EOS Science Networks Performance Report

This is a summary of EOS QA SCF performance testing for November and December 2002 -- comparing the performance against the requirements from BAH, including Terra, TRMM, and QuikScat, Aqua, ADEOS II, Aura, SAGE III, and ICESat requirements

Up to date graphical results can be found on the EOS network performance web site (now pretty stable): http://corn.eos.nasa.gov/performance/networks (Then click on a category next to "Active Testing"). Or use the links to the individual site results in the site details section.

Highlights:

- Completed the upgrade to the latest BAH requirements. These requirements are in general pretty close to the previous requirements. Significant requirements changes will be noted in the site details section.
- Mostly stable performance – few changes. Most rating changes were due to requirements changes, not performance changes.

Change History:

- December 2002: Updated to latest BAH requirements, based on Handbook v1.2. Includes additional missions.
- June 2001: The requirements were modified to incorporate an updated number of EOS funded users at each tested site, based on the latest SPSO database. The total number of users increased in this way from 434 to 1012 (US only).
- May 2001: The requirements were increased by adding a 50% contingency factor to all QA and SIPS requirements, which were omitted with the change to the new BAH requirements in March 2001.

Ratings:

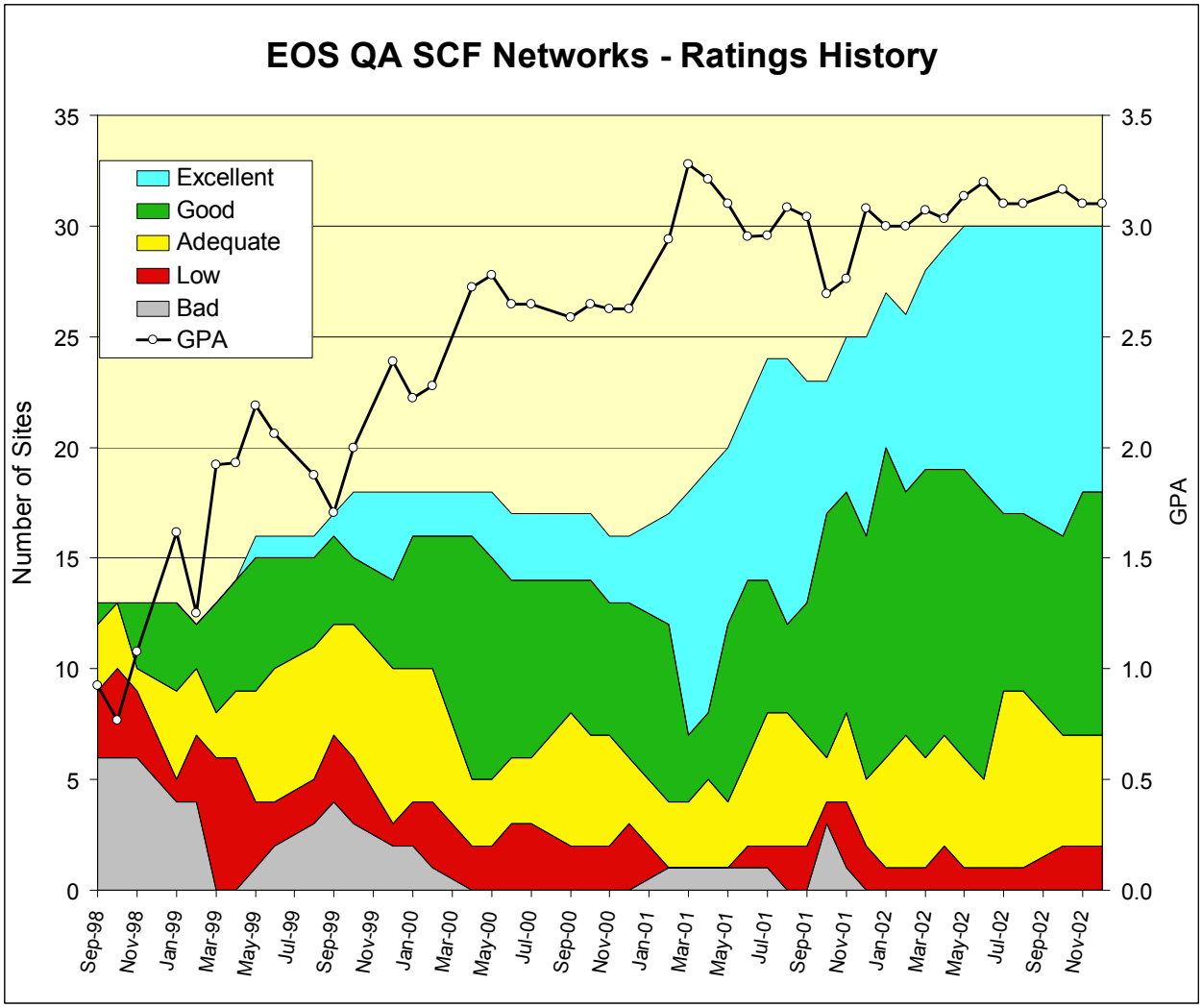
Rating Categories:

Excellent: median of daily worst cases > 3 x requirement
Good: median of daily worst cases > requirement

Adequate: median of daily worst cases < requirement
and
median of daily medians > requirement

Low: median of daily medians < requirement.
Bad: median of daily medians < 1/3 of the requirement.

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



Ratings Changes:

Upgrades: ↑

UCSB: Good → **Excellent**
NCAR: Adequate → **Good**
Washington: Adequate → **Good**

Downgrades: ↓

RSS: Excellent → **Good**
MIT: Excellent → **Adequate**
ORST: Good → **Adequate**
Wisconsin: Excellent → **Good**

EOS QA SCF Sites:

Network Requirements vs. Measured Performance

December 2002		Requirements (kbps)			Testing							
Destination	Team (s)	Oct-01	Oct-02	May-03	Source Node: Test Period	Median kbps	Median Daily Worst	Current Rating* (Oct '02)	Last Month	Future Rating* (May '03)	Route Tested	Upgrade
AL, NSSTC (UAH)	CERES, AMSR	2154	2699	4959	LaTIS: 01-Sep-02 - 31-Dec-02	5472	4176	GOOD	G	Adequate	NISN + FDDI	
AZ, Tucson (U of AZ)	MODIS, ~~MISR~~	2506	2567	2628	EDC: 13-Aug-02 - 31-Dec-02	12483	9674	Excellent	E	Excellent	Abilene via MAX	
CA, JPL (from LaRC)	MISR	11192	13623	13623	LDAAC-MISR-ATM: 22-Nov-02 - 31-Dec-02	11720	2500	LOW	L	LOW	NISN Private VC	Increase VC
CA, JPL (from GSFC)	AIRS, TES, others	16623	15688	18518	GDAAC-AIRS: 26-Sep-02 - 31-Dec-02	15327	6722	LOW	L	LOW	NISN SIP	Increase VC
CA, RSS	AMSR	376	1160	1929	JPL PODAAC: 08-Aug-02 - 31-Dec-02	2250	1415	GOOD	E	Adequate	2 * T1 - Consolidated	
CA, UCSB	MODIS	2013	2235	2458	GDAAC: 21-Nov-02 - 31-Dec-02	16517	11095	Excellent	G	Excellent	Abilene via NISN-MAX	
CA, UCSD - SIO	ICESAT, CERES	6225	6478	6478	GSFC: 16-Dec-02 - 31-Dec-02	36784	17121	GOOD	G	GOOD	Abilene via MAX	
CO, Colo State Univ	CERES	1665	1776	1868	LaTIS: 01-Sep-02 - 31-Dec-02	2346	1149	Adequate	A	Adequate	NISN -> Abilene	host interface
CO, NCAR - Boulder	MOPITT, HIRDLS	2102	2666	2701	LaRC DAAC: 01-Nov-02 - 31-Dec-02	12362	5676	GOOD	A	GOOD	NISN -> Abilene	
FL, Univ. of Miami	MODIS, MISR	9661	11494	13326	GSFC: 14-Sep-02 - 31-Dec-02	48624	16777	GOOD	G	GOOD	Abilene via MAX	
IL, UIUC	MISR	1134	856	856								
MA, Boston Univ	MODIS, MISR	1767	2021	2274	EDC DAAC: 03-Oct-02 - 31-Dec-02	54023	29161	Excellent	E	Excellent	Abilene via vBNS+	
MA, MIT	ICESAT	5495	6378	6378	GSFC : 01-May-02 - 31-Dec-02	6822	6042	Adequate	E	Adequate	Abilene via MAX	host interface
MD, UMD-College Park	MODIS	1969	1983	1997	GSFC-MAX: 01-Jan-02 - 31-Dec-02	151627	131314	Excellent	E	Excellent	Direct Fiber	
MT, Univ of Montana	MODIS	459	531	603	EDC DAAC: 23-Sep-02 - 31-Dec-02	19166	7564	Excellent	E	Excellent	Abilene via vBNS+	
NM, LANL	MISR	616	756	756	LaRC DAAC: 08-Aug-02 - 31-Dec-02	13893	5363	Excellent	E	Excellent	ESNet via ARC	
NY, SUNY Stony Brook	CERES	536	544	551	LaTIS: 01-Nov-02 - 31-Dec-02	6750	3705	Excellent	E	Excellent	NISN -> Abilene via MAX	
OH, Ohio State Univ	ICESAT	5425	5678	5678	GSFC: 25-Sep-02 - 31-Dec-02	24867	10305	GOOD	G	GOOD	Abilene via MAX	
OR, Oregon State Univ	CERES, MODIS	4390	5019	5656	LaTIS: 21-Nov-02 - 31-Dec-02	8038	3102	Adequate	G	Adequate	NISN -> Abilene	NISN VC
PA, Penn State	MISR	2121	2294	2294	LaRC DAAC: 01-Nov-02 - 31-Dec-02	11422	5146	GOOD	G	GOOD	NISN -> Abilene	
TX, Texas A & M	AMSR-E	0	0	0								
TX, U Texas-Austin	ICESAT	8755	5133	5133	GSFC: 01-Feb-02 - 31-Dec-02	45396	34528	Excellent	E	Excellent	Abilene via MAX	
VA, LaRC - SAGE III MOC	SAGE III	200	200	200	GSFC-CSAFS: 01-Apr-02 - 31-Dec-02	3965	1308	Excellent	E	Excellent	Abilene via NISN-MAX	
WA, NOAA PNNL	MISR	921	1094	1094								
WA, U Washington	ICESAT	10920	11003	11003	GSFC: 18-Nov-02 - 31-Dec-02	21407	12618	GOOD	A	GOOD	Abilene via MAX	
WI, U of Wisc.	MODIS, CERES, AIRS	8360	10225	11899	GSFC-MODIS: 17-Dec-02 - 31-Dec-02	56550	24289	GOOD	E	GOOD	Abilene via MAX	
Brazil, INPE	HSB	622	1024	1024	GSFC: 03-Dec-02 - 31-Dec-02	1149	496	Adequate	A	Adequate	Abilene -> AMpath-> ANSP	
Canada, U. of Toronto	MOPITT	456	612	612	LARC DAAC: 01-Nov-02 - 31-Dec-02	1424	1114	GOOD	G	GOOD	NISN T1	NISN-CA*net4
France, Palaiseau	CERES	203	204	204								
Italy, Ispra (JRC)	MISR	308	378	378	LaRC DAAC: 13-Mar-02 - 31-Dec-02	688	124	Adequate	A	Adequate	NISN-UUNET-Milan	
Netherlands (KNMI)	OMI	0	0	1024	GSFC: 25-Nov-02 - 31-Dec-02	36194	17678	Excellent	E	Excellent	Abilene --> Chi -> Surfnet	
Russia, Moscow (CAO)	SAGE III	26	26	26	CAO-LaRC-N: 04-Jul-02 - 31-Dec-02	157	145	Excellent	E	Excellent	NISN -> Moscow	
UK, Oxford	HIRDLS	0	0	512	GSFC: 04-Nov-02 - 31-Dec-02	3896	3333	Excellent	E	Excellent	Abilene->JAnet (NY)	
UK, London (UCL)	MISR, MODIS	616	756	756	LDAAC-UCL-SCF: 09-Sep-02 - 31-Dec-02	2102	1455	GOOD	G	GOOD	Abilene->JAnet (NY)	

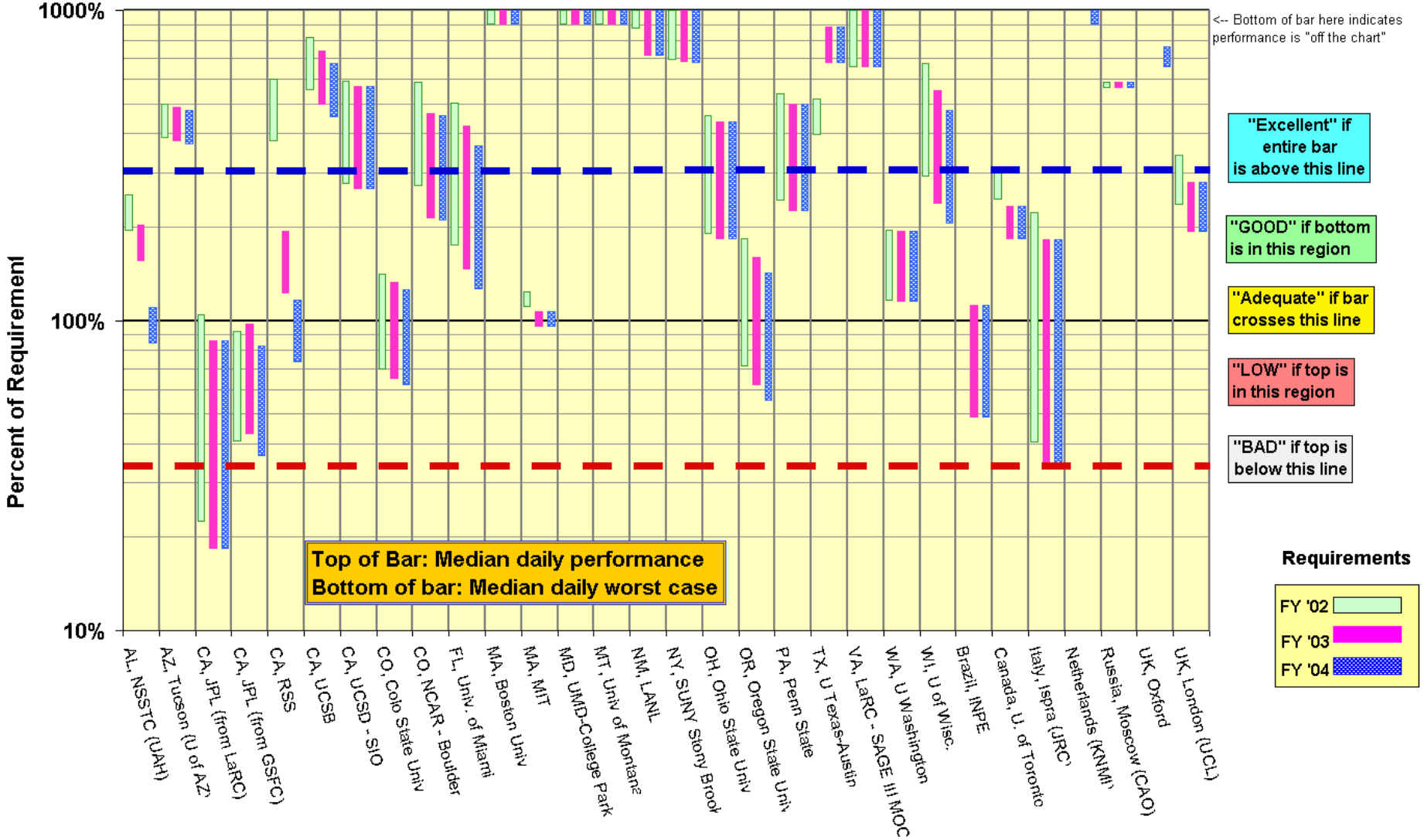
	*Rating Criteria:		Rating	Current Score	Prev. Score	re May '03 Score
Excellent	Median of Daily worst hours >= 3 *Requirement		Excellent	12	14	12
GOOD	Median of Daily worst hours >= Requirement		GOOD	11	9	9
Adequate	Median of Daily worst hours < Requirement <= Median of Daily Medians		Adequate	5	5	7
LOW	Requirement > Median of Daily Medians		LOW	2	2	2
BAD	Requirement > 3 * Median of Daily Medians		BAD	0	0	0
Change History:	8-Jun-98	Original	Total	30	30	30
	10-Jul-98	Incorporated new MISR QA flows				
	10-Sep-98	Added % of requirements columns and associated chart	GPA	3.10	3.17	3.03
	28-Oct-99	Added Previous Status Column				
	1-Jul-00	Added "Excellent" Status, Ratings Summary Chart				
	10-Apr-01	Updated requirements with BAH, added additional sites and missions				
	7-Jun-01	Added ICESAT sites and requirements, added contingency to QA and SIPS				
	13-Jul-01	Updated requirements for latest # of users				
	10-Jan-03	Updated requirements with BAH				

A. Germain

Printed 1/31/2003

EOS QA SCF Sites

Daily Median and Worst Performance as a percent of Requirements



Details on individual sites:

Each site listed below is the DESTINATION for all the results reported in that section. The first test listed is the one on which the rating is based -- it is from the source most relevant to the driving requirement. Other tests are also listed. The three values listed are derived from [nominally] 24 tests per day. For each day, a daily best, worst, and median is obtained. The values shown below are the medians of those values over the test period.

1) AL, NSSTC (UAH) (aka GHCC)

Rating: Continued **Good**

Teams: CERES, AMSR Domain: nsstc.uah.edu

Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/NSSTC.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	6.7	5.5	4.2	NISN SIP
GSFC	21.2	20.5	13.5	NISN SIP

Requirements:

Source Node	FY	mbps	Rating
LaRC LaTIS	’02, ‘03	1.8, 2.7	Good
LaRC LaTIS	'04	5.0	Adequate

Comments: The new test node (as of July 26 ‘02) has higher performance (not limited by 10M Ethernet, as previously), both from LaTIS (Median was 4.1 mbps) and GSFC (median was 4.7 mbps). Performance stable from both nodes since thruput from GSFC increased from a median of 17.5 on September 16.

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2) AZ, Tucson (U of AZ):

Rating: Continued **Excellent**

Teams: MODIS Domain: arizona.edu

Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/ARIZONA.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC LPDAAC	14.8	12.5	9.7	Abilene via vBNS+ / Chicago
GSFC	14.5	11.9	8.1	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
EDC LPDAAC	'02	2.5	Excellent
EDC LPDAAC	'03, '04	2.6	Excellent

Comments: The ratings are based on the MODIS flow from EDC (There is no longer a requirement from LaRC, as the MISR team has all moved away). The performance from EDC became more variable, but is still rated “Excellent”. Performance from GSFC is very steady.

A large diurnal cycle of thruput speed began on 9 December from all sources.

3) CA, JPL:

Ratings: GSFC: Continued **Low**
LaRC: Continued **Low**

Teams: MISR, AIRS, TES, MLS, ASTER
Domain: jpl.nasa.gov
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/JPL-MISR.html
http://corn.eos.nasa.gov/performance/Net_Health/files/JPL-TES.html
http://corn.eos.nasa.gov/performance/Net_Health/files/JPL-AIRS.html

Test Results:

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC → MISR	16.1	11.7	2.5	NISN ATM PVC
GSFC DAAC → AIRS	17.7	15.3	6.7	NISN SIP
LaRC DAAC → MISR	18.5	14.0	0.4	NISN SIP
GSFC → MISR	12.8	12.3	10.8	NISN PIP

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02	11.2	Adequate
LaRC DAAC	'03, '04	13.6	Low
GSFC DAAC	'02, '03, 04	16.6, 15.7, 18.5	Low

Comments:. Performance from LaRC via the NISN private ATM VC between LaRC and MISR steady since it recovered on 22 November '02. The median is now higher than the FY '02 requirement, but lower than the revised FY'03 requirement, so the rating remains "low".

Performance between these same nodes via NISN SIP appears heavily congested at times; the ratio of typical daily best to worst is almost 50:1!

From GSFC to the MISR and AIRS SCFs at JPL, the route from the GSFC campus switched from SIP to PIP in July. Performance was steady at about 7 mbps until 26 September, when it improved to 13 mbps. So testing to AIRS was moved to GDAAC, which still uses SIP. Performance from the G-DAAC improved a bit in late September, but the daily median is still below the requirement, thus a FY'02-'04 rating of "LOW". The previous requirements showed a drop in FY'03 requirements, but this has now been corrected.

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4) CA, RSS: (Santa Rosa):

Ratings: ↓ Excellent → **Good**

Teams: AMSR
Domain: remss.com
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/RSS.html

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
JPL PODAAC	2767	2250	1415	NISN SIP: 2 x T1

Requirements:

Source Node	FY	kbps	Rating
JPL PODAAC	'02	376	Excellent
JPL PODAAC	'03	1160	Good
JPL PODAAC	'04	1929	Adequate

Comments: Performance was very stable this month, as good as can be expected from a pair of T1s. The median daily worst was well above 3 x the FY '02 requirement, but with the increased FY'03 and '04 requirements, the rating drops to "Good" for FY'03 and "Adequate" for FY'04.

Note: RSS also has a requirement to flow data to NSSTC (see #1). This is not tested yet. The requirement is 900 kbps in FY '03, but grows to 3.1 mbps in FY'04 and 4.4 mbps in FY'05. While the FY'03 requirement is achievable with the 2 x T1 configuration, the FY'03 and '04 flows are not.

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5) CA, UCSB :

Rating: ↑ GSFC: Good → **Excellent**
EDC: **Excellent**

Teams: MODIS
Domain: s2k.ucsb.edu
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/UCSB.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	19.4	16.5	11.1	Abilene via NISN / MAX
EDC-LPDAAC	19.8	18.0	12.8	Abilene via vBNS+/Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC-MODIS	'02, '03, '04	2.0, 2.2, 2.5	**Excellent**
EDC-LPDAAC	'02, '03, '04	1.6, 1.8, 1.9	**Excellent**

Comments: Thruput from both sources improved about 40% on November 21. The revised requirements are now split between EDC and GSFC (totals are about the same as the previous values), and combined with the performance improvement result in an upgrade to "Excellent"

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6) CA, UCSD (SIO) :

Ratings: GSFC Continued **Good**
LaRC: Continued **Excellent**

Teams: CERES, ICESAT
Domain: ucsd.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UCSD.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC (12/16-12/31)	41.3	36.8	17.1	Abilene via MAX
GSFC (11/26-12/15)	23.6	14.5	8.5	Abilene via MAX
GSFC (10/25-11/19)	40.5	31.3	9.9	Abilene via MAX
LaTIS	19.4	16.6	11.1	Abilene via NISN / Chi

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02	6.2	**Good**
GSFC	'03, '04	6.5	**Good**
LaTIS	'02, '03, '04	0.25	**Excellent**

Comments: Thruput from GSFC went through some phases, as shown above. Most recently, the daily worst thruput was a bit below 3 x the requirement, so the rating remains "Good". In the earlier period shown, the performance is still good, but with little margin.
Performance from LaTIS was not as variable. Although the performance is lower than from GSFC, the CERES requirements are much lower, so the rating is "Excellent".

7) CO, Colo State Univ.:

Rating: Continued **Adequate**

Teams: CERES
Domain: colostate.edu
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/COLO-ST.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	3.0	2.3	1.1	Abilene via NISN / Chicago
GSFC	4.4	4.3	4.0	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02, '03, '04	1.67, 1.78, 1.87	**Adequate**

Comments: Performance from LaTIS remain stable but noisy after dropping around 1 July. The daily worst remains below the requirement for '02 through '04, so is rated "Adequate". Performance from GSFC is very steady, would rate as "Good" for both years. The thruput limitation (about 4.5 mbps) is the CSU 10M Ethernet LAN.

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8) CO, NCAR:

Ratings: LaRC: ↑ Adequate → **Good**
GSFC: **Excellent**

Teams:MOPITT, HIRDLS
Domain: scd.ucar.edu
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/NCAR.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	17.5	12.4	5.7	Abilene via NISN / Chicago
GSFC	64.5	46.0	26.7	Abilene via MAX
EDC	84.2	72.2	64.6	Abilene via vBNS+ / Chicago

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02, '03, '04	2.7	**Good**
GSFC	'02, '03, '04	2.3, 2.6, 3.2	**Excellent**

Comments: Performance from LaRC DAAC changed several times since dropping drastically on 28 Aug, due to NISN route and VC changes. This performance is difficult to nail down to a single rating, but thevalues above represent the whole months of November and December. In addition, the revised requirements are now split between LaRC and GSFC (total is about the same). So the rating improves to "Good".

Performance from GSFC began a slow descent at the end of September, from about 50 mbps typical, to under 20 at the middle of November. It then recovered to the values shown above. It is rated "Excellent" compared to the revised requirement.

Performance from EDC to NCAR remained excellent and very stable, using multiple TCP streams to mitigate the EDC firewall window size limitation.

9) FL, Univ. of Miami:

Rating: GSFC: Continued **Good**
LaRC: Continued **Excellent**

Teams: MODIS, MISR
Domain: rsmas.miami.edu
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/MIAMI.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	69.2	48.6	16.8	Abilene via MAX
GSFC-MODIS	36.5	28.6	9.4	Abilene via NISN / MAX
LaRC DAAC	11.5	7.0	2.6	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03, '04	9.7, 11.5, 13.3	**Good**
LaRC DAAC	'02, '03, '04	0.6, 0.8, 0.8	**Excellent**

Comments: Performance from all sources continues short term variable – with a noticeable drop the last half of December (included in values shown above). Rating remains "Good" from GSFC. From LDAAC via NISN to Abilene, performance is lower than from GSFC, but so are the requirements, so the rating remains "Excellent".

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10) MA, Boston Univ:

Rating: Continued **Excellent**

Teams: MODIS, MISR
Domain: bu.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/BU.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC DAAC	71.5	54.0	29.2	Abilene via vBNS+ / Chicago
GSFC	92.6	82.2	49.4	Abilene via MAX
LaRC DAAC	17.9	15.8	8.1	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
EDC DAAC	'02, '03, '04	1.7, 2.0, 2.3	**Excellent**
LaRC DAAC	'02, '03, '04	0.9	**Excellent**

Comments: Performance from GSFC and EDC has been very stable since October '02. However, from LaRC performance has been quite erratic during this period. For example, the median was 27 mbps in October. The new requirements are about the same from EDC, which continues it's "Excellent" rating. The LaRC requirement has now been added. It is a small requirement, so that even with the erratic performance, the rating is "Excellent"

11) MA, MIT:

Rating: ↓ Excellent → **Adequate**

Teams: ICESAT
Domain: mit.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/MIT.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	7.0	6.8	6.0	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02	5.5	Good
GSFC	'03, '04	6.4	Adequate

Comments: Performance via Abilene has been very stable since testing began in January 2002. However, the revised requirement is much higher than previously (was 1.7 mbps), so the rating drops to "Adequate". Note that the thruput limit is a 10M Ethernet at MIT.

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12) MD, Univ. of Maryland:

Rating: Continued **Excellent**

Teams: MODIS
Domain: umd.edu
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/UMD-SCF.html
http://corn.eos.nasa.gov/performance/Net_Health/files/UMD-UMIACS.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX	157.4	151.6	131.3	Direct Fiber OC-12 / MAX / SCF
GSFC-MODIS				NISN / MAX / UMIACS
EDC	132.8	122.9	67.7	VBNS+ / Chi / Abilene / MAX / SCF
NSIDC	37.1	20.8	6.5	Abilene / MAX / SCF

Requirements (QA only):

Source Node	FY	mbps	Rating
GSFC DAAC	'02 – '04	2.0	Excellent

Comments: Very steady performance from GSFC-MAX and EDC. Performance from NSIDC stabilized around the middle of November (CU Boulder may have upgraded its connection to Abilene)

Note: The UMIACS test node has not been responding since 29 August.

13) MT, Univ of Montana: Rating: Continued **Excellent**

Teams: MODIS Domain: ntsg.umt.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/MONT.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC LPDAAC	26.7	19.2	7.6	VBNS+ / Chi / Abilene
GSFC	32.2	27.1	16.4	MAX / Abilene
NSIDC	29.4	16.9	5.0	CU / FRG / Abilene

Requirements:

Source Node	FY	kbps	Rating
EDC LPDAAC	'02, '03, '04	459, 531, 603	**Excellent**

Comments: Major drop from all sources observed 10-15 December – to about 5-10 mbps. Otherwise, very stable performance. With the low requirements, the rating continues as "Excellent".

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14) NM, LANL: Rating: Continued **Excellent**

Teams: MISR Domain: lanl.gov
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/LANL.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	15.6	13.9	5.4	NISN SIP / MAE-W (Ames) / ESnet
GSFC	16.8	16.7	15.2	MAX / ESnet

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02, '03-'04	616, 756	**Excellent**

Comments: Performance from LaRC generally stable but noisy. Performance from GSFC very stable.

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15) NY, SUNY-SB: Rating: Continued **Excellent**

Teams: CERES, MODIS Domain: sunysb.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/SUNYSB.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	8.5	6.8	37	NISN SIP / MAX / Abilene / NYSERnet
GSFC	46.4	41.3	29.1	MAX / Abilene / NYSERnet

Requirements:

Source Node	FY	kbps	Rating
LaTIS	'02-'04	550	**Excellent**

Comments: Performance from LaTIS slowly declined during most of November and December; median had been16.8 mbps for Aug through October. Performance from GSFC improved on 9 December – median had been 21 mbps prior to that.

16) OH, Ohio State Univ:

Rating: Continued **Good**

Teams: ICESAT
Domain: ohio-state.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/OHIO-STATE.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	38.7	24.9	10.3	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02 '03	5.7	Good

Comments: Performance noisy but stable since firewall installation at Ohio in September '02.

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17) OR, Oregon State Univ:

Rating: ↓ Good→ **Adequate**

Teams: CERES, MODIS
Domain: oce.orst.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/ORST.html

Test Results: (21 November to 31 December)

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	12.0	8.0	3.1	Abilene via NISN / Chicago
JPL	21.8	14.3	10.0	CalREN / Abilene
GSFC	15.8	10.6	5.8	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02, '03, '04	4.2, 4.8, 5.4	Adequate
GDAAC	'02 - '04	0.25	Excellent

Comments: Performance from all sources steady until 30 Sept, when it began a slow decline, with a daily cycle -- from all sources. This is indicative of congestion in the west. Performance partially recovered on 21 November, but the daily median worst from LaTIS was below the requirement, dropping the rating to "Adequate".

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18) PA: Penn State Univ

Rating: Continued **Good**

Teams:MISR
Domain: psu.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/PENN-STATE.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	12.3	11.4	5.1	Abilene via NISN / MAX
GSFC	51.9	51.1	44.9	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02, '03-'04	2.1, 2.3	Good

Comments: Performance from LDAAC dropped in November (median was 22 mbps in October); but rating still "Good". Performance from GSFC has been very stable since May '02.

19) TX: Univ. Texas - Austin

Rating: Continued **Excellent**

Teams: ICESAT
Domain: utexas.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/TEXAS.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	48.7	45.4	34.5	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03-'04	8.8, 5.1	**Excellent**

Comments: Performance from GSFC via Abilene remains very stable

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20) VA, LaRC - SAGE III MOC:

Rating: Continued **Excellent**

Teams: SAGE III
Domain: larc.nasa.gov
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/SAGE-MOC.html

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
GSFC-SAFS	4218	3965	1308	NISN SIP

Requirements:

Source Node	FY	kbps	Rating
GSFC SAFS	'02 – '04	200	**Excellent**

Comments: LaRC firewall upgrade in March '02 removed the former daily cycle.

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21) WA, Univ Washington:

Rating: ↑ Adequate → **Good**

Teams: ICESAT
Domain: washington.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UW.html

Test Results: 18 November – 31 December

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	29.5	21.4	12.6	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02 – '04	11.0	**Good**

Comments: Performance started a slow decline around 1 October (see also Oregon State), dropping rating to "Adequate" for October. By the end of the October the thruput was close to a "Low" rating. Performance made a partial recovery on 18 November – the values above reflect this recovery, improving the rating back to "Good".

22) WI, Univ. of Wisconsin:

Rating: ↓ Excellent → Good

Teams: MODIS, CERES, AIRS

Domain: ssec.wisc.edu

Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/WISC.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MODIS	81.1	56.5	24.3	MAX / Abilene / Chi / MREN
GSFC-MAX	59.9	47.6	19.5	MAX / Abilene / Chi / MREN
GSFC-NISN	15.8	14.8	8.6	NISN / Chicago / MREN

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03, '04	8.4, 10.2, 11.9	Good
LaRC	'03, 04	5.4, 6.1	Not Tested

Comments: Testing was down from early November through Mid December due to the test host at Wisconsin (Thruput was similar from all sources before and after this period). Performance steady from GSFC-MODIS and GSFC-MAX via Abilene, and via NISN from GSFC-NISN. But increase in requirements drops rating to "Good".

New requirement added from LaTIS for CERES (actually, not a new requirement, but newly included here). Will begin testing next month.

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23) Brazil, INPE:

Rating: Continued Adequate

Team: HSB

Domain: inpe.br

Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/INPE-HSB.html

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
GSFC	2037	1149	496	MAX / Abilene / AMPATH / ANSP
GSFC	1011	467	160	NISN / GBLX / ANSP

Requirements: (2 ISTs only)

Source Node	FY	kbps	Rating
GSFC EOC	'02 – '04	1024	Adequate

Comments: Testing via two routes: performance via AMPATH improved on 3 December. Requirements also increased, due to ISTs now considered to require 512 kbps (previously 311). So the rating continues "Adequate" (barely). Performance via commodity path would rate "Low".

24) Canada, Univ of Toronto: Rating: Continued Good

Team: MOPITT Domain: physics.utoronto.ca
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/TORONTO.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	1.43	1.42	1.11	NISN / GSFC / T1
LaRC DAAC	13.6	9.69	2.53	NISN / Chicago / CA*net4
GSFC	1.43	1.42	1.10	NISN / T1
GSFC	24.9	24.8	22.7	MAX / Abilene / Chicago / CA*net4

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 - '04	100	Excellent
GSFC EOC	'02 - '04	512	Good
Combined	'02 - '04	612	Good

Comments: Performance from both LDAAC (Source of QA data) and GSFC (Source for IST) via NISN dedicated T1 is very steady. Since both flows are combined together on the T1, the performance compared to the combined requirement rates as "Good".

Performance via CA*net4 from GSFC has been very steady since 19 August 2002, would be rated "Excellent". Performance from LaRC via NISN / Chicago / CA*net4 / ONet was generally stable (but noisy) since August, except for the period 16 October through 7 November performance from LDAAC was terrible – usually under 1 mbps. The values above represent the period from 8 November to 31 December '02.

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25) IT, EC - JRC: Rating: Continued Adequate

Teams: MISR Domain: ceo.sai.jrc.it
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/JRC.html

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
LaRC DAAC	806	688	124	NISN / UUnet / Milan
GSFC-NISN	866	815	285	NISN / UUnet / Milan

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 – '04	378	Adequate

Comments: Performance has been stable, with the typical noisy performance from LaRC, and lower daily worst value.

Note: The previous 1.9 mbps FY'03 requirement has been removed – it would not have been met.

26) Netherlands, KNMI:

Rating: Continued **Excellent**

Teams: OMI Domain: nadc.nl

Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/KNMI-OMIPDR.html
http://corn.eos.nasa.gov/performance/Net_Health/files/KNMI.html

Test Results:

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX → OMI PDR Server	39.1	36.2	17.7	MAX / Abilene/ Chi / Surfnet
GSFC-MAX → KNMI Test Node	87.0	86.1	72.7	MAX / Abilene/ Chi / Surfnet
GSFC-NISN → KNMI Test Node	26.7	16.2	3.3	NISN / Chi / Surfnet

Requirements: (2 ISTs Only)

Source Node	FY	Mbps	Rating
GSFC	'04	1.024	**Excellent**

Comments: KNMI provided a new interface to the OMI PDR server, so thruput is no longer limited by the maximum TCP window size on the KNMI firewall. Performance improved dramatically – the median in October was 3.6 mbps.

Performance is very stable to the KMNI Test node -- thruput increased in September from the previous median of 62 mbps due to the Surfnet upgrade of their connection to Chicago to 10 Gbps (!). This is exceptionally good performance for US to Europe! This flow now appears limited by a 100 mbps LAN – probably at KNMI.

Performance via NISN to Chicago improved on 26 November (median was 7.3 mbps until then). But performance is much lower than via Abilene. Therefore, it is important that all servers at GSFC which communicate with KNMI have access to MAX.

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27) Russia, CAO (Moscow):

Rating: Continued **Excellent**

Teams: SAGE III Domain: mipt.ru

Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/CAO.html
http://corn.eos.nasa.gov/performance/Net_Health/files/LARC-SAGE.html

Test Results:

Source → Dest	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
CAO → LaRC	158	157	145	MIPT / TCnet / NISN SIP
CAO → LaRC	1122	1046	534	Commodity Internet
LaRC → CAO	145	138	116	NISN SIP / TCnet / MIPT
LaRC → CAO	1230	1084	540	Commodity Internet

Requirements:

Source → Dest	FY	kbps	Rating
CAO → LaRC	'02 – '04	26	**Excellent**
LaRC → CAO	'02 – '04	26	**Excellent**

Comments: Performance testing running since 1 November '02, with dual routes. Performance on NISN dedicated circuit to Moscow, then TCnet (NASA Russian ISP) tunnel to CAO ISP (MIPT) is extremely steady in both directions (but with an occasional outage – about 1 day per week or so).

The dual route configuration also allows testing via the commodity internet route. Performance via that route is better, and has fewer outages but is more variable, and also would rate Excellent.

28) UK, London: (UCL SCF)

Rating: Continued **Good**

Teams: MODIS, MISR

Domain: ucl.ac.uk

Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UCLSCF.html

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
LaRC DAAC	2682	2102	1455	NISN / MAX / Abilene / NY / JAnet
GSFC DAAC	5970	5855	4266	MAX / Abilene / NY / JAnet

Requirements

Source Node	FY	kbps	Rating
LaRC DAAC	'02 – '04	756	Good

Comments: Performance from LDAAC improved a bit more in the daily worst value –less noisy. The rating remains "Good".

Performance from GSFC has been very stable; would rate as "Excellent".

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29) UK, Oxford:

Rating: Continued **Excellent**

Teams: HIRDLS

Domain: ox.ac.uk

Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/OXFORD.html

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
GSFC	4961	3896	3333	MAX / Abilene / NY / JAnet

Requirements: (IST Only)

Source Node	FY	kbps	Rating
GSFC	'03 – '04	512	Excellent

Comments: Very steady performance continues. IST requirement raised from 311 kbps.

Test Results to other EOS HIRDLS UK Sites (Requirements TBD):
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UK-RAL.html

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC → RAL	7.3	2.3	0.9	MAX / Abilene / NY / JAnet

Comments: Thruput to RAL is noisy, but remains excellent. Thruput slowly declined from the end of October to mid December, but recovered somewhat after that – median was 8 mbps before that.