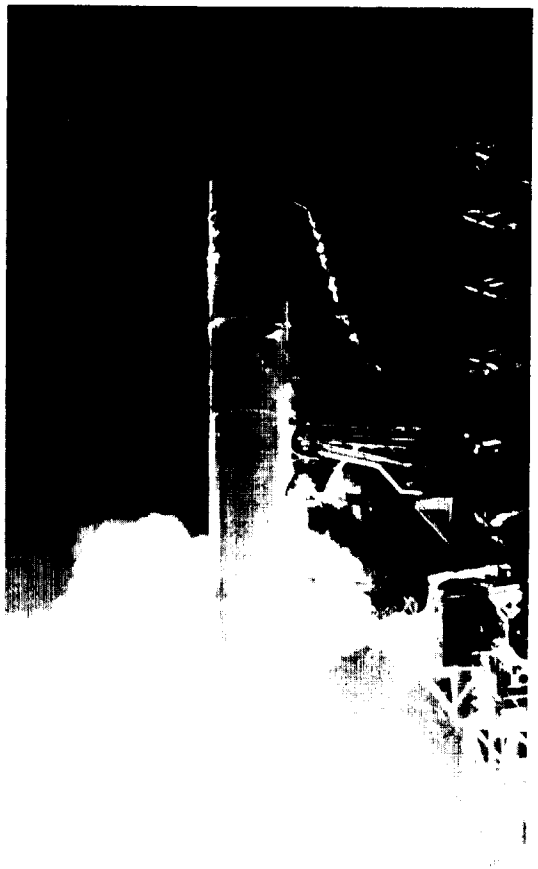
NASA/TM-97- 206832

IN-16-TM

Payload Flight Assignments



June 1997

NASA Mixed Fleet

PAYLOAD FLIGHT ASSIGNMENTS

NASA MIXED FLEET

JUNE 1997

SUBMITTED BY

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ASSOCIATE ADMINISTRATOR FOR SPACE FLIGHT

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SECTION 1

MIXED FLEET MANIFEST NOTES AND SUMMARY

MIXED FLEET MANIFEST NOTES

- This manifest summarizes the missions planned by NASA for the Space Shuttle and Expendable Launch Vehicles (ELV's) as of the date of publication. Space Shuttle and ELV missions are shown through calendar year 2003. Space Shuttle missions for calendar years 2002-2003 are under review pending the resolution of details in the assembly sequence of the International Space Station (ISS).

- Space Shuttle launch dates are shown by month and represent reasonable expectation as to when the launch will occur; however in most cases, NASA's internal planning will be against earlier launch date targets.

- Primary and complex secondary Space Shuttle payload flight assignments are baselined in Space Shuttle program control documentation approximately 17 months prior to launch. Other secondary payload assignments are normally baselined 8 to 12 months prior to launch. Note: Once baselined, the flight numbers are maintained with the primary payload; these baselined flights may not remain in numerical order with subsequent manifest changes.

- The manifest reflects NASA's commitments to its external customers and the established priorities among its internal programs. These include safety of flight, maintaining the schedule for assembling and utilizing the ISS, and continuing to provide flight opportunities for secondary payloads.

- To access this book on the Internet use the WWW address http://www.osf.hq.nasa.gov/manifest/

- For further Shuttle or ELV information please contact:

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SECTION 2

SHUTTLE PAYLOAD FLIGHT ASSIGNMENTS

NOTES:

1. **MISSION DURATION CONTAINS THE POTENTIAL EXTENSION INDICATED AS +1 OR +2**

JUNE 1997 SHUTTLE MANIFEST

FY1997: 3, 4 — CY1997
FY1998: 1, 2, 3, 4 — CY1998
FY1999: 1, 2, 3, 4 — CY1999
FY2000: 1, 2, 3, 4 — CY2000
FY2001: 1

COLUMBIA — OV 102

- JUL — 94 — 16 — MSL REFLIGHT
- NOV # — 87 — 16 — USMP-04, SPTN 201-04, DARE-10, CUE, MSBX-02, SOLSE, TSDF, GAS, EDFT-05, LHP, NaSBE
- APR — 90 — 16 — NEUROLAB, GAS (3), SVF, SDS-04##
- <SEP> — 93 — 5 — AXAF-I
- Man Int 15 Mo. (Under Review)
- <DEC> — 103 — HST SM-03
- MAY — 107 — RESEARCH MODULE##
- SEP — 110 — REIMBURSABLE MISSION##

DISCOVERY — OV 103

- AUG — 85 — 11 — CRISTA-SPAS-02, MFD, TAS-01, IEH-02, SDS-03, PCS-STES-05, MSX-08, SIMPLEX-02, SNUIS-01, GAS (2)
- JUN — 91 — 10 — S/MM-09, SPACEHAB-SM, AMS-01
- <OCT> — 95 — 10 — SPACEHAB-SM, HOST, TAS-02, IEH-03, PANSAT
- <MAR> — 97 — 8+2 — ISS-04-4A, PV Module P6
- <AUG> — 100 — 11+2 — ISS-07-7A, AIRLOCK, SLOP-01, (HP GAS)
- <JAN> — 104 — ISS-09-UF1, MPLM 2 (P) -01, (ISPRS), SLP 3-01, (PV BATT), OTD (2)
- Man Int 16 Mo. (Under Review)

ATLANTIS — OV 104

- SEP — 86 — 10+1 — S/MM-07, SPACEHAB-DM, EDFT-06, MEEP-R, CREAM-09, RME-III-21, MSX-09, SIMPLEX-03, SEEDSII, GAS (1), CCM/NIH-C-08##, KIDSAT-03##
- Man Int 16 Mo. (Under Review)
- <JAN> — 92 — 9+2 — ISS-03-3A, ITS Z1, (CMG's, Ku-Band, S-Band), SLP 1-01, (PMA3, EVAS)
- <JUN> — 99 — 11+2 — ISS-06-6A, MPLM 1 (P) -01, (LAB O/F), SLP 2-01, (SSRMS, UHF), Crew Rotation
- <OCT> — 102 — ISS-08-7A.1
- <MAR> — 106 — ISS-11-UF2, MPLM 1-02, (ISPRS), MBS, Radiator OSE, OTD
- <JUL> — 109 — ISS-13-9A.1, SPP

ENDEAVOUR — OV 105

- JAN — 89 — 9+1 — S/MM-08, SPACEHAB-DM, MGM-02, MGM-03, GAS (2), HP-01, MFNE-01, MSX-10, SIMPLEX-04, AST-01, CREAM-10, SAMS-06, CEBAS
- <JUL> — 88 — 11 — ISS-01-2A, NODE 1, (PMA1, PMA2), APFR, ICBC-06, MIGHTYSAT 1, AWCS/AMTEC, SAC-A, 1st SHUTTLE/STATION LAUNCH
- <DEC> — 96 — ISS-02-2A.1, ICM, OR, SPACEHAB-SM, LOGISTICS, TEEM, CAPL-3##
- <MAY> — 98 — 9+2 — ISS-05-5A, US LAB, LAB PDGF
- <SEP> — 101 — SRTM
- <FEB> — 105 — ISS-10-8A, ITS S0, (MT, SPS, UMBIL., A/L Spur)
- <JUN> — 108 — ISS-12-9A, ITS S1, (TCS, CETA, S-Band)

FLIGHT RATE

FY-6 / CY-6 — FY-6 / CY-7 — FY-8 / CY-8 — FY-9 / CY-9

EDO PALLET (13 TO 16 DAYS) — PROPOSED DROP

EXTENSION DAYS: +X CONTINGENCY +(X) PLANNED ENERGY-DEPENDENT

DATE UNDER REVIEW — ## PAYLOAD UNDER REVIEW — < > SLIP FLIGHTS

NOTE: ISS FLIGHTS BASED ON ISS ASSEMBLY SEQUENCE REV. C THRU JUNE, 2002

JUNE 1997 SHUTTLE MANIFEST

FY2000 (4) | FY2001 (1, 2, 3, 4) | FY2002 (1, 2, 3, 4) | FY2003 (1, 2, 3, 4) | FY2004 (1, 2)

CY2000 | CY2001 | CY2002 | CY2003 | CY2004

COLUMBIA — OV 102

- FEB — 113 — X-38 Flt. Demo.
- JUN — 117 — RESEARCH MODULE**
- NOV — 120 — REIMBURSABLE MISSION**
- APR — 123 — MSP-01* — TAS-03
- <AUG> — 127 — HST SM-04
- JAN — 130 — REIMBURSABLE MISSION**
- JUN — 133 — RESEARCH MISSION**
- (Under Review)

DISCOVERY — OV 103

- <MAY> — 116 — ISS-18-1J/A, JEM ELM PS, SLP 1-02, ITS P5
- <SEP> — 119 — ISS-20-UF3, MPLM 3-01 (ISPRS)
- <FEB> — 122 — ISS-22-2J/A, JEM EF, JEM ELM-ES, SLP 3-02 (PV BATT)
- <JUN> — 125 — ISS-24-UF5, MPLM 2-02 (ISPRS), Express Pallet 2
- <OCT> — 128 — U/R ISS-26
- <MAR> — 131 — U/R ISS-28
- <JUL> — 134 — U/R ISS-30
- <NOV> — 137 — U/R ISS-33

ATLANTIS — OV 104

- <NOV> — 112 — ISS-15-12A, ITS P3/PV Module P4, 2 ULCAS
- <APR> — 115 — ISS-17-10A, NODE 2, NTA
- <AUG> — 118 — ISS-19-1J, JEM PM (JEM RMS)
- <JAN> — 121 — ISS-21-UF4, SLP 4-01 (SPDM, ATA 1-02), Express Pallet 1, AMS-02
- <MAY> — 124 — ISS-23-14A, EDO Pallet (SPP ARRAYS), SLP 1-03 (CUPOLA), SLP 2-02 (Port Rails)
- Man Int 15 Mo. (Under Review)
- <AUG> — 135 — U/R ISS-31

ENDEAVOUR — OV 105

- <OCT> — 111 — ISS-14-11A, ITS P1 (TCS, CETA, UHF)
- <MAR> — 114 — ISS-16-13A, ITS S3/4, PV Array (4 Batt), 4 PAS
- Man Int 16 Mo (Under Review)
- <JUL> — 126 — U/R ISS-25
- <NOV> — 129 — U/R ISS-27
- <APR> — 132 — U/R ISS-29
- <OCT> — 136 — U/R ISS-32

FLIGHT RATE: FY-8 / CY-8 | FY-8 / CY-8 | FY-8 / CY-8 | FY-8 / CY-8

EDO PALLET (13 TO 16 DAYS) — PROPOSED OMDP

NOTE: ISS FLIGHTS BASED ON ISS ASSEMBLY SEQUENCE REV. C THRU JUNE, 2002

EXTENSION DAYS: +X CONTINGENCY +DO PLANNED ENERGY-DEPENDENT

* DATE UNDER REVIEW ** PAYLOAD UNDER REVIEW < > SLNT FLIGHTS

**** SHUTTLE PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
94	JUL 97 COLUMBIA	28.5 150	7 16	MSL REFLT			CDR:JIM HALSELL PLT:SUSAN STILL MS (PLC):JANICE VOSS MS:DONALD A. THOMAS MS:MIKE GERNHARDT PS:ROGER K. CROUCH PS:GREGORY T. LINTERIS
85	AUG 97 DISCOVERY	57.0 160	5 11 + (1)	CRISTA-SPAS-02 MFD TAS-01 IEH-02 ACIS GAS(2)	ASTRO-SPAS MPESS HH-M HH-M GAS CAN	BDS-03 MSX-08 SSCE-07 SWUIS-01 SIMPLEX-01 PCG-STES-05	CDR:CURTIS L. BROWN PLT:KENT ROMINGER MS:N. JAN DAVIS MS:ROBERT L. CURBEAM MS:STEPHEN K. ROBINSON PS:BJARNI V. TRYGGVASON (CANADA)
86	SEP 97 ATLANTIS	51.6 213	6* 10 + 1	S/MM-07 SPACEHAB-DM MEEP-R EDFT-06 SEEDS II GAS(1)	SPACEHAB-DM ICAPC NONE GAS/SW GAS CAN	CCM-07 MSX-09 CREAM-09 KIDSAT-03 RME III-21 SIMPLEX-02	CDR:JAMES D. WETHERBEE PLT:MIKE BLOOMFIELD MS:SCOTT PARAZYNSKI MS:VLADIMIR TITOV (RUSSIA) MS:JEAN-LOUP CHRETIEN (FRANCE) MS:WENDY LAWRENCE(U) MS:MIKE FOALE(D)
87	NOV 97 COLUMBIA	28.5 160	5 16	USMP-04 SPTN 201-04 LHP TGDF SOLSE EDFT-05 OARE-10 GAS NASBE	3-MPESS+EDO SPARTAN HH-G GAS BEAM HH-J NONE UNIQUE GAS CAN	CUE MGBX-02	CDR:KEVIN R. KREGEL PLT:STEVEN W. LINDSEY MS:WINSTON E. SCOTT MS:KALPANA CHAWLA MS:TAKAO DOI (JAPAN) PS:LEONID KADENYUK (UKRAINE)

* CREW EXCHANGE MISSIONS: U-UP, D-DOWN

**** SHUTTLE PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
89	JAN 98 ENDEAVOUR	51.6 213	6* 9 + 1	S/MM-08 SPACEHAB-DM GAS(2)	SPACEHAB-DM GAS CAN	HP-01 AST-01 MGM-02 MGM-03 MSX-10 MPNE-01 SAMS-06 CREAM-10 SIMPLEX-03 CEBAS-01	CDR:TERRENCE W. WILCUTT PLT:JOE F. EDWARDS, JR MS:BONNIE J. DUNBAR MS:MICHAEL P. ANDERSON MS:JAMES F. REILLY MS:DAVID WOLF(U) MS:WENDY LAWRENCE(D)
90	APR 98 COLUMBIA	39.0 150	7 16	NEUROLAB SVF GAS(3)	LM+EDO GAS CAN	BDS-04	CDR:RICHARD A. SEARFOSS PLT:SCOTT D. ALTMAN MS:KATHRYN HIRE MS:RICHARD M. LINNEHAN MS:DAFYDD R. WILLIAMS (CANADA) PS:JAY C. BUCKEY PS:JAMES A. PAWELCZYK
91	JUN 98 DISCOVERY	51.6 190	6 10	S/MM-09 SPACEHAB-SM AMS-01	SPACEHAB-SM UNIQUE		MS:DAVID WOLF (D)

** PAYLOADS UNDER REVIEW FOR ADDITION
* CREW EXCHANGE MISSIONS: U-UP, D-DOWN

**** SHUTTLE PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
88	JUL 98 ENDEAVOUR	51.6 190	7 11	ISS-01-2A NODE 1 PMA1 PMA2 ICBC-06 MIGHTY-SAT-01 AWCS/AMTEC SAC-A APFR 1ST SHUTTLE/STATION LAUNCH	UNIQUE ICBC HH-G HH-G HH		CDR:ROBERT D. CABANA PLT:FREDERICK STURCKOW MS:NANCY CURRIE MS:JERRY ROSS MS:JIM NEWMAN
93	SEP 98 COLUMBIA	51.6 235	5 5	AXAF-I	IUS		
95	OCT 98 DISCOVERY	39.0 250	5 10	SPACEHAB-SM HOST TAS-02 IEH-03 PANSAT	 UASE HH-M HH-M HH-G		
96	DEC 98 ENDEAVOUR	51.6 190	5 11 + 1	ISS-02-2A.1 ICM OR SPACEHAB-SM LOGISTICS TEEM CAPL-03**	UNIQUE		

** PAYLOADS UNDER REVIEW FOR ADDITION

**** SHUTTLE PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
92	JAN 99 ATLANTIS	51.6 190	5 9 + 2	ISS-03-3A ITS Z1 (CMGs, Ku-Band, S-Band) SLP 1-01 PMA3 EVAS	UNIQUE+SLP		MS:KOICHI WAKATA (JAPAN) MS:LEROY CHIAO MS:JEFF WISOFF MS:MICHAEL LOPEZ-ALEGRIA MS:BILL MCARTHUR
97	MAR 99 DISCOVERY	51.6 190	5 8 + 2	ISS-04-4A PV MODULE P6	UNIQUE		MS:JOE TANNER MS:CARLOS NORIEGA
98	MAY 99 ENDEAVOUR	51.6 190	5 9 + 2	ISS-05-5A US LAB LAB PDGF	UNIQUE		MS:MARK LEE MS:TOM JONES
99	JUN 99 ATLANTIS	51.6 190	5 11 + 2	ISS-06-6A MPLM 1(P)-01 (LAB O/F) SLP 2-01 (SSRMS, UHF) CREW ROTATION	MPLM+SLP		MS:CHRIS HADFIELD MS:ROBERT CURBEAM
100	AUG 99 DISCOVERY	51.6 190	5 11 + 2	ISS-07-7A AIRLOCK SLDP-01 (HP GAS)	UNIQUE+SLP		MS:MIKE GERNHARDT MS:JAMES REILLY

**** SHUTTLE PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
101	SEP 99 ENDEAVOUR	57.0 200	7 11	SRTM	PAL		
102	OCT 99 ATLANTIS	51.6 200	5 TBD	ISS-08-7A.1	UNIQUE		
103	DEC 99 COLUMBIA	28.5 310	7 TBD	HST SM-03	FSS+UNIQUE		
104	JAN 00 DISCOVERY	51.6 215	5 TBD	ISS-09-UF1 MPLM 2(P)-01 (ISPRS) SLP 3-01 (PV BATT) OTD(2)	MPLM+SLP		
105	FEB 00 ENDEAVOUR	51.6 200	5 TBD	ISS-10-8A ITS SO (MT,GPS,UMBIL, A/L SPUR)	UNIQUE		
106	MAR 00 ATLANTIS	51.6 225	5 TBD	ISS-11-UF2 MPLM 1-02 (ISPRS) MBS RADIATOR OSE OTD	MPLM+UNIQUE		
107	MAY 00 COLUMBIA	28.5 160	6 16	RESEARCH MODULE**			

** PAYLOADS UNDER REVIEW FOR ADDITION

**** SHUTTLE PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
108	JUN 00 ENDEAVOUR	51.6 220	5 TBD	ISS-12-9A ITS SI (TCS, CETA,S-BAND)	UNIQUE		
109	JUL 00 ATLANTIS	51.6 215	5 TBD	ISS-13-9A.1 SPP	UNIQUE		
110	SEP 00 COLUMBIA	28.5 160	5 TBD	REIMBURSABLE MISSION**			
111	OCT 00 ENDEAVOUR	51.6 240	5 TBD	ISS-14-11A ITS P1 (TCS,CETA,UHF)	UNIQUE		
112	NOV 00 ATLANTIS	51.6 240	5 TBD	ISS-15-12A ITS P3/ PV MODULE P4 2 ULCAS	UNIQUE		
113	FEB 01 COLUMBIA	28.5 160	5 TBD	X-38 FLT DEMO			
114	MAR 01 ENDEAVOUR	51.6 235	5 TBD	ISS-16-13A ITS S3/4 PV ARRAY(4 BATT) 4 PAS	UNIQUE		
115	APR 01 ATLANTIS	51.6 235	5 TBD	ISS-17-10A NODE 2 NTA	UNIQUE		

** PAYLOADS UNDER REVIEW FOR ADDITION

**** SHUTTLE PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
116	MAY 01 DISCOVERY	51.6 235	5 TBD	ISS-18-1J/A JEM ELM PS SLP 1-02 ITS P5	UNIQUE		
117	JUN 01 COLUMBIA	28.5 160	6 16	RESEARCH MODULE**			
118	AUG 01 ATLANTIS	51.6 235	5 TBD	ISS-19-1J JEM PM (JEM RMS)	UNIQUE		
119	SEP 01 DISCOVERY	51.6 235	5 TBD	ISS-20-UF3 MPLM 3-01 (ISPRS)	UNIQUE		
120	NOV 01 COLUMBIA	28.5 160	5 TBD	REIMBURSABLE MISSION**			
121	JAN 02 ATLANTIS	51.6 235	5 TBD	ISS-21-UF4 SLP 4-01 (SPDM,ATA1-02) EXPRESS PALLET 1 AMS-02	UNIQUE TBD		
122	FEB 02 DISCOVERY	51.6 235	5 TBD	ISS-22-2J/A JEM EF JEM ELM-ES SLP 3-02 (PV BATT)	UNIQUE		

** PAYLOADS UNDER REVIEW FOR ADDITION

**** SHUTTLE PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
123	APR 02 COLUMBIA	28.5 160	7 TBD	MSP-01 TAS-03	MSL+MPESS HH-M		
124	MAY 02 ATLANTIS	51.6 235	5 TBD	ISS-23-14A EDO PALLET (SPP ARRAYS) SLP 1-03 (CUPOLA) SLP 2-02 (PORT RAILS)	UNIQUE		
125	JUN 02 DISCOVERY	51.6 240	5 TBD	ISS-24-UF5 MPLM 2-02 (ISPRS) EXPRESS PALLET 2			
126	JUL 02 ENDEAVOUR	51.6 240	5 TBD	ISS-25	UNIQUE		
127	AUG 02 COLUMBIA	28.5 310	6 TBD	HST SM-04	FSS+UNIQUE		
128	OCT 02 DISCOVERY	51.6 240	5 TBD	ISS-26	UNIQUE		
129	NOV 02 ENDEAVOUR	51.6 240	5 TBD	ISS-27	UNIQUE		
130	JAN 03 COLUMBIA	28.5 160	5 TBD	REIMBURSABLE MISSION**			

** PAYLOADS UNDER REVIEW FOR ADDITION

**** SHUTTLE PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
131	MAR 03 DISCOVERY	51.6 240	5 TBD	ISS-28	UNIQUE		
132	APR 03 ENDEAVOUR	51.6 240	5 TBD	ISS-29	UNIQUE		
133	JUN 03 COLUMBIA	51.6 240	5 TBD	RESEARCH MISSION**			
134	JUL 03 DISCOVERY	51.6 240	5 TBD	ISS-30	UNIQUE		
135	AUG 03 ATLANTIS	51.6 240	5 TBD	ISS-31	UNIQUE		
136	OCT 03 ENDEAVOUR	51.6 240	5 TBD	ISS-32			
137	NOV 03 DISCOVERY	51.6 240	5 TBD	ISS-33			

SECTION 3

ELV PAYLOAD FLIGHT ASSIGNMENTS

JUNE 1997 ELV MANIFEST

FY1997		FY1998				FY1999				FY2000				FY2001	
3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
CY1997		CY1998				CY1999				CY2000					CY2

SMALL

- ULTRALITE SEP-97 — SNOE
- ULTRALITE JAN-98 — TERRIERS
- PEGASUS DEC-97 — TRACE
- PEGASUS MAR-99 — WIRE
- PEGASUS JAN-99 — SWAS
- ULTRALITE MAR-99 — CATSAT
- ULTRALITE OCT-99 — UNEX-01
- TBD JUN-00 — SMEX-06
- ULTRALITE OCT-00 — UNEX-02
- TBD APR-00 — VCL
- TBD SEP-00 — DEEPSPACE3

MEDLITE

- DELTA 7326 JUL-98 — SEDSAT
- DELTA 7320-10 OCT-98 — FUSE
- DELTA 7425 JAN-99 — MSP98 ORBITER
- DELTA 7320-10 MAY-99 — EO-1/SAC-C
- DELTA 7325-10 NOV-00 — MAP
- DELTA 7326 JUL-98 — DEEPSPACE1
- DELTA 7425 DEC-98 — MSP98 LANDER
- DELTA 7426 FEB-99 — STARDUST
- DELTA 7326 NOV-99 — IMAGE

MEDIUM

- DELTA 7920-8 AUG-97 — ACE
- DELTA MAR-98 — ORSTED/SUNSAT
- TITAN II FEB-98 — NOAA-K
- DELTA 7920-10 MAY-98 — LANDSAT-07
- TITAN II DEC-99 — NOAA-L
- DELTA 7920-10 JAN-00 — TIMED/JASON
- DELTA 7920-10 OCT-00 — GP-B

INTERMEDIATE

- ATLAS IIAS JUN-98 — EOS-AM-1
- ATLAS IIA AUG-99 — GOES-M
- ATLAS IIA JUL-99 — TDRS-F08

*** NOT SHOWN IS A LARGE CLASS TITAN IV/CENTAUR LAUNCH IN OCT 97 CALLED CASSINI ***

JUNE 1997 ELV MANIFEST

FY2	FY2001				FY2002				FY2003				FY2004	
4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
CY2000	CY2001				CY2002				CY2003				CY2004	

SMALL

- DELTA 7320-10 DEC-00 ◇ EO-2
- TBD JUL-01 ◇ SMEX-07
- UNEX-04 OCT-01 ◇ UNEX-04
- TBD MAR-02 ◇ DEEPSPACE4
- TBD JUL-02 ◇ SMEX-08
- TBD NOV-02 ◇ EO-4
- UNEX-07 APR-03 ◇ UNEX-07
- TBD SEP-03 ◇ DEEPSPACE5
- UNEX-08 DEC-03 ◇ UNEX-08
- UNEX-03 JUN-01 ◇ UNEX-03
- TBD OCT-01 ◇ SCISAT-1
- ULTRALITE DEC-01 ◇ EO-3
- UNEX-05 JUN-02 ◇ UNEX-05
- UNEX-06 OCT-02 ◇ UNEX-06
- TBD DEC-02 ◇ ESSP-04
- TBD JUL-03 ◇ SMEX-09
- TBD DEC-03 ◇ EO-5

MEDLITE

- TBD DEC-00 ◇ DISCOVERY-05
- TBD FEB-01 ◇ MSP01 ORBITER
- TBD DEC-01 ◇ ESSP-03
- TBD DEC-01 ◇ DISCOVERY-06
- TBD JUL-02 ◇ EOS ALT-LASER1
- TBD DEC-02 ◇ DISCOVERY-07
- TBD MAR-03 ◇ MARS SURVEYOR 2
- TBD NOV-02 ◇ MIDEX-03
- TBD MAR-03 ◇ MARS SURVEYOR 1
- DELTA 7320-10 DEC-03 ◇ ESSP-05
- TBD DEC-03 ◇ NOAA-N
- TBD NOV-03 ◇ MIDEX-04
- TBD DEC-03 ◇ DISCOVERY-08

MEDIUM

- DELTA 7920-10 DEC-00 ◇ EOS-PM-1
- DELTA 7920-10 MAR-01 ◇ RADARSAT-II
- TITAN II DEC-01 ◇ NOAA-M
- DELTA 7920H DEC-01 ◇ SIRTF
- DELTA DEC-02 ◇ EOS-CHEM-1
- DELTA DEC-03 ◇ NOAA-N1

INTERMEDIATE

- TBD JUL-01 ◇ GOES-N
- ATLAS IIA JUL-01 ◇ GOES-L
- ATLAS IIA JUL-02 ◇ TDRS-F09
- ATLAS IIA JUL-03 ◇ TDRS-F10
- TBD APR-03 ◇ GOES-O

**** ELV PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

DATE MO YR	CLASS	LAUNCH VEHICLE TYPE	INCL	PAYLOAD ORBIT	LAUNCH SITE	PAYLOAD
AUG 97	MEDIUM	DELTA 7920-8	28.7	L1	CCAS	ACE
SEP 97	SMALL	ULTRALITE	97.8	SS	VAFB	SNOE
OCT 97	LARGE	TITAN IV /CENTAUR	28.5	PLAN	CCAFS	CASSINI
DEC 97	SMALL	PEGASUS	97.8	SS	VAFB	TRACE
JAN 98	SMALL	ULTRALITE	97.6	SS	VAFB	TERRIERS
FEB 98	MEDIUM	TITAN II	98.7	SS	VAFB	NOAA-K
MAR 98**	MEDIUM	DELTA	98.7	LEO	VAFB	ORSTED/SUNSAT
MAY 98	MEDIUM	DELTA 7920-10	98.7	SS	VAFB	LANDSAT-07
JUN 98	INTERMEDIATE	ATLAS IIAS	98.2	SS	VAFB	EOS-AM-1
JUL 98	MEDLITE	DELTA 7326	28.7	ESCAPE	CCAS	DEEPSPACE1
JUL 98	MEDLITE	DELTA 7326	38.0	LEO	CCAS	SEDSAT
OCT 98	MEDLITE	DELTA 7320-10	28.5	LEO	CCAS	FUSE
DEC 98	MEDLITE	DELTA 7425	28.5	MARS	CCAS	MSP98 LANDER
JAN 99	MEDLITE	DELTA 7425	28.5	MARS	CCAS	MSP98 ORBITER

** FOR NASA PLANNING PURPOSES

**** ELV PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

DATE MO YR	CLASS	LAUNCH VEHICLE TYPE	INCL	PAYLOAD ORBIT	LAUNCH SITE	PAYLOAD
JAN 99	SMALL	PEGASUS	45.0	LEO	VAFB	SWAS
FEB 99	MEDLITE	DELTA 7426	28.5	PLAN	CCAS	STARDUST
MAR 99	SMALL	ULTRALITE	97.4	SS	VAFB	CATSAT
MAR 99	SMALL	PEGASUS	97.4	SS	VAFB	WIRE
MAY 99	MEDLITE	DELTA 7320-10	98.2	SS	VAFB	EO-1/SAC-C
JUL 99	INTERMEDIATE	ATLAS IIA	28.5	GTO	CCAFS	TDRS-F08
AUG 99	INTERMEDIATE	ATLAS IIA	28.5	GSO	CCAFS	GOES-M
OCT 99	SMALL	ULTRALITE	TBD	TBD	TBD	UNEX-01
NOV 99	MEDLITE	DELTA 7326	90.0	ECCENT	VAFB	IMAGE
DEC 99**	MEDIUM	TITAN II	98.7	SS	VAFB	NOAA-L
JAN 00	MEDIUM	DELTA 7920-10	74.4	LEO	VAFB	TIMED/JASON-01
APR 00	SMALL	TBD	TBD	TBD	TBD	VCL
JUN 00	SMALL	TBD	TBD	TBD	WFF	SMEX-06
SEP 00	SMALL	TBD	38.0	TBD	WFF	DEEPSPACE3

** FOR NASA PLANNING PURPOSES

**** ELV PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

DATE MO YR	CLASS	LAUNCH VEHICLE TYPE	INCL	PAYLOAD ORBIT	LAUNCH SITE	PAYLOAD
OCT 00	MEDIUM	DELTA 7920-10	90.0	LEO	VAFB	GP-B
OCT 00	SMALL	ULTRALITE	TBD	TBD	TBD	UNEX-02
NOV 00	MEDLITE	DELTA 7325-10	28.7	PLAN	CCAS	MAP
DEC 00	MEDIUM	DELTA 7920-10	98.2	SS	VAFB	EOS-PM-1
DEC 00	MEDLITE	TBD	28.5	PLAN	CCAS	DISCOVERY-05
DEC 00	SMALL	DELTA 7320-10	TBD	TBD	TBD	EO-2
FEB 01	MEDLITE	TBD	28.5	MARS	CCAS	MSP01 ORBITER
MAR 01	MEDIUM	DELTA 7920-10	98.6	SS	VAFB	RADARSAT-II
APR 01	MEDLITE	TBD**	28.5	MARS	CCAS	MSP01 LANDER
JUN 01	SMALL	LCB	TBD	TBD	TBD	UNEX-03
JUL 01	INTERMEDIATE	TBD	28.5	GSO	CCAFS	GOES-N
JUL 01	SMALL	TBD	TBD	TBD	TBD	SMEX-07
JUL 01	INTERMEDIATE	ATLAS IIA	28.5	GSO	CCAFS	GOES-L
OCT 01	SMALL	TBD	TBD	TBD	TBD	SCISAT-1
OCT 01	SMALL	LCB	TBD	TBD	TBD	UNEX-04

** FOR NASA PLANNING PURPOSES

**** ELV PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

DATE MO YR	CLASS	LAUNCH VEHICLE TYPE	INCL	PAYLOAD ORBIT	LAUNCH SITE	PAYLOAD
DEC 01	SMALL	TBD**	TBD	TBD	TBD	ESSP-02
DEC 01	MEDIUM	DELTA 7920H	28.7	ESCAPE	CCAS	SIRTF
DEC 01	MEDIUM	TITAN II	98.7	SS	VAFB	NOAA-M
DEC 01	SMALL	ULTRALITE	TBD	TBD	TBD	EO-3
DEC 01	MEDLITE	TBD	28.5	PLAN	CCAS	DISCOVERY-06
DEC 01	MEDLITE	TBD	TBD	TBD	TBD	ESSP-03
MAR 02	SMALL	TBD	TBD	TBD	TBD	DEEPSPACE4
JUN 02	SMALL	LCB	TBD	TBD	TBD	UNEX-05
JUL 02	INTERMEDIATE	ATLAS IIA	28.5	GTO	CCAFS	TDRS-F09
JUL 02	MEDLITE	TBD	TBD	TBD	VAFB	EOS ALT-LASER1
JUL 02	SMALL	TBD	TBD	TBD	TBD	SMEX-08
OCT 02	SMALL	LCB	TBD	TBD	TBD	UNEX-06
NOV 02	SMALL	TBD	TBD	TBD	TBD	EO-4
NOV 02	MEDLITE	TBD	TBD	TBD	TBD	MIDEX-03
DEC 02	SMALL	TBD	TBD	TBD	TBD	ESSP-04

** FOR NASA PLANNING PURPOSES

**** ELV PAYLOAD FLIGHT ASSIGNMENTS ****
JUNE 1997

DATE MO YR	CLASS	LAUNCH VEHICLE TYPE	INCL	PAYLOAD ORBIT	LAUNCH SITE	PAYLOAD
DEC 02	MEDIUM	DELTA	98.2	SS	VAFB	EOS-CHEM-1
DEC 02	MEDLITE	TBD	TBD	TBD	CCAS	DISCOVERY-07
MAR 03	MEDLITE	TBD	28.5	MARS	CCAS	MARS SURVEYOR 1
MAR 03	MEDLITE	TBD	28.5	MARS	CCAS	MARS SURVEYOR 2
APR 03	INTERMEDIATE	TBD	28.5	GSO	CCAFS	GOES-O
APR 03	SMALL	LCB	TBD	TBD	TBD	UNEX-07
JUL 03	SMALL	TBD	TBD	TBD	TBD	SMEX-09
JUL 03	INTERMEDIATE	ATLAS IIA	28.5	GTO	CCAFS	TDRS-F10
SEP 03	SMALL	TBD	TBD	TBD	TBD	DEEPSPACE5
NOV 03	MEDLITE	TBD	TBD	TBD	TBD	MIDEX-04
DEC 03	MEDLITE	TBD	28.5	PLAN	CCAS	DISCOVERY-08
DEC 03	MEDIUM	DELTA	98.7	SS	VAFB	NOAA-N1
DEC 03	MEDLITE	TBD	TBD	TBD	TBD	ESSP-05
DEC 03	SMALL	LCB	TBD	TBD	TBD	UNEX-08
DEC 03	SMALL	TBD	TBD	TBD	TBD	EO-5

SECTION 4

PREVIOUS FLIGHTS

NOTES:

1. **PAYLOADS IN PARENTHESIS ARE CONFIGURED USING THE SAME CARRIER**

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO- BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
1	12-APR-81 COLUMBIA	40.3 145	2 2	DFI-01	DFI PAL	OEX-01	CDR:JOHN W. YOUNG PLT:ROBERT L. CRIPPEN
2	12-NOV-81 COLUMBIA	38.0 137	2 2	DFI-02 OSTA-01 IECM-01	DFI PAL PAL UNIQUE	OEX-02	CDR:JOE H. ENGLE PLT:RICHARD H. TRULY
3	22-MAR-82 COLUMBIA	38.0 130	2 8	OSS-01 DFI-03 IECM-02 GAS TEST	PAL DFI PAL UNIQUE GAS CAN	EEVT MLR-01 OEX-03 SE-81-08	CDR:JACK R. LOUSMA PLT:C. GORDON FULLERTON
4	27-JUN-82 COLUMBIA	28.5 139	2 7	DOD 82-01 DFI-04 IECM-03 GAS(1)	NONE DFI PAL UNIQUE GAS CAN	MLR-02 OEX-04 CFES-01 NOSL-01 SE-81-04 SE-81-06	CDR:THOMAS K. MATTINGLY PLT:HENRY W. HARTSFIELD
5	11-NOV-82 COLUMBIA	28.5 162	4 5	SBS-C TELESAT-E GAS(1)	PAM-D PAM-D GAS CAN	ISAL SE-81-02 SE-81-05 SE-81-09	CDR:VANCE D. BRAND PLT:ROBERT F. OVERMYER MS:JOSEPH P. ALLEN MS:WILLIAM B. LENOIR
6	4-APR-83 CHALLENGER	28.5 155	4 5	TDRS-A GAS(3)	IUS GAS CAN	MLR-03 CFES-02 NOSL-02	CDR:PAUL J. WEITZ PLT:KAROL J. BOBKO MS:F. STORY MUSGRAVE MS:DONALD H. PETERSON

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
7	18-JUN-83 CHALLENGER	28.5 161	5 6	SPAS-01 OSTA-02 TELESAT-F PALAPA B-1 GAS(7)	NONE MPESS PAM-D PAM-D GAS CAN	MLR-04 CFES-03	CDR:ROBERT L. CRIPPEN PLT:FREDERICK H. HAUCK MS:JOHN M. FABIAN MS:SALLY K. RIDE MS:NORMAN E. THAGARD
8	30-AUG-83 CHALLENGER	28.5 161	5 6	OIM INSAT 1-B PDRS/PFTA GAS(4)	NONE PAM-D NONE GAS CAN	RME-01 CFES-04 SE-81-01	CDR:RICHARD H. TRULY PLT:DANIEL C. BRANDENSTEIN MS:GUION S. BLUFORD, JR. MS:DALE A. GARDNER MS:WILLIAM E. THORNTON
9	28-NOV-83 COLUMBIA	57.0 137	6 10	SPACELAB-01	LM2+PAL		CDR:JOHN W. YOUNG PLT:BREWSTER H. SHAW, JR. MS:OWEN K. GARRIOTT MS:ROBERT A. R. PARKER PS:BYRON K. LICHTENBERG PS:ULF MERBOLD (GERMANY)
10 41-B	3-FEB-84 CHALLENGER	28.5 166	5 8	SPAS-01A WESTAR-VI PALAPA B-2 IRT C-360b-01 GAS(5)	NONE PAM-D PAM-D UNIQUE GAS CAN GAS CAN	ACES C-360c IEF-01 MLR-05 RME-02 SE-81-10	CDR:VANCE D. BRAND PLT:ROBERT L. GIBSON MS:BRUCE MCCANDLESS II MS:RONALD E. MCNAIR MS:ROBERT L. STEWART
11 41-C	6-APR-84 CHALLENGER	28.5 252	5 7	LDEF-01 SMRM C-360b-02	NONE FSS GAS CAN	RME-03 IMAX-01 SE-82-17	CDR:ROBERT L. CRIPPEN PLT:FRANCIS R. SCOBEE MS:TERRY J. HART MS:JAMES D. VAN HOFTEN MS:GEORGE D. NELSON

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
12 41-D	30-AUG-84 DISCOVERY	28.5 162	6 6	SBS-D TELSTAR 3-C SYNCOM IV-02 OAST-01	PAM-D PAM-D NONE MPESS	CLOUDS RME-04 CFES-05 IMAX-02 SE-82-14	CDR:HENRY W. HARTSFIELD PLT:MICHAEL L. COATS MS:STEVEN A. HAWLEY MS:RICHARD M. MULLANE MS:JUDITH A. RESNIK PS:CHARLES WALKER
13 41-G	5-OCT-84 CHALLENGER	57.0 192	7 8	LFC ORS ERBS OSTA-03 GAS(8)	MPESS MPESS NONE PAL GAS CAN	TLD CANEX APE-01 RME-05 IMAX-03	CDR:ROBERT L. CRIPPEN PLT:JON A. MCBRIDE MS:DAVID C. LEESTMA MS:SALLY K. RIDE MS:KATHRYN D. SULLIVAN PS:MARC GARNEAU (CANADA) PS:PAUL SCULLY-POWER (AUSTRALIA)
14 51-A	8-NOV-84 DISCOVERY	28.5 161	5 8	TELESAT-H SYNCOM IV-01 HS-376 RETV-P HS-376 RETV-W	PAM-D NONE PAL PAL	RME-06 DMOS-01	CDR:FREDERICK H. HAUCK PLT:DAVID M. WALKER MS:JOSEPH P. ALLEN MS:ANNA L. FISHER MS:DALE A. GARDNER
15 51-C	24-JAN-85 DISCOVERY	XX X	5 3	DOD			CDR:THOMAS K. MATTINGLY PLT:LOREN J. SHRIVER MS:JAMES F. BUCHLI MS:ELLISON S. ONIZUKA PS:GARY E. PAYTON

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
16 51-D	12-APR-85 DISCOVERY	28.5 249	7 7	TELESAT-I SYNCOM IV-03 GAS(2)	PAM-D NONE GAS CAN	SAS AFE-01 PPE-01 CFES-06 SE-82-03 SE-83-03	CDR:KAROL J. BOBKO PLT:DONALD E. WILLIAMS MS:S. DAVID GRIGGS MS:JEFFREY A. HOFFMAN MS:M. RHEA SEDDON PS:E. JAKE GARN PS:CHARLES WALKER
17 51-B	29-APR-85 CHALLENGER	57.0 192	7 7	SPACELAB-03 GLOMR NUSAT	LM1+MPESS GAS CAN GAS CAN		CDR:ROBERT F. OVERMYER PLT:FREDERICK D. GREGORY MS:DON L. LIND MS:NORMAN E. THAGARD MS:WILLIAM E. THORNTON PS:L. VAN DEN BERG (NETHERLANDS) PS:TAYLOR G. WANG
18 51-G	17-JUN-85 DISCOVERY	28.5 192	7 7	SPTN-01 MORELOS-A ARABSAT-1B TELSTAR 3-D GAS(6)	MPESS PAM-D PAM-D PAM-D GAS CAN	FEE FPE HPTE ADSF-01	CDR:DANIEL C. BRANDENSTEIN PLT:JOHN O. CREIGHTON MS:JOHN M. FABIAN MS:SHANNON W. LUCID MS:STEVEN R. NAGEL PS:SULTAN AL-SAUD (SAUDIA ARABIA) PS:PATRICK BAUDRY (CAMERON)
19 51-F	29-JUL-85 CHALLENGER	50.0 173	7 8	SPACELAB-02	IG+3-PAL	CBDE SAREX SLSTP-01	CDR:C. GORDON FULLERTON PLT:ROY D. BRIDGES MS:ANTHONY W. ENGLAND MS:KARL G. HENIZE MS:F. STORY MUSGRAVE PS:LOREN W. ACTON PS:JOHN-DAVID F. BARTOE

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
20 51-I	27-AUG-85 DISCOVERY	28.5 191	5 7	ASC-01 AUSSAT-01 SYNCOM IV-04 SYNCOM-SALVAGE	PAM-D PAM-D NONE NONE	PVTOS	CDR:JOE H. ENGLE PLT:RICHARD O. COVEY MS:WILLIAM F. FISHER MS:JOHN M. LOUNGE MS:JAMES D. VAN HOFTEN
21 51-J	3-OCT-85 ATLANTIS	XX X	5 4	DOD			CDR:KAROL J. BOBKO PLT:RONALD J. GRABE MS:DAVID C. HILMERS MS:ROBERT L. STEWART PS:WILLIAM A. PAILES
22 61-A	30-OCT-85 CHALLENGER	57.0 179	8 7	SPACELAB D-1 GLOMR-RFL	LM GAS CAN		CDR:HENRY W. HARTSFIELD PLT:STEVEN R. NAGEL MS:GUION S. BLUFORD, JR. MS:JAMES F. BUCHLI MS:BONNIE J. DUNBAR PS:REINHARD FURRER (GERMANY) PS:ERNST MESSERSCHMID (GERMANY) PS:WUBBO J. OCKELS (NETHERLANDS)
23 61-B	26-NOV-85 ATLANTIS	28.5 191	7 7	AUSSAT-02 MORELOS-B EASE/ACCESS SATCOM KU-02 ICBC-01 GAS(1)	PAM-D PAM-D MPESS PAM-D2 UNIQUE GAS CAN	MPSE CFES-07 DMOS-02	CDR:BREWSTER H. SHAW, JR. PLT:BRYAN D. O'CONNOR MS:MARY L. CLEAVE MS:JERRY L. ROSS MS:SHERWOOD C. SPRING PS:RODOLFO NERI VELA (MEXICO) PS:CHARLES WALKER

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
24 61-C	12-JAN-86 COLUMBIA	28.5 176	7 6	MSL-2 SATCOM KU-01 HH-G1 GAS(1) GBA(12)	MPESS PAM-D2 HH-G GAS CAN GBA	HPCG IBSE IR-IE CHAMP-01 SE-82-19 SE-83-04 SE-83-06	CDR:ROBERT L. GIBSON PLT:CHARLES F. BOLDEN, JR. MS:FRANKLIN R. CHANG-DIAZ MS:STEVEN A. HAWLEY MS:GEORGE D. NELSON PS:ROBERT CENKER PS:BILL NELSON
25 51-L	28-JAN-86 CHALLENGER	- -	7 -	TDRS-B SPTN-HALLEY	IUS MPESS	FDE PPE-02 TISP-01 CHAMP-02 SE-82-04 SE-82-05 SE-82-09 RME II-01	CDR:FRANCIS R. SCOBEE PLT:MICHAEL J. SMITH MS:RONALD E. MCNAIR MS:ELLISON S. ONIZUKA MS:JUDITH A. RESNIK PS:GREGORY JARVIS SFP:CHRISTA MCAULIFFE
26	29-SEP-88 DISCOVERY	28.5 162	5 4	TDRS-C OASIS I-01	IUS UNIQUE	ELRAD IRCFE ARC-02 IEF-02 MLE-01 PPE-03 ADSF-02 PVTOS-02 SE-82-04 SE-82-05 PCG-II-01	CDR:FREDERICK H. HAUCK PLT:RICHARD O. COVEY MS:DAVID C. HILMERS MS:JOHN M. LOUNGE MS:GEORGE D. NELSON

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO- BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
27	2-DEC-88 ATLANTIS	XX X	5 4	DOD			CDR:ROBERT L. GIBSON PLT:GUY S. GARDNER MS:RICHARD M. MULLANE MS:JERRY L. ROSS MS:WILLIAM M. SHEPHERD
29	13-MAR-89 DISCOVERY	28.5 163	5 5	TDRS-D SHARE OASIS I-02	IUS UNIQUE UNIQUE	AMOS-01 IMAX-04 SE-82-08 SE-83-09 CHROMEX-01 PCG-III-01	CDR:MICHAEL L. COATS PLT:JOHN E. BLAHA MS:JAMES P. BAGIAN MS:JAMES F. BUCHLI MS:ROBERT C. SPRINGER
30	4-MAY-89 ATLANTIS	28.9 161	5 4	MAGELLAN	IUS	FEA-01 MLE-02 AMOS-02	CDR:DAVID M. WALKER PLT:RONALD J. GRABE MS:MARY L. CLEAVE MS:MARK C. LEE MS:NORMAN E. THAGARD
28	8-AUG-89 COLUMBIA	XX X	5 5	DOD			CDR:BREWSTER H. SHAW, JR. PLT:RICHARD N. RICHARDS MS:JAMES C. ADAMSON MS:MARK N. BROWN MS:DAVID C. LEESTMA
34	18-OCT-89 ATLANTIS	34.3 162	5 5	GALILEO SSBUV-01	IUS UNIQUE	GHCD STEX PM-01 MLE-03 AMOS-03 IMAX-05 SE-82-15	CDR:DONALD E. WILLIAMS PLT:MICHAEL J. MCCULLEY MS:ELLEN S. BAKER MS:FRANKLIN R. CHANG-DIAZ MS:SHANNON W. LUCID

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO- BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
33	22-NOV-89 DISCOVERY	XX X	5 5	DOD			CDR:FREDERICK D. GREGORY PLT:JOHN E. BLAHA MS:MANLEY L. CARTER, JR. MS:F. STORY MUSGRAVE MS:KATHRYN C. THORNTON
32	9-JAN-90 COLUMBIA	28.5 193	5 11	LDEF-RETR SYNCOM IV-05 IOCM-01	NONE UNIQUE UNIQUE	L3 CNCR AFE-02 FEA-02 MLE-04 AMOS-04 IMAX-06 PCG-III-02	CDR:DANIEL C. BRANDENSTEIN PLT:JAMES D. WETHERBEE MS:BONNIE J. DUNBAR MS:MARSHA S. IVINS MS:G. DAVID LOW
36	28-FEB-90 ATLANTIS	XX X	5 5	DOD			CDR:JOHN O. CREIGHTON PLT:JOHN H. CASPER MS:DAVID C. HILMERS MS:RICHARD M. MULLANE MS:PIERRE J. THUOT
31	24-APR-90 DISCOVERY	28.5 330	5 5	HST APM-01 ICBC-02	NONE UNIQUE UNIQUE	AMOS-05 IMAX-07 IPMP-01 SE-82-16 PCG-III-03 RME III-01	CDR:LOREN J. SHRIVER PLT:CHARLES F. BOLDEN, JR. MS:STEVEN A. HAWLEY MS:BRUCE MCCANDLESS II MS:KATHRYN D. SULLIVAN

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO- BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
41	6-OCT-90 DISCOVERY	28.5 160	5 4	ULYSSES SSBUV-02 ISAC	IUS/PAM UNIQUE UNIQUE	VCS PSE-01 AMOS-06 IPMP-02 SSCE-01 CHROMEX-02 RME III-02	CDR:RICHARD N. RICHARDS PLT:ROBERT D. CABANA MS:THOMAS D. AKERS MS:BRUCE E. MELNICK MS:WILLIAM M. SHEPHERD
38	15-NOV-90 ATLANTIS	XX X	5 5	DOD			CDR:RICHARD O. COVEY PLT:FRANK L. CULBERTSON, JR. MS:CHARLES D. 'SAM' GEMAR MS:CARL J. MEADE MS:ROBERT C. SPRINGER
35	2-DEC-90 COLUMBIA	28.5 190	7 9	ASTRO-01 BBXRT-01	IG+2-PAL TAPS	AMOS-07 UVPI-01 SAREX II-01	CDR:VANCE D. BRAND PLT:GUY S. GARDNER MS:JEFFREY A. HOFFMAN MS:JOHN M. LOUNGE MS:ROBERT A. R. PARKER PS:SAMUEL T. DURRANCE PS:RONALD A. PARISE
37	5-APR-91 ATLANTIS	28.5 244	5 6	GRO CETA APM-02	NONE UNIQUE UNIQUE	AMOS-08 BIMDA-01 PCG-III-04 RME III-03 SAREX II-02	CDR:STEVEN R. NAGEL PLT:KENNETH D. CAMERON MS:JEROME APT MS:LINDA M. GODWIN MS:JERRY L. ROSS

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
39	28-APR-91 DISCOVERY	57.0 140	7 8	IBSS AFP-675 STP-01 MPEC-01	SPAS PAL HH-M UNIQUE	UVPI-02 RME III-04 CLOUDS-1A-0 1	CDR:MICHAEL L. COATS PLT:L. BLAINE HAMMOND, JR. MS:GUION S. BLUFORD, JR. MS:GREGORY J. HARBAUGH MS:RICHARD J. HIEB MS:DONALD R. MCMONAGLE MS:CHARLES LACY VEACH
40	5-JUN-91 COLUMBIA	39.0 161	7 9	SLS-01 GBA(12)	LM GBA	MODE-A	CDR:BRYAN D. O'CONNOR PLT:SIDNEY M. GUTIERREZ MS:JAMES P. BAGIAN MS:TAMARA E. JERNIGAN MS:M. RHEA SEDDON PS:F. DREW GAFFNEY PS:MILLIE HUGHES-FULFORD
43	2-AUG-91 ATLANTIS	28.5 161	5 9	TDRS-E SHARE II SSBUV-03 TPCE-01 OCTW-01	IUS UNIQUE UNIQUE CAP/SW UNIQUE	AMOS-09 IPMP-03 SAMS-01 SSCE-02 UVPI-03 APE-B-01 BIMDA-02 PCG-III-05	CDR:JOHN E. BLAHA PLT:MICHAEL A. BAKER MS:JAMES C. ADAMSON MS:G. DAVID LOW MS:SHANNON W. LUCID

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO- BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
48	12-SEP-91 DISCOVERY	57.0 292	5 6	UARS APM-03	UNIQUE UNIQUE	MODE-B SAM-02 AMOS-10 IPMP-04 PARE-01 CREAM-01 PCG-II-02 RME III-05	CDR:JOHN O. CREIGHTON PLT:KENNETH S. REIGHTLER, JR. MS:MARK N. BROWN MS:JAMES F. BUCHLI MS:CHARLES D. 'SAM' GEMAR
44	24-NOV-91 ATLANTIS	28.5 195	6 7	DSP IOCM-02	IUS UNIQUE	M88-1 SAM-01 AMOS-11 UVPI-04 CREAM-02 VFT-1-01 RME III-06 TERRA SCOUT	CDR:FREDERICK D. GREGORY PLT:TERENCE T. HENRICKS MS:F. STORY MUSGRAVE MS:MARIO RUNCO, JR. MS:JAMES S. VOSS PS:THOMAS J. HENNEN
42	22-JAN-92 DISCOVERY	57.0 162	7 8	IML-01 GBA(10)	LM GBA	IPMP-05 UVPI-05 SE-81-09 SE-83-02 GOSAMR-01 RME III-07	CDR:RONALD J. GRABE PLT:STEPHEN S. OSWALD MS (PLC):NORMAN E. THAGARD MS:DAVID C. HILMERS MS:WILLIAM F. READDY PS:ROBERTA L. BONDAR (CANADA) PS:ULF MERBOLD (GERMANY)

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
45	24-MAR-92 ATLANTIS	57.0 160	7 9	ATLAS-01 SSBUV/A-01 GAS(1)	IG+2-PAL UNIQUE GAS CAN	STL-01 IPMP-06 UVPI-06 VFT-2-01 RME III-08 SAREX II-03 CLOUDS-1A-0 2	CDR:CHARLES F. BOLDEN, JR. PLT:BRIAN DUFFY MS (PLC):KATHRYN D. SULLIVAN MS:C. MICHAEL FOALE MS:DAVID C. LEESTMA PS:DIRK D. FRIMOUT (BELGIUM) PS:BYRON K. LICHTENBERG
49	7-MAY-92 ENDEAVOUR	28.3 183	7 9	INTELSAT-VI-R ASEM	UNIQUE MPESS	AMOS-12 CPCG-01 UVPI-07	CDR:DANIEL C. BRANDENSTEIN PLT:KEVIN P. CHILTON MS:THOMAS D. AKERS MS:RICHARD J. HIEB MS:BRUCE E. MELNICK MS:KATHRYN C. THORNTON MS:PIERRE J. THUOT
50	25-JUN-92 COLUMBIA	28.5 160	7 14	USML-01	LM+EDO	IPMP-07 UVPI-08 SAREX II-04	CDR:RICHARD N. RICHARDS PLT:KENNETH D. BOWERSOX MS (PLC):BONNIE J. DUNBAR MS:ELLEN S. BAKER MS:CARL J. MEADE PS:LAWRENCE J. DELUCAS PS:EUGENE H. TRINH
46	31-JUL-92 ATLANTIS	28.5 230	7 7	TSS-01 EURECA-1L LDCE-01 CONCAP II-01 CONCAP III-01 ICBC-03 EOIM-III/TEMP2A-03	PAL+MPESS EURECA-A CAP/SW CAP/SW CAP/SW UNIQUE	PHCF-01 UVPI-09	CDR:LOREN J. SHRIVER PLT:ANDREW M. ALLEN MS (PLC):JEFFREY A. HOFFMAN MS:FRANKLIN R. CHANG-DIAZ MS:MARSHA S. IVINS MS:CLAUDE NICOLLIER (SWITZERLAND) PS:FRANCO MALERBA (ITALY)

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
47	12-SEP-92 ENDEAVOUR	57.0 163	7 7	SL-J GBA(9)	LM GBA	ISAIAH SSCE-03 SAREX II-05	CDR:ROBERT L. GIBSON PLT:CURTIS L. BROWN, JR. MS (PLC):MARK C. LEE MS:JEROME APT MS:N. JAN DAVIS MS:MAE C. JEMISON PS:MAMORU MOHRI (JAPAN)
52	22-OCT-92 COLUMBIA	28.5 160	6 10	USMP-01 LAGEOS II ASP TPCE-02 CANEX-02	USMP IRIS HH-G CAP/SW UNIQUE	SPIE HPP-01 PSE-02 CMIX-01 CPCG-02 CVTE-01	CDR:JAMES D. WETHERBEE PLT:MICHAEL A. BAKER MS:TAMARA E. JERNIGAN MS:WILLIAM M. SHEPHERD MS:CHARLES LACY VEACH PS:STEVEN G. MACLEAN (CANADA)
53	2-DEC-92 DISCOVERY	57.0 200	5 7	DOD-1 GCP ODERACS-01	UNIQUE HH-G CAP/SW	STL-02 FARE-01 BLAST-01 CREAM-03 MIS I-01 VFT-2-02 RME III-09 HERCULES-01 CLOUDS-1A-0 3	CDR:DAVID M. WALKER PLT:ROBERT D. CABANA MS:GUION S. BLUFORD, JR. MS:MICHAEL R. CLIFFORD MS:JAMES S. VOSS
54	13-JAN-93 ENDEAVOUR	28.5 160	5 6	TDRS-F DXS	IUS HH-G	CGBA-01 PARE-02 SSCE-04 CHROMEX-03	CDR:JOHN H. CASPER PLT:DONALD R. MCMONAGLE MS:GREGORY J. HARBAUGH MS:SUSAN J. HELMS MS:MARIO RUNCO, JR.

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
56	8-APR-93 DISCOVERY	57.0 160	5 9	ATLAS-02 SPTN 201-01 SSBUV/A-02 SUVE	IG+1-PAL SPARTAN SSBUV/A CAP/SW	STL-03 AMOS-13 CMIX-02 PARE-03 CREAM-04 RME III-10 HERCULES-02 SAREX II-06	CDR:KENNETH D. CAMERON PLT:STEPHEN S. OSWALD MS:KENNETH D. COCKRELL MS:C. MICHAEL FOALE MS:ELLEN OCHOA
55	26-APR-93 COLUMBIA	28.5 160	7 10	SL-D2	LM+USS+2 CAP	SAREX II-07	CDR:STEVEN R. NAGEL PLT:TERENCE T. HENRICKS MS (PLC):JERRY L. ROSS MS:BERNARD A. HARRIS, JR. MS:CHARLES J. PRECOURT, JR. PS:HANS SCHLEGEL (GERMANY) PS:ULRICH WALTER (GERMANY)
57	21-JUN-93 ENDEAVOUR	28.5 250	6 10	EURECA-1R SPACEHAB-01 SHOOT CONCAP IV-01 GBA(11)	EURECA-A SPACEHAB HH-M CAP/GBA GBA	AMOS-14 FARE-02 SAREX II-08	CDR:RONALD J. GRABE PLT:BRIAN DUFFY MS (PLC):G. DAVID LOW MS:NANCY J. SHERLOCK MS:JANICE E. VOSS MS:PETER J. K. WISOFF
51	12-SEP-93 DISCOVERY	28.5 160	5 10	ACTS ORFEUS-SPAS-01 LDCE-02	TOS ASTRO-SPAS CAP/SW	AMOS-15 CPCG-03 IMAX-08 IPMP-08 APE-B-02 CHROMEX-04 HRSGS-A-01 RME III-11	CDR:FRANK L. CULBERTSON, JR. PLT:WILLIAM F. READDY MS:DANIEL W. BURSCH MS:JAMES H. NEWMAN MS:CARL E. WALZ

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
58	18-OCT-93 COLUMBIA	39.0 153	7 14	SLS-02	LM+EDO	SAREX II-09	CDR:JOHN E. BLAHA PLT:RICHARD A. SEARFOSS MS (PLC):M. RHEA SEDDON MS:SHANNON W. LUCID MS:WILLIAM S. MCARTHUR, JR. MS:DAVID A. WOLF PS:MARTIN J. FETTMAN
61	2-DEC-93 ENDEAVOUR	28.5 310	7 11	HST SM-01 ICBC-04	FSS+UNIQUE ICBC	AMOS-16 IMAX-09	CDR:RICHARD O. COVEY PLT:KENNETH D. BOWERSOX MS (PLC):F. STORY MUSGRAVE MS:THOMAS D. AKERS MS:JEFFREY A. HOFFMAN MS:CLAUDE NICOLLIER (SWITZERLAND) MS:KATHRYN C. THORNTON
60	3-FEB-94 DISCOVERY	57.0 190	6 8	WSF-01 SPACEHAB-02 (BREMSAT) (ODERACS-1R) (CAPL/GBA(4))	WSF SPACEHAB GBA GBA GBA	APE-B-03 SAREX II-10	CDR:CHARLES F. BOLDEN, JR. PLT:KENNETH S. REIGHTLER, JR. MS:FRANKLIN R. CHANG-DIAZ MS:N. JAN DAVIS MS:SERGEI KRIKALEV (RUSSIA) MS:RONALD M. SEGA
62	4-MAR-94 COLUMBIA	39.0 160	5 14	USMP-02 DEE OAST-02 SSBUV/A-03 LDCE-03	2-MPESS+EDO GAS BEAM HH-M SSBUV/A CAP/SW	BDS-01 PSE-03 AMOS-17 APCG-01 CGBA-02 CPCG-04 APE-B-04 MODE-RFL PCG-TES-01	CDR:JOHN H. CASPER PLT:ANDREW M. ALLEN MS:CHARLES D. 'SAM' GEMAR MS:MARSHA S. IVINS MS:PIERRE J. THUOT

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
59	9-APR-94 ENDEAVOUR	57.0 120	6 11	SRL-01 CONCAP IV-02 GAS(4)	PAL+MPESS CAP/GBA GAS CAN	STL-B-01 VFT-4-01 SAREX II-11 STL-04(NIH-C-01)	CDR:SIDNEY M. GUTIERREZ PLT:KEVIN P. CHILTON MS (PLC):LINDA M. GODWIN MS:JEROME APT MS:MICHAEL R. CLIFFORD MS:THOMAS D. JONES
65	8-JUL-94 COLUMBIA	28.5 160	7 15	IML-02 OARE-01	LM+EDO UNIQUE	AMOS-18 CPCG-05 MAST-01 SAREX II-12	CDR:ROBERT D. CABANA PLT:JAMES D. HALSELL, JR. MS (PLC):RICHARD J. HIEB MS:LEROY CHIAO MS:DONALD A. THOMAS MS:CARL E. WALZ PS:CHIAKI MUKAI (JAPAN)
64	9-SEP-94 DISCOVERY	57.0 140	6 11	LITE I SPTN 201-02 ROMPS-01 GBA(12)	PAL SPARTAN HH-G GBA	AMOS-19 BRIC-02 MAST-02 SSCE-05 RME III-12 SAREX II-13	CDR:RICHARD N. RICHARDS PLT:L. BLAINE HAMMOND, JR. MS:SUSAN J. HELMS MS:MARK C. LEE MS:JERRY M. LINENGER MS:CARL J. MEADE
68	30-SEP-94 ENDEAVOUR	57.0 120	6 11	SRL-02 GAS(5)	PAL+MPESS GAS CAN	BRIC-01 CPCG-06 MAST-03 CREAM-05 CHROMEX-05	CDR:MICHAEL A. BAKER PLT:TERRENCE W. WILCUTT MS (PLC):THOMAS D. JONES MS:DANIEL W. BURSCH MS:STEVEN L. SMITH MS:PETER J. K. WISOFF

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
66	3-NOV-94 ATLANTIS	57.0 164	6 11	ATLAS-03 CRISTA-SPAS-01 ESCAPE-II SSBUV/A-04	IG+1-PAL ASTRO-SPAS CAP/SW SSBUV/A	HPP-02 SAMS-02 PCG-TES-02 PCG-STES-01 STL/NIH-C-0 2 PARE/NIH-R-01	CDR:DONALD R. MCMONAGLE PLT:CURTIS L. BROWN, JR. MS (PLC):ELLEN OCHOA MS:JEAN-FRANCOIS CLERVOY (FRANCE) MS:SCOTT E. PARAZYNSKI MS:JOSEPH R. TANNER
63	3-FEB-95 DISCOVERY	51.6 170	6 8	SPTN 204 SPACEHAB-03 EDFT-01 CGP/ODERACS-02	SPARTAN SPACEHAB UNIQUE	AMOS-24 SSCE-06 PCG-STES-02	CDR:JAMES D. WETHERBEE PLT:EILEEN M. COLLINS MS:C. MICHAEL FOALE MS:BERNARD A. HARRIS, JR. MS:VLADIMIR G. TITOV (RUSSIA) MS:JANICE E. VOSS
67	2-MAR-95 ENDEAVOUR	28.5 190	7 17	ASTRO-02 GAS(2)	IG+2-PAL+EDO GAS CAN	CMIX-03 MACE-01 PCG-TES-03 PCG-STES-03 SAREX II-14	CDR:STEPHEN S. OSWALD PLT:WILLIAM G. GREGORY MS (PLC):TAMARA E. JERNIGAN MS:JOHN M. GRUNSFELD MS:WENDY B. LAWRENCE PS:SAMUEL T. DURRANCE PS:RONALD A. PARISE

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
71	27-JUN-95 ATLANTIS	51.6 160	7* 10	S/MM-01 SL-M	LM	IMAX-10 SAREX II-15	CDR:ROBERT L. GIBSON PLT:CHARLES J. PRECOURT, JR. MS:ELLEN S. BAKER MS:BONNIE J. DUNBAR MS:GREGORY J. HARBAUGH M18:VLADIMIR DEZHUROV (RUSSIA)(D) M18:GENNADIY STREKALOV (RUSSIA)(D) M18:NORMAN E. THAGARD(D) M19:NIKOLAI BUDARIN (RUSSIA)(U) M19:ANATOLY SOLOVYEV (RUSSIA)(U)
70	13-JUL-95 DISCOVERY	28.5 160	5 9	TDRS-G	IUS	BDS-02 MSX-01 BRIC-04 BRIC-05 CPCG-07 MAST-04 MIS-B-01 VFT-4-02 WINDEX-02 RME III-19 HERCULES-03 SAREX II-16 PARE/NIH-R-02 STL-B-02	CDR:TERENCE T. HENRICKS PLT:KEVIN R. KREGEL MS:NANCY J. SHERLOCK MS:DONALD A. THOMAS MS:MARY ELLEN WEBER

* CREW EXCHANGE MISSIONS: U-UP, D-DOWN

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
69	7-SEP-95 ENDEAVOUR	28.5 200	5 11	WSF-02 SPTN 201-03 IEH-01 EDFT-02 CAPL-02/GBA(5)/TES	WSF SPARTAN HH-M UNIQUE GBA	EPICS BRIC-06 CGBA-03 CMIX-04 STL/NIH-C-0 4	CDR:DAVID M. WALKER PLT:KENNETH D. COCKRELL MS (PLC):JAMES S. VOSS MS:MICHAEL L. GERNHARDT MS:JAMES H. NEWMAN
73	20-OCT-95 COLUMBIA	39.0 150	7 16	USML-02 OARE-06	LM+EDO UNIQUE		CDR:KENNETH D. BOWERSOX PLT:KENT V. ROMINGER MS (PLC):KATHRYN C. THORNTON MS:CATHERINE G. COLEMAN MS:MICHAEL E. LOPEZ-ALEGRIA PS:FRED W. LESLIE PS:ALBERT SACCO, JR.
74	12-NOV-95 ATLANTIS	51.6 160	5 8	S/MM-02 GPP ICBC-05 DM	UNIQUE HH-G ICBC ODS	SAREX II-17	CDR:KENNETH D. CAMERON PLT:JAMES D. HALSELL, JR. MS:CHRIS A. HADFIELD (CANADA) MS:WILLIAM S. MCARTHUR, JR. MS:JERRY L. ROSS
72	11-JAN-96 ENDEAVOUR	28.5 250	6 9	SFU-RETR OAST-FLYER SSBUV/A-05 EDFT-03 SLA-01/GAS(5)	UNIQUE SPARTAN SSBUV/A UNIQUE GBA	CPCG-08 PCG-STES-04 STL/NIH-C-0 5 PARE/NIH-R-03	CDR:BRIAN DUFFY PLT:BRENT W. JETT, JR. MS:DANIEL T. BARRY MS:LEROY CHIAO MS:WINSTON E. SCOTT MS:KOICHI WAKATA (JAPAN)

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
75	22-FEB-96 COLUMBIA	28.5 160	7 16	TSS-1R USMP-03 OARE-07	PAL+MPESS 2-MPESS+EDO UNIQUE	CPCG-09 MGBX-01	CDR:ANDREW M. ALLEN PLT:SCOTT J. HOROWITZ MS (PLC):FRANKLIN R. CHANG-DIAZ MS:MAURIZIO CHELI (ITALY) MS:JEFFREY A. HOFFMAN MS:CLAUDE NICOLLIER (SWITZERLAND) PS:UMBERTO GUIDONI (ITALY)
76	22-MAR-96 ATLANTIS	51.6 160	6* 9	S/MM-03 MEEP-D EDFT-04 GAS(1)	SPACEHAB-SM UNIQUE UNIQUE GAS CAN	KIDSAT-01 SAREX II-18	CDR:KEVIN P. CHILTON PLT:RICHARD A. SEARFOSS MS (PLC):SHANNON W. LUCID(U) MS:MICHAEL R. CLIFFORD MS:LINDA M. GODWIN MS:RONALD M. SEGA
77	19-MAY-96 ENDEAVOUR	39.0 150	6 10	SPACEHAB-04 SPTN 207/IAE TEAMS BETSCE GBA(12)	SPACEHAB-SM SPARTAN HH-M HH-G GBA	ARF-01 BRIC-07	CDR:JOHN H. CASPER PLT:CURTIS L. BROWN MS:DANIEL W. BURSCH MS:MARC GARNEAU (CANADA) MS:MARIO RUNCO MS:ANDREW S.W. THOMAS
78	20-JUN-96 COLUMBIA	39.0 150	7 17	LMS OARE-08	LM+EDO UNIQUE	BRIC-08 SAREX II-19	CDR:TERENCE T. HENRICKS PLT:KEVIN R. KREGEL MS (PLC):SUSAN J. HELMS MS:CHARLES E. BRADY MS:RICHARD M. LINNEHAN PS:JEAN-JACQUES FAVIER (FRANCE) PS:ROBERT B. THIRSK (CANADA)

* CREW EXCHANGE MISSIONS: 6 UP, 5 DOWN

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO-BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
79	16-SEP-96 ATLANTIS	51.6 160	7* 10	S/MM-04 SPACEHAB-05	SPACEHAB-DM	MGM-01 MSX-02 CPCG-10 MGBX(MIR) SAMS-04 SAREX II-20 CGBA(MIR) IMAX-11	CDR:WILLIAM F. READDY PLT:TERRENCE W. WILCUTT MS (PLC):THOMAS D. AKERS MS:JEROME APT MS:JOHN E. BLAHA(U) MS:SHANNON W. LUCID(D) MS:CARL E. WALZ
80	19-NOV-96 COLUMBIA	28.5 190	5 18	WSF-03 ORFEUS-SPAS-02 SEM-01 EDFT-05	WSF ASTROSPAS+EDO GAS-SW NONE	MSX-03 BRIC-09 CMIX-05 VIEW-CPL PARE/NIH-R-04 CCM-06	CDR:KENNETH D. COCKRELL PLT:KENT V. ROMINGER MS:TAMARA E. JERNIGAN MS:THOMAS D. JONES MS:STORY MUSGRAVE
81	12-JAN-97 ATLANTIS	51.6 160	6* 10	S/MM-05 SPACEHAB-DM	SPACEHAB-DM	MSX-04 SAMS-05 CREAM-07 KIDSAT-02	CDR:MICHAEL A. BAKER PLT:BRENT W. JETT MS:JOHN E. BLAHA(D) MS:JOHN M. GRUNSFELD MS:MARSHA S. IVINS MS:JERRY M. LINENGER(U) MS:PETER J.K. WISOFF
82	11-FEB-97 DISCOVERY	28.5 320	7 10	HST SM-02	FSS+UNIQUE	MSX-05	CDR:KENNETH D. BOWERSOX PLT:SCOTT J. HOROWITZ MS:GREGORY J. HARBAUGH MS (PLC):STEVEN A. HAWLEY MS:MARK C. LEE MS:STEVEN L. SMITH MS:JOSEPH R. TANNER

* CREW EXCHANGE MISSIONS: U-UP, D-DOWN

**** PREVIOUS SHUTTLE FLIGHTS ****

FLT	DATE ORBITER	INCL ALT	CRW DUR	MISSION/CARGO- BAY PAYLOADS	CARRIER	MIDDECK PAYLOADS	CREW ASSIGNMENT
83	4-APR-97 COLUMBIA	28.5 160	7 4	MSL-01 CRYOFD OARE-09	LM+EDO HH-G UNIQUE	MSX-06 SAREX II-21	CDR:JIM HALSELL PLT:SUSAN STILL MS (PLC):JANICE VOSS MS:MIKE GERNHARDT MS:DONALD A. THOMAS PS:ROGER K. CROUCH PS:GREGORY T. LINTERIS
84	15-MAY-97 ATLANTIS	51.6 160	7* 9	S/MM-06 SPACEHAB-DM	SPACEHAB-DM	LME EPICS MSX-07 CREAM-08 RME III-20 PCG-STES-06	CDR:CHARLES J. PRECOURT PLT:EILEEN COLLINS MS:C. MICHAEL FOALE(U) MS:ELENA KONDAKOVA (RUSSIA) MS:JERRY M. LINENGER(D) MS:EDWARD LU MS:CARLOS NORIEGA PS:JEAN-FRANCOIS CLERVOY (ESA)

* CREW EXCHANGE MISSIONS: U-UP, D-DOWN

**** PREVIOUS PEGASUS VEHICLE FLIGHTS ****

PROGRAM INITIATION DATE: 1987
FIRST FLIGHT: 1990

LAUNCHES TO DATE: 15
LAUNCH VEHICLE SUCCESSES: 10

LAST 15 FLIGHTS

LAUNCH DATE	FLIGHT NUMBER	SPACECRAFT	FINAL PAYLOAD ORBIT ACHIEVED	NOTES
5-APR-90	F-1	PEGSAT	LEO POLAR	SUCCESS
19-JUL-91	F-2	MICROSAT	LEO POLAR	SUCCESS*
9-FEB-93	F-3	SCD-01	LEO	SUCCESS
25-APR-93	F-4	ALEXIS	LEO POLAR	SUCCESS
19-MAY-94	F-5	STEP-02	LEO POLAR	SUCCESS*
26-JUN-94	F-6	STEP-01	LEO POLAR	FAILURE
3-AUG-94	F-7	APEX	LEO POLAR	SUCCESS
3-APR-95	F-8	ORBCOMM/MICRO	LEO POLAR	SUCCESS
22-JUN-95	F-9	STEP-03	LEO POLAR	FAILURE
8-MAR-96	F-10	REX II	LEO POLAR	SUCCESS
16-MAY-96	F-11	MSTI-III	LEO POLAR	SUCCESS
2-JUL-96	F-12	TOMS-EP	LEO POLAR	SUCCESS
21-AUG-96	F-13	FAST	LEO POLAR	SUCCESS
4-NOV-96	F-14	HETE/SAC-B	LEO	FAILURE
21-APR-97	F-15	MINISAT	LEO	FAILURE

*PARTIAL SUCCESS: F-2 had apogee 143.5 NMI low & perigee 196.6 NMI low due to incomplete separation of stage 1/stage 2. F-5 had perigee 124 NMI low due to premature cutoff of HAPS.

**** PREVIOUS DELTA VEHICLE FLIGHTS ****

PROGRAM INITIATION DATE: 1959
FIRST FLIGHT: 1960

LAUNCHES TO DATE: 243
LAUNCH VEHICLE SUCCESSES: 229

LAST 20 FLIGHTS

LAUNCH DATE	FLIGHT NUMBER	SPACECRAFT	FINAL PAYLOAD ORBIT ACHIEVED	NOTES
7-DEC-93	224	NATO IVB	GTO	SUCCESS
19-FEB-94	225	GALAXY-1R	GSO	SUCCESS
9-MAR-94	226	NAVSTAR-24/SEDS II	GSO	SUCCESS
1-NOV-94	227	WIND	HEEO	SUCCESS
5-AUG-95	228	KOREASAT-01	GTO	SUCCESS*
4-NOV-95	229	RADARSAT/SURFSAT	SS	SUCCESS
30-DEC-95	230	XTE	LEO	SUCCESS
14-JAN-96	231	KOREASAT-02	GTO	SUCCESS
17-FEB-96	232	NEAR	PLAN	SUCCESS
24-FEB-96	233	POLAR	HE	SUCCESS
27-MAR-96	234	NAVSTAR-25	GSO	SUCCESS
24-APR-96	235	MSX	SS	SUCCESS
24-MAY-96	236	GALAXY-IX	GTO	SUCCESS
16-JUL-96	237	NAVSTAR-26	GSO	SUCCESS
12-SEP-96	238	NAVSTAR-27	GSO	SUCCESS
7-NOV-96	239	MGS	PLAN	SUCCESS
4-DEC-96	240	MARS PATHFINDER	PLAN	SUCCESS
17-JAN-97	241	GPS-IIR-1	GSO	FAILURE
5-MAY-97	242	MOTOROLA-1	LEO	SUCCESS
18-MAY-97	243	THOR IIA	GSO	SUCCESS

*PARTIAL SUCCESS: KOREASAT-1 was able to achieve orbit; however, the DELTA booster initially placed the satellite in lower-than desired orbit, thus shortening its mission life.

**** PREVIOUS ATLAS CENTAUR VEHICLE FLIGHTS ****

PROGRAM INITIATION DATE: 1958
FIRST FLIGHT: 1962

LAUNCHES TO DATE: 107
LAUNCH VEHICLE SUCCESSES: 93

LAST 20 FLIGHTS

LAUNCH DATE	FLIGHT NUMBER	SPACECRAFT	FINAL PAYLOAD ORBIT ACHIEVED	NOTES
28-JAN-95	AC-112	UHF-04	GSO	SUCCESS
22-MAR-95	AC-115	INTELSAT-705	GSO	SUCCESS
7-APR-95	AC-114	MSAT	GSO	SUCCESS
23-MAY-95	AC-77	GOES-J	GSO	SUCCESS
31-MAY-95	AC-116	UHF-05	GSO	SUCCESS
31-JUL-95	AC-118	USAF DSCS III	GSO	SUCCESS
28-AUG-95	AC-117	JCSAT	GSO	SUCCESS
22-OCT-95	AC-119	UHF-F6	GSO	SUCCESS
2-DEC-95	AC-121	SOHO	LIBRATION PT.	SUCCESS
14-DEC-95	AC-120	GALAXY IIIR	GSO	SUCCESS
31-JAN-96	AC-126	PALAPA-C1	GSO	SUCCESS
3-APR-96	AC-122	INMARSAT3-F1	GSO	SUCCESS
30-APR-96	AC-78	SAX	LEO	SUCCESS
25-JUL-96	AC-125	EHF-F7	GSO	SUCCESS
8-SEP-96	AC-123	GE-1 AMERICOM	GSO	SUCCESS
21-NOV-96	AC-124	HOT BIRD II	GSO	SUCCESS
17-DEC-96	AC-129	INMARSAT3-F3	GSO	SUCCESS
16-FEB-97	AC-127	JCSAT-4	GSO	SUCCESS
8-MAR-97	AC-128	TEMPO	GSO	SUCCESS
25-APR-97	AC-79	GOES-K	GSO	SUCCESS

**** PREVIOUS COMMERCIAL TITAN III VEHICLE FLIGHTS ****

PROGRAM INITIATION DATE: 1987
FIRST FLIGHT: 1989
LAST FLIGHT: 1992

LAUNCHES TO DATE: 4
LAUNCH VEHICLE SUCCESSES: 3

ALL FLIGHTS

LAUNCH DATE	FLIGHT NUMBER	SPACECRAFT	FINAL PAYLOAD ORBIT ACHIEVED	NOTES
31-DEC-89	1	JCSAT/SKYNET	GSO	SUCCESS
14-MAR-90	2	INTELSAT VI/F3	*	FAILURE
23-JUN-90	3	INTELSAT VI/F4	GSO	SUCCESS
25-SEP-92	4	MARS OBSERVER	PLANETARY	SUCCESS

*Retrieved by Space Shuttle Endeavour in May 1992 and successfully boosted into geosynchronous orbit.

SECTION 5

PAYLOAD REQUESTS

NOTES:

1. INCLUDES PRIMARY, COMPLEX SECONDARY, AND MANIFESTED NON-COMPLEX SECONDARY PAYLOADS.

2. REQUEST DATE: LAUNCH DATE REQUESTED BY THE PAYLOAD ORGANIZATION

3. FLIGHT DATE : LAUNCH DATE SHOWN IN THE MANIFEST.
   IF NOT MANIFESTED, NO DATE IS GIVEN.

4. SPACE STATION FLIGHTS AREBASED ON THE ISS ASSEMBLY SEQUENCE REV. C. THROUGH JUNE, 2002.

5. CARRIERS DESIGNATED AS SPACEHAB LOCKERS ARE FOR NON-SPACEHAB DEDICATED MIDDECK PAYLOADS MANIFESTED IN THE SPACEHAB MODULE.

**** PAYLOAD REQUESTS ****

PAYLOAD	CARRIER	REQ DATE	FLIGHT DATE	FLIGHT/VEHICLE	TYPE	SPONSOR
ACE	NONE	AUG 97		DELTA 7920-8	PRIMARY	OSS
AMS-01	UNIQUE	APR 98	JUN 98	STS-91	PRIMARY	OLMSA
AMS-02	UNIQUE	FEB 01	JAN 02	STS-121	PRIMARY	OLMSA
AST-01	LOCKER	APR 99	JAN 98	STS-89	SECONDARY*	OLMSA
AWCS/AMTEC	HH-G	JAN 97	JUL 98	STS-88	SECONDARY*	OSAT
AXAF-I	NONE	SEP 98		STS-93	PRIMARY	OSS
BDS-03	LOCKER	JAN 96	AUG 97	STS-85	SECONDARY*	OLMSA
BDS-04	LOCKER	JUL 96	APR 98	STS-90	SECONDARY*	OLMSA
CASSINI	NONE	OCT 97		TITAN IV /CENTAUR	PRIMARY	OSS
CATSAT	NONE	MAR 99		ULTRALITE	PRIMARY	OSS
CCM-07	LOCKER	JUL 97	SEP 97	STS-86	SECONDARY*	DOD
CEBAS-01	LOCKER	APR 97	JAN 98	STS-89	SECONDARY*	OLMSA
CONCAP IV-04	HH	OCT 97	OCT 98	STS-95	SECONDARY*	OLMSA
COOLLAR	HH-M	JUL 97	AUG 97	STS-85	SECONDARY*	DOD
CREAM-09	LOCKER	DEC 96	SEP 97	STS-86	SECONDARY*	DOD
CREAM-10	LOCKER	MAY 97	JAN 98	STS-89	SECONDARY*	DOD
CRISTA-SPAS-02	ASTRO-SPAS	APR 96	AUG 97	STS-85	PRIMARY	OLMSA/MTPE
CUE	LOCKER	OCT 97	NOV 97	STS-87	SECONDARY*	OLMSA
CVX	HH-M	JAN 97	AUG 97	STS-85	SECONDARY	OLMSA
DATA	HH-M	JUN 96	AUG 97	STS-85	SECONDARY*	OLMSA
DEEPSPACE1	NONE	JUL 98		DELTA 7326	PRIMARY	OSS
DEEPSPACE3	NONE	SEP 00		SMALL	PRIMARY	OSS
DEEPSPACE4	NONE	MAR 02		SMALL	PRIMARY	OSS
DEEPSPACE5	NONE	SEP 03		SMALL	PRIMARY	OSS
DISCOVERY-05	NONE	DEC 00		MEDLITE	PRIMARY	OSS

* NON-COMPLEX SECONDARY PAYLOAD
** FOR NASA PLANNING PURPOSES (NOT CURRENTLY BUDGETED)

**** PAYLOAD REQUESTS ****

PAYLOAD	CARRIER	REQ DATE	FLIGHT DATE	FLIGHT/VEHICLE	TYPE	SPONSOR
DISCOVERY-06	NONE	DEC 01		MEDLITE	PRIMARY	OSS
DISCOVERY-07	NONE	DEC 02		MEDLITE	PRIMARY	OSS
DISCOVERY-08	NONE	DEC 03		MEDLITE	PRIMARY	OSS
DISCOVERY-09	NONE	JUL 04		MEDLITE**	PRIMARY	OSS
DISCOVERY-10	NONE	JUL 05		MEDLITE**	PRIMARY	OSS
DISCOVERY-11	NONE	JUL 06		MEDLITE**	PRIMARY	OSS
DISCOVERY-12	NONE	JUL 07		MEDLITE**	PRIMARY	OSS
DM	ODS			SHUTTLE		
DOSS-D	MPESS	APR 96		SHUTTLE	SECONDARY	OSF
DOSS-R	MPESS	OCT 96		SHUTTLE	SECONDARY	OSF
DXS-02	HH-G	JUL 98		SHUTTLE	SECONDARY	OSS
EDFT-05	NONE		NOV 97	STS-87	SECONDARY*	OSF
EDFT-06	NONE		SEP 97	STS-86	SECONDARY*	OSF
EO-1/SAC-C	NONE	MAY 99		DELTA 7320-10	PRIMARY	MTPE
EO-2	NONE	DEC 00		DELTA 7320-10	PRIMARY	MTPE
EO-3	NONE	DEC 01		ULTRALITF	PRIMARY	MTPE
EO-4	NONE	NOV 02		SMALL	PRIMARY	MTPE
EO-5	NONE	DEC 03		SMALL	PRIMARY	OSS
EOS ALT-LASER1	NONE	JUL 02		MEDLITE	PRIMARY	MTPE
EOS ALT-LASER2	NONE	JUN 08		MEDLITE	PRIMARY	MTPE
EOS-AM-1	NONE	JUN 98		ATLAS IIAS	PRIMARY	MTPE
EOS-AM-2	NONE	JUN 04		DELTA II	PRIMARY	MTPE
EOS-AM-3	NONE	JUN 10		MEDLITE**	PRIMARY	MTPE
EOS-CHEM-1	NONE	DEC 02		DELTA	PRIMARY	MTPE

* NON-COMPLEX SECONDARY PAYLOAD
** FOR NASA PLANNING PURPOSES (NOT CURRENTLY BUDGETED)

**** PAYLOAD REQUESTS ****

PAYLOAD	CARRIER	REQ DATE	FLIGHT DATE	FLIGHT/VEHICLE	TYPE	SPONSOR
EOS-CHEM-2	NONE	JUN 08		MEDLITE**	PRIMARY	MTPE
EOS-PM-1	NONE	DEC 00		DELTA 7920-10	PRIMARY	MTPE
EOS-PM-2	NONE	DEC 06		MEDLITE**	PRIMARY	MTPE
EPR	FSS	JUL 00		SHUTTLE	PRIMARY	OSS
ESSP-02	NONE	DEC 01		SMALL**	PRIMARY	MTPE
ESSP-03	NONE	DEC 01		MEDLITE	PRIMARY	MTPE
ESSP-04	NONE	DEC 02		SMALL	PRIMARY	MTPE
ESSP-05	NONE	DEC 03		MEDLITE	PRIMARY	MTPE
FUSE	NONE	OCT 98		DELTA 7320-10	PRIMARY	OSS
GLO-05	HH-G	MAR 96	AUG 97	STS-85	SECONDARY*	OSS
GLO-06	HH-G	JUL 97	AUG 97	STS-85	SECONDARY*	OSS
GOES-L	NONE	JUL 01		ATLAS IIA	PRIMARY	MTPE
GOES-M	NONE	AUG 99		ATLAS IIA	PRIMARY	MTPE
GOES-N	NONE	JUL 01		INTERMEDIATE	PRIMARY	MTPE
GOES-O	NONE	APR 03		INTERMEDIATE	PRIMARY	MTPE
GP-B	NONE	OCT 00		DELTA 7920-10	PRIMARY	OSS
HOST	UASE	JUL 98	OCT 98	STS-95	SECONDARY*	OSS
HP-01	LOCKER	JAN 98	JAN 98	STS-89	SECONDARY*	OLMSA
HST SM-03	FSS+UNIQUE	NOV 99	DEC 99	STS-103	PRIMARY	OSS
HST SM-04	FSS+UNIQUE	NOV 02	AUG 02	STS-127	PRIMARY	OSS
HST SM-05	FSS+UNIQUE	NOV 05		SHUTTLE	PRIMARY	OSS
ICBC-06	ICBC	DEC 97	JUL 98	STS-88	SECONDARY*	OPA
IEH-02	HH-M	MAR 95	AUG 97	STS-85	SECONDARY	OSS
IEH-03	HH-M	JUL 98	OCT 98	STS-95	SECONDARY	OSS
IEH-04	HH-M	MAY 97		SHUTTLE	SECONDARY	OSS

* NON-COMPLEX SECONDARY PAYLOAD
** FOR NASA PLANNING PURPOSES (NOT CURRENTLY BUDGETED)

**** PAYLOAD REQUESTS ****

PAYLOAD	CARRIER	REQ DATE	FLIGHT DATE	FLIGHT/VEHICLE	TYPE	SPONSOR
IEH-05	HH-M	JUN 98		SHUTTLE	SECONDARY	OSS
IMAGE	NONE	NOV 99		DELTA 7326	PRIMARY	OSS
ISIR-01	HH	JUL 97		SHUTTLE		MTPE
ISIR-02	HH	JAN 98		SHUTTLE		MTPE
ISIR-03	HH	JAN 99		SHUTTLE		MTPE
ISS-01-2A	UNIQUE	JUL 98	JUL 98	STS-88	PRIMARY	OSF
ISS-02-2A.1	UNIQUE	DEC 98	DEC 98	STS-96	PRIMARY	OSF
ISS-03-3A	UNIQUE+SLP	JAN 99	JAN 99	STS-92	PRIMARY	OSF
ISS-04-4A	UNIQUE	MAR 99	MAR 99	STS-97	PRIMARY	OSF
ISS-05-5A	UNIQUE	MAY 99	MAY 99	STS-98	PRIMARY	OSF
ISS-06-6A	MPLM+SLP	JUN 99	JUN 99	STS-99	PRIMARY	OSF
ISS-07-7A	UNIQUE+SLP	AUG 99	AUG 99	STS-100	PRIMARY	OSF
ISS-08-7A.1	UNIQUE	OCT 99	OCT 99	STS-102	PRIMARY	OSF
ISS-09-UF1	MPLM+SLP	JAN 00	JAN 00	STS-104	PRIMARY	OSF
ISS-10-8A	UNIQUE	FEB 00	FEB 00	STS-105	PRIMARY	OSF
ISS-11-UF2	MPLM+UNIQUE	MAR 00	MAR 00	STS-106	PRIMARY	OSF
ISS-12-9A	UNIQUE	JUN 00	JUN 00	STS-108	PRIMARY	OSF
ISS-13-9A.1	UNIQUE	JUL 00	JUL 00	STS-109	PRIMARY	OSF
ISS-14-11A	UNIQUE	OCT 00	OCT 00	STS-111	PRIMARY	OSF
ISS-15-12A	UNIQUE	NOV 00	NOV 00	STS-112	PRIMARY	OSF
ISS-16-13A	UNIQUE	MAR 01	MAR 01	STS-114	PRIMARY	OSF
ISS-17-10A	UNIQUE	APR 01	APR 01	STS-115	PRIMARY	OSF
ISS-18-1J/A	UNIQUE	MAY 01	MAY 01	STS-116	PRIMARY	OSF
ISS-19-1J	UNIQUE	AUG 01	AUG 01	STS-118	PRIMARY	OSF
ISS-20-UF3	UNIQUE	SEP 01	SEP 01	STS-119	PRIMARY	OSF

* NON-COMPLEX SECONDARY PAYLOAD
** FOR NASA PLANNING PURPOSES (NOT CURRENTLY BUDGETED)

**** PAYLOAD REQUESTS ****

PAYLOAD	CARRIER	REQ DATE	FLIGHT DATE	FLIGHT/VEHICLE	TYPE	SPONSOR
ISS-21-UF4	UNIQUE	JAN 02	JAN 02	STS-121	PRIMARY	OSF
ISS-22-2J/A	UNIQUE	FEB 02	FEB 02	STS-122	PRIMARY	OSF
ISS-23-14A	UNIQUE	MAY 02	MAY 02	STS-124	PRIMARY	OSF
ISS-23-2E	UNIQUE	MAY 01		SHUTTLE	PRIMARY	OSF
ISS-24-UF5	UNIQUE	JUN 02	JUN 02	STS-125	PRIMARY	OSF
ISS-25	UNIQUE		JUL 02	STS-126	PRIMARY	OSF
ISS-26	UNIQUE		OCT 02	STS-128	PRIMARY	OSF
ISS-27	UNIQUE		NOV 02	STS-129	PRIMARY	OSF
ISS-28	UNIQUE		MAR 03	STS-131	PRIMARY	OSF
ISS-29	UNIQUE		APR 03	STS-132	PRIMARY	OSF
ISS-30	UNIQUE		JUL 03	STS-134	PRIMARY	OSF
ISS-31	UNIQUE		AUG 03	STS-135	PRIMARY	OSF
JASON-02	NONE	APR 04		MEDLITE	PRIMARY	MTPE
JASON-03	NONE	JUN 09		MEDLITE	PRIMARY	MTPE
KIDSAT-03	LOCKER	SEP 97	SEP 97	STS-86	SECONDARY*	AGENCY
LANDSAT-07	NONE	MAY 98		DELTA 7920-10	PRIMARY	MTPE
LHP	HH-G	OCT 96	NOV 97	STS-87	SECONDARY*	OSAT
MAP	NONE	NOV 00		DELTA 7325-10	PRIMARY	OSS
MARS SURVEYOR 1	NONE	MAR 03		MEDLITE	PRIMARY	OSS
MARS SURVEYOR 2	NONE	MAR 03		MEDLITE	PRIMARY	OSS
MEEP-R	ICAPC	SEP 97	SEP 97	STS-86	SECONDARY	OSF
MFD	MPESS	APR 97	AUG 97	STS-85	PRIMARY	OSF
MGBX-02	LOCKER	APR 98	NOV 97	STS-87	SECONDARY*	OLMSA
MGM-02	LOCKER	JAN 98	JAN 98	STS-89	SECONDARY*	OLMSA

* NON-COMPLEX SECONDARY PAYLOAD
** FOR NASA PLANNING PURPOSES (NOT CURRENTLY BUDGETED)

**** PAYLOAD REQUESTS ****

PAYLOAD	CARRIER	REQ DATE	FLIGHT DATE	FLIGHT/VEHICLE	TYPE	SPONSOR
MGM-03	LOCKER	OCT 97	JAN 98	STS-89	SECONDARY*	OLMSA
MIDEX-03	NONE	NOV 02		MEDLITE	PRIMARY	OSS
MIDEX-04	NONE	NOV 03		MEDLITE	PRIMARY	OSS
MIDEX-05	NONE	OCT 04		MEDLITE	PRIMARY	OSS
MIDEX-06	NONE	OCT 05		MEDLITE	PRIMARY	OSS
MIDEX-07	NONE	OCT 08		MEDLITE	PRIMARY	OSS
MIDEX-08	NONE	OCT 07		MEDLITE	PRIMARY	OSS
MIDEX-09	NONE	OCT 08		MEDLITE	PRIMARY	OSS
MIGHTY-SAT-01	HH-G	APR 96	JUL 98	STS-88	SECONDARY*	DOD
MPNE-01	LOCKER	JUL 98	JAN 98	STS-89	SECONDARY*	OLMSA
MSP-01	MSL+MPESS	JUN 00	APR 02	STS-123	PRIMARY	OLMSA
MSP01 LANDER	NONE	APR 01		MEDLITE**	PRIMARY	OSS
MSP01 ORBITER	NONE	FEB 01		MEDLITE	PRIMARY	OSS
MSP98 LANDER	NONE	DEC 98		DELTA 7425	PRIMARY	OSS
MSP98 ORBITER	NONE	JAN 99		DELTA 7425	PRIMARY	OSS
MSX-08	NONE	OCT 96	AUG 97	STS-85	SECONDARY*	DOD
MSX-09	NONE	JAN 97	SEP 97	STS-86	SECONDARY*	DOD
MSX-10	NONE	APR 97	JAN 98	STS-89	SECONDARY*	DOD
NaSBE	HH-G	OCT 96	NOV 97	STS-87	SECONDARY*	OSAT
NEUROLAB	LM+EDO	OCT 97	APR 98	STS-90	PRIMARY	OLMSA
NOAA-K	NONE	FEB 98		TITAN II	PRIMARY	MTPE
NOAA-L	NONE	DEC 99		TITAN II	PRIMARY	MTPE
NOAA-M	NONE	DEC 01		TITAN II	PRIMARY	MTPE
NOAA-N	NONE	DEC 03		DELTA 7320-10	PRIMARY	MTPE
NOAA-N1	NONE	DEC 03		DELTA	PRIMARY	MTPE

* NON-COMPLEX SECONDARY PAYLOAD
** FOR NASA PLANNING PURPOSES (NOT CURRENTLY BUDGETED)

**** PAYLOAD REQUESTS ****

PAYLOAD	CARRIER	REQ DATE	FLIGHT DATE	FLIGHT/VEHICLE	TYPE	SPONSOR
OARE-10	UNIQUE	OCT 97	NOV 97	STS-87	SECONDARY*	OLMSA
ORFEUS-SPAS-02	ASTROSPAS+EDO	APR 95		SHUTTLE	PRIMARY	OLMSA/OSS
ORSTED/SUNSAT	NONE	MAR 98		DELTA	SECONDARY	MTPE
PANSAT	HH-G	DEC 97	OCT 98	STS-95	SECONDARY*	DOD
PASDE-02	HH-G	DEC 96		SHUTTLE	SECONDARY	OSF
PCG-STES-05	LOCKER	JAN 97	AUG 97	STS-85	SECONDARY*	OLMSA
PE-01	TBD	FEB 04		TBD**	PRIMARY	OSS
PE-02	TBD	FEB 04		TBD**	PRIMARY	OSS
RADARSAT-II	NONE	MAR 01		DELTA 7920-10	PRIMARY	OSS
RME III-21	LOCKER	AUG 96	SEP 97	STS-86	SECONDARY*	DOD
RTSX	SLAB PALLET	JUL 98		SHUTTLE	PRIMARY	OSS
S/MM-04	SPACEHAB-DM	AUG 96		SHUTTLE	PRIMARY	OSF
S/MM-05	SPACEHAB-DM	DEC 96		SHUTTLE	PRIMARY	OSF
S/MM-07	SPACEHAB-DM	SEP 97	SEP 97	STS-86	PRIMARY	OSF
S/MM-08	SPACEHAB-DM	JAN 98	JAN 98	STS-89	PRIMARY	OSF
S/MM-09	SPACEHAB-SM	JUN 98	JUN 98	STS-91	PRIMARY	OSF
S/MM-10	UNIQUE			SHUTTLE	PRIMARY	OSF
SAC-A	HH	MAR 97	JUL 98	STS-88	SECONDARY	OSS
SAMS-06	LOCKER	OCT 97	JAN 98	STS-89	SECONDARY*	OLMSA
SCISAT-1	NONE	OCT 01		SMALL	PRIMARY	MTPE
SCISAT-2	NONE	JUL 04		SMALL	PRIMARY	MTPE
SEDSAT	NONE	JUL 98		DELTA 7326	SECONDARY	OSF
SEEDS II	GAS/SW		SEP 97	STS-86	SECONDARY*	OLMSA
SEM-02	GAS-SW	OCT 96	AUG 97	STS-85	SECONDARY*	OSF
SIMPLEX-01	LOCKER	APR 96	AUG 97	STS-85	SECONDARY*	DOD

* NON-COMPLEX SECONDARY PAYLOAD
** FOR NASA PLANNING PURPOSES (NOT CURRENTLY BUDGETED)

**** PAYLOAD REQUESTS ****

PAYLOAD	CARRIER	REQ DATE	FLIGHT DATE	FLIGHT/VEHICLE	TYPE	SPONSOR
SIMPLEX-02	LOCKER	OCT 96	SEP 97	STS-86	SECONDARY*	DOD
SIMPLEX-03	LOCKER	APR 97	JAN 98	STS-89	SECONDARY*	DOD
SIRTF	NONE	DEC 01		DELTA 7920H	PRIMARY	OSS
SLA-02	HH-G	SEP 95	AUG 97	STS-85	SECONDARY*	MTPE
SMEX-06	NONE	JUN 00		SMALL	PRIMARY	OSS
SMEX-07	NONE	JUL 01		SMALL	PRIMARY	OSS
SMEX-08	NONE	JUL 02		SMALL	PRIMARY	OSS
SMEX-09	NONE	JUL 03		SMALL	PRIMARY	OSS
SMEX-10	NONE	JUN 04		SMALL	PRIMARY	OSS
SMEX-11	NONE	JUN 05		SMALL	PRIMARY	OSS
SMEX-12	NONE	JUN 06		SMALL	PRIMARY	OSS
SMEX-13	NONE	JUN 07		SMALL	PRIMARY	OSS
SNOE	NONE	SEP 97		ULTRALITE	PRIMARY	OSS
SOLAR PROBE	NONE	DEC 04		MEDIUM**	PRIMARY	OSS
SOLCON-01	HH	SEP 96	AUG 97	STS-85	SECONDARY*	MTPE
SOLSE	HH-J	JUL 97	NOV 97	STS-87	SECONDARY*	MTPE
SPTN 201-04	SPARTAN	JUL 96	NOV 97	STS-87	PRIMARY	OSS
SPTN-400-01	SPARTAN	JUN 00		SHUTTLE	PRIMARY	OSS
SPTN-400-02	SPARTAN	DEC 00		SHUTTLE	PRIMARY	OSS
SRTM	PAL	MAY 00	SEP 99	STS-101	PRIMARY	DOD/MTPE
SSCE-07	LOCKER	OCT 96	AUG 97	STS-85	SECONDARY*	OLMSA
SSUP-01	SPACEHAB	APR 98		SHUTTLE	PRIMARY	OSAT
SSUP-02	SPACEHAB	JAN 99		SHUTTLE	PRIMARY	OSAT
SSUP-03	SPACEHAB	OCT 99		SHUTTLE	PRIMARY	OSAT
STAR-LITE	IEH	OCT 98	OCT 98	STS-95	SECONDARY	OSS

* NON-COMPLEX SECONDARY PAYLOAD
** FOR NASA PLANNING PURPOSES (NOT CURRENTLY BUDGETED)

**** PAYLOAD REQUESTS ****

PAYLOAD	CARRIER	REQ DATE	FLIGHT DATE	FLIGHT/VEHICLE	TYPE	SPONSOR
STARDUST	NONE	FEB 99		DELTA 7426	PRIMARY	OSS
SWAS	NONE	JAN 99		PEGASUS	PRIMARY	OSS
SWUIS-01	LOCKER	DEC 96	AUG 97	STS-85	SECONDARY*	OSS
TAS-01	HH-M	APR 96	AUG 97	STS-85	SECONDARY*	OSF
TAS-02	HH-M	DEC 00	OCT 98	STS-95	SECONDARY*	OSF
TAS-03	HH-M	JUN 01	APR 02	STS-123	SECONDARY*	OSF
TDRS-F08	NONE	JUL 99		ATLAS IIA	PRIMARY	OSF
TDRS-F09	NONE	JUL 02		ATLAS IIA	PRIMARY	OSF
TDRS-F10	NONE	JUL 03		ATLAS IIA	PRIMARY	OSF
TEEM-01	SPAS+UNIQUE	JAN 98		SHUTTLE	SECONDARY	OLMSA
TERRIERS	NONE	JAN 98		ULTRALITE	PRIMARY	OSS
TGDF	GAS BEAM	JAN 97	NOV 97	STS-87	SECONDARY*	OLMSA
TIMED/JASON-01	TBD	JAN 00		DELTA 7920-10	PRIMARY	OSS
TPFE	HH-G	JUL 97	AUG 97	STS-85	SECONDARY*	OSAT
TRACE	NONE	DEC 97		PEGASUS	PRIMARY	OSS
TSS-02**	PAL+MPESS	OCT 94		SHUTTLE	PRIMARY	OSF
TSS-03**	PAL+MPESS	OCT 96		SHUTTLE	PRIMARY	OSF
UNEX-01	NONE	OCT 99		ULTRALITE	PRIMARY	OSS
UNEX-02	NONE	OCT 00		ULTRALITE	PRIMARY	OSS
UNEX-03	NONE	JUN 01		LCB	PRIMARY	OSS
UNEX-04	NONE	OCT 01		LCB	PRIMARY	OSS
UNEX-05	NONE	JUN 02		LCB	PRIMARY	OSS
UNEX-06	NONE	OCT 02		LCB	PRIMARY	OSS
UNEX-07	NONE	APR 03		LCB	PRIMARY	OSS
UNEX-08	NONE	DEC 03		LCB	PRIMARY	OSS

* NON-COMPLEX SECONDARY PAYLOAD
** FOR NASA PLANNING PURPOSES (NOT CURRENTLY BUDGETED)

**** PAYLOAD REQUESTS ****

PAYLOAD	CARRIER	REQ DATE	FLIGHT DATE	FLIGHT/VEHICLE	TYPE	SPONSOR
USMP-04	3-MPESS+EDO	OCT 96	NOV 97	STS-87	PRIMARY	OLMSA
VCL	NONE	APR 00		SMALL	PRIMARY	MTPE
WIRE	NONE	MAR 99		PEGASUS	PRIMARY	OSS
WSF-03	WSF	SEP 94		SHUTTLE	PRIMARY	OSAT
WSF-04	WSF	OCT 98		SHUTTLE	PRIMARY	OSAT

* NON-COMPLEX SECONDARY PAYLOAD
** FOR NASA PLANNING PURPOSES (NOT CURRENTLY BUDGETED)

SECTION 6

PAYLOAD/ACRONYM LIST

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
ACE	Advanced Composition Explorer	Charged particle detector for study of isotopic and elemental composition of energetic particles in interplanetary science.
ACES	Acoustic Containerless Experiment System	Technical demonstration to obtain early microgravity tests of gas transport phenomena in a 3-axis levitation furnace.
ACTS	Advanced Communications Technology Satellite	Flight verification of high risk communications technology to support future satellite communications systems.
ADSEP	Advanced Organic Separation	Demonstrate & refine advanced technology using phase-separation techniques & utilize that capability to investigate commercial potentials in unique capabilities to separate biological and other materials
ADSF	Automatic Directional Solidification Furnace	Technology demonstration of directional solidification of magnetic materials, immiscibles, and IR detection materials.
AFE	American Flight Echocardiograph	Collects quantitative in-flight data on cardiovascular changes in the crew.
AFITV	Air Force Instrumented Test Vehicle	Anti-satellite target vehicle.
AFP-675	Air Force Program-675	Collects infrared data to support Strategic Defense Initiative program. Formerly, Cryogenic Infrared Radiance Instrument for Shuttle (CIRRIS).

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
AIRLOCK	AIRLOCK	Station based EVA capability and suit support for U.S. & Russian EMU's
ALEXIS		USAF Space Test Program Array of low energy X-ray imaging sensors
ALT	Altitude	Orbit altitude in nautical miles.
AM	Auxiliary Module	Provides consumables resupply, payload changeout and additional on-orbit volume for the ISF Facility Module (FM).
AMOS	Air Force Maui Optical Station	Technology development/geophysical environment study. Calibrate AMOS ground-based electro-optical sensors and study on-orbit plume phenomenology using the Shuttle as a test object.
AMS	Alpha Magnetic Spectrometer	Shuttle attached payload to be followed later by an ISS attached payload. The AMS science objective is to conduct an extraterrestrial study of antimatter, matter, and "missing matter".
ANS	Astronomical Netherlands Satellite	Studies the sky in ultraviolet and x-ray from above the atmosphere.
APCG	Advanced Protein Crystal Growth	Enhances scientific knowledge about dynamics of protein crystal growth in reduced gravity.
APE	Aurora Photography Experiment	Enhance understanding of the geographic extent and dynamics of the aurora.
APEX	Advanced Photovoltaic & Electronic Experiment	USAF Technology validation experiment

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
APM	Ascent Particle Monitor	Collects particulate materials from the Orbiter during ascent, using an automated mechanical/electrical assembly.
ARABSAT	Arab Satellite	Communications satellite of the Arab Satellite Communications Organization.
ARC	Aggregation of Red Cells	Studies aggregation of red cells and blood viscosity under low-g conditions.
ARF	Aquatic Research Facility	Houses a variety of small aquatic specimens for research on microgravity adaptation.
ASC-01	American Satellite Company	Satellite to provide commercial communication service to continental United States, Hawaii, Alaska, and Puerto Rico.
ASEM	Assembly of Station by Extravehicular Activity Methods	Supports international space station development by demonstrating strut handling and EVA translation techniques.
ASP	Attitude Sensor Package	Foreign reimbursable Hitchhiker-G payload.
AST	ASTROCULTURE (TM) (Commerical Plant Growth System)	Develop & operate plant life support systems to achieve applied research objectives in the commercial development of space; This flight series is approved on the basis of specific commercial development objectives.
ASTRO	Astronomy	Program designed to obtain ultraviolet (UV) data on astronomical objects using a UV telescope flying on SPACELAB.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
ASTRO-SPAS	Astronomy Platform-Shuttle Pallet Satellite	A shuttle deployable astronomy platform developed by the German Space Agency.
ATLAS	Atmospheric Laboratory for Applications and Science	Series of Spacelab flights that measure long term variability in the total energy radiated by the sun and determines the variability in the solar spectrum.
ATLAS I/II AS		Commercial and DOD intermediate class expendable launch vehicles.
AUSSAT	Australian Communication Satellite	Direct broadcast communication satellite which provides services to continental Australia and offshore territories.
AWCS/AMTEC	Automated Wafer Cartridge System, Alkali Metal Thermal-to-electric Converter	Flight validation/risk mitigation of both the AWCS for the wake shield facility and other material and life sciences applications, and AMTEC technology for Pluto Express and other deep space missions.
AXAF-I	Advanced X-Ray Astrophysics Facility-Imager	Astrophysics mission to perform high-quality X-ray imaging over an extended lifetime.
B/U		Back-up
BATT	Battery	Battery Power System
BBXRT	Broad Band X-Ray Telescope	Provides high resolution x-ray spectra for both point and extended sources, including stellar coronae, x-ray, binaries, active agalactic nuclei, and clusters of galaxies.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
BDS	Bioreactor Demonstration System	Determines the threshold mass for the transfer/diffusion of glucose and oxygen into a static cell in the microgravity environment.
BETSCE	Brilliant Eyes Ten-Kelvin Sorption Cryocooler Experiment	To demonstrate 10-Kelvin sorption cooler technologies in space.
BIMDA	Bioprocessing With the Materials Dispersion Apparatus	A wide range of tests focused on the assembly of macromolecules. Uses a middeck thermal enclosure system (TES) unit.
BLAST	Battlefield Laser Acquisition Sensor Test	Evaluates the concept of utilization of a spaceborne laser receiver to detect laser energy from specific ground-based test locations.
BREMSAT	Bremen Satellite	University of Bremen's satellite ejected from a GAS canister.
BRIC	Biological Research in Canisters	Investigate the effects of microgravity on life science specimens including plant and animals.
C-360b	Cinema 360 Camera	35mm motion picture camera in the cargo bay for the purpose of photographing crew and mission activities.
C-360c	Cinema 360 Camera	35mm motion picture camera in the crew compartment for the purpose of photographing crew and mission activities.
CANEX	Canadian Experiments	Group of Canadian experiments conducted aboard STS-13 (41-G) by a Canadian Payload Specialist.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
CANEX-02	Canadian Experiments-02	Tests the Canadian developed Space Vision System Experiment Development Tests (VISET) using an RMS deployed target (CTA), experiments in material exposure, spacecraft glow, phase partitioning, metal diffusion and space adaptation tests.
CAP	Complex Autonomous Payload	Program to allow use of GAS hardware for payloads requiring more costly Shuttle service.
CAPL-3	Capillary Pumped Loop Flight Experiment	CAPL-3 is a follow-on to the highly successful CAPL-2 mission & will test additional features including multiple cold plates and heat sharing modes of operation
CASSINI		A spacecraft planned to conduct a four year detailed exploration of the Saturnian System and an ESA probe planned to penetrate and study the thick atmosphere of the moon Titan.
CATSAT	Cooperative Astrophysics Technology Satellite	Seeks to determine galactic origin of gamma ray bursts
CBDE	Carbonated Beverage Dispenser Evaluation	Pepsico, Inc. experiment to evaluate packaging and dispensing techniques for space flight consumption of carbonated beverages.
CCAFS	Cape Canaveral Air Force Station	U.S. Air Force launch range on central Florida coast.
CCM	Cell Culture Module- NIH-C and 3 DOD Flights	To understand the biological changes that occur in cultured cells when exposed to the reduced gravity environment of space flight. Formerly called STL/NIH-C.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
CDR	Commander	Member of the Shuttle flight crew in command of the flight.
CEBAS	Closed Equilibrated Biological Aquatic System Minimodule	To incubate different fresh water specimen in an equilibrated aquatic system.
CENTAUR		Upper stage system for Atlas and Titan ELVs.
CETA	Crew and Equipment Translation Aid	Experiment that evaluates the design concept and operational procedures of 3 prototype cart designs that are part of an effort to develop a transportation device for use on the exterior of the international space station.
CFES	Continuous Flow Electrophoresis System	Demonstrates the technology of pharmaceutical processing in space.
CGBA	Commercial Generic Bioprocessing Apparatus	Facilitate a wide variety of low gravity investigations in biomaterials, life sciences, & biotechnology.
CGP	Cryo Systems Experiment GLO-II Payload	Cryogenic system for cooling focal plane optics for space-based scientific instruments. GLO-II provides observations of earth's thermosphere, ionosphere, and mesosphere energetics and dynamics and shuttle surface glow.
CHAMP	Comet Halley Active Monitoring Program	Observation of Comet Halley on shuttle flights.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
CHROMEX	Chromosomes and Plant Cell Division in Space Experiment	Investigation of the effects of space flight on plant tissue growth.
CLOUDS	Cloud Logic to Optimize Use of Defense Systems	Hand-held 35 mm photography for observations of cloud formation, dissipation, and opaqueness.
CMG	Control Moment Gyro	Attitude control Gyrodynes
CMIX	Commercial Materials Dispersion Apparatus (MDA) Instrumentation Technology Associates (ITA) Experiment	Private sector funded and developed payload consisting of multiple materials dispersion apparatus mini-lab devices, plus a self-contained power supply/controller. Uses a middeck thermal enclosure system (TES) unit.
CNCR	Characterization of Neurospora Circadian Rhythms in Space	Microgravity effects on circadian rhythms of neurospora.
CONCAP II	Consortium for Materials Development in Space (Complex Autonomous Payload)-II	Investigation of materials surface reactions to exposure to atomic oxygen flow in earth orbit for high temperature super conducting films and for materials degradation/reaction samples.
CONCAP III	Consortium for Materials Development in Space (Complex Autonomous Payload)-III	To accomplish commercial development of space objectives in materials processing with elctrodepositon.
CONCAP IV	Consortium for Materials Development in Space (Complex Autonomous Payload)-IV	To accomplish commercial development of space objectives in materials processing with nonlinear optical materials.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
COOLLAR	Cryogenic On-Orbit Long-Life Active Refrigerator PL-406	To validate the Zero-G performance of a closed cycle Joule Thomson (JT) cryocooler. This system uses a unique oil lubricated compressor in conjunction with a gas purification system.
CPCG	Commercial Protein Crystal Growth	The production of large, high-quality protein crystals for analysis of molecular structures via x-ray diffraction and computer modeling.
CREAM	Cosmic Radiation Effects and Activation Monitor	To perform a survey of primary and secondary radiation background environments and to improve space environment and radiation shielding models.
CRISTA-SPAS	Cryogenic Infrared Spectrometer Telescope for Atmosphere	A U.S./German joint aeronomy payload to explore the variability of the atmosphere and to provide measurements that will complement those provided by UARS.
CRW	Crew	The Shuttle flight crew for a particular mission.
CRYOFD	Cryogenic Flexible Diode Heat Pipe Experiment	Evaluate the performance of 2 CRYOGENIC Flexible Diode Heat Pipes (CFDHP). 1st CFDHP is an oxygen heat pipe & will be operated around 60K. 2nd CFDHP is a methane heat pipe combined with a thermal storage unit & will be operated around 120K.
CUE	Collaborative Ukraine Experiment	To study the effects of microgravity on higher-order plants and/or cell culture.
CVTE	Crystals By Vapor Transport Experiment	Investigate application of chemical vapor transport crystal growth process to materials of practical value in semiconductor and electro-optical device.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
CVX	Critical Viscosity of Xenon	Measure the viscosity of xenon while approaching the liquid-vapor critical point. In order to approach the critical point, the sample density will be kept constant while the temperature is varied with a high degree of resolution.
DATA	Distribution and Automation Technology Advancement	To collect solar data with the solar imaging and ultraviolet-solar irradiance experiment, and provide distributed, automated and interactive control approaches enabling the payloads to be operated from the home institution.
DEE	Dexterous End Effector	DemonstratioN of a sensor for the Shuttle RMS which will allow for more precise control.
DEEPSPACE		New Millenium mission using ion propulsion to rendezvous with asteroids.
DELTA II		Medium class expendable launch vehicle.
DFI	Development Flight Instrument	Special instrumentation generally available on orbiter vehicle 102 (Columbia).
DFI PAL	Development Flight Instrumentation Pallet	A pallet used to accommodate the DFI used on the first four Shuttle flights.
DIRECTV	Direct TV	Commercial direct broadcast services satellite
DISCOVERY		Series of inexpensive planetary flight opportunities, starting with a first flight in 1996.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
DM	Docking Module	Hardware that will provide pressurized Shuttle access to the Russian MIR space station.
DMOS	Diffusive Mixing of Organic Solutions	Grow crystals of organic compounds for research programs for the 3M Corporation's Science Research Laboratory.
DOD	Department of Defense	
DOSS	Dexterous Orbiter Servicing System	Demonstrate & evaluate the performance of a dexterous robotic manipulator system in space, & perform Space Station type maintenance & servicing tasks. characterize & verify the manipulator system in amicro-gravity, thermal/vacuum environment.
DSCS	Defense Satellite Communications System	Series of U.S. Air Force communications satellites.
DSP	Defense Support Program	Geosynchronous DOD satellite.
DUR	Duration	The number of days for a Shuttle flight.
DXS	Diffuse X-ray Spectrometer	Shuttle experiment to conduct spectral observations of the diffuse galactic soft x-ray background to determine the ionic, elemental abundances and the plasma temperature of the hot phase of the interstellar medium. Flown on a Hitchhiker.
EASE/ACCESS	Experimental Assembly of Structures in EVA/Assembly Concept for Construction of Erectable Space Structures	Investigation of human factors data during assembly of structures in space during Extra Vehicular Activity.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
EDFT	EVA Demonstration Flight Test	Development of EVA technique for Space Station assembly.
EDO	Extended Duration Orbiter	Kit added to Orbiter to extend energy resources to support mission durations up to sixteen days.
EEVT	Electrophoresis Equipment Verification Test	Technology demonstration of apparatus to evaluate the effects of electrophoresis on biological cells in zero-g.
EHF	Navy Communication Satellite	
ELRAD	Earth-Limb Radiance Equipment	Obtain measurements of earth-limb radiance for various positions of the sun from near limb up to 9 degrees below earth horizon.
ELV	Expendable Launch Vehicle	Unmanned rocket used to deploy spacecraft into Earth's orbit and beyond.
EO	Earth Observer	Series of MTPE New Millenium technology satellites.
EOIM	Evaluation of Oxygen Interaction with Materials	Examines effects of atomic oxygen degradation on and determines reaction rates of varoius materials.
EOS	Earth Observing System	A complement of polar orbiting satellites conducting Earth science observations.
EOS ALT-LASER	EOS Altimeter-Laser	Map ice sheet topography/land surface or vegetation canopy profiles and changes as part of EOS Program

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
EOS-AM	EOS A.M. (Morning)	Earth Observing System payload to observe clouds, aerosols, radiative balance, and characterization of terrestrial surface.
EOS-CHEM	EOS Chemistry	Earth Observing System payloads to observe atmospheric chemical species and their transformations, and ocean surface stress.
EOS-PM	EOS P.M. (Afternoon)	Earth Observing System payloads to observe clouds and precipitation; terrestrial snow and sea ice, and sea surface temperature and ocean productivity.
EPICS	Electrolysis Performance Improvement Concept Studies	Technology validation and characterization in microgravity of the water electrolysis concept to be used for metabolic oxygen generation in the Space Station Freedom and other life support, propulsion, EVA, and space power applications.
EPR	Explorer Platform Retrieval	Retrieve Explorer Platform spacecraft and return safely to earth
ERBS	Earth Radiation Budget Satellite	Collects global earth radiation budget data.
ESA	European Space Agency	Provide for and promote cooperation among European States in space research, technology and applications.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
ESCAPE-II	Experiment of the Sun for Complementing the Atmospheric Laboratory for Applications and Science (ATLAS) Payload and for Education-II	To collect solar data with the solar imaging and UV solar irradiance experiments. The data will be correlative with the co-manifested ATLAS-3 solar experiments for the understanding of the upper atmosphere photochemistry.
ESSP	Earth System Science Pathfinder	NASA Program to accomplish high quality, focused Earth System Science utilizing innovative, streamlined management approaches
EURECA	European Retrievable Carrier	Platform placed in orbit for six months offering conventional services to experimenters.
EVA	ExtraVehicular Activity	Space-suited operations by one or more crewmember outside the spacecraft.
FARE	Fluid Acquisition and Resupply Experiment	Obtains data to evaluate fluid dynamics associated with capillary liquid acquisition devices.
FAST	Fast Auroral Snapshot Explorer	Spacecraft to investigate the processes operating within the auroral region.
FDE	Fluid Dynamics Experiment	A package of six experiments flown in the middeck that involve simulating the behavior of liquid propellants in low gravity.
FEA	Fluids Experiment Assembly	Investigate floating zone crystal growth processing investigations on selected semi-conductor materials.
FEE	French Echocardiograph Equipment	Obtains on-orbit cardiovascular system data.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
FEL	First Element Launch	Initial launch of components for the International Space Station.
FGBA	Fluids Generic Bioprocessing Apparatus	Obtain fundamental data related to 2-phase fluids management technologies, primarily for consumables; also data on taste perception changes due to space adaptation syndrome; to satisfy commercial development of space objectives.
FLT	Flight	The flight sequence number for Shuttle missions.
FLUIDS-GBA	Fluids Generic Bioprocessing Apparatus	Automated fluid/gas mixing and dispensing device that will be used to monitor fluid intake in crew members and to pioneer needed controlled environmental life support system fluids management technologies.
FM	Facility Module	A human-tended module in support of ISF providing space for middeck locker inserts and common racks for payload accommodations.
FPE	French Postural Experiment	Studies sensory-motor adaptations in weightlessness.
FSS	Flight Support System	Support system of cradles and avionics used for satellite servicing.
FUSE	Far Ultraviolet Spectroscopy Explorer	Astronomy Ultraviolet Satellite
GALAXY		Hughes communications satellite.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
GALILEO		Investigates the chemical composition and physical state of Jupiter's atmosphere and satellites.
GANE	GPS Attitude and Navigation Experiment	Risk mitigation for Space Station GPS attitude determination. This experiment will determine if a GPS receiver and associated equipment can determine to within .1 degrees (RSS) accuracy.
GAS	Get Away Special	Alternate name for the Small Self-contained Payload (SSCP) program, providing standard canisters to accommodate low-cost space experimentation.
GAS BRIDGE	Get Away Special Bridge	Structure in the payload bay that can hold up to twelve GAS canisters.
GAS CAN	GAS Canister	Structure which can carry small payloads.
GAS TEST		Test instrumentation to verify ability of the GAS hardware to function properly in flight.
GBA(xx)	GAS Bridge Assembly(xx)	(xx) denotes number of payloads on the GAS Bridge Assembly.
GCP	GLO/CRYOHP Payload	DOD Hitchhiker payload. The GLO portion of the Hitchhiker experiment is to measure optical emissions on the surface of the shuttle. The CRYOHP portion of the payload uses liquid oxygen as the heat pipe working fluid.
GE-1		GE Americom geostationary communications satellite

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
GHCD	Growth Hormone Concentration & Distribution in Plants	Microgravity effects on growth hormone distribution of various plant life.
GLO	An Earth Airglow Experiment	A Hitchhiker payload to observe of the Earth's thermosphere, ionosphere and mesosphere energetics and dynamics.
GLOMR	Global Low Orbit Message Relay	Packet data relay satellite.
GOES	Geostationary Operational Environmental Satellite	NOAA weather satellites.
GOSAMR	Gelation of Sols: Applied Microgravity Research	Investigate gelation of multicomponent colloidal solutions and suspensions (SOL).
GP-B	Gravity Probe-B	Scientific probe to test Einstein's Theory of Relativity.
GPP	GLOW/PASDE Payload	Glow experiment/photogrammetric appendage structural dynamics experiment payload.
GPS-IIR	Global Positioning Satellite	American navigation satellite program operated by USAF
GRO	Gamma Ray Observatory	Investigates extraterrestrial gamma-ray sources.
GSFC	Goddard Space Flight Center	NASA center in Greenbelt, Maryland.
GSO	Geosynchronous Orbit	Earth orbit that has a period equal to 24 hours.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
GTO	Geosynchronous Transfer Orbit	
HCMM	Heat Capacity Mapping Mission	Produces thermal maps for discrimination of rock types, mineral resources, plant temperatures, soil moisture, snow fields, and water runoff.
HE	High Eccentricity Orbit	
HEEO	Highly Eliptical Earth Orbit	
HELIO	Heliocentric	
HERCULES	Hand-held, Earth-oriented, Real-time, Cooperative, User-friendly, Location, Targeting and Environmental System	This experiment upgrades/expands the Latitude/Longitude Locator (L3) experiment using a charge coupled device with inertial reference gyros. The objective is to locate earth surface sites within 1 nautical mile.
HETE	High Energy Transient Experiment	Spacecraft to study gamma ray burst sources and source locations, and x-ray burst sources and source locations.
HH-G	Hitchhiker-G	Shuttle cargo bay sidewall mounted carrier for small experiments.
HH-G1	Hitchhiker-G1	Demonstration flight of Hitchhiker-G hardware.
HH-M	Hitchhiker-M	Shuttle cargo bay across-bay carrier for small experiments.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
HILAT	High Latitude	Evaluate propagation effects of disturbed plasmas on radar and communications systems.
HME	Handheld Microgravity Experiment	Provides for middeck experiments of limited scope in order to allow for low-cost, timely testing of concepts or procedures, or the early acquisition of data.
HOST	Hubble Orbital System Test	Mission performance test of new and advanced technology for HST Mission
HOT BIRD	Eutel Hot Bird	Hot Bird Eutelsat geostationary communication satellite used for television broadcast
HP	Human Performance	To determine the stability and accuracy of cognitive and psychomotor performance across work shifts. It is also to measure the subjective responses of crewmembers on emotion and disposition questionnaires across work shifts.
HP(GAS)	High Pressure Gas	Gas or fuel storage (high pressure) tanks
HPCG	Handheld Protein Crystal Growth	Develops techniques to produce, in the microgravity environment, protein crystals of sufficient size and quality to permit molecular analysis by diffraction techniques.
HPI	Hypergolic Plume Impingement	
HPP	Heat Pipe Performance & Working Fluid Behavior in Micro-gravity	Environment experiment to study the microgravity effects of working fluids used in heat pipes.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
HPTE	High Precision Tracking Experiment	Demonstrates ability to propagate a low power laser beam through the atmosphere.
HRSGS	High Resolution Shuttle Glow Spectroscopy	Obtains high resolution spectra, in the visible and near visible wavelength range, of the Shuttle surface glow as observed on the vertical tail of the Orbiter in LEO.
HS-376 RETV-P	HS-376 Retrieval-PALAPA	Salvage of HS-376 (PALAPA) communication satellite launched on the tenth Shuttle mission.
HS-376 RETV-W	HS-376 Retrieval-WESTAR	Salvage of HS-376 (WESTAR) communication satellite launched on the tenth Shuttle mission.
HST	Hubble Space Telescope	Observes the universe to gain information about its origin, evolution and disposition of stars, galaxies, etc.
HST SM	Hubble Space Telescope Servicing Mission	Servicing mission to the Hubble Space Telescope to replace science instruments or other orbital replacement units (ORU's).
IBSE	Initial Blood Storage Experiment	Evaluates changes in blood tissue during various storage conditions.
IBSS	Infrared Background Signature Survey	Obtains infrared measurements on rocket plumes, shortwave infrared Earth-limb, Shuttle environment, and chemical release from the payload bay while detached in proximity to the Orbiter.
ICAPC	Increased Capability Adaptive Payload Carrier	

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
ICBC	IMAX Cargo Bay Camera	This payload will document the assembly of the Internation Space Station in the IMAX motion picture format. The historic images will be made available to the public through a wide range of products including large format feature films, video transfers, CD-ROMs, and still photographs.
IECM	Induced Environment Contamination Monitor	A package of ten instruments designed to fly in the Orbiter payload bay on a special pallet to check for contamination in and around the Orbiter. It also has the capability to be operated on the end of the RMS outside of the payload bay.
IEF	Isoelectric Focussing Experiment	Gathers experimental data on the extent of electroosmosis in space.
IEH	International Extreme-UV Far-UV Hitchhiker	Hitchhiker experiment to study ultraviolet emissions of Jupiter system and stellar sources.
IG	Igloo	Structure which provides a pressurized and thermally controlled environment for Spacelab pallet subsystems.
IMAGE	Imager for Magnetopause-to-Aurora Global Exploration	Address magnetospheric imaging objectives utilizing neutral atom, ultraviolet and radio imaging techniques
IMAX	IMAX Systems Corp., Toronto, Ontario, Canada	A large screen motion picture format used by the NASA/Smithsonian project to document significant space activities.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
IML	International Microgravity Laboratory	Series of microgravity missions devoted to material and life sciences studies using the Spacelab Long Module.
IMMUNE	Immune (Drug Development using Physiological Models)	Applied research in mods to immune skeletal & other physiological system responses in space using rats or mice as phsiological models; This flight series is approved on the basis of individual projects targeting commercial development objectives.
INCL	Inclination	Orbit inclination in degrees.
INMARSAT	International Maritime Satellite	Commercial satellite series providing global maritime and aviation communications.
INSAT	Indian Satellite	Communication and meteorological satellite for the government of India.
INTELSAT	International Telecommunications Satellite Organization	International telephone communications and broadcasting for domestic and regional telecom services
INTELSAT-VI-R	INTELSAT-VI-Reboost	The retrieval, repair and deployment of a communications satellite for the International Telecommunication Satellite organization.
IOCM	Interim Operational Contamination Monitor	Measures molecular and particulate contamination in the cargo bay from prelaunch to post-landing.
IPMP	Investigation into Polymer Membranes Processing	Investigates low-g environment effects on industrial processing techniques for developing polymer membranes.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
IR-IE	Infrared Imaging Equipment	Infrared video camera used to measure temperature gradients on the Orbiter surface.
IRAS	Infrared Astronomical Satellite	All sky survey for objects that emit infrared radiation.
IRCFE	Infrared Communications Flight Experiment	Demonstrates the feasibility of using diffuse infrared light as a carrier for Shuttle crew communications.
IRIS	Italian Research Interim Stage	Italian upper stage for use on the Shuttle.
IRT	Integrated Rendezvous Radar Target	A target for testing of Shuttle Orbiter rendezvous techniques and capabilities in orbit.
ISAC	INTELSAT Solar Array Coupons	Studies atomic oxygen effects on materials (silver and zinc sulphite).
ISAIAH	Israeli Space Agency Investigation About Hornets	Gravity perceptions by hornets and their reactions to changes in gravity.
ISAL	Investigation of STS Atmospheric Luminosities	Determination of the spectral content of luminosity near Shuttle surfaces, to assess influence on optical experiments.
ISAS	Institute of Space and Astronautical Science	The Institute of Space and Astronautical Science, under the auspices of Japan's Ministry of Education, is responsible for promoting space science and technology, coordinating space-science research in Japan, and advancing education of space in Japan.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
ISIR	Infrared Spectral Imaging Radiometer	The ISIR instrument is in development at GSFC as an engineering & science test vehicle for an advanced thermal infrared imager based on the new technology of microbolometer detector arrays. The objective is to achieve small low power multispectral imaging radiometers that can be easily integrated into small satellite platforms.
ISS	International Space Station	Multinational orbital facility for human tended space research
ISS-xx-UF	International Space Station Utilization Flight	Mission supporting the scientific users of the International Space Station.
ISS-xx-xE	International Space Station Assembly Flight - European element	International Space Station assembly flight supporting the Attached Pressurized Module which will contain European and US payload racks and associated support equipment.
ISS-xx-xJ	Space Station Assembly Flight - Japanese element	International Space Station assembly flight supporting the Japanese Experiment Module which will contain Japanese and US payload racks and associated support equipment.
ISS-xx-xJ/A	International Space Station Assembly Flight - Japanese and American elements	Dedicated flights for the assembly of Japanese and American cargo elements for the International Space Station.
ISS-xx-xxA	International Space Station - American element	Assembly flight mission supporting the US components of the International Space Station.
IUS	Inertial Upper Stage	Upper stage system for Shuttle and Titan.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
JASON	JASON	Map sea surface and ice sheet topography and provide information to develop ocean circulation models
JCSAT	Japan Communications Satellite	Japanese geosynchronous commercial communications satellite.
JEM	Japanese Experiment Module	The Japanese-provided laboratory module that is part of the International Space Station configuration.
JSC	Johnson Space Center	NASA center in Houston, Texas.
KIDSAT		Phase I & II of an education R&D Project in support of NASA's Strategic Plan for Education that utilizes shuttl photography for the development of multidisciplinary standards base initiative.
KOREASAT	Korean Satellite	Provides direct broadcasting and fixed station telecommunications for the Korean peninsula and surrounding region
KSC	Kennedy Space Center	NASA center near Cape Canaveral, Florida.
L1	First Earth-Sun Libration Point	Indication of a halo-type orbit around L1.
L3	Latitude/Longitude Locator	Tests the capability of a space sextant/camera system to locate earth surface targets within 10 nautical miles.
LAB	Laboratory Module	U.S. Laboratory module on the International Space Station

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
LACIE	Laser Altimeter Camera Irim Experiment	A grouping of the following instruments on a gas bridge. Shuttle Laser Altimeter(SLA), Camera Package Canister(CPC) and the Infra Red Imaging(IRIM) instrument. Additional GAS payloads are added as payloads of opportunity.
LAGEOS	Laser Geodynamics Satellite	Spherical passive satellite covered with retroflectors which are illuminated by ground-based lasers to determine precise measurements of the Earth's crustal movements.
LANDSAT-07	LANDSAT	Remote sensing satellite.
LCB	Low Cost Booster	
LDCE	Limited Duration Space Environment Candidate Materials Exposure	Evaluation of candidate space structure composite materials for degradation due to exposure in LEO (passive systems).
LDEF	Long Duration Exposure Facility	Free-flying satellite providing accommodations for experiments requiring long-term exposure to the space environment.
LEO	Low Earth Orbit	
LFC	Large Format Camera	Acquires synoptic, high-resolution images of the Earth's surface.
LHP	Loop Heat Pipe	Flight testing of the Loop Heat Pipe advanced thermal energy management technology, validating technology readiness for spacecraft applications.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
LITE	Lidar In-Space Technology Experiment systems	Project to measure the atmospheric parameters from a space platform utilizing laser sensors and to verify space-born Lidar systems.
LM	Long Module	Spacelab habitable module that provides a safe shirt-sleeve environment in which science crew members can conduct their experiments.
LME	Liquid Motion Experiment	Investigation of the behavior of liquids in a variety of rotating tanks.
LMS	Life and Microgravity Spacelab	Perform microgravity research through experiments in a stable low-gravity environment, emphasizing life sciences and microgravity sciences.
LMTE	Liquid Metal Test Experiment	To collect data on the performance of liquid metal (potassium) heat pipes in space for determining feasibility of use with space reactor power systems.
M88-1	Department of Defense M88-1	Evaluates the capability of man in space to enhance air, naval, and ground force operations and assesses the feasibility of observations of space debris while in orbit.
MACE	Middeck Active Control Experiment	Validation of controls/structures interaction technologies in zero gravity.
MAGELLAN		Spacecraft designed to globally map the surface of Venus.
MAGSAT	Magnetic Field Satellite	Spacecraft to map the magnetic field of the Earth.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
MAP	Microwave Anisotropy Probe	MIDEX mission utilizing a radiometer to provide understanding of cosmological structure formation model that describes our universe.
MAR	Middeck Accommodations Rack	An experiment integration facility installed in the middeck of the orbiter with stowage volume equivalent to five middeck lockers. Power distribution and active thermal control options are available.
MARS (MSP)	Mars Surveyer Program	MSP program consists of a series of Orbiters and/or Landers to be launched at every Mars opportunity roughly 25 months apart.
MARS PATHFINDER		Initial mission concept validation precursor for follow-on MARS Lander series.
MAST	Military Applications of Ship Tracks	Defines ship track characteristics with high resolution imagery to develop an understanding of the processes responsible for shiptrack formations, maintenance, and dissipation.
MBB	Messerschmitt-Boelkow-Blohm	A German industrial aerospace organization.
MBS	Mobile Remote Servicer Base System	Truss base for the SSRMS
MD	Middeck	Lower deck of the orbiter crew compartment.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
MEEP	MIR Environmental Effects Payload	Consists of Four ISSA Phase 1 Risk Mitigation Experiments: Passive Experiment Carrier (PEC), Polished Plate Meteoroid and Debris (PPMD), Passive Optical Sample Assembly (POSA), Orbital Debris Collector (ODC).
MFD	Manipulator Flight Demonstration	Demonstrates on-orbit capability of JEM Manipulator system with its dextrous Small Fine Arm in replacing Orbital Replacement Units on JEM Exposed Facility.
MGBX	Middeck Glovebox	Provides a general-purpose enclosed workspace to carry out small-scale microgravity science experiments in the Space Shuttle middeck.
MGM	Mechanics of Granular Materials	Microgravity experiment to study the behavior of bulky grained materials under very low confining pressures.
MGS	Mars Global Surveyor	First Mars Orbiter in Mars Surveyor Program.
MICROSAT	Micro Satellites	DOD tactical communications network of small technology payloads
MIDEX	Mid-Sized Explorer	Series of mid-sized explorer platforms.
MIGHTY-SAT	MIGHTY-SAT 1	Space Qualification and On-Orbit Validation of Advance Space Technology
MINISAT		Brazilian Communication Satellite
MIR		Current Russian orbiting Space Station.

PAYLOAD/ACRONYM	NAME	DESCRIPTION
MIS	Drug Microencapsulation in Microgravity	Evaluates the effects of microgravity on methods used to encapsulate drugs within biodegradable polymers. Combines materials science with biomedical product development and results in the production of a pharmaceutical product in space.
MLE	Mesoscale Lightning Experiment	Records and observes the visual characteristics of large scale lightning as seen from space using on-board television cameras.
MLR	Monodisperse Latex Reactor	Produces monodisperse latex particles in the two to forty micron range.
MO	Mars Observer	Spacecraft to study the surface, climate, gravitational, and magnetic fields of the planet Mars.
MODE	Middeck 0-Gravity Dynamics Experiment	Studies the dynamics of liquids and skewed space structures in the microgravity environment.
MODE-RFLT	Middeck 0-Gravity Dynamics Experiment-Reflight	Reflight of the MODE payload
MORELOS		Mexican communication satellite system.
MOTOROLA	Motorola Iridium Communication Satellite	
MPEC	Multi-Purpose Experiment Canister	An extended Hitchhiker-G. GAS canister capable of deploying an internally stowed payload.
MPESS	Mission Peculiar Equipment Support Structure	A cross-bay Shuttle payload carrier and support system for payloads weighing up to 3000 pounds.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
MPLM	Mini pressurized Logistics Module	U.S. module built by Italy for logistics equipment and up/down mass transfers
MPNE	Microgravity Plant Nutrient Experiment	Validate candidate nutrient delivery systems for growing plants in microgravity
MPSE	Mexican Payload Specialist Experiment	Experiment performed by a Mexican payload specialist on the Shuttle flight which deployed the MORELOS satellite.
MS	Mission Specialist	A member of Shuttle flight crew primarily responsible for Orbiter subsystem and payload activities.
MSAT	Mobile Satellite	Satellite operated commercially by the American Mobile Satellite Company (AMSC).
MSFC	Marshall Space Flight Center	NASA center in Huntsville, Alabama.
MSL	Microgravity Science Laboratory	A payload which remains attached to the Shuttle to perform materials processing experiments in low-g.
MSP	Microgravity Science Payload	Series of flights that conduct materials processing and fundamental experiments in the microgravity environment available in the Orbiter cargo bay while in low earth orbit.
MSTI	Miniature Seeker Technology Integration	SDIO experimental payload -- part of program to develop advanced seeker/sensor technology.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
MSX	Midcourse Space Experiments	Track and observe Space Shuttle vehicle and rocket motor plumes during RCS and OMS motor firings with MSX satellite sensors.
MTPE	Mission to Planet Earth NASA Office	Code Y
N/A	Not Applicable	
NASDA	National Space Development Agency of Japan	Advances space exploration and utilization and their practical applications on earth for the government of Japan.
NATO		Communications satellite for NATO
NAVSTAR		USAF Global Positioning Satellite (GPS) system.
NEAR	Near Earth Asteroid Rendezvous	Mission to rendezvous with an asteroid in near-Earth trajectory. First in OSS "Discovery" series.
NEUROLAB	NEUROLAB	Investigates the effects of weightlessness on neurological processes using both human and animal specimens.
NIH-R	National Institutes of Health-Rodents	To understand the physiological and anatomical changes that occur in mammals under weightless space flight conditions.
NOAA	National Oceanic and Atmospheric Administration	Conducts research and gathers data about the global oceans, atmosphere, space, and sun, and applies this knowledge to science and service that touch the lives of all Americans.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
NODE	Node Module	Primary pressurized module serving as storage, connector, and utility feedthru for other ISS modules
NOSL	Night/Day Optical Survey of Lightning	Optical survey of lightning.
NOVA		Advanced Navy Navigation Satellite.
NUSAT	Northern Utah Satellite	University developed packet communications satellite; first successful payload ejection from a GAS canister.
OA	NASA Office of the Administrator	Code A
OARE	Orbital Acceleration Research Experiment	Keel-mounted accelerometer that characterizes the very low frequency acceleration environment of the orbiter payload bay during space flight.
OASIS	OEX Autonomous Supporting Instrumentation System	Collects environmental data in the Orbiter during dynamic shuttle flight phases.
OAST	Office of Aeronautics and Space Technology payload	Collection of experiments designed to enable or extend space flight technology.
OAST-FLYER	Office of Aeronautics and Space Technology-Flyer	Free flyer deployed from the Shuttle containing several space technology experiments.
OCTW	Optical Communication Thru the Shuttle Window Flight Demonstration	Demonstrates a system that allows the Shuttle crew to interface with payloads without depending on Orbiter communication systems.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
ODERACS	Orbital Debris Radar Calibration Spheres Project	Releases radar dipoles into earth orbit for purposes of calibrating ground-based radar.
ODS	Orbiter Docking System	Shuttle interface to Docking Module (DM)
OEX	Orbiter Experiments	Series of engineering experiments on the Orbiter.
OIM	Oxygen Interaction with Materials	Tests which obtained quantitative rates of oxygen interaction with materials used on the Orbiter and advanced payloads.
OLMSA	NASA Office of Life and Microgravity Sciences and Applications	Code U
OMDP	Orbiter Maintenance Down Period	Program requirement to take an orbiter out of service for structural inspections and periodic maintenance based on number of flights and/or time elapsed. (approximately every 3 years)
OPA	NASA Office of Public Affairs	Code P
ORBCOMM	ORBCOMM/MICRO	Commercial satellite constellation.
ORFEUS-SPAS	Orbiting, Retrievable Far and Extreme Ultraviolet Spectrometer-Shuttle Pallet Satellite	A German developed payload to explore the distribution and character of radiation absorbing material in the solar system and to perform direct ultraviolet observations of the direct interstellar component.
ORION		Provide transatlantic communications for international customers

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
ORS	Orbiter Refueling System	An experiment to demonstrate the ability of the shuttle to perform on-orbit satellite refueling.
ORSTED	ORSTED Scientific Microsatellite	Danish ELV secondary payload to conduct accurate global mapping of the Earth vector magnetic field.
ORU	Orbital Replaceable Units	
OSAT	NASA Office of Space Access and Technology	Code X
OSF	NASA Office of Space Flight	Code M
OSS	NASA Office of Space Science	Code S
OSS-1 '	Office of Space Science-1	Single Pallet carrying eight experiments to demonstrate the use of the Shuttle for investigations in space plasma physics, solar physics, astronomy, etc. and to characterize the Orbiter and payload bay environment.
OSTA-1	Office of Space and Terrestial Applications-1	Shuttle attached payload using the Shuttle Imaging Radar (SIR-A) to obtain high resolution images of earth.
OSTA-2	Office of Space and Terrestial Applications-2	Microgravity experiments.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
OSTA-3	Office of Space and Terrestial Applications -3	Acquire photographic and radar images of the Earth's surface.
P6	PV Modules	Truss spacer section and two PV arrays
PAL	Pallet	Spacelab Pallet structure.
PALAPA		Geosynchronous satellite communication system for the Republic of Indonesia.
PALAPA-C1		Indonesian communication satellite
PAM	Payload Assist Module	An upper stage system used on the Shuttle and the Delta ELV.
PANSAT	Petite Amateur Navy Satellite	Serve as a proof of concept experiment for a quick reaction, lowcost, direct sequence spread spectrum packet communications satellite & provide a space-based platform for small secondary experiments.
PARE	Physiological & Anatomical Rodent Experiment	Studies the physiological and anatomical changes that occur in mammals under weightless space flight conditions.
PASDE	Photogrammetric Appendage Structural Dynamics Experiment	Characterize the structural dynamics of MIR appendages during ISSA Phase I missions.
PCG	Protein Crystal Growth	Obtain high quality protein crystals to facilitate analysis of structures.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
PCG-STES	Protein Crystal Growth-Single Thermal Enclosure System	Investigate the mechanisms of protein crystal growth and retrieve high quality crystals grown during space flight using a single locker thermal enclosure system.
PCG-TES	Protein Crystal Growth-Thermal Enclosure System	Investigate the mechanisms of protein crystal growth and retrieve high quality crystals grown during space flight using a double locker thermal enclosure system.
PDRS/PFTA	Payload Deployment and Retrieval System/Payload Flight Test Article	Tests the performance of the RMS in handling a massive object by unberthing and reberthing a payload using the RMS.
PE	Pluto Express	Small spacecraft to image and take environmental measurements of Pluto and its moon Charon in rapid fly-by.
PEGASUS		Small class air-launched expendable launch vehicle.
PEGSAT	Pegasus satellite	Small chemical release payload flown on first Pegasus launch
PHCF	Pituitary Growth Hormone Cell Function	Microgravity induced effects on pituitary (active growth) hormones in various types of living cells.
PLAN	Planetary Trajectory	High Energy Trajectory to Outer Planets.
PLC	Payload Commander	A member of the Shuttle crew having overall crew responsibility for planning, integration, and on-orbit coordination of payload mission activities.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
PLT	Pilot	A member of the Shuttle crew whose primary responsibility is to pilot the Orbiter.
PM	Polymer Morphology	Determines effects of weightlessness on morphological formation of polymers as they undergo physical transition.
PMA	Pressurized Mating Adapter	The structural interface between the orbiter and the station
PMG	Plasma Motor Generator	ELV secondary payload experiment to verify ability of plasma sources to couple electric current along a wire.
POLAR		Polar auroral plasma physics spacecraft.
PPE	Phase Partitioning Experiment	Studies separation behavior of two phase system generated by the mixture in water of polyglucose and polyethylene glycol.
PS	Pressurized Section	
PS(FOR CREW)	Payload Specialist	A member of the Shuttle crew, who is not a NASA astronaut, but whose presence is required to perform specialized functions with respect to one or more payloads or other mission unique activities.
PSE	Physiological Systems Experiment	Examines effects of hormone therapy on changes in organic systems during spaceflight.
PV	Photovoltaic	Power generation also called solar arrays

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
PVTOS	Physical Vapor Transport of Organic Solids	Grows crystalline films on selected substrates of organic solids.
Px	Port	Left side
RADARSAT	Radar Satellite	Radar remote sensing free flyer that will monitor land, sea and ice for five years over the poles (U.S./Canadian).
RADCAL	Radar Calibration Satellite	USAF STP satellite carring C-band transponders and precise position determination equipment for calibrating radars used for space and missile tracking.
REQ	Request	
RETV	Retrieval	
REX	Radiation Experiment	Researches effects of electron density irregularities on transionosphere radio signals.
RFTPCE	Reduced-Fill Tank Pressure Control Experiment	The experiment will measure the effectiveness of jet mixing for pressure control in fluids in microgravity. This flight will extend the results from 2 previous flights to include a lower fluid-fill level.
RME	Radiation Monitoring Equipment	Measures gamma radiation levels in the Shuttle environment.
RMS	Remote Manipulator System	A Canadian developed, remotely controlled (from the Orbiter crew cabin) arm for deployment and/or retrieval of payloads from the Orbiter payload bay.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
ROMPS	Robot Operated Materials Processing System	Investigates zero gravity anealing of semiconductor thin film and investigates robot handling of thin film samples.
RTSX	Ranger Telerobotic Shuttle Experiment	RTSX is a dexterous telerobotic system mounted in the Orbiter payload bay. Misssion objectives include demonstration of representative servicing tasks for Space Station under both local (AFT Flight Deck) & ground control; teleoperation & supervised autonomy; & technology demonstrations designed to mitigate risk for future dexterous space telerobot applications.
S/MM	Shuttle MIR Mission	Shuttle mission to the Russian Space Station MIR to support design and assembly of the International Space Station.
S0	S0 Truss Section	44' truss providing attachment and umbilicals between pressurized elements and truss mounted systems at the center of the truss assembly.
S1	S1 Truss	45' starboard side truss segment with TCS and S-band communication system
SAC-A	Satelite de Aplicaciones Cientificas-A	Payload will be a small Argentine satellite with GPS, solar-array, & star tracker technologies on board. Objective is to acquire flight data & experience with spacecraft technologies including GPS, solar arrays, & star trackers. These shared data will provide the basis for technologies to be used on follow-on cooperative missions.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
SAC-B/C	Satelite de Aplicaciones Cientificas-B/C	Argentine spacecraft carrying hard x-ray spectrometer to investigate solar flares and cosmic transient x-ray emissions.
SAGE	Stratospheric Aerosol and Gas Experiment	Map vertical profiles of the ozone, aerosol, and nitrogen Rayleigh molecular extinction around the globe.
SAM	Shuttle Activation Monitor	Collects gamma and x-ray data as a function of geomagnetic location from spacecraft materials.
SAMS	Space Acceleration Measurement System	Provides Orbiter acceleration measurements in support of microgravity experiments.
SAREX	Shuttle Amateur Radio Experiment	Low cost space to ground voice and slow scan television experiment.
SAS	Space Adaptation Syndrome	Physiological changes which occur when adapting to microgravity.
SATCOM		RCA communications satellite.
SAX	Satellite per Astronomia a raggi X	Italian/Dutch Space Agencies cooperative mission to investigate celestial X-ray sources from inside and outside our galaxy.
SBS	Satellite Business Systems	All digital domestic communication system servicing large industry, the government, etc.
SCD	Satellite Cientificas Development	Government of Brazil satellite to collect and transmit data on environmental changes in the Amazon River basin

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
SCISAT	Scientific Satellites	Small Canadian scientific satellites.
SE	Student Experiment	Experiments sponsored by the Shuttle Student Involvement Program (SSIP).
SEDS	Small Expendable Deployer System	Experimental tether deployment device.
SEDSAT	Students for the Exploration and Development of Space Satellite	An amatuer radio receiver/transmitter communications satellite built by student engineers at the University of Alabama in Huntsville. Upward deployment using a 40km length tether called SEDS.
SEEDS	Seeds in Space II	The payload consists of tomato seeds packaged for flight in dacron bags similar to LDEF packages of tomato seeds. The purpose is passive exposure of the seeds to the vacuum of space for the duration of the flight.
SEM	Space Experiment Module	Perform a pilot program to demonstrate the feasibility and value of the SEM concept to provide simple and inexpensive access to space for small-scale educational experiments.
SFP	Space Flight Participant	A Shuttle crew member whose presence is not required for operation of payloads or mission unique activities, but is determined by the NASA Administrator to contribute to other approved NASA objectives or to be in the national interest.
SFU-RETR	Space Flyer Unit Retrieval	A reusable, retrievable unmanned free flyer to be launched on the Japanese H-II rocket and retrieved by Shuttle.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
SHARE	Space Station Heat Pipe Advanced Radiator Element	Demonstrates and quantifies the thermal performance of a high capacity, 50 foot, space constructible, heat pipe radiator element.
SHOOT	Super Fluid Helium On Orbit Transfer Demonstration	Demonstrates the feasibility of on-orbit transfer of superfluid helium using thermomechanical techniques.
SII	Space Industries, Inc.	U.S. company providing commercially-owned Industrial Space Facility (ISF).
SIMPLEX	Shuttle Ionospheric Modification with Pulsed Localized Exhaust	To examine ionospheric irregularities and artificial optical emissions due to orbital kinetic energy, and spacecraft exhaust vapor processes.
SIRTF	Space Infrared Telescope Facility	Astrophysics mission to provide infrared imaging and spectroscopy.
SKYNET		United Kingdom military communication satellite.
SL-D1	Spacelab D1	First dedicated German Spacelab mission.
SL-D2	Spacelab D2	Second German Spacelab Mission. Objectives included microgravity research and technology preparation for space station use.
SL-J	Spacelab J	Combined NASDA/NASA Spacelab mission. Objectives included life sciences, microgravity, and technology research.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
SL-M	Joint USA/Russian MIR Docking/Spacelab Life Science	Shuttle mission dedicated to rendezvous and docking with the Russian Space Station (MIR). Life Sciences experiments will be performed on the Spacelab.
SLA	Shuttle Laser Altimeter	Acquire space-based sample data sets of land topography and vegetation heights and provide testbed for future laser altimeter subsystem.
SLP	Spacelab Pallet	Spacelab pallet carrier used on ISS missions
SLS	Space Life Sciences Laboratory	Investigates the effects of weightlessness exposure using both man and animal specimens.
SLSTP	Space Life Sciences Training Program	Series of payloads to support a broad range of life sciences studies.
SMEX	Small Explorer	Payloads being designed to fly on Small Class ELV's.
SMRM	Solar Maximum Repair Mission	A technology demonstration of the shuttle capability to rendezvous, service, checkout and deploy an on-orbit satellite.
SNOE	Student Nitric Oxide Explorer	University of Colorado payload; first in series of low-cost university small research/science payloads
SOHO	Solar Heliospheric Observatory	ESA spacecraft to provide optical measurements as well as plasma field and energetic particle observations of the sun system for studies of the solar interior, atmosphere and solar wind.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
SOLAR PROBE		Studies unexplored region of the solar atmosphere, measures electromagnetic fields and studies the particle populations close to the sun.
SOLCON	Solar Constant	Solar constant measurements together with free flying experiments, to maintain continuity of data level at climate scale, based on heritage of Space Absolute Radiometric Reference (SARR).
SOLSE	Shuttle Ozone Limb Sounding Experiment	To demonstrate that high resolution vertical profiles of ozone in the stratosphere can be obtained from a limb scattering measurement.
SPACEHAB		U.S. company providing commercially-owned pressurized module for conducting experiments in a man-tended environment. Also a series of payloads to be flown on the Space Shuttle.
SPACEHAB-DM	SPACEHAB Double Module	
SPACEHAB-SM	SPACEHAB Single Module	
SPACELAB-01		Demonstrated Spacelab's capabilities for multidisciplinary research.
SPACELAB-02		Demonstrated Spacelab's capabilities for multidisciplinary research and verified system performance.
SPACELAB-03		Dedicated materials processing mission emphasizing research in microgravity conditions.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
SPARTAN-400	Shuttle Pointed Autonomous Research Tool for Astronomy (SPARTAN)	Load deployable/retrievable science satellite
SPAS-01/01A	German Shuttle Pallet Satellite	Demonstrated the utilization of the MBB platform and systems as a carrier for science experiments.
SPDM	Special Purpose Dextrous Manipulator	Special arm for use to remove replace ORU's without EVA
SPIE	Shuttle Plume Impingement Experiment	Obtains quantitative measurements of the Primary Reaction Control System (PRCS) engine plume impingement effects on materials useful for space station design.
SPP	Science Power Platform	Russian built photovoltaic arm and tower mast with gyrodynes and thermal control system
SPTN	Shuttle Pointed Autonomous Research Tool for Astronomy (SPARTAN)	X-ray astronomy, medium energy survey mission, using retrievable free flyer.
SPTN 207/IAE	Inflatable Antenna Experiment	Validates erection of a packaged 28 meter paraboloid and determines the structural dynamics and surface accuracy.
SPTN-HALLEY	SPARTAN-HALLEY	Search for molecules containing nitrogen, carbon or sulfur and observes the UV spectrum between 2100 and 3400A.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
SRL	Space Radar Laboratory	Series of flights to acquire radar images of the Earth's surface and to sample CO global distribution. The images will be used for making maps, interpreting geological features, and conducting resource studies.
SRTM	Shuttle Radar Topography Mission	DOD/NASA cooperative mission to acquire digital elevation model of the earth's surface.
SS	Sun Synchronous	Sun-synchronous polar orbit.
SSBUV	Shuttle Solar Backscatter Ultra-Violet Experiment	Series of flights to measure ozone characteristics of the atmosphere.
SSBUV/A	Shuttle Solar Backscatter Ultra-Violet Experiment/A	SSBUV/A differs from SSBUV in that it has avionics and a power connection with the orbiter.
SSCE	Solid Surface Combustion Experiment	Determines the gas-phase flame spread over solid fuel surfaces in microgravity.
SSIP	Shuttle Student Involvement Program	Competitions held between 1981-1985 in which the winning High School students proposed experiments which were accepted for Shuttle flights.
SSRMS	Space Station Remoter Manipulator System	Remotely controlled (ISS crew) arm for deployment and retrieval
SSUP	Space Station Utilization Preparedness Missions	Missions to further preparations for ISS utilization by the partners, helping to maintain viable investigator teams & programs and establish coordination on intellectual properties during the interim period prior to full Space Station operations.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
STAR-LITE	Spectrograph/Telescope for Astronomical Research	A new technology program using metal mirror and double dispersion spectrograph.
STARDUST		Collects samples of comet and interplanetary dust and returns it to Earth for detailed analysis. Sample canister recovery in 2006 following launch in 1999.
STEP	Space Test Experimental Program	USAF Space Test Program platform for multi-agency technology missions
STEX	Sensor Technology Experiment	Demonstrates radiation measurement technology.
STL	Space Tissue Loss	Name changed to STL/NIH-C after STS-59
STL-B	Space Tissue Loss	An experiment to validate or confirm model of skeletal and cardiac muscle atrophy, collect data on catabolic pathway and control mechanisms, and test candidate pharmaceuticals for efficacy.
STL/NIH-C	Space Tissue Loss/National Institute of Health-Cell	Name changed to CCM on STS-80 and subsequent missions.
STP-x	Space Test Program-x	A series of payloads which include DOD STP secondary experiments.
STS	Space Transportation System	The Space Shuttle; Manned launch vehicle dedicated to space exploration.
STTP	Life Sciences Space Technology Training Program	Activity to develop and encourage interest on the part of college students in space biology and medicine.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
SUNSAT	Stellenbosch University Satellite	South Africa ELV secondary payload to provide remote sensing and mapping of the Earth's gravity field.
SURFSAT	Summer Undergraduate Research Fellowship Satellite	Secondary payload launched on a Delta to simulate a deep space vehicle by radiating in S,X,Ku and Ka Bands.
SUVE	Solar Ultra Violet Experiment	To collect solar data with the solar imaging and extreme ultraviolet solar irradiance experiments. The data will be correlative with the co-manifested ATLAS-2 solar experiments for understanding of the upper atmosphere photochemistry.
SW	Sidewall	
SWAS	Submillimeter Wave Astronomy Satellite	Spacecraft to study how molecular clouds collapse to form stars and planetary systems.
SWUIS	Southwest Ultraviolet Imaging System	02 Wide-field ultraviolet imaging of Venus, Mercury, & the Moon. UV spectrophotometry of asteriods. Search for small bodies inside the orbit of Mercury ("Vulcanoids"). 03 Ultraviolet spectroscopic observations of Venus, Mercury, the Moon, & asteroids.
SYNCOM	Hughes Geosynchronous Communication Satellite	Provides communication services from geosynchronous orbit principally to the U.S. government.
Sx	Starboard	Right side

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
TAS	Technology Applications and Science	Hitchhiker multi-disciplined experiments used for gathering data in technology aplications and science.
TBD	To Be Determined	
TCS	Thermal Control System	Thermal control system radiators on the ISS
TDRS	Tracking and Data Relay Satellite	Series of NASA tracking, data and communications satellites to replace the NASA ground based network.
TEAMS	Technology Experiments Advancing Missions in Space	Crossbay structure consisting of a hitchhiker carrier and four experiments.
TEEM	Two Phase Extended Evaluation in Microgravity	To obtain two-phase (liquid & vapor) pressure drop data in different diameter tubular test sections as well as characterization of the two-phase flow in a long duration microgavity environment.
TELESAT	Canadian Telecommunication Satellite	Communication satellite built for Telesat Canada to provide voice and TV coverage to trans-Canada network of Earth stations.
TELSTAR	AT&T Communications Satellite	AT&T COMSTAR replacement -- provides communication services to the continental U.S., Alaska, Hawaii, and Puerto Rico.
TEMP (TEMP 2A-3)	Thermal Energy Management Process	Demonstrates a mechanically pumped two phase heat acquisition, transport, and rejection thermal control system proposed for Space Station.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
TEMPO		Direct Broadcast Services satellite program aimed at direct TV broadcasting to Conus, Alaska, Hawaii, & Puerto Rico
TERRA SCOUT		Evaluates the ability of an expert imagery analyst to conduct realtime analysis from low earth orbit.
TERRIERS		University of Boston Tomographic Experiment using Radiative Recombinative Ionospheric EUV Radio Sources
TES	Thermal Energy Storage Experiment	The objective is to develop & fly in-space experiments to characterize void shape & location in phase change materials used in a thermal energy storage configuration representative of an advanced solar dynamic system design.
TGDF	Transitional Gas-Jet Diffusion Flames	To characterize the fundamental process which govern the structure and behavior of microgravity transitional gas jet diffusion flames.
THOR		Norwegian Communication Satellite
TIMED	Thermosphere-Ionosphere-Mesosphere Energetics and Dynamics.	Single-spacecraft mission to investigate physical and chemical processes in the mesosphere and lower thermosphere/ionosphere.
TISP	Teacher in Space Program	Six experiments including hydrophonics, magnetism, Newton's laws, effervescence, chromatography, and simple machines.
TITAN II		DOD medium class expendable launch vehicle.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
TITAN III		Commercial intermediate class expendable launch vehicle.
TITAN IV		DOD large class expendable launch vehicle.
TLD	Thermoluminescent Dosimeter	Obtains gamma ray measurements of the Shuttle environment.
TOMS	Total Ozone Mapping Spectrometer	Study of Stratospheric ozone.
TOS	Transfer Orbit Stage	Upper stage system for Shuttle and Titan.
TPCE	Tank Pressure Control Experiment	A study to determine the effects of microgravity on the thermal stratification of fluids and to validate the effects of jet induced mixing.
TPFE	Two-Phase Flow Thermal Control Experiment	Demonstrate all phases of operation of a Two-Phase thermal contol system
TRACE	Transition Region and Coronal Explorer	The 4th SMEX mission to study the Sun's corona and the region of transition from chromosphere to corona.
TSS	Tethered Satellite System	Cooperative system developed by the Italian Space Agency (ASI) and NASA which is capable of deploying and retrieving a satellite which is attached by a wire tether from distances up to 100 km from the Orbiter.
U.S.	United States	

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
UARS	Upper Atmosphere Research Satellite	Satellite to study chemical processes acting within and upon the stratosphere, mesosphere, and lower thermosphere.
UDM	Universal Docking Module	Located at nadir port and will serve as docking location for five modules and other pressurized elements.
UHF	Ultra-High Frequency	U.S. Navy's Ultra-high Frequency series of communications satellites
UK-6	United Kingdom-6	British Scientific Satellite
ULC	Unpressurized Logistics Carrier	Shuttle trunnion mounted variable attachment scheme surface logistics/equipment carrier
ULYSSES	Formerly ISPM (International Solar Polar Mission)	Investigates the properties of the heliosphere (sun and its environment).
UNEX	University-class Explorers	Series of low cost university explorers smaller than SMEX (Small Explorer).
USML	United States Microgravity Laboratory	Series of flights of a microgravity materials processing laboratory attached to the Shuttle.
USMP	United States Microgravity Payload	Series of flights that conduct materials processing and fundamental experiments in the microgravity environment available in the Orbiter cargo bay while in low earth orbit.
UVPI	Ultraviolet Plume Imager	Free-flying satellite observation of Obiter Maneuvering System burns.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
VAFB	Vandenberg Air Force Base	U.S. Air Force launch range on central California coast.
VCL	Vegetation Canopy Lidar (formerly ESSP-01)	
VCS	Voice Controlled System	Evaluates effectiveness of voice controlled system on the Shuttle cargo bay closed circuit television.
VFT	Visual Function Test in Space	A biomedical study to determine effects of microgravity on human visual performance.
VTRE	Vented Tank Resupply Experiment	Investigation of concepts to provide tank fill-while-venting to 90 percent full capacity.
WESTAR	Western Union Telegraph Communication Satellite	A C-band satellite to replenish and expand the Westar system (Western Union domestic communication system).
WFF	Wallops Flight Facility	NASA small class ELV and sounding rocket launch range on Virginia coast.
WIND		Satellite to measure solar wind input to magnetosphere. Part of ISTP program.
WINDEX	Window Experiment	To obtain calibrated measurements of environmentally induced optical emissions.
WIRE	Wide-Field Infrared Explorer	The 5th SMEX mission; which make wide field infrared studies of galaxies.

**** PAYLOAD/ACRONYM LIST ****

PAYLOAD/ACRONYM	NAME	DESCRIPTION
WSF	Wake Shield Facility	Satellite for molecular and chemical beam epitaxy growth of compound semiconductors, high temperature superconductors, and other materials using techniques requiring ultra-high vacuum, high pumping speeds, and relatively large working volumes.
XTE	X-Ray Timing Explorer	A payload to be used in Earth orbit to investigate the physical nature of compact x-ray sources by studying fluctuations in x-ray brightness over time-scales ranging from microseconds to years.
Z1	Z1 Truss Section	Truss segment serves as a mounting location for P6 truss and PV arrays for power generation.