy but mostly stable. Periods of low performance are believed to be attributable to correspondingly high user flow. User flow data remains unavailable on this circuit. The median iperf thruput remains more than 30% above the requirement, so the rating remains "Good".



Note that with the present configuration (passive servers at both RSS and GHRC), the RSS to GHRC performance cannot be tested.

8.2 KNMI: KNMI (DeBilt, Netherlands) is a SIPS and QA site for OMI (Aura). The route from GSFC is via MAX to Internet2, peering in DC with Geant's 10Gbps circuit Frankfurt, then Surfnet via Amsterdam. The rating is now based on the results from OMISIPS at GSFC to the ODPS primary server, protected by a firewall. This was quite a bit lower than previously to the KNMI Backup server, which was outside the firewall. Thruput remains well above 3 x the requirement, rating "Excellent". The user flow averaged 3.5 mbps in June (extremely close to the requirement!), and appeared as a regular series of bursts, as shown on the integrated graph.