

EOS Production Sites Network Performance Report

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

Highlights:

- Mostly stable performance
- Now incorporating LASP requirements
 - From ASF, GSFC
 - But ASF is still on EMSnet – will transition to IOnet in Feb
- Outstanding Issues:
 - GSFC to JPL-AIRS via PIP
 - New requirements are still being worked
 - Old requirements used again this time.
- 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)

Else = User Flow + iperf monthly average

Ratings Changes:

New:

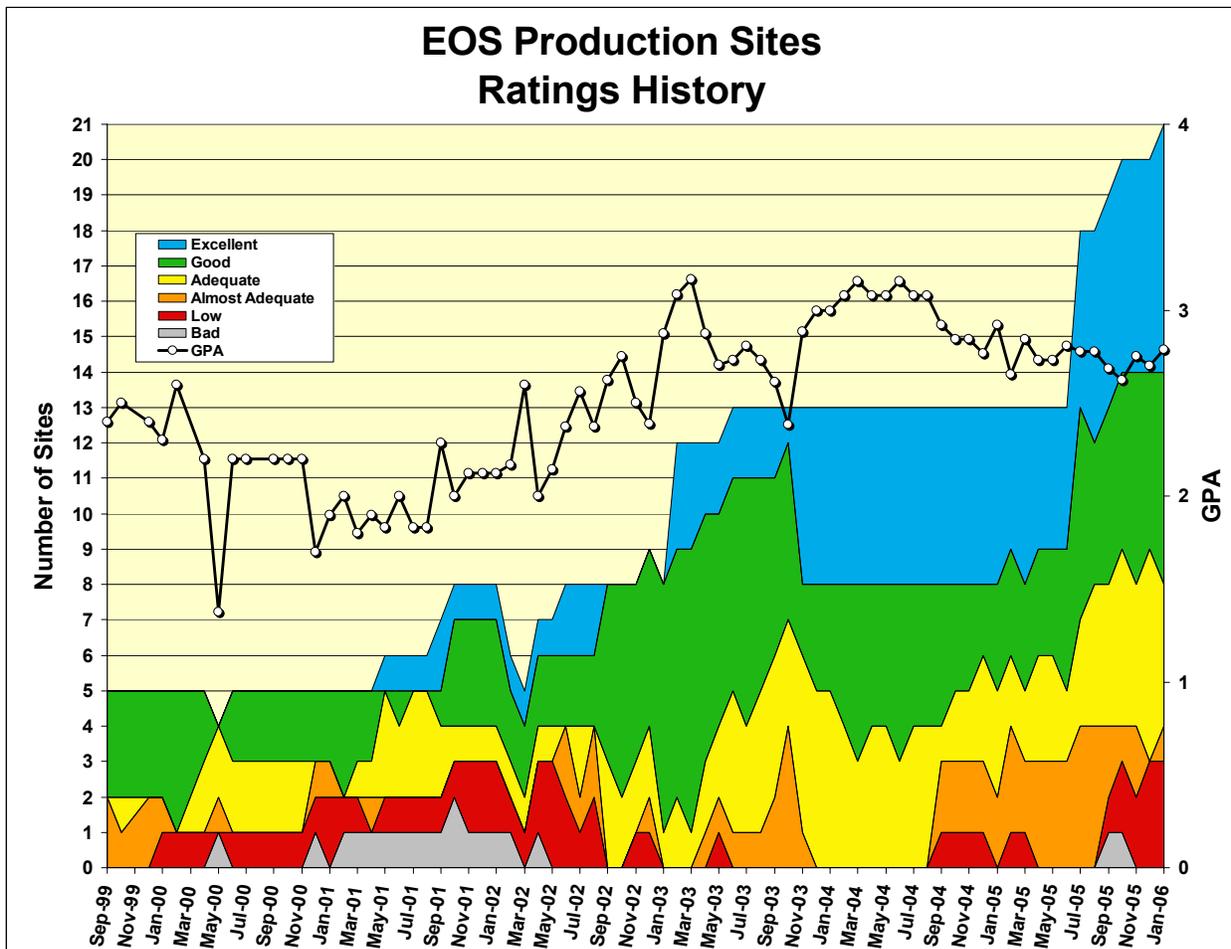
ASF → LASP: **Excellent**
 GSFC → LASP: **Excellent**

Upgrades: ↑

GSFC → NSIDC: Adequate → **Good**
 LaRC → NCAR: Good → **Excellent**
 US → JAXA: Low → **Almost Adequate**

Downgrades: ↓

JPL → GSFC: Excellent → **Good**
 JPL → LaRC: Adequate → **Low**



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

Network Requirements vs. Measured Performance

January 2006		Requirements (kbps)		Testing					Ratings		
Source → Destination	Team (s)	Current	Future	Source → Dest Nodes	Avg User Flow kbps	iperf Avg kbps	Total Avg kbps	Integrated kbps	Rating re Current Requirements		Rating re
		Jan-06	Oct-06						Jan-06	Last Mont	Oct-06
GSFC → ASF	QuikScat, Radarsat	n/a	n/a	GSFC-CSAFS → ASF	3	1312	1315	1312	n/a	n/a	n/a
ASF → LASP	QuikScat, Radarsat	16	16	ASF → LASP [via EMSnet]	n/a	1353	1353		Excellent	n/a	Excellent
GSFC → NOAA	QuikScat	189	0	GSFC-CSAFS → NESDIS	n/a	6896	6896		Excellent	E	Excellent
GSFC → EDC	MODIS, LandSat	285361	285361	GDAAC → EDC DAAC	57228	181702	238930	190301	LOW	L	LOW
GSFC → JPL (EMSnet)	ASTER, QuikScat, MLS, etc.	3144	2634	GSFC-CSAFS → JPL-SEAPAC	318	6274	6591	6347	GOOD	G	GOOD
GSFC → JPL (PIP)	AIRS, ISTs	15757	15757	GDAAC → JPL-AIRS	234	12246	12480		LOW	L	LOW
JPL → GSFC	AMSR-E, MISR, etc.	7387	7387	JPL-PODAAC → GDAAC	n/a	12012	12012		GOOD	E	GOOD
JPL → RSS	AMSR-E	2488	2488	JPL-PODAAC → RSS	n/a	5290	5290		GOOD	G	GOOD
LaRC → JPL	TES, MISR	39553	39553	LARC-PTH → JPL-PTH	3498	40764	44262	40834	Adequate	A	Adequate
JPL → LaRC	TES	52626	52626	JPL-PTH → LARC-PTH	n/a	37632	37632		LOW	A	LOW
GSFC → LaRC	CERES, MISR, MOPITT	58594	58594	GDAAC → LDAAC	5131	62452	67583	64967	Adequate	A	Adequate
LaRC → GSFC	MODIS, TES	3160	3160	LDAAC → GDAAC	8	48384	48392	48384	Excellent	E	Excellent
JPL → NSIDC	AMSR-E	1342	1342	JPL-PODAAC → NSIDC SIDADS	n/a	3487	3487		GOOD	G	GOOD
NSIDC → GSFC	MODIS, ICESAT, QuikScat	13317	13317	NSIDC DAAC → GDAAC	n/a	16779	16779		Adequate	A	Adequate
GSFC → NSIDC	MODIS, ICESAT, QuikScat	63980	90813	GDAAC → NSIDC-DAAC	3602	87348	90950	87416	GOOD	A	AA
NSSTC → NSIDC	MODIS, ICESAT, QuikScat	7497	7497	NSSTC → NSIDC DAAC	n/a	12528	12528		GOOD	G	GOOD
LaRC → NCAR	HIRDLS	5395	5395	LDAAC → NCAR	n/a	20169	20169		Excellent	E	Excellent
US → JAXA	QuikScat, TRMM, AMSR	1431	1431	GSFC-CSAFS → JAXA	n/a	1302	1302		AA	L	AA
JAXA → US	AMSR-E	1282	1282	JAXA → JPL-SEAPAC	n/a	1596	1596		Adequate	A	Adequate
GSFC → ERSDAC	ASTER	12450	12450	ENPL-PTH → ERSDAC	n/a	89055	89055		Excellent	E	Excellent
ERSDAC → EDC	ASTER	26832	26832	ERSDAC → EDC PTH	n/a	85380	85380		Excellent	E	Excellent
GSFC → KNMI	OMI	3282	3282	GSFC-MAX → OMI-PDR	n/a	21123	21123		Excellent	E	Excellent
Notes:	Flow Requirements (from BAH) include TRMM, Terra, Aqua, Aura, ICESAT				Ratings Summary						
									Jan-06	Req	Oct-06
									Score	Prev	Score
*Criteria:	Excellent	Total Kbps > Requirement * 3			Excellent				7	6	7
	GOOD	1.3 * Requirement <= Total Kbps < Requirement			GOOD				6	5	5
	Adequate	Requirement < Total Kbps < Requirement * 1.3			Adequate				4	6	4
	Almost Adequate	Requirement / 1.3 < Total Kbps < Requirement			Almost Adequate				1	0	2
	LOW	Requirement / 3 < Total Kbps < Requirement / 1			LOW				3	3	3
	BAD	Total Kbps < Requirement / 3			BAD				0	0	0
									Total		
									21	20	21
									GPA		
									2.79	2.70	2.71

1) ASFRating: **Excellent**Web Page: http://ensight.eos.nasa.gov/Networks/emsnet/ASF_EMS.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-CSAFS → ASF	1.39	1.31	1.08	0.001	1.32	1.31
ASF → NESDIS	1.40	1.40	0.65			
ASF → LASP	1.36	1.35	0.43			
ASF → GSFC-CSAFS	1.40	1.37	0.43			
ASF → JPL-SEAPAC	1.37	1.31	0.96			

Comments: Thruput test results were stable this month to and from all destinations; the 1.3 to 1.4 mbps inbound and outbound totals are as expected for a single T1 (1.54 mbps) circuit. Note that these ASF flows are planned to transition from EMSnet to IOnet in February.

The ASF requirement to LASP (as stated by LASP) is now shown below.

Requirements:

Source → Dest	Date	kbps	Rating
ASF → LASP	FY '06	16	Excellent

2) EDC:Rating: Continued **Low**Web Page: <http://ensight.eos.nasa.gov/Networks/emsnet/EDC.shtml>

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-DAAC → EDC LPDAAC	211.9	181.7	65.1	57.2	238.9	190.3
GSFC-PTH → EDC PTH	167.1	129.1	90.8			
ERSDAC → EDC	88.8	85.4	18.7	(via APAN / Abilene / vBNS+)		
EDC DAAC → GSFC DAAC	128.4	108.3	48.7			
EDC DAAC → GSFC ECHO	84.0	69.8	48.2			
EDC PTH → GSFC PTH	349.9	319.1	253.1			

Requirements:

Source → Dest	Date	mbps	Rating
GSFC → EDC	FY '06	285.4	Low
ERSDAC → EDC	FY '06	26.8	Excellent

Comments:

The problem from GSFC-PTH to EDC-PTH remains (apparently packet loss on or near vBNS+), so the rating is again based on testing between from GDAAC to EDC LPDAAC. The PTH hosts are outside the EDC firewalls, and therefore normally have higher thruput – but that is true this month only for EDC → GSFC flows.

The rating is based on the "Integrated" measurement, and as usual is lower than the sum of the MRTG and iperf. The user flow this month decreased, and had only a small contribution to the integrated measurement. This 190 mbps value is below 30% under the requirement, so the rating remains "Low". Hopefully when the PTH problem is fixed the rating will improve again.

The median thruput from ERSDAC to EDC-PTH (in support of the ERSDAC to EDC ASTER flow, replacing tapes) is more than 3 times the 26.8 mbps requirement, resulting in an "Excellent" rating.

3) JPL:**3.1) JPL ↔ GSFC**

Ratings: GSFC → JPL: PIP: Continued **Low**
 EMSnet: Continued **Good**
 JPL → GSFC: ↓ Excellent → **Good**

Web Pages:

http://ensight.eos.nasa.gov/Networks/emsnet/JPL_SEAPAC.shtml
http://ensight.eos.nasa.gov/Networks/emsnet/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-CSAFS → JPL-SEAPAC	EMS	7.7	6.3	0.9	0.3	6.6	6.4
GSFC-PTH → JPL-PODAAC	PIP	5.9	5.1	3.9			
JPL-PODAAC → GSFC DAAC	PIP	12.3	12.0	0.8			
GSFC-DAAC → JPL-AIRS	PIP	16.9	12.2	1.6			
GSFC-PTH → JPL-AIRS	PIP	14.5	8.1	1.1			
GSFC-CNE → JPL-AIRS	SIP	20.0	14.5	1.6			
GSFC-CNE → JPL-MISR	SIP	22.8	19.9	15.2			

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → JPL via EMSnet	Jan '06	3.14	Good
GSFC → JPL via PIP	Jan '06	15.76	Low
JPL → GSFC combined	Jan '06	7.39	Good

Comments:

GSFC → JPL: Most GSFC-JPL flows moved from EMSnet to NISN PIP on 2 December (But the GSFC to JPL SEAPAC and ASF destinations remained on EMSnet) the requirements are therefore correspondingly divided. However, since most traceroutes are blocked, it is not clear that the flows are actually taking their intended routes.

EMSnet: Typical performance on this circuit has been stable since the NISN 6 to 8 mbps PVC change in late March; The daily worst dropped due to congestion at GSFC-CSAFS. The rating remains "Good".

PIP: The PIP flows include QA data from GDAAC to JPL-AIRS, ISTs for several missions (but the JAXA AMSR-E ISTs flow to JPL via EMSnet), and science user flow estimates, totaling 15.76 mbps. **The thput to AIRS via PIP is very noisy** – note the high ratio (7:1) of daily median to daily worst. Performance was similar from the GDAAC and GSFC-PTH nodes. It had been much more stable from GSFC CNE (via SIP, usually 18-20 mbps) until late October, when the thput via SIP became as noisy as PIP. **This extreme noisiness causes the median to be well below the requirement, resulting in a Continued "Low" rating.**

Note: performance was much steadier from the same sources at GSFC to JPL-MISR and JPL-PODAAC (median to worst ratios of only about 1.3:1) – via the same route except for the last LAN hops. This suggests problems with congestion at the AIRS node.

JPL → GSFC: The MLS requirements increased this month (total was 3.18 mbps last month). Performance was stable (but noisier), but the rating drops to "Good" due to the increased requirements.

3.2) JPL ↔ LaRC

Ratings: LaRC → JPL: Continued **Adequate**
 JPL → LaRC: ↓ Adequate → **Low**

Web Pages:

http://ensight.eos.nasa.gov/Networks/emsnet/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	41.0	40.8	24.8	3.5	44.3	40.8
LaRC DAAC → JPL-TES	40.7	38.1	15.9			
LaRC DAAC → JPL-MISR	41.4	37.8	17.8			
JPL-PTH → LaRC PTH	37.7	37.6	35.9			

Requirements:

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

Comments:

LDAAC → JPL: Performance has been stable since this flow was switched to NISN PIP on 10 Feb '05; MRTG data became unavailable at that time -- the passive "flows" data is now being used instead. The LaRC-PTH to JPL-PTH testing also was disabled by this transition, but has now been re-enabled since the JPL-PTH node moved to PIP in December. The "integrated" thruput is just above the requirement; the rating remains "Adequate".

JPL → LDAAC: This requirement was identified in version 1.4 of the EOS Networks Handbook, and is for TES products produced at the TES SIPS at JPL, being returned to LaRC for archiving. Testing of this capability was switched last month to use iperf from JPL-PTH to LARC PTH, now that these nodes are again on the same network (PIP). The measured thruput was stable this month. However, the nominal requirements increased this month (was 35.1 mbps previously) to support increased TES reprocessing. This drops the rating to "Low".

3.3) ERSDAC → JPL ASTER IST

Rating: n/a

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ERSDAC → JPL-ASTER-IST	85.6	78.1	18.5

Comments:

ERSDAC → JPL-ASTER-IST: This test was initiated in March '05, via APAN replacing the EBnet circuit. The typical 76 mbps must be well in excess of the requirements (IST requirements are generally 311 kbps).

4) NSIDC:

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

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

GSFC ↔ NSIDC Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-DAAC → NSIDC-DAAC	90.5	87.3	39.2	3.6	90.9	87.4
GSFC-PTH → NSIDC-DAAC	91.4	89.0	53.4			
NSIDC DAAC → GSFC-DAAC	17.0	16.8	10.5			

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → NSIDC	Jan '06	63.9	Good
NSIDC → GSFC	FY '06	13.3	Adequate

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. The requirement, however, varies from month to month, based on planned ICESAT reprocessing. This month the reprocessing **IS NOT** included. Since the thrupt is more than 30% above this reduced requirement, the rating improves to "Good".

NSIDC → GSFC: Performance from NSIDC to GSFC was stable this month, and the median remains slightly less than 30% above the requirement, so the rating remains "Adequate".

Other Testing:

Source → Dest	Medians of daily tests (mbps)			Requirement	Rating
	Best	Median	Worst		
JPL → NSIDC-SIDADS	4.0	3.5	1.7	1.34	Good
GSFC-ISIPS → NSIDC (iperf)	90.3	88.4	64.7		
GSFC-ISIPS → NSIDC (ftp)	23.8	23.8	20.0		
NSIDC → GSFC-ISIPS (iperf)	16.0	15.7	15.1		
NSIDC → GSFC-ECHO	25.9	22.6	17.8		
NSSTC → NSIDC DAAC	12.7	12.5	0.3	7.5	Good
ASF → LASP	1.36	1.35	0.43	0.016	Excellent
GSFC → LASP	6.3	5.6	3.8	0.66	Excellent

Comments:

JPL → NSIDC-SIDADS: This flow switched from EMSnet to PIP in Feb '05, and thrupt dropped from 6.1 mbps previously. Thrupt remains below 3 x the requirement, so the rating remains "Good".

GSFC-ISIPS ↔ NSIDC: Performance from ISIPS to NSIDC was fixed in Feb '05, after having problems since July '04. Performance is at nominal levels for the circuit capacity. Testing from NSIDC to ISIPS is stable and gets thrupt similar to NSIDC to GDAAC.

NSSTC → NSIDC: NSSTC (Huntsville, AL) sends AMSR-E data to NSIDC. Median thrupt is more than 30 % over the requirement, so is rated "Good"

LASP: The requirements are now divided into ASF and GSFC sources: (Note: these flows are planned to switch to IOnet in February).

ASF → LASP: Began testing from ASF to LASP node in October '05 – performance is limited by ASF T1 circuit, rating "Excellent", due to the modest requirement.

GSFC → LASP: Began testing from GSFC to LASP node in November '05 – thrupt is well above the requirement, rating "Excellent".

5) GSFC ↔ LaRC:

Ratings: LDAAC → GDAAC: Continued **Excellent**
 GSFC → LARC: Continued **Adequate**

Web Pages: <http://ensight.eos.nasa.gov/Networks/emsnet/LARC.shtml>
http://ensight.eos.nasa.gov/Missions/sage/SAGE_MOC.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GDAAC → LDAAC	77.8	62.5	13.5	5.1	67.6	65.0
GSFC-NISN → LaTIS	79.0	57.9	10.2			
GSFC-PTH → LaRC-PTH	78.5	69.8	24.8			
GSFC-SAFS → LaRC-SAGE III MOC	5.4	4.9	1.2			
LDAAC → GDAAC	52.3	48.4	15.6	0.008	48.4	48.4
LDAAC → GSFC-ECHO	44.3	41.0	25.4			

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → LARC (Combined)	FY '06	58.5	Adequate
GDAAC → LaRC ECS	FY '06	17.8	Excellent
GSFC-SAFS → LaRC-SAGE III MOC	FY '06	0.26	Excellent
GSFC → LATIS	FY '06	40.7	Good
LDAAC → GDAAC	FY '06	3.2	Excellent

Comments:

GSFC → LaRC: The combined 58.5 mbps 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. So the rating is now based on the GDAAC to LaRC ECS DAAC thruput, compared to the combined requirement. MRTG and LaTIS user flow data are also no longer available (but the ECS user flow data is used for the "User Flow" above).

So the GSFC → LaRC ECS DAAC thruput is now above the combined requirement, but by less than 30%, so the combined rating remains "Adequate".

GSFC-SAFS → LaRC-SAGE III MOC flows were moved to this section last month -- from the SCF report. Although the thruput is much lower than the other GSFC-LaRC flows, it is more than 3 times the modest requirement. resulting in an "Excellent" rating"

LaRC → GSFC: Performance from LDAAC → GDAAC remained stable with the switch to PIP in Feb '05. The thruput remains more than 3 x the 3.2 mbps requirement (with the backhaul flows removed), so the rating continues as "Excellent".

The thruput from LDAAC to GSFC-ECHO is similar to but a bit lower than LDAAC to GDAAC.

6) NOAA NESDIS:Rating: Continued **Excellent**Web Page: http://ensight.eos.nasa.gov/Networks/emsnet/NOAA_NESDIS.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
GSFC-SAFS → NOAA	7.1	6.9	4.4
JPL → NOAA	4.8	4.7	4.3
ASF → NOAA	1.4	1.4	0.7
JAXA → NOAA	1.9	1.9	1.8

Requirements:

Source → Dest	FY	Mbps	Rating
GSFC-CSAFS → NESDIS	'06	0.19	Excellent

Comments: The NOAA EMSnet test host was replaced in October '05; all flows are now via the MAX connection. The dominant flow to NOAA is Quikscat data, from GSFC CSAFS. Thruput was stable from all sources, and much higher than the requirement, rating "Excellent". Testing to this new node from JAXA started last month – results are consistent with circuit limitations.

7) US ↔ JAXA:

Ratings: JAXA → US: Continued **Adequate**
 US → JAXA: ↑ Low → **Almost Adequate**

Web Pages http://ensight.eos.nasa.gov/Networks/emsnet/JAXA_EOC.shtml
http://ensight.eos.nasa.gov/Networks/emsnet/JPL_SEAPAC.shtml
http://ensight.eos.nasa.gov/Networks/emsnet/GSFC_SAFS.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
GSFC-CSAFS → JAXA-EOC	1.56	1.30	0.81
JPL → JAXA-EOC	1.67	1.38	0.48
ASF → JAXA-EOC	1.18	0.94	0.52
JAXA-EOC → JPL-SEAPAC	1.61	1.60	0.77
JAXA-EOC → GSFC-DAAC	1.49	1.42	0.49

Requirements

Source → Dest	Date	mbps	Rating
GSFC → JAXA	FY '05, '06	1.43	Almost Adequate
JAXA → US	FY '04 - '06	1.28	Adequate

Comments:

The JAXA circuit was moved to PIP on December 2 – performance reductions were observed. Also, MRTG data was no longer available.

US → JAXA: Performance from GSFC improved a bit this month (was 1.15 mbps last month) – it is now within 30% of the requirement, so the rating improves to “Almost Adequate”.

Performance from JPL held up well, since it gets directly to the JAXA tail circuit.

From ASF the path was substantially lengthened – it went from ASF to JPL to GSFC via EMSnet, then back to JPL via PIP, then to the JAXA tail circuit. This increased the RTT from about 180 to 350 ms, and decreased the performance from 1.1 mbps in November.

JAXA → US: Performance remained consistent with the ATM PVC. The requirement was increased in Version 1.4 of the EOS Networks Handbook. This month testing from JAXA to JPL was stable; but without adding the MRTG, the thrupt was no longer 30% over the requirement, so the rating remains “Adequate”.

Slnet Testing:

It is planned to remove the NASA – JAXA dedicated circuit above, by September 2006. After that, all the above data will be transferred via Slnet or APAN. Accordingly, the following tests are run via Slnet:

Source → Dest	Medians of daily tests (mbps)			Requirement	Rating
	Best	Median	Worst		
GSFC → JAXA	10.1	10.0	6.8	1.43	↑ Good → Excellent
JAXA → GSFC	8.8	8.8	7.8	1.28	Excellent

Thruput from GSFC to JAXA is considerably better via this path than the dedicated ATM circuit. Beginning July 1 '05, JAXA upgraded their infrastructure, and thrupt was 20-30 mbps from GSFC to JAXA, and 10 mbps from JAXA to GSFC. But on 13 September, thrupt abruptly dropped, accompanied by significant packet loss. This problem cleared up for JAXA to US in late November, improving the thrupt from a median of 1.1 mbps. It cleared up for US to JAXA flows in January (median was 2.2 mbps last month).

So this path is now clearly superior to the ATM circuit (also cheaper!).

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

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
GDAAC → ERSDAC	21.2	16.4	7.1
GSFC ENPL (Fast Ethernet) → ERSDAC	89.3	89.1	27.6

Requirements:

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

Comments: Dataflow from GDAAC to ERSDAC was switched to APAN in February '05, and the performance above is via that route. MRTG and user flow data are no longer available due to this change.

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. Note: EDOS is also FastE connected, and gets the higher performance levels. [It is planned to begin testing from EDOS to ERSDAC soon.](#)

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

Other Testing:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ERSDAC → JPL-ASTER IST	85.6	78.1	18.5
ERSDAC → EDC	88.8	85.4	18.7

Requirements:

Source → Dest	Date	mbps	Rating
ERSDAC → EDC	FY '05	26.8	Excellent

Comments:

ERSDAC → EDC: The results from this test (in support of the ERSDAC to EDC 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 is "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) SIPS Sites:

Web Pages <http://ensight.eos.nasa.gov/Missions/terra/NCAR.shtml>
<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		
LaRC → NCAR	23.4	20.2	14.7	5.4	↑ Good → Excellent
GSFC → NCAR	93.1	93.1	93.0	5.1	Excellent
JPL → RSS	5.6	5.3	2.3	2.4	Good
GSFC → KNMI-OMIPDR	21.2	21.1	20.3	3.3	Excellent

Comments: These sites were previously reported in the QA/SCF report. But have been moved to this report since as SIPS, they are part of the EOS data production process. Note that they are not connected by EMSnet.

NCAR: NCAR (Boulder, CO) is a SIPS for MOPITT (Terra, from LaRC), and has MOPITT and HIRDLS QA (Aura, from GSFC) requirements. Thruput from LaRC (via NISN to MAX to Abilene) is now a bit above 3 x the requirement, so the rating improves to “Excellent”. From GSFC the median thruput is extremely steady at well over 3 x the requirement, so that rating remains “Excellent”.

RSS: RSS (Santa Rosa, CA) is a SIPS for AMSR-E, receiving data from JPL, and sending its results to 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. Thruput improved to the above values at that time – more that 30% above the requirement, the rating remains “Good”.

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

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. Thruput to the OMIPDR backup server at KNMI is limited only by a Fast Ethernet connection at KNMI, and gets over 80 mbps steady! The results above are to the OMI PDR primary server, protected by a firewall, and are quite a bit lower. Thruput is still well above 3 x the requirement, rating “Excellent”.