

EOS Production Sites Network Performance Report

This is a monthly summary of EOS network performance testing between production sites for April 2008 -- comparing the measured performance against the requirements.

Highlights:

- **Mostly stable flows with continued congestion at GSFC**
 - GPA 3.42 (Last month: 3.47)
- **Only 1 flow below “Adequate”**
 - **GSFC MODAPS-PDR to EROS (“Low”)**
 - Due to EBnet to Doors congestion at GSFC
- **Bottlenecks:**
 - GSFC: EBnet to Doors Gig-E
- Significant improvements are noted in Green, problems in Red, and comments in Blue.

Ratings Changes: (See site discussion below for details)

Upgrades: ↑: None

Downgrades: ↓:

JPL → RSS: Good → Adequate

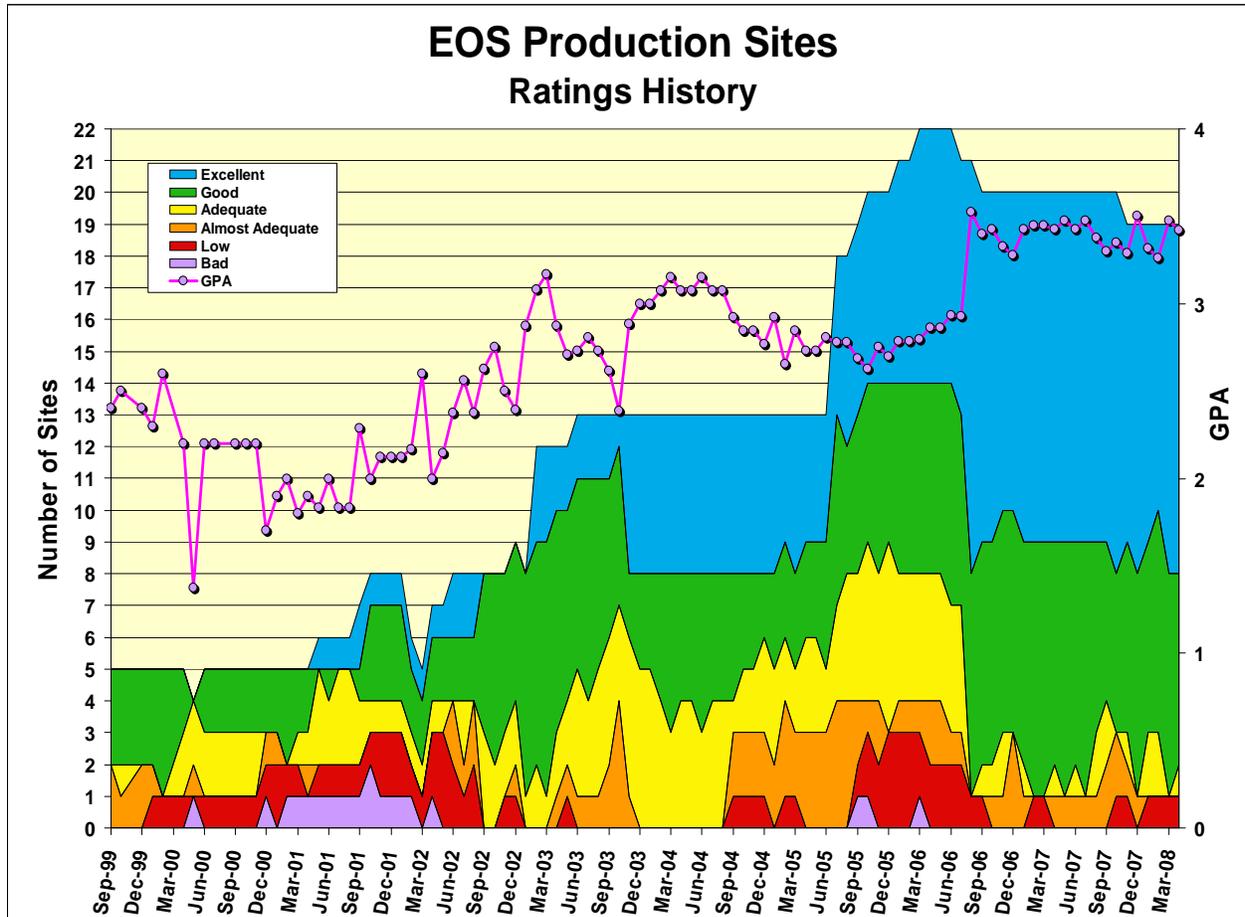
Testing Down X:

ASF → LASP, GSFC → ASF (ASF IOnet node is still not available)

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



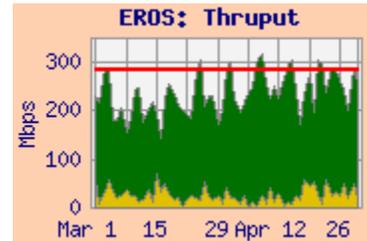
The chart above shows the number of sites in each classification since EOS Production Site testing started in September 1999. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements.

Requirements Basis:

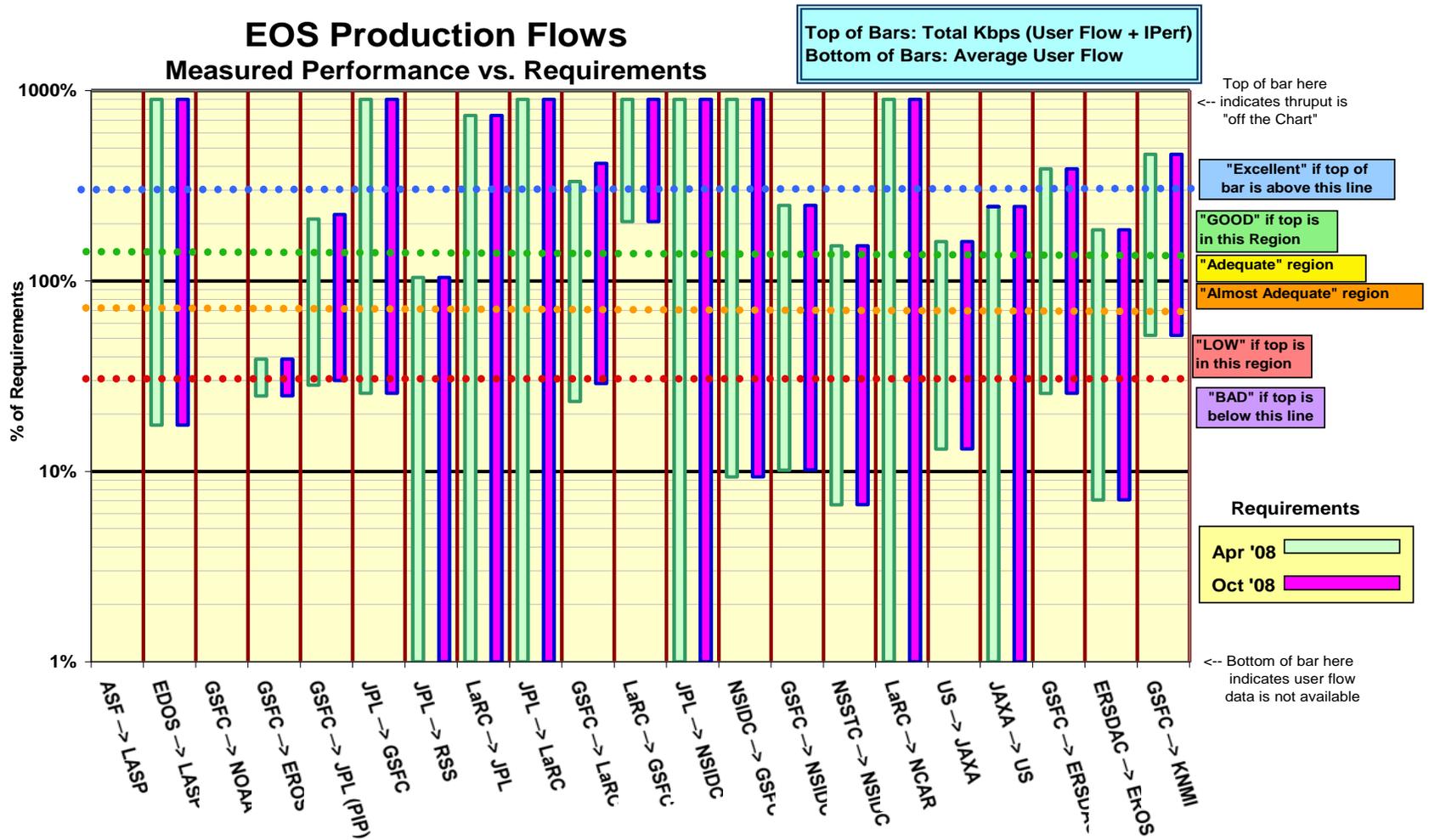
- April '08 Revisions
 - Reduced GEOS Flows
 - Increased MODIS reprocessing
- December '03 requirements from BAH.
 - Updated to handbook 1.4.1 (3/22/06)
- Additional Updates Incorporated:
 - New AIRS reprocessing flows (8/06)
 - GEOS requirements – Flows began in Nov '06
 - All LaRC-GSFC “Backhaul” Requirements removed
 - Extension of TRMM, QuikScat missions

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 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.



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 (April and October '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 generally include a 50% contingency factor above what was specified by the projects, so a value of 66% (dotted orange line) would indicate that the project is flowing as much data as requested. The top of each bar represents the integrated measurement, combining the user flow with Iperf measurements – this value is used to determine the ratings.

1) EROS:

Ratings: GSFC → EROS: Continued **Low**
 ERSDAC → EROS: Continued **Good**

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)			User Flow	Integrated
	Best	Median	Worst		
MODAPS-PDR → EROS LPDAAC	175.2	73.2	21.7	86.2	134.4
GSFC-DAAC → EROS LPDAAC	199.3	75.3	34.1		
ERSDAC → EROS LPDAAC	77.1	49.8	10.8	1.9	49.8
GSFC-EBnet-PTH → EROS PTH	321.3	85.9	34.3		
GSFC-ENPL → EROS PTH	480.5	369.5	260.1		
NSIDC → EROS	64.5	62.2	59.4		
LaRC → EROS	93.0	93.0	92.5		

Requirements:

Source → Dest	Date	mbps	Rating
GSFC → EROS	CY '08-11	346	Low
ERSDAC → EROS	FY '06 - '08	26.8	Good

Comments:

GSFC → EROS: The rating is based on the MODAPS-PDR Server to EROS LP DAAC measurement (Results are very similar to GES DAAC). The route is via NISN SIP, on the NISN OC-48 (2.5 gbps) backbone, to the NISN Chicago CIEF, then via GigE to StarLight, peering with the EROS OC-12 (622 mbps).

The requirement was increased last month (was 285 mbps previously), to allow additional MODIS reprocessing, which was partially mitigated by the compression used in MODIS collection 5. The user flow this month was about the same as last month, and remains far below the nominal requirement.

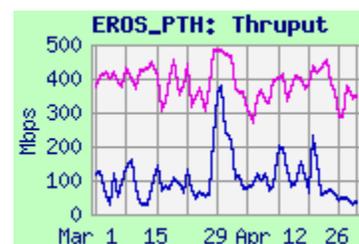
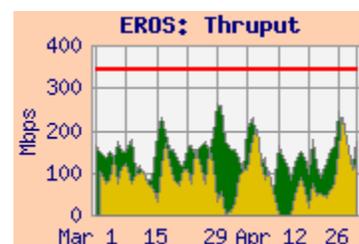
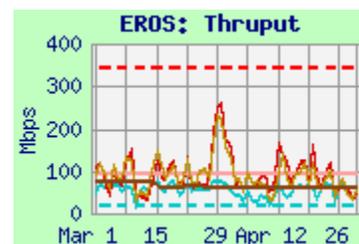
The performance is predominantly limited by congestion on the EBnet to Doors Gig-E circuit at GSFC, as shown by the large best:worst ratio seen from the GDAAC, MODAPS, and GSFC-PTH hosts. The performance is about the same as month, and remains more than 30% below the requirement so the rating remains "Low".

The GSFC-ENPL host has a direct connection to the MAX, bypassing the congested EBnet to Doors Gig-E circuit, and using the previous Internet2 route. It does not experience similar congestion to the DAAC. Performance from ENPL is much higher (peak performance is 2.4x over MODAPS, but the daily worst is better by a factor of more than 10:1), and would be rated "Good".

ERSDAC → EROS: Performance was very steady this month. See section 7 (ERSDAC) for the graph and further discussion of this performance.

NSIDC → EROS: The median thrupt from NSIDC-SIDADS to EROS-PTH was quite stable this month

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



2) to GSFC

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

Web Pages:

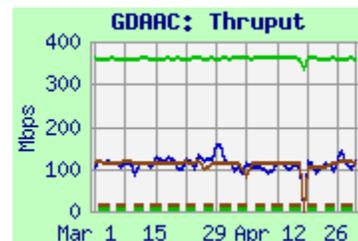
- <http://ensight.eos.nasa.gov/Organizations/production/GDAAC.shtml>
- http://ensight.eos.nasa.gov/Organizations/production/GSFC_PTH.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	Integrated
	Best	Median	Worst		
EROS LPDAAC → GSFC DAAC	129.0	104.0	68.7		
EROS PTH → GSFC PTH	455.5	424.0	378.8		
JPL-PTH → GSFC PTH	66.0	65.6	24.5	1.9	
LDAAC → GDAAC	370.1	360.5	322.0	0.4	360.5
LARC-ANGe → GSFC-PTH	373.8	341.3	284.6		
NSIDC DAAC → GSFC-DAAC	115.3	114.0	89.0	.045	
NSIDC → GSFC-ECHO (ftp)	5.6	5.4	4.3		

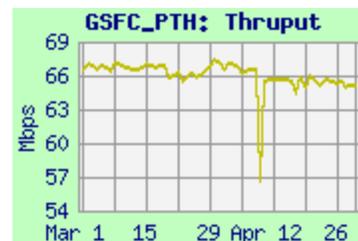
Requirements:

Source → Dest	Date	Mbps	Rating
NSIDC → GSFC	CY '06 – '08	13.3	Excellent
LDAAC → GDAAC	FY '07 – '08	0.2	Excellent
JPL → GSFC combined	CY '06-09	7.4	Excellent



EROS → GSFC: The thrupt 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 most of the WAN capability (compared to the EROS-PTH to GSFC-PTH results).

JPL → GSFC: Thrupt was stable at 65 mbps this month (but has been bimodal at either 65 or 90 mbps, since 2007 (thrupt from JPL-PTH to LaRC-PTH is similarly bimodal). With the modest requirement, the rating remains “Excellent”.



LaRC → GSFC: Performance from LDAAC → GDAAC improved with retuning in November, and remained much more than 3 x the modest requirement, so the rating continues as “Excellent”. The user flow decreased from 2.2 mbps last month.

NSIDC → GSFC: Performance from NSIDC to GSFC was steady this month; with the low requirement the rating remains “Excellent”. The user flow on this path is now measured – it again averaged under 100 kbps.

3) JPL:

3.1) GSFC → JPL:

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/Missions/aura/JPL_MLS.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	Medians of daily tests (mbps)			User Flow	Integrated
	Best	Median	Worst		
GSFC-PTH → JPL-AIRS	273.2	97.0	39.8	13.1	97.4
GSFC-DAAC → JPL-AIRS	122.4	80.9	44.0		
GSFC-PTH → JPL-PODAAC	176.1	55.9	20.6		
GSFC-PTH → JPL-QSCAT	90.6	41.5	14.3		
GSFC-PTH → JPL-MLS	132.2	19.1	5.7		
GSFC-NISN → JPL-MLS	105.7	90.5	48.5		

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → JPL Combined	Jan-May '08	43.6	Good
GSFC → JPL AIRS	Jan-May '09	35.2	Good
GSFC → JPL MLS	Jan-May '08	5.9	Excellent
GSFC → JPL PODAAC	Jan-May '11	1.5	Excellent
GSFC → JPL QSCAT	Jan-May '11	1.0	Excellent

Comments: The GSFC to JPL combined requirement was reduced this month (effective Jan 1 '08), due mostly to revision of the GEOS 5 flows (the requirement was 113 mbps previously). The rating upgrade last month is substantially due to this requirements decrease – the measured performance was mostly consistent.

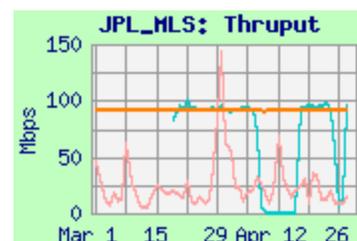
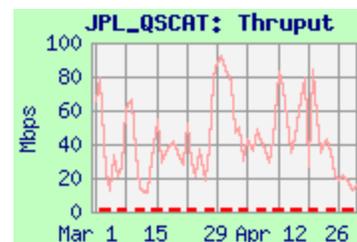
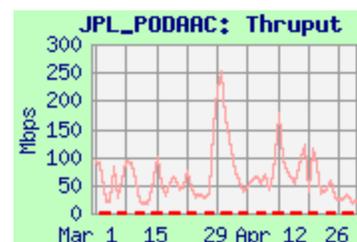
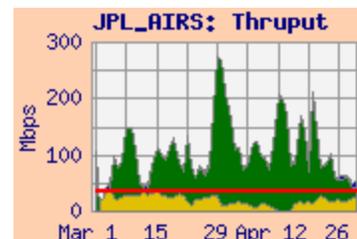
The EBnet to Doors congestion at GSFC is the bottleneck for these flows, and creates large variations in performance (After the NISN to JPL campus connection upgrade to Gig E in September '07). The user flow from GSFC/EOS was lower than last month (23.2 mbps), below the requirement without contingency.

AIRS, Overall: Median thrupt is between 2x and 3x the AIRS requirement; the rating is “Good”. The JPL overall rating is based on this test compared with the sum of all the GSFC to JPL requirements – the overall rating is also “Good”

PODAAC: Thrupt peaks are now well over 100 mbps. Median thrupt is much lower, due to the increased congestion at GSFC. The GSFC-PODAAC requirement (for MODIS data) is only 1.5 mbps, rating “Excellent”

QSCAT: The median thrupt from GSFC-PTH now peaks close to 100 mbps – limited by a Fast-E connection at QSCAT, and congestion at GSFC. The QSCAT requirement is only 1.3 mbps, rating “Excellent”.

MLS: The GSFC-MLS 7.4 mbps requirement is for MLS and GEOS flow, and was reduced last month. Thrupt from GSFC-PTH improved from 17.1 mbps last month; this is slightly above 3 x the requirement, so the rating improves to “Excellent”.. Testing from GSFC-NISN was added in March to avoid the EBnet congestion seen from GSFC-PTH. Although there were problems with the GSFC-NISN node, the median and daily worst were much higher than from GSFC-PTH.



3.2) LaRC ↔ JPL

Ratings: LaRC → JPL: Continued **Excellent**
 JPL → LaRC: Continued **Excellent**

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	321.4	319.7	217.7
LaRC PTH → JPL-TES	91.3	91.2	91.2
LaRC PTH → JPL-TES sftp	3.5	3.5	3.4
LaRC PTH → JPL-PTH sftp	33.5	33.5	33.3
LaRC DAAC → JPL-MISR	75.3	58.2	28.6
JPL-PTH → LaRC PTH	62.9	62.8	61.5

Requirements:

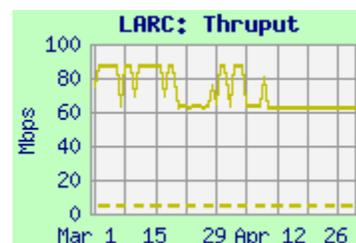
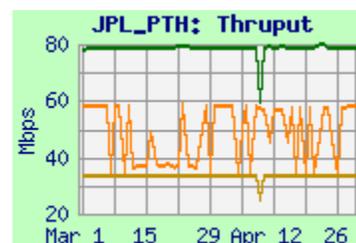
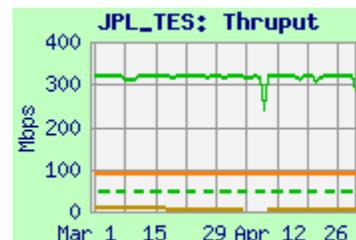
Source → Dest	Date	Mbps	Rating
LaRC DAAC → JPL-TES	FY '07 – '08	29.8	Excellent
LaRC DAAC → JPL-MISR	FY '07 – '08	18.5	Excellent
LaRC → JPL-Combined	FY '07 – '08	45.8	Excellent
JPL → LaRC	FY '07 – '08	4.4	Excellent

Comments: LDAAC was moved to campus address space in March '07. User flow data is no longer available from LaRC (has been requested but not implemented). Thus no integrated graphs are available from LaRC.

LaRC → JPL (Overall, TES): Performance for most tests improved and stabilized in Sept. '07 with the NISN to JPL Ethernet upgrade, and the ratings improved at that time. Median performance from LDAAC to JPL-TES was over 3 x the TES and combined requirements, so the TES and Overall ratings remain "Excellent". The TES system was upgraded in late February '08; the window size and sftp performance increased with that upgrade – but declined again in mid-March due to TCP window limitations. Sftp results are much better from LaRC-PTH to JPL-PTH which has been patched to increase this window size.

LaRC → JPL (MISR): Median throughput was again noisy; the rating remains "Excellent".

JPL → LaRC: This requirement is primarily for TES products produced at the TES SIPS at JPL, being returned to LaRC for archiving. Throughput was again bimodal (along with other JPL-PTH flows). The requirement was reduced last month from 52.6 mbps previously, so the rating improved to "Excellent" at that time.



3.3) JPL ASTER IST: Performance from ERSDAC to the JPL-ASTER-IST is now shown in section 7 (ERSDAC).

4) Boulder CO:

4.1) GSFC → NSIDC:

 Ratings: GSFC → NSIDC: Continued **Good**

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

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	Integrated
	Best	Median	Worst		
MODAPS → NSIDC-DAAC	88.6	85.8	56.9	3.5	86.0
GSFC-DAAC → NSIDC-DAAC	98.2	45.9	15.9		
GSFC-ENPL → NSIDC_u	114.4	106.3	56.8		
GSFC-ISIPS → NSIDC (iperf)	55.7	29.2	11.2		
GSFC-ISIPS → NSIDC (ftp)	19.5	8.6	3.0		

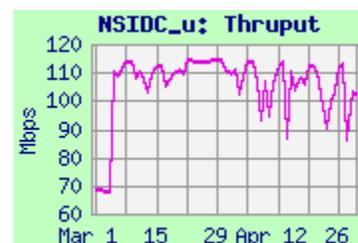
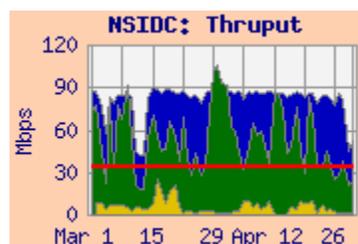
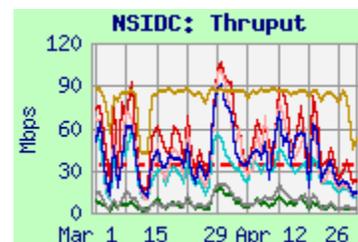
Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → NSIDC	CY '07 – '08	34.5	Good

Comments: GSFC → NSIDC: This rating is based on testing from the MODAPS PDR server to the NSIDC DAAC via NISN PIP, since this is the primary production flow. The thrupt values were mostly stable this month, but were noisy, due to congestion at GSFC. The requirement was reduced last month (was 64 mbps previously) due to the use of compression in MODIS collection 5. The Integrated thrupt is above this lower requirement, by more than 30%, so the rating remains "Good". Note that the integrated graph shows that the user flow remains **MUCH lower**, even than the reduced requirement.

GSFC → NSIDC_u via Internet2: Results via Internet2 are now also shown above, in the interest of possibly switching the production flows from PIP to Internet2. Thrupt on this path was steady and above the requirement. This testing was returned in March, with improved results. So from a performance viewpoint, it appears that this is a viable option.

GSFC-ISIPS ← → NSIDC: Testing was returned in December, and has been stable since then, subject to the EBnet congestion at GSFC. FTP thrupt was much lower than iperf due to TCP window size limitations.



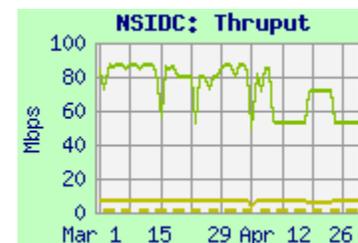
4.2) JPL → NSIDC:

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

Test Results:

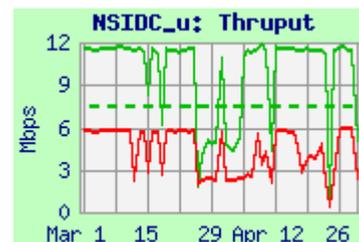
Source → Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
JPL PTH → NSIDC-PTH	72.2	53.6	24.8	1.34
JPL PODAAC → NSIDC	7.0	6.6	4.9	

Comments: The test from JPL-PTH to NSIDC-SIDADS more fully assesses the true network capability – the thrupt is much higher than from PODAAC. Thrupt from JPL-PTH is bimodal -- much like the JPL-PTH to GSFC and LaRC results. Thrupt from PODAAC to NSIDC-SIDADS was much lower but stable. User flow is now measured on this path: only about 2.4 kbps this month! (Or maybe the flows are going via Internet2?) The rating remains "Excellent".



4.3) GHRC → NSIDC:Ratings: GHRC → NSIDC: Continued **Good**Web Pages: http://ensight.eos.nasa.gov/Missions/aqua/NSIDC_u.shtml**Test Results:**

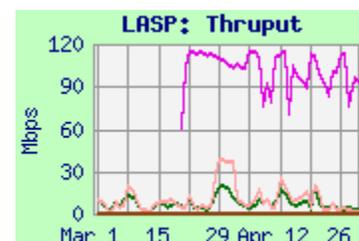
Source → Dest	Medians of daily tests (mbps)			
	Best	Median	Worst	Req.
GHRC → NSIDC DAAC (iperf)	12.2	11.4	1.5	7.5
GHRC → NSIDC DAAC (ftp)	5.8	3.8	1.1	



Comments: GHRC (NSSTC, UAH, Huntsville, AL) sends AMSR-E L2/L3 data to NSIDC via Internet2. The thruput was noisy this month, but the median remains more than 30 % over the requirement, so is rated "Good". The user flow averaged only 525 kbps this month, below 10% of the requirement.

4.4) LASP:Ratings: GSFC → 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	n/a	n/a	n/a	0.024
GSFC EDOS → LASP	21.6	6.6	1.9	0.4
GSFC PTH → LASP (iperf)	35.4	7.9	1.8	
GSFC ENPL → LASP	114.3	101.5	41.6	
GSFC PTH → LASP (sftp)	0.46	0.45	0.42	

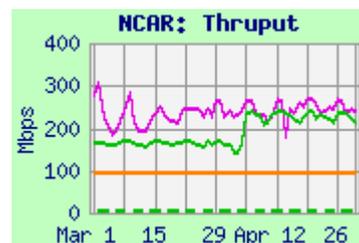


Comments: **ASF → LASP:** Testing from ASF remains down since October '07, when the ASF IOnet test node stopped working, due to reconfiguration at ASF.

GSFC → LASP: Iperf thruput is very noisy (note the 20:1 ratio in best to worst from GSFC-PTH). This is attributed to EBnet congestion at GSFC, but is well above the requirement, so the rating continues "Excellent". Sftp thruput is steady but MUCH lower than iperf, due to window size limitations -- a patch is available. In March, an additional test was initiated from GSFC-ENPL via Internet2, avoiding the EBnet congestion at GSFC and the IOnet circuit. Its performance is much higher and steadier. The user flow on IOnet averaged 71 kbps this month, a bit lower than recent months.

4.5) NCAR:Ratings: LaRC → NCAR: Continued **Excellent**
GSFC → NCAR: Continued **Excellent**Web Pages: <http://ensight.eos.nasa.gov/Missions/terra/NCAR.shtml>**Test Results:**

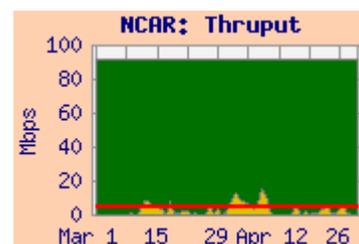
Source → Dest	Medians of daily tests (mbps)			
	Best	Median	Worst	Requirement
LaRC → NCAR	238.0	227.9	85.2	5.4
GSFC → NCAR	92.2	92.1	89.7	5.1
GSFC-ENPL → NCAR	266.9	242.6	133.6	



Comments: NCAR (Boulder, CO) is a SIPS for MOPITT (Terra, from LaRC), and has MOPITT and HIRDLS QA (Aura, from GSFC) requirements. Thruput from LaRC improved in April with NCAR's use of NLR instead of Internet2 for the return path, reducing the RTT. It is well above 3 x the requirement, so the rating remains "Excellent".

From GSFC the median thruput is very steady, and also well over 3 x the requirement, so that rating also remains "Excellent". Thruput from ENPL, with a Gig-E connection to MAX, is much higher.

The Integrated graph shows that the peak user flow from GSFC is usually consistent with the stated requirement. The average user flow this month was about 1.6 mbps (vs 1.9 mbps last month).



5) GSFC → LaRC:Ratings: GSFC → LaRC: 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)			User Flow	Integrated
	Best	Median	Worst		
GDAAC → LDAAC	329.2	199.9	112.2	14.1	202.0
GSFC-EDOS → LDAAC	207.4	47.9	14.2		
GSFC-PTH → LaRC-PTH	91.8	75.1	40.9		
GSFC-NISN → LaTIS	389.8	320.9	206.4		
GSFC-PTH → LaRC-ANGe	395.6	288.3	160.2		

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → LARC (Combined)	CY '08	60.5	Excellent

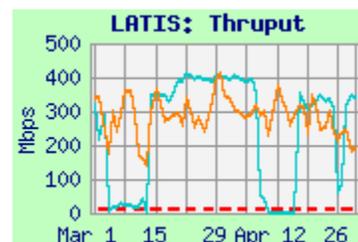
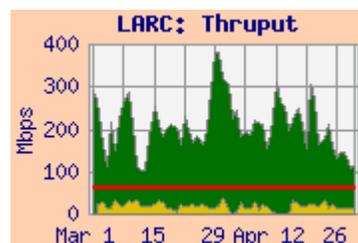
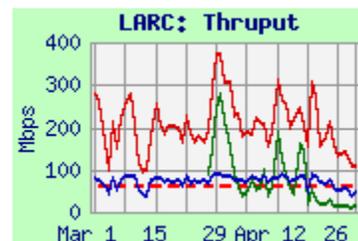
Comments:

GSFC → LaRC: The requirement was reduced last month (effective from January '08) due to decreased GEOS flows (was 86.9 mbps previously). The rating is based on the GDAAC to LaRC ASDC DAAC thruput, compared to this combined requirement. The integrated thruput remains ABOVE 3 x this decreased requirement, so the rating remains "Excellent".

Testing was added in late March from EDOS – its performance is similar to GDAAC, but even noisier, due to additional firewalls to traverse. Note: the lower thruput (around 90 mbps) to LaRC-PTH is limited by its 100 mbps LAN connection. **The large difference between the daily best, median, and average values is attributed to congestion at GSFC.**

The 14.1 mbps average user flow was a bit lower than last month's 21.4 mbps. The integrated graph shows that user flow was fairly steady. **Significant GEOS flows are apparently still NOT occurring at this time.**

LaTIS: The thruput to LaTIS via PIP (from GSFC-PTH) was again noisy but mostly stable this month. The GSFC-NISN test node developed problems again in mid April, so those results are only somewhat meaningful at this time.



6) US ↔ JAXA:

Ratings: US → JAXA: Continued **Good**
 JAXA → US: 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)			User Flow	Integrated
	Best	Median	Worst		
GSFC-PTH → JAXA-DDS	3.94	3.16	2.16	0.26	3.20
GSFC-ENPL → JAXA-azusa	73.3	66.3	41.6		
GSFC-PTH → JAXA-azusa	38.9	18.1	6.7		
GSFC-PTH → JAXA (sftp)	0.82	0.78	0.64		
JAXA-DDS → JPL-QSCAT	3.20	3.15	3.08		
JAXA-DDS → GSFC-DAAC	1.08	1.07	1.07		
JAXA-azusa → GSFC-MAX	85.9	85.6	29.2		

Requirements:

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

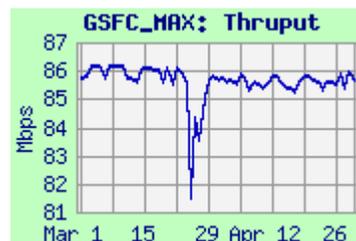
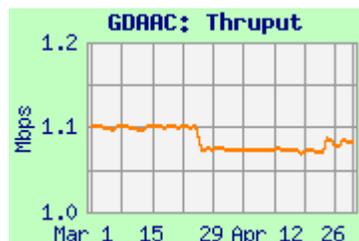
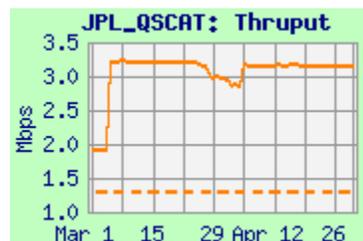
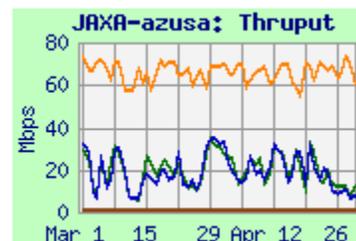
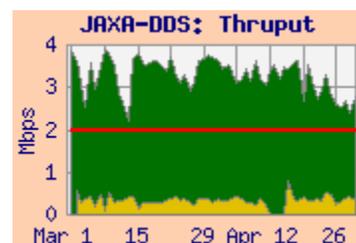
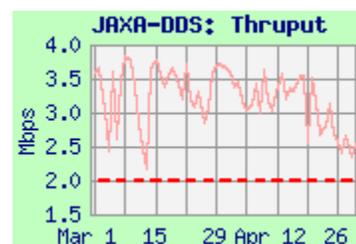
Comments:

US → JAXA: DDS: Performance from GSFC is limited by TCP window size and the 10 mbps Ethernet at JAXA. Performance was mostly stable this month, but subject to the EBnet to Doors congestion at GSFC. Thruput was above the requirement, but by less than 3x; so the rating remains “Good”.

The integrated graph shows fairly consistent user flow, averaging about 13% of the requirement (or 20% of the requirement without the contingency).

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. The lower value from GSFC-PTH is due to EBnet congestion, not seen from GSFC-ENPL. 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 to JPL and GSFC is limited by the DDS node's TCP window size (which has not yet been tuned to fully utilize the increased network capability) and its 10 mbps Ethernet. Average thruput from JAXA to JPL was above the requirement by more than 30%, so the rating remains “Good”. Thruput was much higher from Azusa to GSFC, with a 100 mbps Ethernet connection, and larger TCP windows.



7) ERSDAC ↔ US:

Rating: GSFC → ERSDAC: Continued **Excellent**
 ERSDAC → EROS: Continued **Good**

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

US → ERSDAC Test Results

Source → Dest	Medians of daily tests (mbps)			User Flow	Integrated
	Best	Median	Worst		
GSFC-EDOS → ERSDAC	82.7	47.1	18.8	3.2	48.3
GDAAC → ERSDAC	26.2	20.6	10.2		
GSFC ENPL (FE) → ERSDAC	88.5	88.4	74.1		

Requirements:

Source → Dest	FY	Mbps	Rating
GSFC → ERSDAC	'05 - '08	12.5	Excellent

Comments: Dataflow from GSFC to ERSDAC has been via APAN since February '05.

Testing from EDOS to ERSDAC was switched to use a FastE interface in April '07 – this test is now used as the basis for the “Excellent” rating. Peak performance is now similar to GSFC-ENPL, but the median and daily worst values are lower due to EBnet to Doors congestion. The integrated chart shows that the user flow continues to be below the requirement, by about a 4:1 factor.

The thrupt from GDAAC to ERSDAC 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 Internet2 and APAN backbones are 10 Gbps), and thus exceed the 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 includes the level 0 flows which used to be sent by tapes. The thrupt 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	89.9	89.7	62.4
ERSDAC → EROS	77.1	49.8	10.8

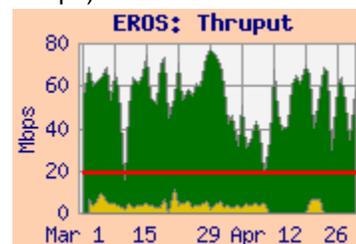
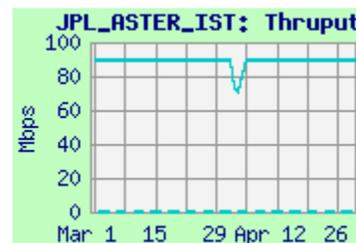
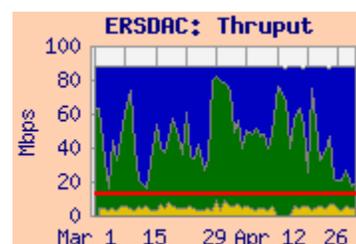
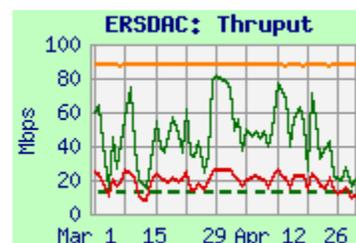
Requirements:

Source → Dest	Date	mbps	Rating
ERSDAC → EROS	FY '07- '08	26.8	Good

Comments:

ERSDAC → JPL-ASTER-IST: This performance this month was less noisy than recent months, and must be well in excess of the [unstated] requirement (IST requirements are generally 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. Thrupt improved to this present values in April '05. The median thrupt is a bit below 3 x the requirement, so the rating remains “Good”. This user flow averaged only 1.9 mbps in April, below the 4.5 mbps in March, and well below the requirement.



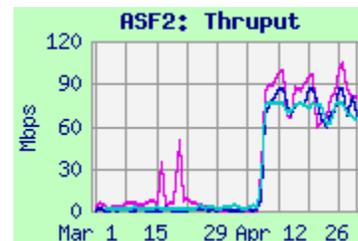
8) ASF

Ratings: IOnet: **X** Discontinued
 WSC → ASF: n/a

Web Page: <http://ensight.eos.nasa.gov/Organizations/production/ASF2.shtml>

Test Results:

Source	Medians of daily tests (mbps)		
	Best	Median	Worst
WSC	77.3	70.9	26.3
GSFC	113.3	80.9	30.2
JAXA	86.5	70.2	25.3



Comments: IOnet: The ASF IOnet host and firewall was reconfigured in October '07, and all IOnet testing stopped at that time.

WSC to ASF: Testing was started in January from White Sands (WSC) to ASF for the ALOS mission. The route is from WSC via NISN SIP, peering with Internet2 at one of several possible peering points. Internet2 connects to the “Pacific Northwest Gigapop” (PNW) in Seattle. From there the University of Alaska – Fairbanks (UAF) has a dedicated OC-3 circuit to campus, then via campus LAN to the Alaska Satellite Facility (ASF). There is no firm requirement at this time, but it has been estimated at about 20 mbps.

Performance improved dramatically in early April, with an upgrade to the Ethernet driver on the ASF test machine. If the 20 mbps requirement is correct, the rating would be “Excellent”

9) Other SIPS Sites:

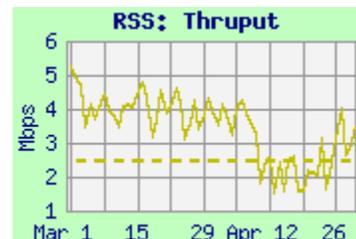
Web Pages <http://ensight.eos.nasa.gov/Missions/aqua/RSS.shtml>
http://ensight.eos.nasa.gov/Missions/aura/KNMI_OMIPDR.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			Reqmt	Rating
	Best	Median	Worst		
JPL → RSS	5.0	2.6	0.9	2.4	↓ Good → Adequate
OMISIPS → KNMI-ODPS	17.9	14.9	10.3	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) (UAH, Huntsville, AL). This month the thrupt from JPL remained noisy. 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 thrupt remains above the requirement, but by less than 30% this month, so the rating drops to “Adequate”.



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 Géant’s 10gbps circuit to Frankfurt, then via Surfnet through Amsterdam. The rating is based on the results from OMISIPS at GSFC to the ODPS primary server, protected by a firewall, and remains “Excellent”. The user flow averaged only 1.7 mbps in April, about normal for recent months, and consistent with the requirement, as shown on the integrated graph.

