Appendix E. Performance Parameter Synopsis

Appendix E of this requirements specification provides a synopsis of the key baseline sizing parameters for the SDPS. These synopsis are derived, in many cases, from larger information sets which include the following:

- *ECS Technical Baseline*–For the Release-A PDR, the technical baseline was dated January of 1995, as derived from the ECS PDR Technical Baseline technical paper (Reference #:). This baseline document provides full details for the following:
  - Mission Baseline (Spacecraft/Instrument manifests)
  - Data Product Set (Data products/parameters and required resources - processing, storage and dependencies
  - Landsat 7 and TRMM (TSDIS) requirements
  - User "pull" baseline (Baseline user load in terms of number of users, accesses and distribution load for various time periods)
  - Level 3 Requirements baseline (F&PRS Version and any modifications)
  - M&O DAAC Implementation Baseline (DAAC activation and hours of operational support)
  - Phasing of Capacities (Capacity buildup (processing/archive) relative to launch for those products not defined by the Ad hoc Working Group on Production (AHWGP) results.
- *Adhoc Working Group on Production (AHWGP) Data*–Although it is discussed separately here, this data from the AHWGP is a part of the ECS Technical Baseline. This data includes the following forms of information:
  - *Process Descriptions*: Information provided by the AHWGP that describes the processes that produce products for CERES/LIS and all AM-1 instruments. Data with respect to operations, I/O files and when processes are to be executed is provided by the Process Descriptions.
  - *File Descriptions*: Information provided by the AHWGP that describes the files input and output by the processes. Data with respect to file types, sizes, archived location are provided at a minimum.
  - *Processing Timelines*: This data reflects the processing load (MFLOPS) required by each instrument/process, as derived from the information provided by the AHWGP. This information is provided for each calendar year quarter (as applicable).
  - *Volume Timelines*: Similar to Processing Timelines, but applied to volume instead. This data reflects the volumes (in GBytes/day) that are required to be archived for

each file, as derived from the information provided by the AHWGP. This information is provided for each calendar year quarter (as applicable).

Multiple mission epochs are covered by this AHWGP data and it is expected that this data will be revised. A synopsis of the Release-A specific parameters (available as of the ECS SDPS PDR time frame) is provided within this appendix. For full details, please reference the ECS Technical Baseline.

- *Data Model*–In addition to supplying details with respect to the data architecture of the ECS holdings for specific releases, the Core Metadata analysis has yielded static sizing parameters which drive system sizing. These parameters are provided here in synopsis form and are applied as a function of the number of granules to be held in inventory. This information envelopes DBMS static disk sizing on a DAAC by DAAC basis as a function of granules held in the data pyramids particular to the site. Full details are provided within the Core Metadata Baseline Version 2.0 (Reference #: 420-TP-001-005).
- *User Model*–The User Modeling effort has derived predicted user access and distribution loads on the "pull" side of the ECS system including: the anticipated number of users, system accesses and volumes of data to be distributed. Although focused (so far) primarily on Release-B, key parameters are applied to Release-A "pull" system sizing. The key parameters are applied as ratios to the maximum distribution volume cap requirement supplied by ESDIS (specifically: electronic distribution equal to one times production volume, per day, and media-based distribution equal to one time production volume, per day). Full details are provided within the User Pull Analysis Notebook (Reference #: 160-TP-004-001).

The subsections that follow include synopsis material relevant to Release-A baseline requirements including: AHWGP loading factors, TSDIS product loading, Ingest loading parameters (including known Ancillary datasets), V0 dataset migration details, Core Metadata static sizing parameters (as applied to the number of granules to be held within the Data Servers), and user access load parameters expected.

E.1 AHWGP Production Loading

This section includes a synopsis of the loading requirements suggested by the AHWGP data for the Release-A time frame. This information is taken from the ECS Technical Baseline (Jan. 1995), and is expected to be revised.

E.2 TSDIS Product Loads

This section includes a synopsis of the loading requirements of TSDIS for Release-A. This information is taken from the ECS Technical Baseline (Jan. 1995).

E.3 Ingest of Mission Critical and Ancillary Data

This section includes a synopsis of the loading requirements of imposed by mission critical and ancillary data during the Release-A time frame. Table E-3 provides a snapshot of the key as they

are presently known. This information will be revised with data sets, data types, ingest rates, data formats, etc. as details become available for each interface and associated product(s).

Table E-1.

Process	DAAC	Volume at Initiation (MB)	Staging I/O (MB)	Volume at Completion (MB)	Destaging I/O (MB)	I/O Req'ments (MB)	CPU Req'ments (MFPOs)	No. Input Files	No. Output Files	Activations (day-1)	Volume Staged (MB/Day)	Volume Destaged (MB/day)	CPU req'ts (MFPOs per day)	FPOs per IO bytes	Input to Output Ratio
CERES 10aT	LaRC	10,317	10,367	10,931	564	10,931	245,700	1738	1	0.03	311	17			
CERES 11a	LaRC	91	91	182	0	182	37,800	1	1	0.1	9	0	3,780	207.69	0.00
CERES 12aF	LaRC	82	32	334	252	334	37,800	10	24	1	32	252	37,800	113.17	0.13
CERES 1aT	LaRC	138	87	852	714	852	20,790	4	25	1	87	714	20,790	24.40	0.12
CERES 2aT	LaRC	375	324	706	331	596	3,780	4	2	0.6	194	199	2,268	6.34	0.98
CERES 3aT	LaRC	164	114	836	672	836	47,250	3	3	0.03	3	20	1,418	56.52	0.17
CERES 4aF	LaRC	348	206	593	245	505	34,020	8	2	24.8	5,109	6,076	843,696	67.37	0.84
CERES 9aTF	LaRC	205	154	207	2	207	4,914	3	1	24.8	3,819	50	121,867	23.74	77.00
LIS	MSFC	7	7	93	86	92	2,492	2	11	14.56	102	1,252	36,284	27.09	0.08
Total	9	11,727	11,382	14,734	2,866	14,535	434,546	1,773.0	70.0	66.9	9,667	8,579			
Mean		1,303	1,265	1,637	318	1,615	48,283	197.0	7.8	7.4	1,074	953			
Mode		#N/A	#N/A	#N/A	#N/A	#N/A	37,800	4.0	1.0	0.0	#N/A	#N/A			
Median		164	114	593	252	505	34,020	4.0	2.0	1.0	102	199			
Minimum		7	7	93	0	92	2,492	1.0	1.0	0.0	3	0			
Maximum		10,317	10,367	10,931	714	10,931	245,700	1,738.0	25.0	24.8	5,109	6,076			
EDC	22	512,623	501,481	514,490	1,069	497,570	1,060,911	4,908	28	1,715	3,222,698	68,282	13,773,495		
GSFC	47	310,169	309,925	443,263	138,644	435,109	4,160,613	2,572	66	8,746	4,374,752	597,939	301,791,028		
JPL	10	16	16	66	49	66	1,332,636	52	10	108	226	693	1,845,540		
LaRC	42	99,053	97,498	127,063	27,823	126,865	44,658,136	8,175	411	329	515,071	229,214	624,917,535		
MSFC	1	7	7	93	86	92	2,492	2	11	15	102	1,252	36,284		
NSIDC	4	263	261	283	19	280	1,433	108	4	811	26,928	2,485	83,622		

Table E-2. TRMM Product Estimates for TSDIS

Proc. Level	VIRS	TMI	PR	Combined	GV	TOTAL (MB/day)
Level-0	(477.7)	(89.1)	(967.3)		(2266)	
Level-1A	656.5	118.9	1145.7		0	1921.1
Level-1B	743.7	104.7	1145.1		755	2748.5
Level-1C	0	0	1145.1		3570.7	4715.8
Level-2A	0	2109.5	888.3		1598.1	4595.9
Level-2B	0	0	0	695.2	0	695.2
Level-3A	0	<0.1	<0.1		0.7	0.7
Level-3B	0	0	0	0.1	0	0.1
Browse	8.3	16.5	40	11.4	13.2	89.4
TOTAL	1408.5	2349.6	4364.2	706.7	5937.7	14766.7

Note: ( ) indicates not archived by ECS.

Table E-3. Ingest of Mission Critical and Ancillary Data For Release A (1 of 4)

Prod ID	Data Set / Data Type	Source	Ingest Rate (MB/day)	Transfer Freq. (Files/ Trans)	Source Data Format	Archive Data Format	ECS Archive Site
CER00	CERES Level 0 Data	SDPF	90	Daily (3 files)	SFDU	SFDU	LaRC
LIS00	LIS Level 0 Data	SDPF	65	Daily (1 file)	SFDU	SFDU	MSFC
TBR	TRMM H/K Data	SDPF	TBR	Daily (1 file)	SFDU	SFDU	TBR
Listed after each product	TMI: Level 1A Product (1A-TMI) Radiances (1B-11) Vertical Hydrometer Profiles((2A-12) Emission (3A-11)	TSDIS	2350	TBR	Level 1A: SFDU Other: HDF	HDF/?	MSFC
Listed after each product	VIRS: Level 1A Product (1A-VIRS) Radiances (1B-01)	TSDIS	1409	TBR	Level 1A: SFDU Other: HDF	HDF/?	GSFC

Table E-3. Ingest of Mission Critical and Ancillary Data For Release A (2 of 4)

Prod ID	Data Set / Data Type	Source	Ingest Rate (MB/day)	Transfer Freq. (Files/ Trans)	Source Data Format	Archive Data Format	ECS Archive Site
Listed after each product	PR: Level 1A Product (1A-PR) Total Power (1B-21) Radar reflectivity (1C-21) Surface Reflectivity (2A-21) Qualitative (2A-23) Hydrometeor Profiles (2A-25) Rainfall (3A-25) Surface Rain (3A-26)	TSDIS	4364	TBR	Level 1A: SFDU Other: HDF	HDF/?	MSFC
Listed after each product	GV: GT calibration (1B-51) OC Reflectivities (1C-51) Measurable Precipitation (2A-52) Rain Map (2A-53) Convective Map (2A-54) 3-D Reflectivities (2A-55) 5-day Rainfall Map (3A-53) Rainfall Map(3A-54) Monthly 3-D Structure (3A-55)	TSDIS	5937	TBR	HDF	HDF/?	MSFC
Listed after each product	TSDIS Combined Products: Rain Estimates (3B-42) Surface Rainfall Map (3B-43) Combined Radar/Radiometer(2B-31) Rainfall Combined (3B-31)	TSDIS	706	TBR	HDF	HDF	TBR

Table E-3. Ingest of Mission Critical and Ancillary Data For Release A (3 of 4)

Prod ID	Data Set / Data Type	Source	Ingest Rate (MB/day)	Transfer Freq. (Files/ Trans)	Source Data Format	Archive Data Format	ECS Archive Site
NMC-MRF	NMC gridded geopotential, wind speed, water vapor, layered atmospheric temperature (Medium Range Forecast System 0-hour Forecast)	NMC	10	Daily (20 files)	GRIB	TBR	GSFC
NMC-ETA	NMC gridded land surface temperature (Eta Analysis and Forecast System 0-hour Forecast)	NMC	5.5	Daily (8 files)	GRIB	TBR	GSFC
NMC-FNL	NMC gridded snow depth (Final Analysis and Forecast System—Global Analysis)	NMC	4 MB	4/day (1 file)	GRIB	TBR	GSFC
NESDIS-TKTG	Aerosol global analyzed field (optical depth units)	NESDIS	n/a (1.4 MB/week) (TBR)	Weekly	TBR	TBR	TBR
	TMI microwave humidity (total precipitable water)* (TBR: This matches up with one of the TSDIS products already listed)	TSDIS	TBD	TBR	TBR	TBR	MSFC
	Snow/Ice Cover (Navy Algorithm) [IOC March '93]	NESDIS	4 (TBR)	4/day (1 file)	TBR	TBR	TBR
NESDIS-TJTG	Vegetation index	NESDIS	n/a (35 MB/week) (TBR)	Weekly	TBR	TBR	TBR
	AVHRR Level 1b	NESDIS	Not Required	N/A	N/A	N/A	N/A
	Digital elevation map	NGDC	n/a: (Static - 200 MB/5 years)	TBR	TBR	TBR	TBR
	Surface map of water conditions	NGDC	Static: TBR	TBR	TBR	TBR	TBR

Table E-3. Ingest of Mission Critical and Ancillary Data For Release A (4 of 4)

Prod ID	Data Set / Data Type	Source	Ingest Rate (MB/day)	Transfer Freq. (Files/ Trans)	Source Data Format	Archive Data Format	ECS Archive Site
	Surface map of vegetation (TBR)	NGDC	TBR: Static - few MB	TBR	TBR	TBR	TBR
GPCP	GPCP (GPCC Global Precipitation)	(TBR)	n/a (1.6 MB/ month)	Monthly	ad hoc native (TBR)	TBR	MSFC
GPI	GPI (GPCP Satellite-Derived (IR) Monthly Rainfall	(TBR)	<1 (3.5 MB/ month)	Monthly	ad hoc native (TBR)	TBR	MSFC
	VIRS Cloud Imager Data *(TBR: This matches up with one of the TSDIS products already listed)	TSDIS	TBR	TBR	TBR	TBR	MSFC
	TOMS column ozone	GSFC	TBR	TBR	TBR	TBR	GSFC
	SAGE-II thin stratospheric aerosol optical depth	LaRC	TBR	TBR	TBR	TBR	LaRC
	SAGE-II stratospheric ozone	LaRC	TBR	TBR	TBR	TBR	LaRC
	ISCCP radiances	LaRC	TBR	TBR	TBR	TBR	LaRC
	TMI microwave water path over oceans *(TBR: This matches up with one of the TSDIS products already listed)	TSDIS	TBR	TBR	TBR	TBR	MSFC
	SSM/I Level 1b	MSFC(TBR)	168 MB/day	TBD/day (28 files/day)	NOAA DEF	TBR	MSFC
	POAM-II/SPOT-III thin stratospheric optical depth**		*Not Required*	N/A	N/A	N/A	N/A

E.4 V0 Data Migration Volumes and Data Types

This section includes the following information on V0 data migration volumes and data types: Table E-4 which bounds the V0 migration volumes for Release A, and provides a list of the product migration responsibilities broken down by DAAC site, and Table E-5 which discusses the data types to be migrated.

Table E-4's contents have been approved by reviewed/approved by DAAC management. Some of this data is still operational in 1996, the volume will still be growing in the 1996 time frame:

Table E-4. Release A Initial Operations at the DAACs

DAAC	Data Set	Products*
GSFC	TOMS-nimbus 7	G-26
GSFC	CZCS level 1	G-11
GSFC	AVHRR Pathfinder	G-1,G-2,G-3,G-4
LaRC	ERBE (S-4,S-4G,S-4GN,S-8,S-9,S10N)	L-1,L-3,L-4,L-7,L-5,L-8,L-11,L-14
LaRC	ISCCP D-x, D-1,D-2	L-48,L-49,L-50
LaRC	SAGE II level 2&3	L-33,L-34,L-35,L-36,L-37,L-38
MSFC	SSM/I Pathfinder	M-13,M-14,M-15,M-48
MSFC	TOVS Pathfinder	M-56,M-57,M-58,M-59,M-60, M-61
MSFC	SMMR Pathfinder	M-63

*Product descriptions can be found in the Science Data Plan Appendix A. Approximate 1996 volume: GSFC 841 GB, LaRC 784 GB, MSFC 193 GB

Table E-5. V0 Data Migration Ingest For Release A (Data Types) (1 of 3)

Prod ID	Data Set/Data Type	Source	Ingest Rate	Rel-A Data Volume (GB)	V0 Media/ Backup	ECS Archive Site
M-13	DMSP-F8 SSM/I Pathfinder Antenna Temperatures	MSFC V0	Migration	38.5	WORM Optical/(8 mm)	MSFC
M-15/48	DMSP-F8 SSM/I Pathfinder Precipitation Rate Product	MSFC V0	Migration	7	WORM Optical/(8 mm)	MSFC
M-14	DMSP-F8 SSM/I Pathfinder Atmospheric Moisture Product	MSFC V0	Migration	21.5	WORM Optical/(8 mm)	MSFC
M-56	TIROS-N, NOAA-6,7,9,10,11,12, MSU TOVS Pathfinder C1 MSU Monthly am(Ch2/3, Ch 4, Ocean Precip)	MSFC V0	Migration	.32*	WORM Optical/(8 mm)	MSFC
M-57	TIROS-N, NOAA-6,7,9,10,11,12, MSU TOVS Pathfinder C1 MSU Monthly pm(Ch2/3, Ch 4, Ocean Precip)	MSFC V0	Migration	.32*	WORM Optical/(8 mm)	MSFC

Table E-5. V0 Data Migration Ingest For Release A (Data Types) (2 of 3)

Prod ID	Data Set/Data Type	Source	Ingest Rate	Rel-A Data Volume (GB)	V0 Media/ Backup	ECS Archive Site
M-58	TIROS-N, NOAA-6,7,9,10,11,12, MSU TOVS Pathfinder C1 MSU Pentad am(Ch2/3, Ch 4, Ocean Precip)	MSFC V0	Migration	1.75*	WORM Optical/(8 mm)	MSFC
M-59	TIROS-N, NOAA-6,7,9,10,11,12, MSU TOVS Pathfinder C1 MSU Pentad pm (Ch2/3, Ch 4, Ocean Precip)	MSFC V0	Migration	1.75*	WORM Optical/(8 mm)	MSFC
M-60	TIROS-N, NOAA-6,7,9,10,11,12, MSU TOVS Pathfinder C1 MSU Daily am(Ch2/3, Ch 4, Ocean Precip)	MSFC V0	Migration	8.5*	WORM Optical/(8 mm)	MSFC
M-61	TIROS-N, NOAA-6,7,9,10,11,12, MSU TOVS Pathfinder C1 MSU Daily pm (Ch2/3, Ch 4, Ocean Precip)	MSFC V0	Migration	8.5*	WORM Optical/(8 mm)	MSFC
M-62	TIROS-N, NOAA-6,7,9,10,11,12, MSU TOVS Pathfinder C2 MSU	MSFC V0	Migration	TBR	WORM Optical/(8 mm)	MSFC
M-63	SMMR Pathfinder Brightness Temperature	MSFC V0	Migration	TBR	TBR	MSFC
G-1	AVHRR Daily Land Mosaic	GSFC V0	Migration	150	Metrum VHS/(8 mm)	GSFC
G-2	AVHRR Daily Browse Product	GSFC V0	Migration	.5	Metrum VHS/(8 mm)	GSFC
G-3	AVHRR 10 Day Mosaic	GSFC V0	Migration	15	Metrum VHS/(8 mm)	GSFC
G-4	AVHRR 10 Day Browse Product	GSFC V0	Migration	.05	Metrum VHS/(8 mm)	GSFC
G-26	CDTOMS2 Gridded Ozone	GSFC V0	Migration	.37	Metrum VHS/(8 mm)	GSFC
G-11	CZCS Data High Resolution Raw Data	GSFC V0	Migration	TBR	TBR	GSFC
L-48	ISSCP Stage D2 Product	LaRC V0	Migration	.6	Optical Disk	LaRC
L-49	ISSCP Stage D1 Product	LaRC V0	Migration	38	Optical Disk	LaRC

Table E-5. V0 Data Migration Ingest For Release A (Data Types) (3 of 3)

Prod ID	Data Set/Data Type	Source	Ingest Rate	Rel-A Data Volume (GB)	V0 Media/ Backup	ECS Archive Site
L-50	ISSCP Stage Dx Product	LaRC V0	Migration	TBR	Optical Disk	LaRC
L-11	NOAA-9 ERBE S8 - Processed Archival Tape	LaRC V0	Migration	25.6	Optical Disk	LaRC
L-14	NOAA-10 ERBE S8 - Processed Archival Tape	LaRC V0	Migration	33.2	Optical Disk	LaRC
L-3	ERBS, NOAA-9, 10 ERBE S4G - Regional , Zonal, and Global Gridded Averages	LaRC V0	Migration	1.54	Optical Disk	LaRC
L-4	ERBS, NOAA-9, 10 ERBE S4GN - Regional, Zonal, and Global Averages (Non-scanner only alg)	LaRC V0	Migration	.44*	Optical Disk	LaRC
L-8	ERBS ERBE S8 - Processed Archival Tape	LaRC V0	Migration	70	Optical Disk	LaRC
L-1	S4 - Regional, Zonal, and Global Averages	LaRC V0	Migration	TBR	Optical Disk	LaRC
L-5	S9 - Radiant Exitance and Albedo (Scanner)	LaRC V0	Migration	TBR	Optical Disk	LaRC
L-7	S10N - Radiant Exitance and Albedo (Non-scanner only algorithm)	LaRC V0	Migration	TBR	Optical Disk	LaRC
L-33	ERBS SAGE II O3 Monthly Averages	LaRC V0	Migration	TBR	Optical Disk	LaRC
L-35	ERBS SAGE II Aerosol Profile	LaRC V0	Migration	1.09	Optical Disk	LaRC
L-36	ERBS SAGE II H2O Profile	LaRC V0	Migration	.6	Optical Disk	LaRC
L-37	ERBS SAGE II NO2 Profile	LaRC V0	Migration	.2	Optical Disk	LaRC
L-38	ERBS SAGE II O3 Profile	LaRC V0	Migration	.5	Optical Disk	LaRC
L-34	SAGE II Cloud Occurrence	LaRC V0	Migration	TBR	Optical Disk	LaRC

An asterisk (*) indicates the data volume grows after Release A

E.5 Core Metadata Static Sizing

This section includes a synopsis of the static table size parameters derived from the Data Modeling analysis. Full details are provided within the Core Metadata Baseline Version 2.0 (Reference #: 420-TP-001-005). Table E-6 provides estimated sizing on a pyramid level by level basis. The MB sizes provided within the table are applied on a per product basis.

Table E-6 . Estimated Core Metadata Sizing by Pyramid Level

Core Metadata Item	Estimated Size (MB)	Multiplier
Directory	0.010758	per product
Guide	9.000	per product
Biblio Ref.	0.004676	per product
Inventory	0.008301	per granule
QA Stats	0.005	per granule
Summ. Stats	0.005	per granule
Algorithm	0.004988	per product
Prod Hist	0.00044	per granule
Browse	0	n/a
L4	0	n/a
L3	0	n/a
L2	0	n/a
L1B	0	n/a
L1A	0	n/a
Total MB/product	9.015434	
Total MB/granule	0.023729	

E.6 User Loading Profiles

This section includes a synopsis of the key user load parameters derived from the User Modeling analysis. Figure E-1 provides a plot describing simultaneous user service requests as a function of time. Tables E-7 and E-8 provides summary statistics associated with service requests made (by site and by level of pyramid accessed). This information will be revised. Please refer to User Pull Analysis Notebook (Reference #: 160-TP-004-001) for full details on the assumptions and the analysis.

Requests as a Function of Time The overall system service request rate was estimated by counting the number of times that each of the 15 high-level services were invoked in each scenario per year, multiplying by estimated science user demographics, and then summing across the 27 science user scenarios. The total number of service invocations was then distributed over a 24-hour period and averaged over a 250 day work- year. Users in all 24 time zones were accounted for, and results were referenced to local time at GSFC. For more detailed information on the methodology, please see *ECS User Model Inputs to System Performance Model: Methodology and Results*, January, 1995 (Reference #: 160-WK-001-001). Figure E-1 below provides a synopsis of the user service request rate, plotted as a function of time of the day.

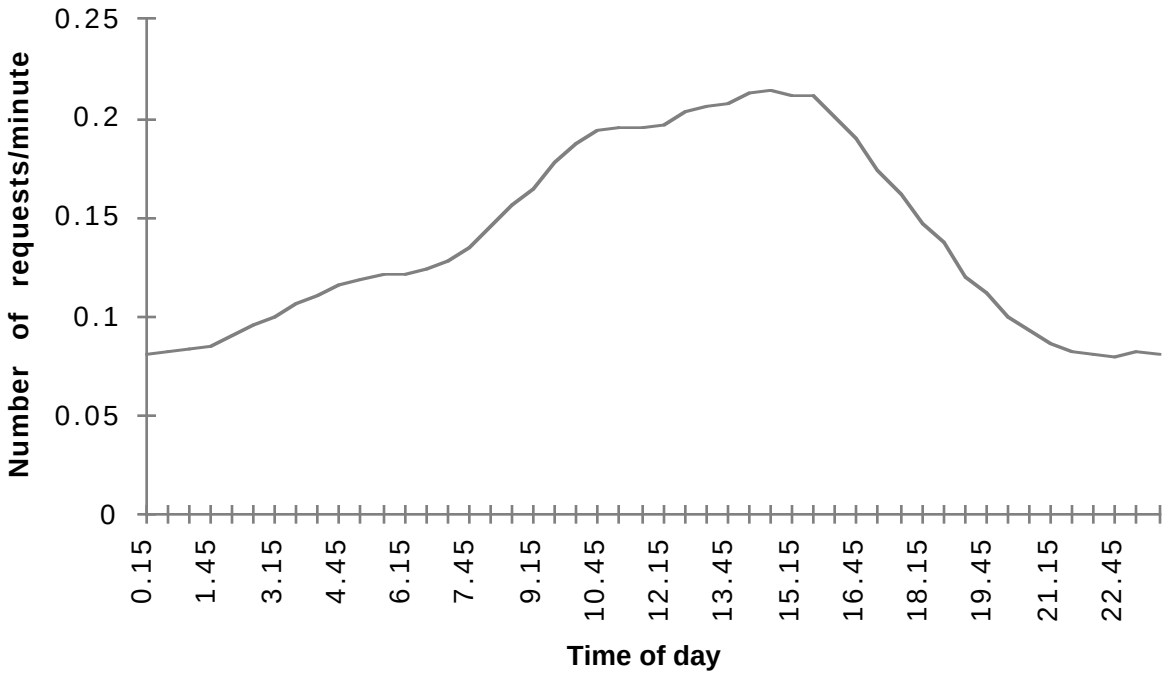

Figure E-1. Service Request Rate For Early 1997

User Accesses The science user scenarios (User Scenario Notebook, Reference # 194-00311TPW) and the science user demographics (User Pull Technical Baseline 12/21/95; ECS User Characterization Methodology and Results, Reference # 194-00313TPW) were analyzed to arrive at the estimates for the number of user accesses to data in each data pyramid layer at each DAAC.

Scenarios were intended to represent user interactions with ECS during Release B. Scenarios were not developed for Release A. Therefore, we have assumed that the proportion of accesses to the levels of the data pyramid are essentially the same for all Releases. Certain factors may affect the accuracy of this assumption—for example, scientists may access Quality Assurance statistics more in the first year of ECS operation, or may enter the upper layers of the data pyramid more frequently before they are familiar with the system and have transitioned from Version 0 to Version 1.

Based on these assumptions, Table E-8 provides an estimate for the minimum number of user accesses, and Table E-9 provides an estimate for the predicted maximum. This data is expected to be revised, at a minimum, during the Release-A CDR phase and through joint efforts with the Adhoc Working Group on Consumers (AHWGC).

Table E-7. Minimum estimate of the number of user accesses to data in each data pyramid layer by DAAC, in early 1997

	ASF	EDC	GSFC	JPL	LaRC	MSFC	NSIDC	Totals
Directory	0	0	80	0	80	21	0	181
Guide	0	0	925	0	925	243	0	2093
Biblio Ref.	0	0	2313	0	2313	609	0	5234
Inventory	0	0	414	0	414	109	0	937
QA Stats	0	0	1104	0	1104	290	0	2498
Summ. Stats	0	0	815	0	815	214	0	1845
Algorithm	0	0	646	0	646	170	0	1462
Prod Hist	0	0	50	0	50	13	0	113
Browse	0	0	777	0	777	204	0	1758
L4	0	0	1198	0	1198	315	0	2711
L3	0	0	467	0	467	123	0	1056
L2	0	0	4071	0	4071	1071	0	9214
L1B	0	0	2508	0	2508	660	0	5676
L1A	0	0	121	0	121	32	0	273
Grand Total	0	0	15487	0	15487	4076	0	35050
Metadata Total	0	0	7123	0	7123	1875	0	16120

Table E-8. Maximum estimate of the number of user accesses to data in each data pyramid layer by DAAC, in early 1997

	ASF	EDC	GSFC	JPL	LaRC	MSFC	NSIDC	Totals
Directory	0	0	133	0	133	35	0	302
Guide	0	0	1539	0	1539	405	0	3483
Biblio Ref.	0	0	3702	0	3702	974	0	8379
Inventory	0	0	667	0	667	176	0	1510
QA Stats	0	0	1822	0	1822	479	0	4123
Summ. Stats	0	0	1351	0	1351	355	0	3057
Algorithm	0	0	1069	0	1069	281	0	2419
Prod History	0	0	82	0	82	22	0	186
Browse	0	0	1278	0	1278	336	0	2892
L4	0	0	2083	0	2083	548	0	4714
L3	0	0	755	0	755	199	0	1709
L2	0	0	6704	0	6704	1764	0	15173
L1B	0	0	4096	0	4096	1078	0	9269
L1A	0	0	198	0	198	52	0	447
Grand Total	0	0	25479	0	25479	6705	0	57664
Metadata Total	0	0	11643	0	11643	3064	0	26351