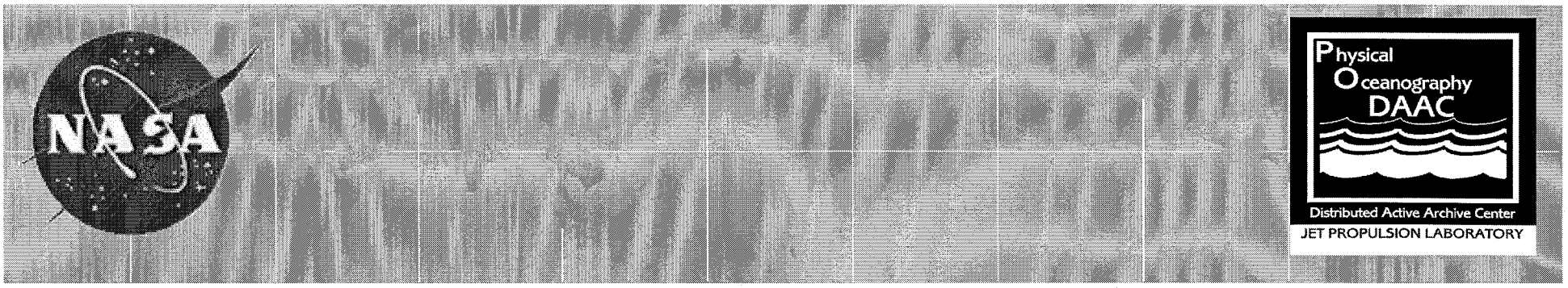

OCEANIDS

Autonomous Data Acquisition, Management and Distribution System

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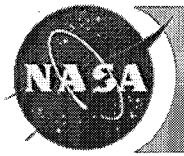
- OCEANIDS is a clearinghouse for mission essential and near-real-time satellite data streams
  - Acquire data streams, maintain a rolling store and distribute to multiple users
  - High reliability
  - Secure
  - Automated monitoring



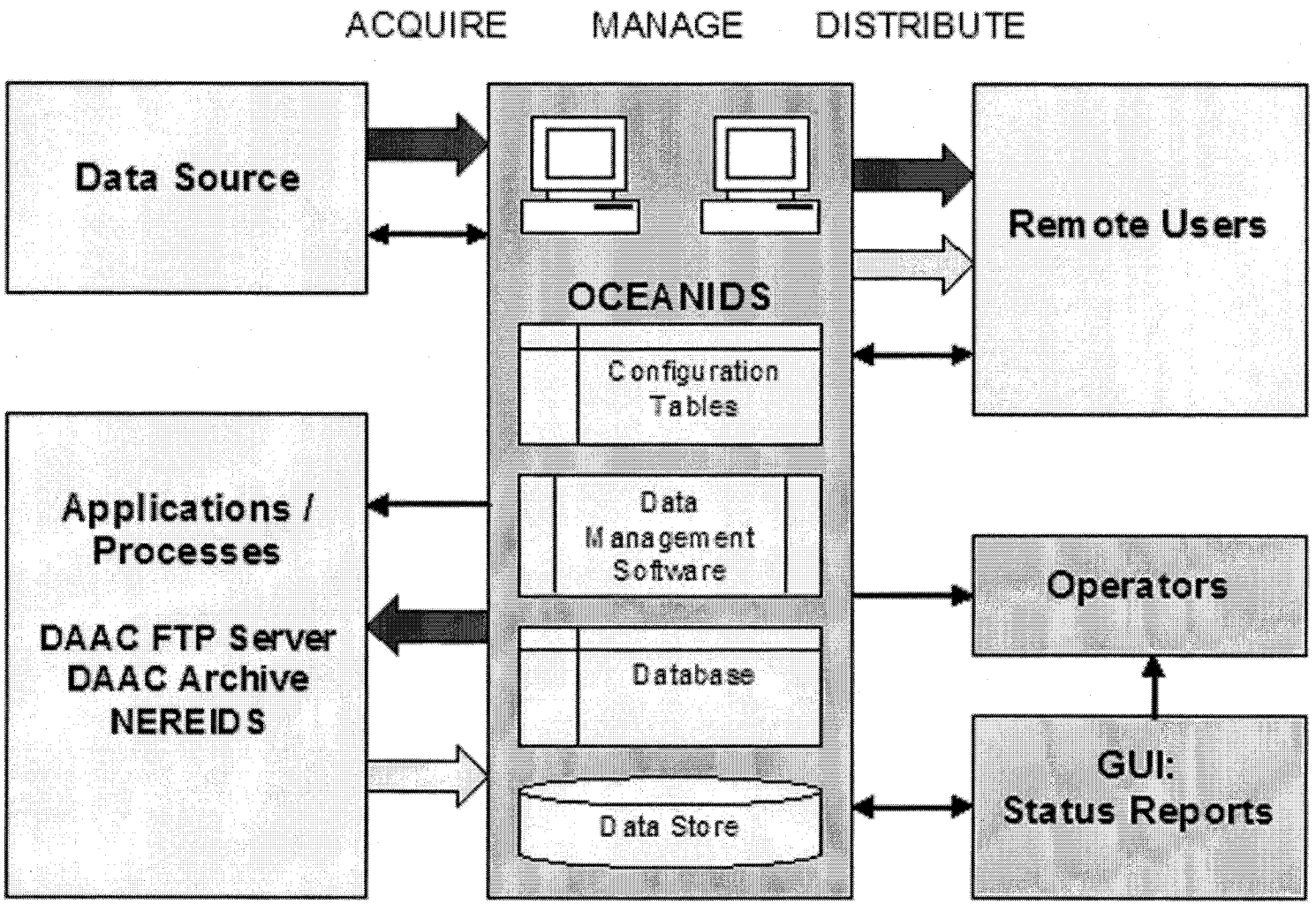
OCEANIDS Motivation

JPL Physical Oceanography DAAC

- Adeos-II and Aqua ground system requirement
  - Ingest L1A data from JAXA (limited bandwidth network)
  - Distribute to the NASA science processing system in near-real-time
- Coincided with
  - Move from media to electronic distribution
  - Need to automate the DAAC activities
  - Increase demand for near-real-time data
  - Security mandates imposed by NASA

High-Level Architecture

JPL Physical Oceanography DAAC

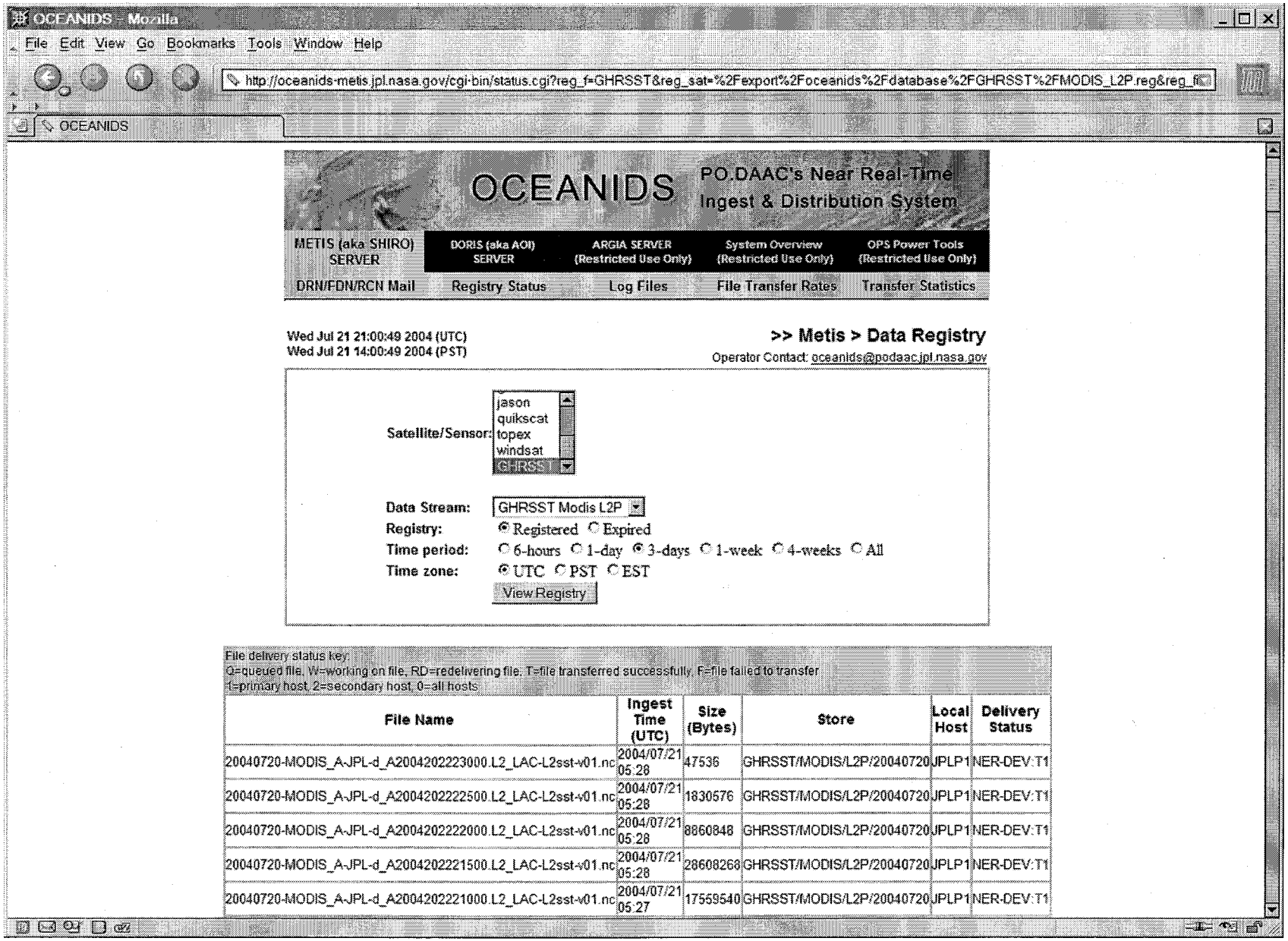


OCEANIDS Features

- Ability to serve multiple data streams and interfaces
- Reliable
  - Cluster configuration
  - Fully automated (Remote server failover, Monitoring)
  - Interface handshaking
- Secure
  - Meets JPL/NASA security requirements
  - FastCopy, SSH (SFTP/SCP), restricted FTP
- Scalable
- Configurable
  - Routine task to add a data stream or interface

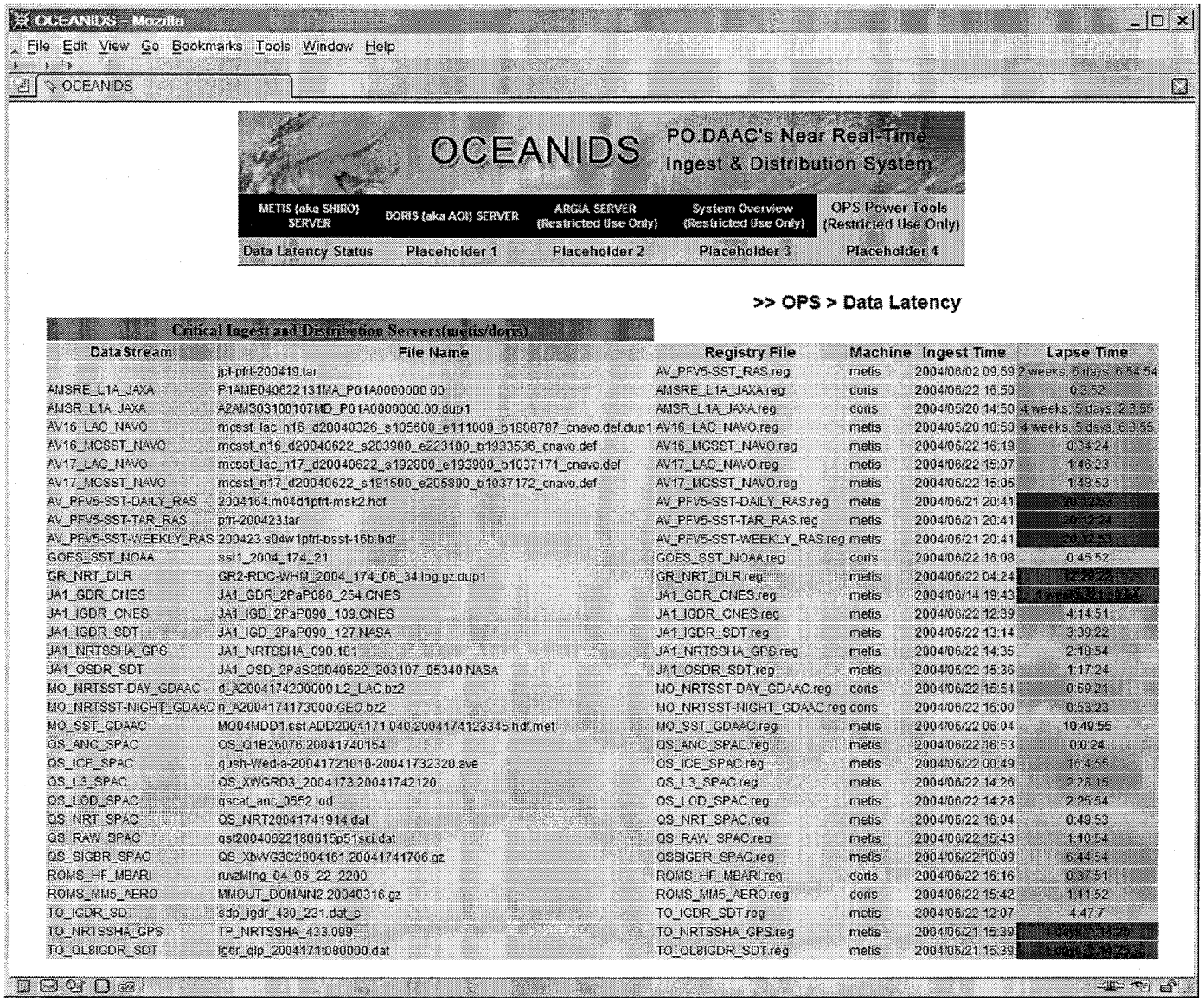
OCEANIDS GUI: Nodes

JPL Physical Oceanography DAAC



OCEANIDS GUI: Cluster

JPL Physical Oceanography DAAC



DataStream	File Name	Registry File	Machine	Ingest Time	Lapse Time
	jpl-pfrt-200419.tar	AV_PFV5-SST_RAS.reg	metis	2004/06/02 09:59	2 weeks, 6 days, 6:54:54
AMSRE_L1A_JAXA	P1AME040622131MA_P01A0000000.00	AMSRE_L1A_JAXA.reg	doris	2004/06/22 16:50	0:3:52
AMSR_L1A_JAXA	A2AMS03100107MD_P01A0000000.00.dup1	AMSR_L1A_JAXA.reg	doris	2004/05/20 14:50	4 weeks, 5 days, 2:3:55
AV16_LAC_NAVO	mcsst_lac_n16_d20040326_s105600_e111000_b1808787_cnavo.def.dup1	AV16_LAC_NAVO.reg	metis	2004/05/20 10:50	4 weeks, 5 days, 6:3:55
AV16_MCSST_NAVO	mcsst_n16_d20040622_s203900_e223100_b1933536_cnavo.def	AV16_MCSST_NAVO.reg	metis	2004/06/22 16:19	0:34:24
AV17_LAC_NAVO	mcsst_lac_n17_d20040622_s192800_e193900_b1037171_cnavo.def	AV17_LAC_NAVO.reg	metis	2004/06/22 15:07	1:46:23
AV17_MCSST_NAVO	mcsst_n17_d20040622_s191500_e205800_b1037172_cnavo.def	AV17_MCSST_NAVO.reg	metis	2004/06/22 15:05	1:48:53
AV_PFV5-SST-DAILY_RAS	2004164.m04d1pfrt-msk2.hdf	AV_PFV5-SST-DAILY_RAS.reg	metis	2004/06/21 20:41	20:12:53
AV_PFV5-SST-TAR_RAS	pfrt-200423.tar	AV_PFV5-SST-TAR_RAS.reg	metis	2004/06/21 20:41	20:12:24
AV_PFV5-SST-WEEKLY_RAS	200423.s04w1pfrt-bsst-16b.hdf	AV_PFV5-SST-WEEKLY_RAS.reg	metis	2004/06/21 20:41	20:12:53
GOES_SST_NOAA	sst1_2004_174_21	GOES_SST_NOAA.reg	doris	2004/06/22 16:08	0:45:52
GR_NRT_DLR	GR2-RDC-WHM_2004_174_08_34.log.gz.dup1	GR_NRT_DLR.reg	metis	2004/06/22 04:24	12:29:22
JA1_GDR_CNES	JA1_GDR_2PaP086_254.CNES	JA1_GDR_CNES.reg	metis	2004/06/14 19:43	1 week, 5:2:1:24
JA1_IGDR_CNES	JA1_IGD_2PaP090_109.CNES	JA1_IGDR_CNES.reg	metis	2004/06/22 12:39	4:14:51
JA1_IGDR_SDT	JA1_IGD_2PaP090_127.NASA	JA1_IGDR_SDT.reg	metis	2004/06/22 13:14	3:39:22
JA1_NRTSSHA_GPS	JA1_NRTSSHA_090.181	JA1_NRTSSHA_GPS.reg	metis	2004/06/22 14:35	2:18:54
JA1_OSDR_SDT	JA1_OSD_2PaS20040622_203107_05340.NASA	JA1_OSDR_SDT.reg	metis	2004/06/22 15:36	1:17:24
MO_NRTSST-DAY_GDAAC	d_A2004174200000.L2_LAC.bz2	MO_NRTSST-DAY_GDAAC.reg	doris	2004/06/22 15:54	0:59:21
MO_NRTSST-NIGHT_GDAAC	n_A2004174173000.GEO.bz2	MO_NRTSST-NIGHT_GDAAC.reg	doris	2004/06/22 16:00	0:53:23
MO_SST_GDAAC	MO04MDD1.sst.ADD2004171.040.2004174123345.hdf.met	MO_SST_GDAAC.reg	metis	2004/06/22 05:04	10:49:55
QS_ANC_SPAC	QS_Q1B25076.20041740154	QS_ANC_SPAC.reg	metis	2004/06/22 16:53	0:0:24
QS_ICE_SPAC	qush-Wed-a-20041721010-20041732320.ave	QS_ICE_SPAC.reg	metis	2004/06/22 00:49	16:4:55
QS_L3_SPAC	QS_XWGRD3_2004173.20041742120	QS_L3_SPAC.reg	metis	2004/06/22 14:26	2:28:15
QS_LOD_SPAC	qscat_anc_0552.lod	QS_LOD_SPAC.reg	metis	2004/06/22 14:28	2:25:54
QS_NRT_SPAC	QS_NRT20041741914.dat	QS_NRT_SPAC.reg	metis	2004/06/22 16:04	0:49:53
QS_RAW_SPAC	qst20040622180615p51sci.dat	QS_RAW_SPAC.reg	metis	2004/06/22 15:43	1:10:54
QS_SIGBR_SPAC	QS_XbvVG3C2004161.20041741706.gz	QSSIGBR_SPAC.reg	metis	2004/06/22 10:09	6:44:54
ROMS_HF_MBARI	ruvzMing_04_06_22_2200	ROMS_HF_MBARI.reg	doris	2004/06/22 16:16	0:37:51
ROMS_MM5_AERO	MMOUT_DOMAIN2.20040316.gz	ROMS_MM5_AERO.reg	doris	2004/06/22 15:42	1:11:52
TO_IGDR_SDT	sdp_igdr_430_231.dat_s	TO_IGDR_SDT.reg	metis	2004/06/22 12:07	4:47:7
TO_NRTSSHA_GPS	TP_NRTSSHA_433.099	TO_NRTSSHA_GPS.reg	metis	2004/06/21 15:39	1 day, 0:14:26
TO_QL8IGDR_SDT	igdr_qlp_2004171t080000.dat	TO_QL8IGDR_SDT.reg	metis	2004/06/21 15:39	1 day, 0:14:26

Data Streams

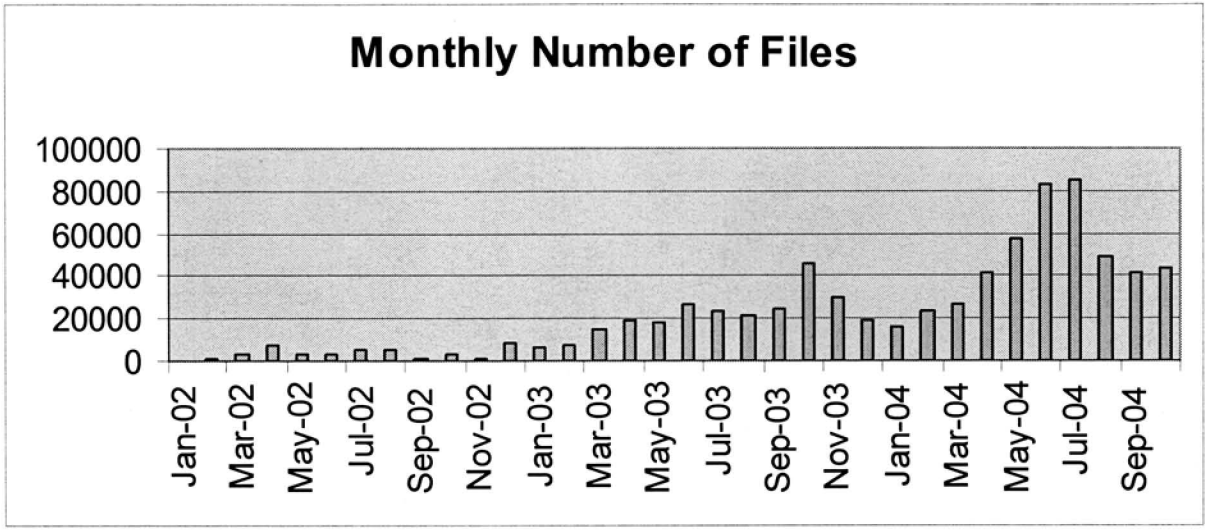
- Over 50 data streams
- Missions
  - Aqua, Grace, QuikScat, WindSat, Jason-1, Topex/Poseidon, Advance Mirror Telescope
- Science products
  - SST (MODIS, AVHRR MCSST & Pathfinder, GOES)
  - West Coast ocean models
  - Oscar ocean currents
  - NEREIDS (NRT gridded products)

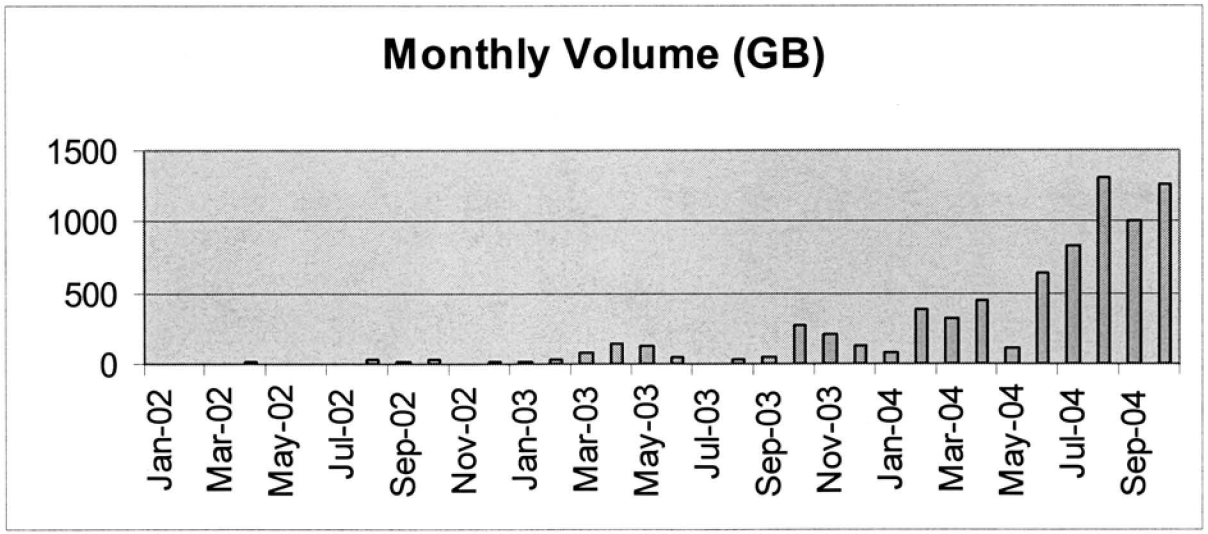
Interfaces

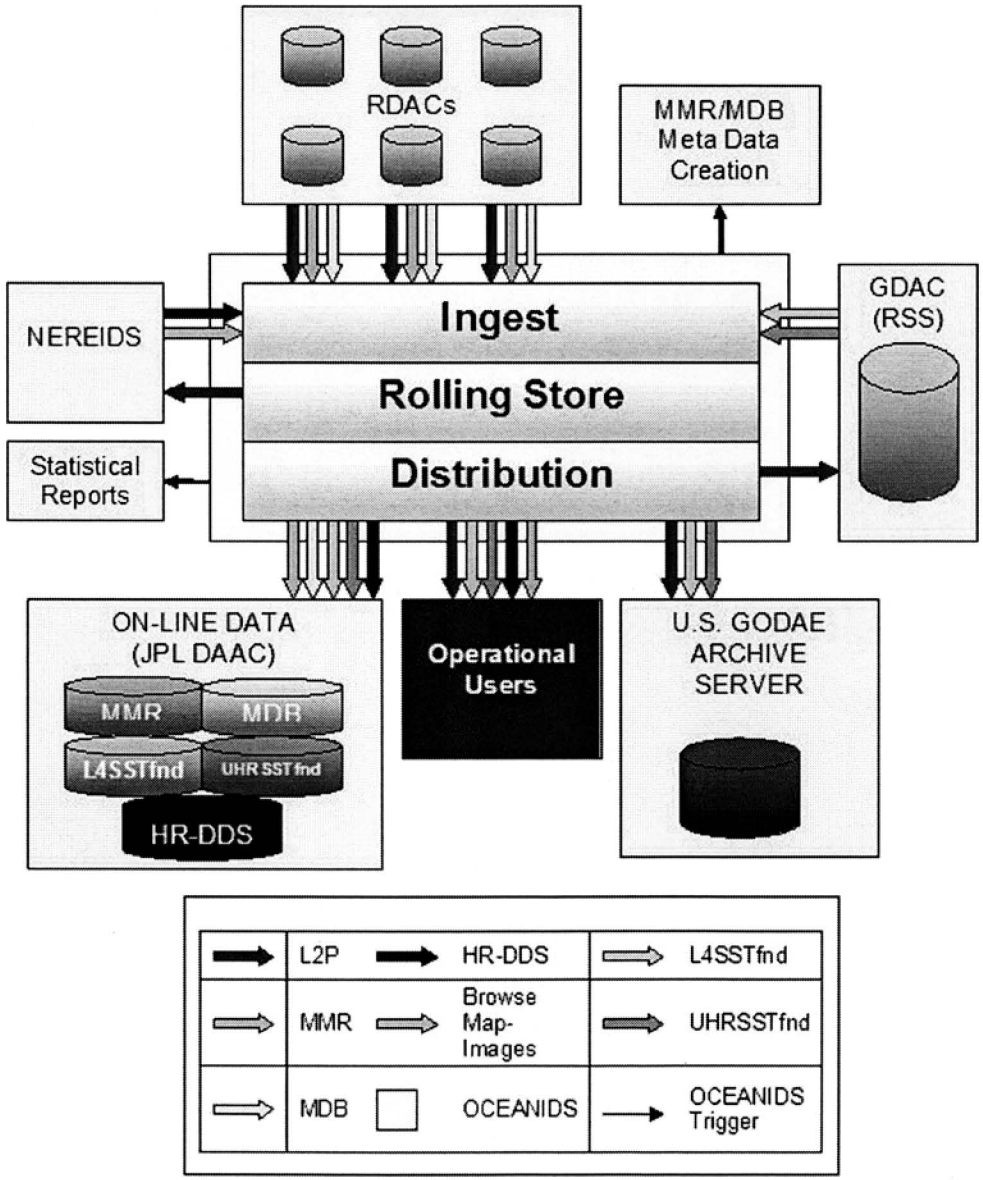
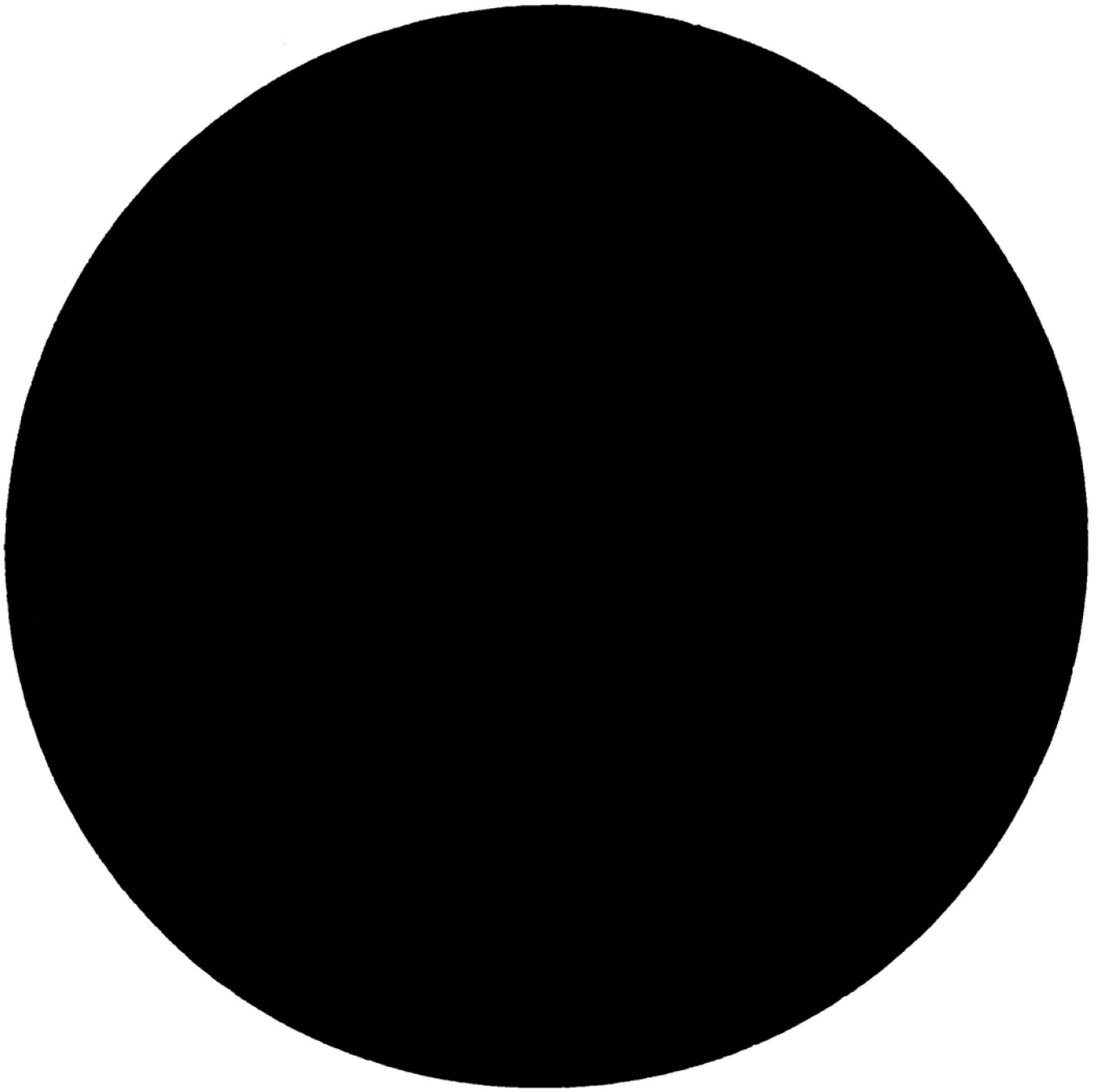
- Operational Interfaces
  - NASA (JPL, Stennis, Goddard, NSIDC)
  - NOAA
  - NAVO/NRL
  - Universities
  - Industry (RSS, Aerospace Co.)
  - JAXA (Japan)
  - DLR (Germany)
  - CNES (France)
  - COOS

Statistics

JPL Physical Oceanography DAAC






RDACs
MMR/MDB Meta Data Creation
NEREIDS
Ingest
Rolling Store
Distribution
GDAC (RSS)
Statistical Reports
ON-LINE DATA (JPL DAAC)
MMR
MDB
L4SSTfnd
UHR SST fnd
HR-DDS
Operational Users
U.S. GODAE ARCHIVE SERVER
L2P
HR-DDS
L4SSTfnd
MMR
Browse Map-Images
UHRSSTfnd
MDB
OCEANIDS
OCEANIDS Trigger

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