

EOS Production Sites Network Performance Report

This is a monthly summary of EOS network performance testing between production sites for September 2006 -- comparing the measured performance against the requirements.

Highlights:

- Circuit switch to EROS – performance improvement
- **Testing to NOAA discontinued** – looking for replacement test node
- Requirements Basis:
 - December '03 requirements from BAH.
 - Updated to handbook 1.4.1 (3/22/06)
 - **Changes this month**
 - JPL:
 - Incorporated new AIRS Flows (8/06)
 - JAXA and ASF flows no longer through JPL
 - GSFC ← → LaRC:
 - Incorporated GEOS requirements
 - Removed all “Backhaul” Requirements
 - JAXA: Incorporated extension of TRMM, QuikScat missions
- Significant changes in testing are indicated in Blue, **Problems in Red**

Ratings:

Rating 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 Changes:

Upgrade: ↑: GSFC → EROS: Low → **Adequate**

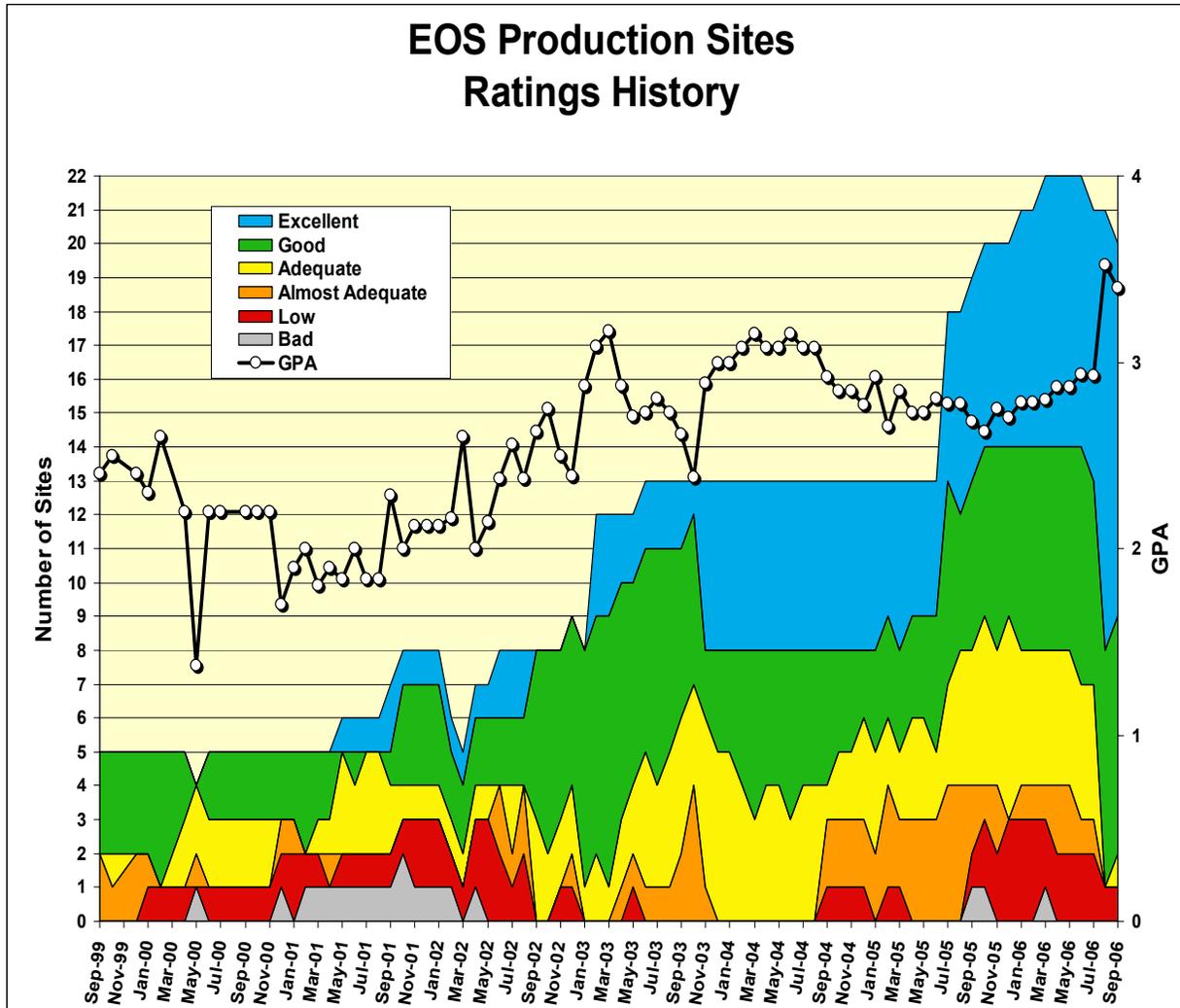
Downgrades: ↓ :

JPL → RSS: Good → **Low**

US → JAXA: Excellent → **Good**

Testing Discontinued: NOAA NESDIS

(See site discussion below for details)



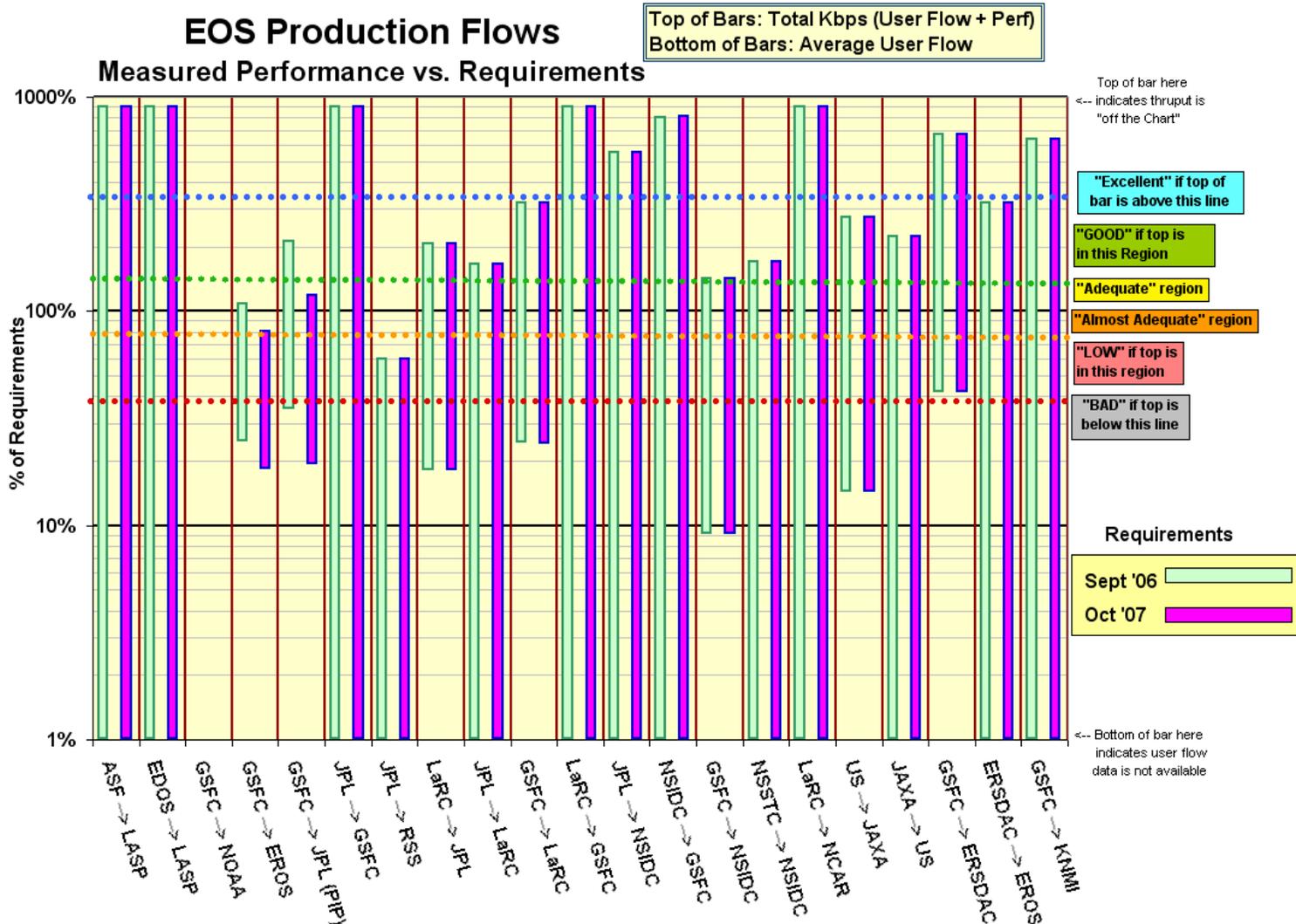
The chart above shows the number of sites in each classification since EOS Production Site testing started in September 1999. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements.

Note: Drop in sites tested this month (from 21 to 20) is due to discontinuation of testing to NOAA test node.

Network Requirements vs. Measured Performance

September 2006		Requirements (mbps)		Testing					Ratings		
Source → Destination	Team (s)	Current	Future	Source → Dest Nodes	Avg User Flow mbps	iperf Avg mbps	Total Avg mbps	Integrated mbps	Rating re Current Requirements		Rating re
		Sep-06	Oct-07						Sep-06	Last Month	Oct-07
GSFC → ASF	QuikScat, Radarsat	n/a	n/a	GSFC-CSAFS → ASF	n/a	1.44	1.44		n/a	n/a	n/a
ASF → LASP	QuikScat	0.02	0.02	ASF → LASP [via IOnet]	n/a	1.07	1.07		Excellent	E	Excellent
EDOS → LASP	ICESat, QuikScat	0.4	0.4	EDOS → LASP [via IOnet]	n/a	11.4	11.4		Excellent	E	Excellent
GSFC → NOAA	QuikScat	0.2	0.0	n/a	n/a	n/a	n/a		n/a	E	n/a
GSFC → EROS	MODIS, LandSat	285.4	383.9	GSFC-PTH → EROS PTH	70.2	293.6	363.8	310.5	Adequate	L	AA
GSFC → JPL (PIP)	AIRS, ISTs	22.2	40.1	GDAAC → JPL-AIRS	7.7	47.2	54.9	47.5	GOOD	G	Adequate
JPL → GSFC	AMSR-E, MISR, etc.	7.4	7.4	JPL-PTH → GSFC-PTH	n/a	89.1	89.1		Excellent	E	Excellent
JPL → RSS	AMSR-E	2.5	2.5	JPL-PODAAC → RSS	n/a	1.49	1.49		LOW	G	LOW
LaRC → JPL	TES, MISR	39.6	39.6	LARC-DAAC → JPL-TES	7.2	81.4	88.6	81.5	GOOD	G	GOOD
JPL → LaRC	TES	52.6	52.6	JPL-PTH → LARC-PTH	n/a	87.5	87.5		GOOD	G	GOOD
GSFC → LaRC	CERES, MISR, MOPITT	66.3	66.4	GDAAC → LDAAC	16.0	206.1	222.1	213.7	Excellent	E	Excellent
LaRC → GSFC	MODIS, TES	0.2	0.2	LDAAC → GDAAC	n/a	176.8	176.8		Excellent	E	Excellent
JPL → NSIDC	AMSR-E	1.3	1.3	JPL-PODAAC → NSIDC SIDADS	n/a	7.44	7.44		Excellent	E	Excellent
NSIDC → GSFC	MODIS, ICESAT, QuikScat	13.3	13.2	NSIDC DAAC → GDAAC	0.1	107.3	107.3	107.3	Excellent	E	Excellent
GSFC → NSIDC	MODIS, ICESAT, QuikScat	64.1	64.1	GDAAC → NSIDC-DAAC	5.8	91.0	96.8	91.8	GOOD	G	GOOD
NSSTC → NSIDC	AMSR-E	7.5	7.5	NSSTC → NSIDC DAAC	n/a	12.7	12.7		GOOD	G	GOOD
LaRC → NCAR	HIRDLS	5.4	5.4	LDAAC → NCAR	n/a	82.2	82.2		Excellent	E	Excellent
US → JAXA	QuikScat, TRMM, AMSR	2.0	2.0	GSFC-CSAFS → JAXA DDS	0.29	5.44	5.73	5.45	GOOD	E	GOOD
JAXA → US	AMSR-E	1.3	1.3	JAXA DDS → JPL-QSCAT	n/a	2.86	2.86		GOOD	G	GOOD
GSFC → ERSDAC	ASTER	12.5	12.5	ENPL-PTH → ERSDAC	5.2	83.7	88.9	83.7	Excellent	E	Excellent
ERSDAC → EROS	ASTER	26.8	26.8	ERSDAC → EROS PTH	n/a	86.6	86.6		Excellent	E	Excellent
GSFC → KNMI	OMI	3.3	3.3	GSFC-MAX → OMI-PDR	n/a	20.8	20.8		Excellent	E	Excellent
Notes: Flow Requirements include TRMM, Terra, Aqua, Aura, ICESAT, QuikScat					Ratings Summary						
									Sep-06	Req	Oct-07
									Score	Prev	Score
*Criteria:	Excellent	Total Kbps > Requirement * 3			Excellent				11	13	11
	GOOD	1.3 * Requirement <= Total Kbps < Requirement * 3			GOOD				7	7	6
	Adequate	Requirement < Total Kbps < Requirement * 1.3			Adequate				1	0	1
	Almost Adequate	Requirement / 1.3 < Total Kbps < Requirement			Almost Adequate				0	0	1
	LOW	Requirement / 3 < Total Kbps < Requirement / 1.3			LOW				1	1	1
	BAD	Total Kbps < Requirement / 3			BAD				0	0	0
					Total				20	21	20
					GPA				3.40	3.52	3.33

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 (September '06 and October '07). 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: ↑ Low → **Adequate**
 ERSDAC → EROS: Continued **Excellent**

Web Page: <http://ensight.eos.nasa.gov/Networks/production/EROS.shtml>

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-PTH → EROS PTH	338.6	293.6	140.9	70.2	363.8	310.5
GSFC-DAAC → EROS LPDAAC	223.6	182.7	97.7			
ERSDAC → EROS	88.6	86.6	19.4	(via APAN / Abilene / OC-12)		
NSIDC → EROS	106.2	105.5	99.9			
LaRC → EROS	92.4	79.9	7.9			
EROS LPDAAC → GSFC DAAC	122.6	85.4	68.8			
EROS LPDAAC → GSFC ECHO	82.1	68.2	48.3			
EROS PTH → GSFC PTH	355.4	345.3	316.0			

Requirements:

Source → Dest	Date	mbps	Rating
GSFC → EROS	→ Nov '06	285.4	Adequate
ERSDAC → EROS	FY '06, '07	26.8	Excellent

Comments:

GSFC → EROS: The route to EROS was switched on approx 31 August, and is now via Abilene to Chicago, then to a private OC-12 (622 mbps) to EROS. (Previously, a 300 mbps vBNS+ PVC from MAX to EROS was used.) But the plan is to switch to using NISN's new circuit to Chicago instead of Abilene, when the NISN circuit is ready.

The PTH hosts are outside the ECS firewalls, and therefore normally have higher thrupt than between the DAACs. But the thrupt of both PTH-PTH and DAAC-DAAC increased as a result of the new route. The rating is based on the "Integrated" measurement, and as usual is lower than the sum of the User Flow + iperf. The user flow this month was stable, and had only a small contribution to the integrated measurement. The PTH-PTH thrupt is now a bit above the requirement, so the rating improves to "Adequate". But note that the requirement increases to 384 mbps in December '06, so this performance level will need to improve further to meet that requirement.

ERSDAC → EROS: The median thrupt from ERSDAC to EDC-PTH (in support of the ERSDAC to EDC ASTER flow, replacing tapes) was stable on the new 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.

EROS → GSFC: The thrupt for tests from EROS to GSFC all increased slightly this month, due to the improved route.

Other: New tests from LaRC and NSIDC to EROS (shown above) were added this month, to test support of MODIS-related flows over the new route. The flow from NSIDC is quite steady, but from LaRC there is a strong diurnal pattern.

2) JPL:**2.1) JPL ↔ GSFC:**

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

Web Pages:

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

Test Results:

Source → Dest	NET	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
		Best	Median	Worst			
GSFC-DAAC → JPL-AIRS	PIP	47.5	47.2	27.1	7.7	54.9	47.5
GSFC-PTH → JPL-AIRS	PIP	47.6	47.3	27.9	7.4	54.7	47.6
GSFC-CNE → JPL-AIRS	SIP	47.1	40.9	15.8			
GSFC-CSAFS → JPL-QSCAT	PIP	7.5	7.4	4.8			
GSFC-CSAFS → JPL-QSCAT-BU	PIP	7.4	7.2	4.2			
GSFC-PTH → JPL-PODAAC	PIP	88.3	80.4	28.2			
GSFC-CNE → JPL-MISR	SIP	40.0	24.7	5.1			
JPL-PTH → GSFC PTH	PIP	89.2	89.1	66.0			

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → JPL Combined	FY '06	22.2	Good
GSFC → JPL Combined	Nov '06	42.8	Adequate
JPL → GSFC combined	CY '06	7.4	Excellent

Comments:**GSFC → JPL:**

AIRS: Performance from GSFC (DAAC and CNE) to JPL-AIRS was stable this month, after dramatically improving with the NISN WANR upgrade in April.

The requirement was updated this month to reflect increased AIRS reprocessing requirements (was 18.9 mbps last month), and increases to 43 mbps in November '06 for the same reason. Performance from GSFC-DAAC is used as the basis of the ratings, and is about 2 x the new requirement (all PIP flows combined), so continues to be rated "Good". But the same performance will rate only

QSCAT: The performance was stable this month, limited by the CSAFS 10 mbps Ethernet connection, and thus did not significantly benefit from the WANR upgrade.

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. 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)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
LaRC PTH → JPL-PTH	89.6	89.5	88.4	8.1	97.6	89.6
LaRC DAAC → JPL-TES	90.1	81.4	48.9	7.2	88.6	81.5
LaRC DAAC → JPL-MISR	62.5	51.5	36.1			
JPL-PTH → LaRC PTH	88.4	87.5	86.9			

Requirements:

Source → Dest	Date	Mbps	Rating
LaRC DAAC → JPL-TES	FY '06	29.8	Good
LaRC DAAC → JPL-MISR	FY '06	18.5	Good
LaRC DAAC → JPL-Combined	FY '06	39.6	Good
JPL → LaRC	FY '06	52.6	Good

Comments:

LaRC → JPL: Performance remained stable after improving dramatically with the NISN WANR upgrade. The rating remains "Good" (close to "Excellent").

JPL → LaRC: This requirement is for TES products produced at the TES SIPS at JPL, being returned to LaRC for archiving. The measured thruput was also stable this month after improving dramatically with the NISN WANR. 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	81.6	67.7	14.5

Comments: This test was initiated in March '05, via APAN replacing the EBnet circuit. The typical 68 mbps must be well in excess of the requirements (IST requirements are generally 311 kbps).

3) Boulder CO:

3.1) GSFC ← → NSIDC DAAC: Ratings: GSFC → NSIDC: Continued **Good**
 NSIDC → GSFC: Continued **Excellent**

Web Pages: <http://ensight.eos.nasa.gov/Organizations/production/NSIDC.shtml>
http://ensight.eos.nasa.gov/Missions/aqua/NSIDC_u.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-DAAC → NSIDC-DAAC	108.8	91.0	39.3	5.8	96.8	91.8
GSFC-PTH → NSIDC-DAAC	115.6	109.1	42.3			
GSFC-ISIPS → NSIDC (iperf)	115.0	107.8	41.2			
GSFC-ISIPS → NSIDC (ftp)	22.3	22.2	7.2			
NSIDC DAAC → GSFC-DAAC	123.8	107.3	31.4			
NSIDC → GSFC-ISIPS (iperf)	84.8	84.1	34.1			

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → NSIDC	Sept '06	64.0	Good
GSFC → NSIDC	Oct-Dec '06	91.0	Adequate
NSIDC → GSFC	FY '06	13.3	Excellent

Comments: GSFC → NSIDC: This rating is based on testing from GDAAC to the NSIDC DAAC. The iperf and integrated thrupt values were stable this month, after increasing about 25% due to the NISN WANR upgrade. This requirement varies from month to month, based on planned ICESAT reprocessing. This month the reprocessing **IS NOT** included. The Integrated thrupt is above this lower requirement by more than 30%, so the rating remains “Good”. However, next month the reprocessing **is** included – the requirement increases, so the same performance will only rate “Adequate”.

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

GSFC-ISIPS ← → NSIDC: Performance between ISIPS and NSIDC is at nominal levels for the circuit capacity.

3.2) JPL → NSIDC:

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

Test Results:

Source → Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
JPL → NSIDC-SIDADS	7.47	7.44	5.82	1.34

Comments: Thrupt was stable this month after last month’s improvement from the NISN WANR upgrade; the rating remains “Excellent”. *Next month an additional test from JPL-PTH to NSIDC-PTH will be added to more fully assess the true network capability.*

3.3) NSSTC → NSIDC:Ratings: NSSTC → NSIDC: Continued **Good****Other Testing:**

Source → Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
NSSTC → NSIDC DAAC (iperf)	12.9	12.7	0.2	7.5
NSSTC → NSIDC DAAC (ftp)	6.5	6.4	0.6	

Comments: NSSTC (Huntsville, AL) sends AMSR-E L2/L3 data to NSIDC. Median thruput is stable and 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)			Requirement
	Best	Median	Worst	
ASF → LASP	1.32	1.07	0.53	0.024
GSFC EDOS → LASP	25.2	11.4	3.8	0.4
GSFC PTH → LASP (iperf)	21.3	11.0	4.1	
GSFC PTH → LASP (sftp)	0.46	0.46	0.44	

Comments: The requirements are now divided into ASF and GSFC 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 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)			Requirement
	Best	Median	Worst	
LaRC → NCAR	90.9	82.2	42.2	5.4
GSFC → NCAR	130.9	112.7	75.8	5.1

Comments: NCAR (Boulder, CO) is a SIPS for MOPITT (Terra, from LaRC), and has MOPITT and HIRDLS QA (Aura, from GSFC) requirements. [Performance from LaRC \(via NISN to MAX to Abilene\) improved \(from 22 mbps previously\) with the NISN WANR SIP upgrade in late July. Thruput is now well above 3 x the requirement, so the rating remains “Excellent”.](#)

From GSFC the median thruput is steady at well over 3 x the requirement, so that rating also remains “Excellent”.

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)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GDAAC → LDAAC	275.1	206.1	93.5	16.0	222.1	213.7
GSFC-NISN → LaTIS	88.2	75.1	34.2			
GSFC-PTH → LaRC-PTH	93.3	92.1	83.3			
GSFC-PTH → LaRC-ANGe	87.9	86.1	74.1			
LDAAC → GDAAC	260.7	176.8	59.3			
LDAAC → GSFC-ECHO	84.7	74.8	37.8			

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → LARC (Combined)	FY '06	66.3	Excellent
LDAAC → GDAAC	FY '06	0.2	Excellent

Comments: Performance of all GSFC ↔ LaRC flows improved dramatically with the NISN WANR upgrade last month.

GSFC → LaRC: The combined requirement had been split between LDAAC and LaTIS when the flows were on separate circuits, but is now treated as a single requirement as they have been both on PIP since Feb '05. This combined value was increased this month due to the addition of GEOS flows (was 58.5 mbps previously). The rating is now based on the GDAAC to LaRC ECS DAAC thruput, compared to the combined requirement.

Since the **GSFC → LaRC ECS DAAC** median thruput is above 3 x the combined requirement, the combined rating remains "Excellent". Note: the lower peaks (around 90 mbps) to LaTIS, LaRC-PTH, and LaRC-ANGe are limited by their 100 mbps LAN connections.

LaRC → GSFC: Performance from LDAAC → GDAAC was stable this month. However, the requirement was reduced from 3.2 mbps last month, as most of the flows were recognized as "backhaul to GSFC" flows, which are no longer planned, and were thus removed from the requirement. The thruput remained much more than 3 x this requirement, so the rating continues as "Excellent". *However, severe diurnal variation is observed on this circuit, with the daily peak more than 4x the daily worst.*

The thruput from LDAAC to GSFC-ECHO is lower than LDAAC to GDAAC due to a 100 mbps LAN connection.

5) ASFRating: 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-CSAFS → ASF	1.45	1.44	1.18
ASF → LASP	1.32	1.07	0.53
ASF → GSFC-CSAFS	1.38	1.30	0.64

Comments: Testing to ASF transitioned to IOnet in April '06 – accordingly, testing was discontinued from ASF to NOAA and JPL-SEAPAC; also user flow data is no longer available.

Performance was stable, and is consistent with the T1 (1.5 mbps) circuit capacity.

Requirements:

Source → Dest	Date	kbps	Rating
ASF → LASP	FY '06	24	Excellent

6) NOAA NESDIS:

Rating: n/a

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

Requirements:

Source → Dest	FY	Mbps	Rating
GSFC-CSAFS → NESDIS	'06	0.19	N/A

Comments: The NOAA EMSnet test host was discontinued in early August. NOAA has been requested to provide a new test machine for the "Class" system.

The dominant flow to NOAA is Quikscat data, from GSFC CSAFS. Thruput was previously stable from all sources, and much higher than the requirement, rating "Excellent".

7) US ↔ JAXA:

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

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

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-CSAFS → JAXA-DDS	5.77	5.44	3.88	0.29	5.77	5.45
GSFC-EDOS → JAXA-azusa	8.06	7.96	4.85			
GSFC-PTH → JAXA-azusa	40.1	28.8	19.4			
GSFC-PTH → JAXA (sftp)	0.84	0.83	0.80			
JPL → JAXA-DDS	4.94	4.88	3.68			
JAXA-DDS → JPL-QSCAT	2.88	2.86	2.53			
JAXA-DDS → GSFC-DAAC	1.99	1.96	1.92			
JAXA-azusa → GSFC-MAX	8.94	8.86	8.13			

Requirements

Source → Dest	Date	mbps	Rating
GSFC → JAXA	FY '05, '06	1.99	Excellent
JAXA → US	FY '04 - '06	1.28	Good

Comments: The US → JAXA requirement was updated this month, to reflect the extension of the TRMM and QScat missions. Previously, the requirement was 1.43 mbps.

The JAXA flows were moved to APAN / Sinet on August 17 – the values above reflect testing after that switch. Prior to this switch the flows used a dedicated 2 mbps ATM circuit from JPL to JAXA, using NISN PIP between GSFC and JPL. Performance on that circuit was stable at about 1.5 mbps as previously.

US → JAXA: Performance from GSFC improved substantially with the switch to APAN / Sinet, and is now limited by TCP window size and a 10 mbps Ethernet on JAXA's DDS node, and the EDOS-Mail node. Thruput was stable this month, but with the increased requirement, the thruput is no longer more than 3 x the requirement, so the rating drops back to "Good".

Performance from JPL also improved initially, and was subsequently retuned to achieve to the values above.

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

JAXA → US: Performance improved with the switch to APAN / Sinet, and is now also limited by TCP window size and 10 mbps Ethernets. But it has not yet been retuned to fully utilize the increased network capability. The thruput from JAXA to JPL was more than 30% over the requirement, so the rating remains "Good".

8) ERSDAC ↔ US:Rating: Continued **Excellent**Web Page : <http://ensight.eos.nasa.gov/Organizations/production/ERSDAC.shtml>

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GDAAC → ERSDAC	22.4	16.8	9.3			
GSFC ENPL (Fast Ethernet) → ERSDAC	89.0	83.7	21.0	5.2	88.9	83.7
GSFC-EDOS → ERSDAC	9.4	2.6	1.6			

Requirements:

Source → Dest	FY	Mbps	Rating
GSFC → ERSDAC	'03 - '06	12.5	Excellent

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

The thrupt from GDAAC is apparently 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 GSFC-ENPL node is limited to 100 mbps by its own interface, so does not suffer performance degrading packet loss – its performance is much higher. Testing from EDOS to ERSDAC is apparently limited by a 10 mbps Ethernet in its path.

The requirement now includes the level 0 flows which used to be sent by tapes. The thrupt is still more than 3 x this requirement, so the rating remains "Excellent".

Other Testing:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ERSDAC → JPL-ASTER IST	81.6	67.7	14.5
ERSDAC → EROS	88.6	86.6	19.4

Requirements:

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

Comments:

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

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)

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)			Requirement	Rating
	Best	Median	Worst		
JPL → RSS	2.75	1.49	0.55	2.4	↓ Good → Low
GSFC → KNMI-ODPS	22.0	20.8	19.0	3.3	Continued Excellent

Comments:

9.1 RSS: RSS (Santa Rosa, CA) is a SIPS for AMSR-E, receiving data from JPL, and sending its results to GHCC (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 thrupt appears lower (median was 4.5 mbps last month), reportedly due to heavy data downloads at RSS. The iperf thrupt in these conditions is now below the requirement, so the rating drops to "Low".

Hopefully, user flow data can be obtained next month to more accurately reflect this situation.

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

9.2 KNMI: KNMI (DeBilt, Netherlands) is a SIPS and QA site for OMI (Aura). The route from GSFC is via MAX to Abilene, peering in NY with Surfnet's 10Gbps circuit to Amsterdam. Thrupt to the ODPS backup server at KNMI is limited only by a Fast Ethernet connection at KNMI, and gets over 80 mbps steady! The rating is based on the results to the ODPS primary server, protected by a firewall, and are quite a bit lower. Thrupt remains well above 3 x the requirement, rating "Excellent".

Testing to the Backup server was discontinued at the end of August, on request from KNMI.

See also Section 3 (Boulder) for data on NSSTC → NSIDC and NCAR testing.