

N89 - 22333

THE EOS DATA AND INFORMATION SYSTEM

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WHAT DATA COMPRESSION WILL DO

ON BOARD
HIGH SPEED NETWORK
TAPE RECORDERS
SIZE
RATE
MULTIPLEXER, Xfr FRAME

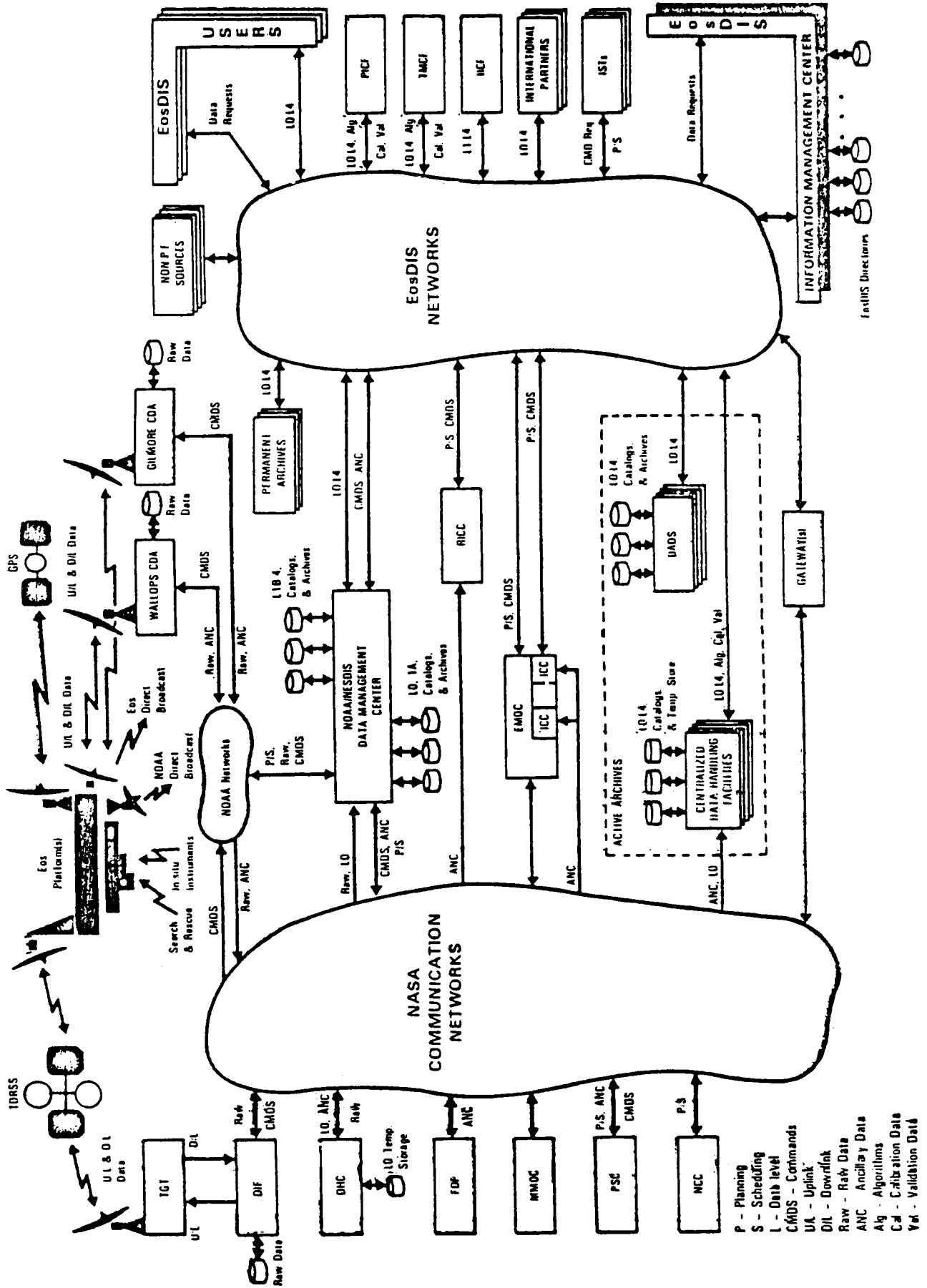
DOWNLINK
SIMPLIFY SCHEDULING
REDUCE TIME

DIF/DHC
SMALLER COMPUTERS
LESS STORAGE
EASIER TRANSMISSION

L1-4 PROCESSING
LESS COMPUTE
LESS STORAGE
REDUCE OPERATING COSTS
EASIER TRANSMISSION

ARCHIVAL
LESS COMPUTE (SUBSETS, PRODUCTS)
LESS STORAGE
REDUCE OPERATING COSTS
EASE DELIVERY
EASE MAINTENANCE

SCIENCE USER
REDUCE COST (?) NOT FOR HIGHER LEVEL
EASE INGEST (?) NOT FOR HIGHER LEVEL
REDUCE PROCESSING LOAD NOT FOR HIGHER LEVEL



PRELIMINARY EOS DIS ARCHITECTURE

OVERVIEW: APPROXIMATE INSTRUMENT DATA REQUIREMENTS

NPOP - 1 P.M.

INSTRUMENT	SUPPLIER/ CLASS	OPERATING DATA/RATE MBPS (AVG/PK)	ESTIMATED DUTY CYCLE %D	ESTIMATED DAILY VOL. TERABITS	LINK TDRSS/DB	DATA PROCESSING LEVEL RESPONSIBILITY				
						0	1	2	3	
ALT-1	N; OPS	.008/.013	100	.0007	T DB	N/T	N	i	i	i
AMRIR	N; OPS	5.5	100	0.475	T DB	N/T	N	i	i	i
AMSR *1	J; RES	.01	100	0.0009	T --	T	J	i	i	i
AMSU (2)	N; OPS	.0065	100	0.0005	T DB	N/T	N	i	i	i
ARGOS +	F; OPS	.0025	100	.0002	T ?	N	F	i	i	i
CR	AO; RES	.001	100	<.0001	T --	T	DC	i	i	i
ERBI (NS)	N; OPS	.001	100	<.0001	T DB	N/T	N	i	i	i
ERBI (S)	FRG;OPS	.001	100	<.0001	T DB	N/T	N	i	i	i
GOMR *2	N,C;OPS	.01	100	0.0009	T DB	N/T	N	i	i	i
HIRIS *3	U; FAC	10/280	2	0.86	T --	T?	DC	DC/i	DC/i	i
ITIR *4	J; FAC	8.3/52	20	0.72	T --	T	DC	DC/i	DC/i	i
MAG	AO; RES	.002	100	0.0002	T --	T	DC	i	i	i
MERIS *5	E; FAC	2.4/4.5	100	0.21	T --	T	DC	DC/i	DC/i	i
MODIS-N *6	U; FAC	4.85/8.3	100	0.42	T --	T	DC	DC/i	DC/i	i
MPD	AO; RES	.001	100	<.0001	T --	T	DC	DC/i	DC/i	i
PPS/PODS	AO; RES	<.001	100	<.0001	T DB	N/T	DC	i	i	i
S & R	I; OPS	.0001	100	0.00001	T --	I	N	i	i	i
SCATT-1	N; OPS	.0032	100	0.0003	T DB	N/T	N	i	i	i
SEM	N; OPS	.003	100	<.0003	T DB	N/T	N	i	i	i

* SEE NOTE PAGE
T = CDOS I = INTERNATIONAL DC = DATA CENTER i = INVESTIGATOR

OVERVIEW: APPROXIMATE INSTRUMENT DATA REQUIREMENTS

EPOP - 1 A.M.

INSTRUMENT	SUPPLIER/ CLASS	OPERATING		ESTIMATED DAILY VOL. TERABITS	LINK DR/DB	DATA PROCESSING LEVEL RESPONSIBILITY			
		DATA/RATE MBPS (AVG/PK)	ESTIMATED DUTY CYCLE %D			%N	0	1	2
ALT-2	E; P/O	.013	100	100	DR ?	E	E	E	E
AMIR	IT.;RES	.1	100	100	DR --	E	IT	i	i
AMRIR	N; OPS	5.5/5.5	100	100	-- DB	E/N	E	E	E
AMSU (2)	UK; OPS	.0065	100	100	- DB	E/N	UK	E	E
ARGOS +	F; OPS	.0025	100	100	-- DB	E/N	F	E	E
ATLID	E; RES	.01	50	50	DR --	E	E	D	i
ATSR +	AUS;OPS	.213	100	100	-- DB	E/N	AUS	E	E
CSR	FRG;P/O	.008	100	100	DR ?	E	FRG	E/DC	DC/i
GLRS	U; RES	.09/.5	15	15	DR --	E/T	E/DC	E	DC/i
HRIS *10	E; RES	39/200	20		DR --	E	E	E	E
MAG	AO; RES	.002	100	100	DR --	E	E/DC	E/DC	E
MPD	AO; RES	.001	100	100	DR --	E	E/DC	E/DC	E
PPS/PODS	AO; P/O	.0001	100	100	DR ?	E	E	E	E
S & R	I; OPS	.0001	100	100	-- DB	I	E	E	E
SAR-C *11	E; RES	75/200	50	25	DR --	E	E	E	E
SCATT-2	J; P/O	.003/.005	53	53	DR ?	E/N	E	E	E
SEM	N; OPS	.003	100	100	-- DB	E/N	E	E	E

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OVERVIEW: APPROXIMATE INSTRUMENT DATA REQUIREMENTS

NPOP - 2 P.M.

INSTRUMENT	SUPPLIER/ CLASS	OPERATING DATA/RATE MBPS (AVG/PK)	ESTIMATED DUTY CYCLE		ESTIMATE DAILY VOL. TERABITS	LINK TDRSS/DB	DATA PROCESSING LEVEL RESPONSIBILITY					
			%D	%N			0	1	2	3	4	
F/P-INT	AO; RES	.005	100	100	0.0004	T	DC	i	i	i	i	i
IR-RAD *7	AO; RES	.004	100	100	0.0003	T	DC	i	i	i	i	i
MAG	AO; RES	.002	100	100	0.0002	T	DC	i	i	i	i	i
MLS	AO; RES	.30	100	100	0.0026	T	DC	i	i	i	i	i
MPD	AO; RES	.001	100	100	<.0001	T	DC	i	i	i	i	i
PEM	AO; RES	.004	100	100	0.0003	T	DC	i	i	i	i	i
SAR *8	U,I;RES	20.3/280	50	50	1.754	T/ DB	DC/i	DC/i	DC/i	DC/i	DC/i	DC/i
SUB-MM *9	AO; RES	.003	100	100	<.0003	T	DC	i	i	i	i	i
SUSIM	AO; RES	.002	100	0	<.0002	T	DC	i	i	i	i	i

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OVERVIEW: APPROXIMATE INSTRUMENT DATA REQUIREMENTS

JPOP - 1 A.M.

INSTRUMENT	SUPPLIER/ CLASS	OPERATING DATA/RATE MBPS (AVG/PK)	ESTIMATED DUTY CYCLE %D	ESTIMATED DAILY VOL. TERABITS	LINK DR/DB	DATA PROCESSING LEVEL RESPONSIBILITY
						0 1 2 3 4
OCTS	J; RES	/2.1			DR ?	J
AVNIR	J; RES	/60			DR ?	J
LAWS	U; RES	.05/.1	50	.0043	DR ?	J
AMSR	J; RES	0.1	100	.001	DR ?	J
(SAR-L)	J; RES				DR ?	J
SAR-X	J; RES	/200			DR ?	J

INSTRUMENT DATA REQUIREMENTS OVERVIEW

REV 3 8/10/87

* NOTES

- *1 AMSR ASSUMES INTELSAT LINK (TBD)
- *2 GOMR TWO INSTRUMENTS, TOMS - TOTAL OZONE MONITOR
GLS - GLOBAL LIMB SCANNER
- *3 HIRIS AVERAGE RATE IS 10 MBPS, LONG TERM AVERAGE IS
APPROXIMATELY 3 MBPS
- *4 ITIR ASSUMED AVERAGE RATE
- *5 MERIS SOME OCEAN DATA MAY BE VIA DB: TBD
- *6 MODIS-N DAY RATE 8.4 MBPS, NIGHT RATE 1.5 MBPS
- *7 IR-RAD ESA INSTRUMENT IS THE CSLR
- *8 SAR MAPPING MODE @ 100 MBPS; RESEARCH MODE @ 300
MBPS
- *9 SUB-MM ESA INSTRUMENT IS THE FIRE
- *10 HRIS PLATFORM DATA VOLUME MAY BE LIMITED TO 1x10¹²
BITS/DAY TOTAL
- *11 SAR-C PLATFORM DATA VOLUME MAY BE LIMITED TO 1x10¹²
BITS/DAY TOTAL

ADDITIONAL NOTES

SAR ON ESA PLATFORM IS A SINGLE FREQUENCY SAR; DATA RATE QUOTED MAY BE HIGHER.

INSTRUMENT ASSIGNMENTS REFLECT THE INTERNATIONAL CO-ORDINATION MEETING (OTTAWA, MAY 87) AND NOT THE AUGUST 1986 BASELINE.

DATA RATES AND VOLUME ARE ESTIMATES ONLY; A DATA RELAY SATELLITE IS ASSUMED FOR THE ESA AND THE JAPANESE PLATFORMS.

ALTHOUGH CSLR AND FIRE ARE BOTH LISTED, IT MAY BE UNLIKELY THAT BOTH WILL BE PROVIDED.

JPOP-1 INSTRUMENT DATA NOT YET AVAILABLE.

LEGEND

AO	SUPPLIED UNDER AO; P.I. CLASS
AUS	AUSTRALIA
C	CANADA
DB	DIRECT BROADCAST
DR	DATA RELAY SATELLITE (ESA)
E	ESA
F	FRANCE
FAC	FACILITY INSTRUMENT (SAME AS CORE INSTRUMENT)
FRG	FEDERAL REPUBLIC OF GERMANY
I	INTERNATIONAL
J	JAPAN
N	NOAA
OPS	OPERATIONAL
P/O	POTENTIAL OPERATIONAL INSTRUMENT
RES	RESEARCH INSTRUMENT
U	U.S.A.
U.K.	UNITED KINGDOM

LIST OF INSTRUMENT ACRONYMS USED IN ANNEX 1

ALT	Radar Altimeter (TOPEX Class of instrument)
AMSR	Advanced Microwave Scanning Radiometer (1500 Km swath; 5 bands (5-60 GHz); 2-20 Km resolution)
AMSU	Advanced Microwave Sounding Unit (as on NOAA - K,L,M)
ARGOS+	An advanced version of the Data Collection and Localization System of NOAA - K,L,M
ATLID	Atmospheric Lidar (a backscatter lidar)
ATSR+	An advanced version of the Along Track Scanning Radiometer provided for ERS-1
AVHRR	Advanced Very High Resolution Radiometer (as on NOAA-K,L,M)
CLSR	Cooled infra-red Limb Sounding Radiometer
CR	Correlation Radiometer (a gas cell non-dispersive spectrometer)
CSR	Conical Scan Radiometer (for measuring Earth radiation budget)
Direct	A direct downlink similar to HRPT, APT, and DSB on NOAA - Broadcast K,L,M
FIRE	Far Infra-Red Experiment (a submillimetre wave limb sounder)
F/P-INT	Fabry-Perot Interferometer
GLRS	Geodynamic Laser Ranging System
GOMR	Global Ozone Monitoring System
HIRIS	High Resolution Imaging Spectrometer (as propose by NASA)
HIRS	High Resolution Infra-red Radiation Sounder (as on NOAA - K,L,M)
HRIS	High Resolution Imaging Spectrometer (as proposed by Europe)
MAG	Magnetic Field Monitor

MERIS	Medium Resolution Imaging Spectrometer (for ocean and coastal ocean monitoring)
MLS	Microwave Limb Sounder
MODIS-N	Moderate Resolution Imaging Spectrometer - Nadir looking
MODIS-T	Moderate Resolution Imaging Spectrometer - Tilttable
MPD	Magneto-Plasma Dynamics
OCTS	Ocean Color and Temperature Scanner
PEM	Particle Environment Monitor
PPS/PODS	Precise Positioning System/Precise Orbit Determination System
SAR	Synthetic Aperture Radar
SEM	Space Environment Monitor
S & R	Search and Rescue (as on NOAA - K,L,M)
STP	Solar Terrestrial Physics
SUSIM	Solar Ultraviolet Spectral Irradiance Monitor
WIND-SCATTEROMETER	Microwave Wind Scatterometer; double sided swath