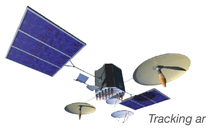
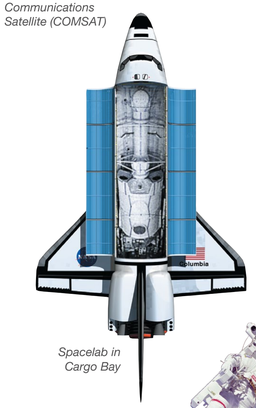
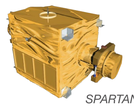
National Aeronautics and Space Administration

Communications Satellite (COMSAT)

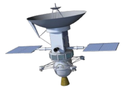

Tracking and Data Relay Satellite System (TDRSS)


Spacelab in Cargo Bay

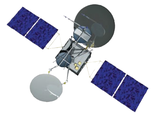

SPARTAN

First of Ten DOD Missions

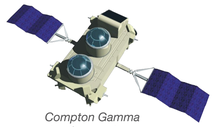
Manned Maneuvering Unit (MMU)


Venus Probe Magellan

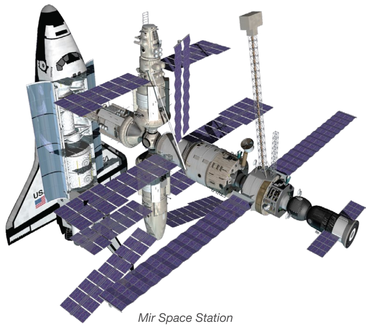
Solar Probe Ulysses


Advanced Communications Technology Satellite (ACTS)

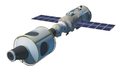
Jupiter Probe Galileo


Compton Gamma Ray Observatory (CGRO)

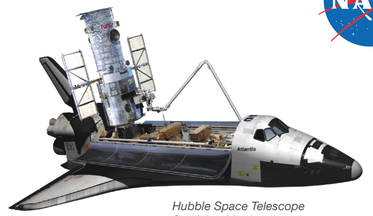
Hubble Space Telescope (HST)

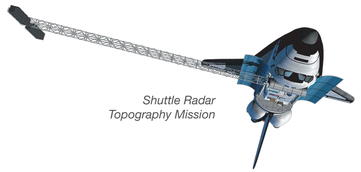

Mir Space Station

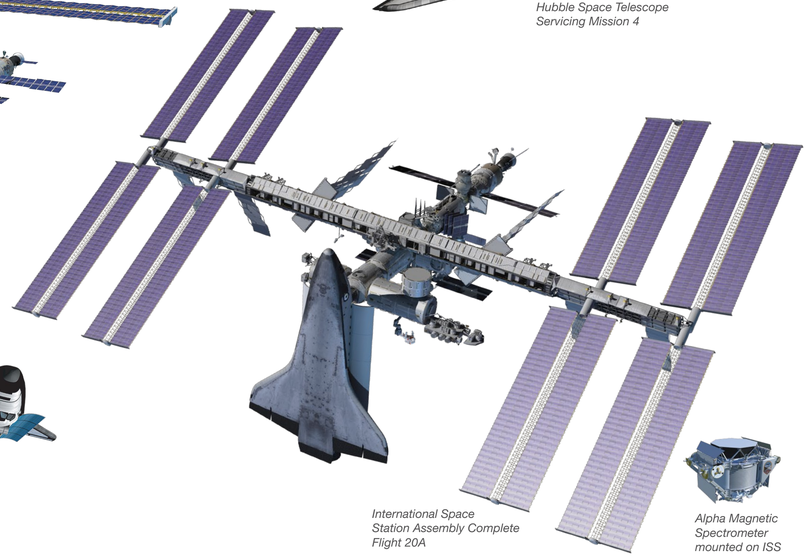
Chandra X-Ray Observatory


Start of International Space Station Assembly Flight 2A

International Space Station Flight 7A


Hubble Space Telescope Servicing Mission 4


Shuttle Radar Topography Mission


International Space Station Assembly Complete Flight 20A

Alpha Magnetic Spectrometer mounted on ISS

Thirty Years of Space Shuttle Flight

PAYLOAD AND MISSION HIGHLIGHTS

NOTE: Mission chronology reads from bottom to top of each column.

- ✓ Equipment / System Tests
- Repair / Reboost Satellites
- Deploy and/or Retrieve Payload
- Extravehicular Activity (EVA)
- In-Flight Experiments
- Geosynchronous Orbit Satellites
- Solar Probe
- Observatory Missions
- Department of Defense Missions
- Space Station Mir Missions
- International Space Station Missions
- Planetary Probes
- U.S. payload
- U.S. commercial payload
- International payload

- OV-102 - **Columbia**
- OV-099 - **Challenger**
- OV-103 - **Discovery**
- OV-104 - **Atlantis**
- OV-105 - **Endeavour**

1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011

9 flights
8 flights
7 flights
6 flights
5 flights
4 flights
3 flights
2 flights
1 flight

STS-1 40.3°
1st orbital test flight; Orbiter Columbia 1st flight
12 APR - 14 APR
(Edwards Air Force Base Landing)
✓✓

STS-2 38.0°
Test of Canadian robot arm (RMS); Office of Space and Terrestrial Applications-1 (OSTA-1); Earth observation experiments
12 NOV - 14 NOV *(EDW)*
✓

STS-3 38.0°
3rd orbital test flight; Office of Space Science-1 (OSS-1); first experiments on Spacelab pallet; first flight with external tank unpainted
22 MAR - 30 MAR
(White Sands Landing)
✓✓

STS-4 28.529°
Last orbital test flight; first commercial experiment; Department of Defense (DOD) and Continuous Flow Electrophoresis System (CFES) payloads
27 JUN - 4 JUL *(EDW)*
✓✓✓

STS-5 28.482°
Canadian Satellite ANIK C-3; Satellite Business Systems-C (SBS-C)
11 NOV - 16 NOV *(EDW)*
✓✓

STS-6 28.448°
First Tracking and Data Relay Satellite (TDRS -1); first EVA; Orbiter Challenger 1st flight
4 APR - 9 APR *(EDW)*
✓✓✓✓✓

STS-7 28.484°
Canadian Satellite ANIK C-2; Indonesian Satellite PALAPA B1; German platform Satellite Pallet Satellite (SPAS-1); first U.S. woman in space
18 JUN - 24 June *(EDW)*
✓✓✓✓

STS-8 28.488°
India Satellite (INSAT-1B); 1st night launch and 1st night landing; first African American to fly in space
30 AUG - 5 SEP *(EDW)*
✓✓✓✓

STS-9 57.028°
First Spacelab mission (Spacelab-1); 1st time six crew members carried into space; first astronaut to represent European Space Agency (ESA)
28 NOV - 8 DEC *(EDW)*
✓✓✓✓✓✓

STS-41B 28.486°
WESTAR-VI and Indonesian Communication Satellite PALAPA B-2; testing of MMU jetpack
3 FEB - 11 FEB
(Kennedy Space Center Landing)
✓✓✓✓✓✓

STS-41C 28.45°
1st satellite repair in space (SolarMax); Long Duration Exposure Facility (LDEF)
6 APR - 13 APR *(EDW)*
✓✓✓✓✓✓

STS-41D 28.488°
Satellite Business System SBS-D; SYN-COM IV-2; TELSTAR; 102 ft. solar wing extended from payload bay (OAST-1) **Orbiter Discovery** 1st flight
30 AUG - 5 SEP *(EDW)*
✓✓✓✓✓✓

STS-51A 28.487°
Canadian Communications Satellite TELESAT-H; Synchronous Communication Satellite IV-1(SYNCOM IV-1); Retrieval and Repair of failed WESTAR-VI and PALAPA B-2 satellites
8 NOV - 16 NOV *(KSC)*
✓✓✓✓✓✓✓✓

STS-51B 57.040°
Spacelab-3; 14 out of 15 primary experiments successful; 2 monkeys and 24 rodents observed for effects of weightlessness
29 APR - 6 MAY *(EDW)*
✓✓✓✓✓✓✓✓

STS-51C 28.45°
Tracking and Data Relay Satellite-2 (TDRS-2); SPARTAN-203
28 JAN
Loss of Challenger and crew of seven
F. Scobee R. McNair
M. Smith G. Jarvis
J. Resnik S. McAuliffe
E. Onizuka

STS-51D 28.511°
Canadian Satellite TELESAT-1; SYNCOM IV-3; EVA to attempt repair of SYNCOM IV-3
12 APR - 19 APR *(KSC)*
✓✓✓✓✓✓✓✓

STS-51F 49.491°
Spacelab-2; Experiments covered life sciences, plasma physics, astronomy, high energy astrophysics, solar physics, atmospheric physics
29 JUL - 6 AUG *(EDW)*
✓✓✓✓✓✓✓✓

STS-51G 28.487°
Mexican Satellite MORELOS-A; Arab Satellite ARABSAT-A; AT&T Satellite TELSTAR-3D; Shuttle Pointed Autonomous Research Tool for Astronomy (SPARTAN-1)
17 JUN - 24 JUN *(EDW)*
✓✓✓✓✓✓✓✓

STS-51I 28.541°
American Satellite ASC-1; Australian Satellite AUSSAT-1; Synchronous Communication Satellite IV-4 (SYNCOM IV-4); SYNCOM IV-3 repaired and redeployed
27 AUG - 3 SEP *(EDW)*
✓✓✓✓✓✓✓✓

STS-51J 28.5°
2nd DOD mission; **Orbiter Atlantis** 1st flight
3 OCT - 7 OCT *(EDW)*
✓✓✓✓✓✓✓✓

STS-51L 28.45°
Mexican Satellite MORELOS-B; Australian Satellite AUSSAT-2; RCA Americom Satellite SATCOM KU-2; space structures assembly test
26 NOV - 3 DEC *(EDW)*
✓✓✓✓✓✓✓✓

STS-61A 56.998°
D-1 Spacelab mission (first German dedicated Spacelab); Global Low Orbiting Message Relay (GLOMR) Satellite
30 OCT - 6 NOV *(EDW)*
✓✓✓✓✓✓✓✓

STS-61B 28.454°
Mexican Satellite MORELOS-B; Australian Satellite AUSSAT-2; RCA Americom Satellite SATCOM KU-2; space structures assembly test
26 NOV - 3 DEC *(EDW)*
✓✓✓✓✓✓✓✓

STS-61C 28.448°
RCA Americom Satellite SATCOM KU-1; material and astronomy experiments
12 JAN - 18 JAN *(EDW)*
✓✓✓✓✓✓✓✓

STS-26 28.46°
Return to flight; Tracking and Data Relay Satellite-3 (TDRS-3) attached to an Inertia Upper Stage (IUS) became second TDRS deployed; numerous secondary payloads and experiments
29 SEP - 3 OCT *(EDW)*

STS-27 57.0°
3rd DOD mission
2 DEC - 6 DEC *(EDW)*

STS-28 57.0°
4th DOD mission
8 AUG - 13 AUG *(EDW)*

STS-30 28.87°
Venus probe Magellan radar mapper spacecraft and attached Inertia Upper Stage (IUS) launched; 1st Shuttle planetary mission
4 MAY - 8 MAY *(EDW)*

STS-29 28.45°
Tracking and Data Relay Satellite-4 (TDRS-4) became third TDRS deployed; numerous secondary payloads and experiments; Crew photographed Earth with handheld IMAX camera
13 MAR-18 MAR *(EDW)*

STS-33 28.45°
5th DOD mission; 1st night launch since return to flight
22 NOV - 27 NOV *(EDW)*

STS-34 34.327°
Jupiter probe Galileo spacecraft and attached Inertia Upper Stage (IUS) launched; Shuttle Solar Backscatter Ultraviolet (SSBUV)
18 OCT - 23 OCT *(EDW)*

STS-35 28.457°
UV and X-ray Astronomy Spacelab (ASTRO-1 consisting of 4 telescopes; Shuttle Amateur Radio Experiment-2 (SAREX-2); night launch and landing
2 DEC - 10 DEC *(EDW)*

STS-38 28.45°
7th DOD mission; night launch
15 NOV - 20 NOV *(KSC)*

STS-41 28.45°
Solar probe Ulysses launched; Shuttle Solar Backscatter Ultraviolet (SSBUV); INTELSAT Solar Array Coupon (ISAC)
6 OCT - 10 OCT *(EDW)*

STS-31 28.45°
Hubble Space Telescope (HST) deployed in a 380-statute-mile orbit; mission recorded with IMAX Cargo Bay Camera (ICBC)
24 APR - 29 APR *(EDW)*

STS-36 62.0°
6th DOD mission; night launch
28 FEB - 4 MAR *(EDW)*

STS-32 28.5°
Synchronous Communications Satellite IV-F5 (SYNCOM IV-F5); retrieval of Long Duration Exposure Facility (LDEF) using remote manipulator system; night landing
1 JAN - 20 JAN *(EDW)*

STS-44 28.45°
DOD satellite; Defense Support Program (DSP); night launch
24 NOV - 1 DEC *(EDW)*

STS-48 57.0°
Upper Atmosphere Research Satellite (UARS) deployed containing 10 sensing and measuring devices; night landing
12 SEP - 18 SEP *(EDW)*

STS-43 28.46°
Tracking and Data Relay Satellite-E (TDRS-5); Shuttle Solar Backscatter Ultra-Violet (SSBUV); Space Station Heat Pipe Advanced Radiator Element II (SHARE II)
2 AUG - 11 AUG *(KSC)*

STS-40 39.0156°
Spacelab Life Sciences-1 (SLS-1), first flight dedicated solely to life sciences
5 JUN - 14 JUN *(EDW)*

STS-39 57.007°
DOD mission; Air Force Program-675 (AFP675); Infrared Background Signature Survey (IBSS); Shuttle Pallet Satellite-II (SPAS-II)
28 APR - 6 MAY *(KSC)*

STS-37 28.453°
Compton Gamma Ray Observatory (CGRO) deployed, antenna on GRO was manually freed by an unscheduled space walk
5 APR - 11 APR *(EDW)*

STS-53 57.0°
Final dedicated DOD flight; Orbital Debris Radar Calibration Spheres (ODERACS); Glow experiment (GLO)
2 DEC - 9 DEC *(EDW)*

STS-52 28.46°
U.S. Microgravity Payload-1(USMP-1); Laser Geodynamic Satellite-II (LAGEOS-II); a complement of experiments located in both cargo bay and middeck.
22 OCT - 1 NOV *(KSC)*

STS-47 57.02°
50th Shuttle mission; First Japanese Spacelab (Spacelab-J); first African-American woman to fly in space
12 SEP - 20 SEP *(KSC)*

STS-46 28.46°
Tethered Satellite System-1 (TSS-1); European Retrievable Carrier (EURECA) deployed
31 JUL - 8 AUG *(KSC)*

STS-50 28.46°
U.S. Microgravity Laboratory-1 (USML-1); featured pressurized Spacelab module
25 JUN - 9 JUL *(KSC)*

STS-49 28.32°
Intelsat VI recovery and redeployment; 3 rendezvous; 4 EVAs; 1st 3-man EVA; 1st use of orbiter boom for crew; **Orbiter Endeavour** 1st flight
7 MAY - 16 MAY *(EDW)*

STS-45 57.02°
1st Earth Atmosphere mission Atmospheric Lab for Applications Science (ATLAS-1); Shuttle Solar Backscatter Ultraviolet/A (SSBUV/A)
24 MAR - 2 APR *(KSC)*

STS-42 57.0°
International Microgravity Laboratory-1 (IML-1) using pressurized Spacelab module
22 JAN - 30 JAN *(EDW)*

STS-56 57.0°
2nd Earth Atmosphere mission (ATLAS-2); SPARTAN-201 deployed and retrieved; Shuttle Amateur Radio Experiment II (SAREX-II) made numerous calls to amateur radio stations around the world and brief contact with MIR; night launch
8 APR - 17 APR *(KSC)*

STS-54 28.45°
Tracking and Data Relay Satellite-F (TDRS-6) deployed; Diffuse X-Ray Spectrometer (DXS) carried into orbit; EVA tests in cargo bay
13 JAN - 19 JAN *(KSC)*

STS-61 28.45°
Repair and first servicing of Hubble Space Telescope; night launch and landing
2 DEC - 13 DEC *(KSC)*

STS-58 39.0°
2nd Spacelab for Life Sciences (SLS-2)
18 OCT - 1 NOV *(EDW)*

STS-51 28.45°
Advanced Communications Technology Satellite (ACTS)/Transfer Orbit Stage (TOS) deployed; ORFEUS telescope mounted on SPAS payload carrier deployed and retrieved
12 SEP - 22 SEP *(KSC)*

STS-57 28.45°
1st SPACEHAB (SPACEHAB-1); European Retrievable Carrier (EURECA) retrieval; EVA
21 JUN - 1 JUL *(KSC)*

STS-55 28.45°
2nd German Spacelab mission (D-2); some 88 experiments conducted
26 APR - 6 MAY *(EDW)*

STS-65 28.45°
International Microgravity Laboratory (IML-2); 1st Japanese woman in space set record for longest flight to date for female astronaut
8 JUL - 23 JUL *(KSC)*

STS-59 57.0°
Space Radar Laboratory-1 (SRL-1); ASCAP-IV; NIH experiments
9 APR - 20 APR *(KSC)*

STS-62 39.0°
U.S. Microgravity Payload (USMP-2); Office of Aeronautics and Space Technology-2 (OAST-2); SSBUV/A; Dextrous End Effector (DEE)
4 MAR - 18 MAR *(KSC)*

STS-60 57.0°
Wake Shield Facility (WSF) deployed and retrieved; SPACEHAB-2; 1st Russian cosmonaut on Shuttle
3 FEB - 11 FEB *(KSC)*

STS-66 57.0°
3rd ATLAS mission (ATLAS-03); CRISTA-SPAS deployed and retrieved (joint U.S. - German)
3 NOV - 14 NOV *(EDW)*

STS-68 57.0°
Space Radar Laboratory-2 (SRL-2); nearly identical imaging passes as STS-59 achieved
30 SEP - 11 OCT *(EDW)*

STS-64 57.0°
LIDAR In-Space Technology Experiment (LITE); SPARTAN-201; Simplified Aid For EVA Rescue (SAFER) test; Robotic Materials Processing System (ROMPS)
9 SEP - 20 SEP *(EDW)*

STS-65 28.45°
International Microgravity Laboratory (IML-2); 1st Japanese woman in space set record for longest flight to date for female astronaut
8 JUL - 23 JUL *(KSC)*

STS-74 51.6°
2nd Shuttle-Mir docking; module (DM), solar arrays, 1000 lbs. of water transferred
12 NOV - 20 NOV *(KSC)*

STS-73 39.0°
2nd U.S. Microgravity Laboratory (USML-2) in Spacelab module; educational experiments; ceremonial first pitch for Game 5 of baseball World Series
20 OCT - 5 NOV *(KSC)*

STS-69 28.45°
2nd Wake Shield Facility (WSF-2), 1st spacecraft to maneuver itself away from orbiter using cold gas nitrogen thruster; SPARTAN 201-03 deployed and retrieved also; 30th Shuttle EVA
7 SEP - 18 SEP *(KSC)*

STS-70 28.45°
Last Tracking Data and Relay Satellite-G (TDRS-G); crystal growth and biological experiments
13 JUL - 22 JUL *(KSC)*

STS-71 51.63°
1st Shuttle-Mir dock; crew exchange; Spacelab/Mir experiments (SL-M); 100th manned U.S. mission
27 JUN - 7 JUL *(KSC)*

STS-67 28.45°
2nd UV Astronomy Spacelab (ASTRO-2); Middeck Active Control Experiment (MACE); 1st internal Spacelab launch
2 MAR - 18 MAR *(EDW)*

STS-63 51.66°
Rendezvous with Mir; SPACEHAB-3; 2nd cosmonaut; SPARTAN-4; first female Shuttle pilot; night launch
3 FEB - 11 FEB *(KSC)*

STS-80 28.45°
Orbiting and Retrievable Far and Extreme Ultraviolet Spectrograph-Shuttle Pallet Satellite II (ORFEUS-SPAS II); 3rd Wake Shield Facility; biological experiments
19 NOV - 7 DEC *(KSC)*

STS-79 51.67°
4th Shuttle-Mir docking; crew exchange (Lucid/Blaha); 4k lb supplies
16 SEP - 26 SEP *(KSC)*

STS-78 39.03°
Life and Microgravity Spacelab (LMS); SAREX-II radio experiment; live downlink video during orbiter's decent
20 JUN - 7 JUL *(KSC)*

STS-77 39.03°
Inflatable Antenna Experiment (IAE) mounted on SPARTAN 207 free-flyer; SPACEHAB-4
19 MAY - 29 MAY *(KSC)*

STS-76 51.65°
3rd Shuttle-Mir docking; delivered first U.S. woman astronaut to live on station and kicked off continuous U.S. presence in space for next two years; 5k lb supplies; EVA; night launch
22 MAR - 31 MAR *(EDW)*

STS-75 28.45°
Tethered Satellite System Reflight TSS-1R; 3rd U.S. Microgravity Payload (USMP-3)
22 FEB - 9 MAR *(KSC)*

STS-72 28.45°
Space Flyer Unit retrieval; Office of Aeronautics and Space Technology Flyer (OAST-Flyer); night launch and landing
11 JAN - 20 JAN *(KSC)*

STS-87 28.45°
U.S. Microgravity Payload-4 (USMP-4); SPARTAN-201 deployment and recapture after failing to perform test maneuver; 2 EVAs
19 NOV - 5 DEC *(KSC)*

STS-86 51.6°
7th Shuttle-Mir docking; crew exchange; first joint U.S.-Russian EVA; freight; night launch
25 SEP - 6 OCT *(KSC)*

STS-85 57.0°
Cryogenic Infrared Spectrometers and Telescopes for the Atmosphere-Shuttle Pallet Satellite-2 (CRISTAS-SPAS-2); Manipulator Flight Demonstration (MFD)
7 AUG - 19 AUG *(KSC)*

STS-94 28.45°
Microgravity Science Laboratory-1 (MSL-1 reflight); repeat of STS-83 (same vehicle, crew and payloads)
1 JUL - 17 JUL *(KSC)*

STS-84 51.6°
6th Shuttle-Mir docking; crew exchange; freight
15 MAY - 24 MAY *(KSC)*

STS-83 28.46°
Spacelab/Microgravity Science Laboratory-1 (MSL-1); returned 12 days early
4 APR - 8 APR *(KSC)*

STS-82 28.46°
2nd Hubble Space Telescope servicing, 5 EVAs, replaced 10 instruments, reboosted orbit 8 nautical miles; night launch and night landing
11 FEB - 21 FEB *(KSC)*

STS-81 51.67°
5th Shuttle-Mir docking; crew exchange; freight
12 JAN - 22 JAN *(KSC)*

STS-88 51.6°
ISS-1 (Flight 2A): Node 1 (Unity); First ISS assembly mission (connecting Zarya and Unity modules)
4 DEC - 15 DEC *(KSC)*

STS-95 28.45°
Microgravity studies; reflight of SPARTAN-201 (from STS-87) material science; medical research; John Glenn's return to space.
29 OCT - 7 NOV *(KSC)*

STS-91 51.6°
9th (and final) Shuttle-Mir docking; Alpha Magnetic Spectrometer Investigation (AMS); ISS experiments; 1st flight of super light-weight External Tank
2 JUN - 12 JUN *(KSC)*

STS-90 39.0°
Neurolab (16th and final Spacelab); Bioreactor Demonstration System-04
17 APR - 3 MAY *(KSC)*

STS-89 51.6°
8th Shuttle-Mir docking; crew exchange; cargo; SPACEHAB-DM; night launch
22 JAN - 31 JAN *(KSC)*

STS-103 28.45°
Hubble Space Telescope Servicing Mission (SM-3A); following launch delays mission shortened from 10 to 8 days to accommodate flight and ground systems for Year 2000; night launch and landing
19 DEC - 27 DEC *(KSC)*

STS-93 28.4°
Chandra X-Ray Observatory deployed; night launch and night landing
23 JUL - 27 JUL *(KSC)*

STS-96 51.6°
ISS 2nd flight (2A.1): logistics and resupply mission; STARSHINE satellite; Shuttle Vibrations Forces (SVF) experiment; IVHM HTD
27 MAY - 6 JUN *(KSC)*

STS-97 51.6°
ISS 6th flight (4A): Integrated Truss Structure P6, Photovoltaic (PV) module, radiators for cooling, S-band communications system; night launch
30 NOV - 11 DEC *(KSC)*

STS-92 51.6°
ISS 5th flight (3A): Z-1 Integrated Truss Structure (ITS), PMA-3 docking port, Ku-band communications system, and Control Moment Gyros (CMGs)
11 OCT - 24 OCT *(EDW)*

STS-106 51.6°
ISS 4th flight (2A.2B): SPACEHAB double cargo module; night landing
8 SEP - 20 SEP *(KSC)*

STS-101 51.6°
ISS 3rd flight (2A.2A): SPACEHAB double cargo module; night landing
19 MAY - 29 MAY *(KSC)*

STS-99 57.0°
Shuttle Radar Topography Mission (SRTM); mapping began less than 12 hrs. after launch
11 FEB - 22 FEB *(KSC)*

STS-108 51.6°
ISS 12th flight (UF-1): MPLM, PV Module batteries, Spares Pallet (spares warehouse)
Crew Rotation
5 DEC - 17 DEC *(KSC)*

STS-105 51.6°
ISS 11th flight (7A.1): U.S. stowage racks and International Standard Payload Racks (ISPRs) carried in MPLM
10 AUG - 22 AUG *(KSC)*

STS-104 51.6°
ISS 10th flight (7A): Joint airlock for station-based EVA capability, high pressure gas assembly; night launch and night landing
12 JUL - 24 JUL *(KSC)*

STS-100 51.6°
ISS 9th flight (6A): Multi-Purpose Logistics Module, Canadian Space Station Remote Manipulator System (SSRMS) mechanical arm
14 APR - 1 MAY *(KSC)*

STS-102 51.6°
ISS 8th flight (5A.1): Logistics and resupply; Multi-Purpose Logistics Module (Italy); Crew Rotation; night landing
8 MAR - 21 MAR *(KSC)*

STS-98 51.6°
ISS 7th flight (5A): U.S. Laboratory Module
7 FEB - 20 FEB *(KSC)*

STS-113 51.6°
ISS 16th flight (11A): 1st port truss segment (P1) to be attached to central truss segment (S0); 3 TCS, CETA/B, UHF
23 NOV - 7 DEC *(KSC)*

STS-112 51.6°
ISS 15th flight (9A): 1st starboard truss segment (S1); 3 TCS, CET/A, backup S-Band communications capability provided
7 OCT - 18 OCT *(KSC)*

STS-111 51.6°
ISS 14th flight (UF-2); MPLM with payload racks, Mobile Base System (MBS) for Canadian SSRMS
5 JUN - 19 JUN *(EDW)*

STS-110 51.6°
ISS 13th flight (8A): Center truss segment (ITS S0), Mobile Transporter (MT) for Canadian SSRMS allows the mechanical arm to travel along 300 foot truss
8 APR - 19 APR *(KSC)*

STS-109 28.45°
Hubble Space Telescope servicing mission (SM-3B); five EVAs; night landing
1 MAR - 12 MAR *(KSC)*

STS-107 28.45°
SPACEHAB-Double Science Module and EDO pallet; research mission. 16 JAN - 1 FEB
Columbia and crew lost during reentry:
R. Husband K. Chawla
W. McCool L. Clark
M. Anderson I. Ramon
D. Brown

STS-114 51.6°
Return to Flight
ISS 17th flight (LF1): EVA inspection boom, External Stowage Platform-2, Raffaello MPLM
26 JUL - 9 AUG *(EDW)*
✓✓✓✓✓✓✓✓

STS-116 51.6°
ISS 20th flight (12A.1); Third port truss segment (P3 P5), SPACEHAB single cargo module; Integrated cargo Carrier (ICC). Night Launch.
9 DEC - 22 DEC *(KSC)*
✓✓✓✓✓✓✓✓

STS-115 51.6°
ISS 19th flight (12A); second port truss segment (P4 P1P4), Second set of solar arrays and batteries.
9 SEP - 21 SEP *(KSC)*
✓✓✓✓✓✓✓✓

STS-121 51.6°
ISS 18th flight (ULF1.1); Return to Flight test mission. MPLM, ICC, LMC
4 JUL - 17 JUL *(KSC)*
✓✓✓✓✓✓✓✓

STS-120 51.6°
ISS 23rd flight (10A); Harmony Node 2 Module; P6 Truss relocation; Repair of torn solar array.
23 OCT - 7 NOV *(KSC)*

STS-118 51.6°
ISS 22nd flight (13A.1); SPACEHAB module; Third starboard truss segment (ITS S5); External Stowage Platform 3 (ESP3).
8 AUG - 21 AUG *(KSC)*

STS-117 51.6°
ISS 21st flight (13A); Second starboard truss segment (ITS S3/S4) with Photovoltaic Radiator (PVR); Third set of solar arrays and batteries.
8 JUN - 22 JUN *(EDW)*

STS-126 51.6°
ISS 27th flight (ULF2); Service Solar Alpha Rotary Joints (SARJ); Multi Purpose Logistics Module (MPLM); Increased station crew capacity to six.
14 NOV - 30 NOV *(KSC)*

STS-124 51.6°
ISS 26th flight (1J); Delivery of Pressurized Module of Japanese Experiment Module (JEM) Kibo.
31 MAY - 14 JUN *(KSC)*

STS-123 51.6°
ISS 25th flight (1J/A); Japanese Experiment Module Kibo (JEM); First full Station to Shuttle Crew Transfer (SSPTS)
11 MAR - 27 MAR *(KSC)*

STS-122 51.6°
ISS 24th flight (1E); Columbus European Laboratory Module; Multi-Purpose Experiment Support Structure Non-Deployable (MPESS-ND)
7 FEB - 20 FEB *(KSC)*

STS-129 51.6°
ISS 31st flight (ULF3); Installed 2 external logistics carriers "outdoor closets" with critical spare parts for station
16 NOV - 27 NOV *(KSC)*

STS-128 51.6°
ISS 30th flight (17A); Delivered enhanced experiment rack and NH3 tank replacement.
28 AUG - 11 SEP *(EDW)*
✓✓✓✓✓✓✓✓

STS-127 51.6°
ISS 29th flight (2J/A); Kibo Japanese Experiment Module Exposed Facility (JEM EF) and Exposed Section of logistic module (ELM-ES); becomes "largest" laboratory; 2 satellites.
15 JUL - 31 JUL *(KSC)*
✓✓✓✓✓✓✓✓

STS-125 28.45°
HST Servicing Mission 4 (HSM4); Cosmic Origins Spectrograph and Wide Field Camera 3 installed; Repaired Fine Guidance Sensor, six gyroscopes and two batteries. Filmed IMAX 3D movie.
11 MAY - 24 MAY *(EDW)*
✓✓✓✓✓✓✓✓

STS-119 51.6°
ISS 28th flight (15A); Fourth and final Truss Segment and set of solar arrays (S6); 15 MAR - 28 MAR *(KSC)*

STS-132 51.6°
ISS 34th flight (ULF4); Russian Mini Research Module-1 Rassvet (MRM1). Critical Spares on Integrated Cargo Carrier (ICC). Night Launch.
14 MAY - 26 MAY *(KSC)*

STS-131 51.6°
ISS 33rd flight (19A); Multi-Purpose Logistics Module. Replaced ammonia tank. 1st time 4 women in space. Longest flight for Discovery.
5 APR - 20 APR *(KSC)*

STS-130 51.6°
ISS 32nd flight (20A); Node 3 module *Tranquility* and its seven window Cupola installed during 3 EVAs.
8 FEB - 21 FEB *(KSC)*

STS-135 51.6°
ISS 37th flight (ULF7); Last Shuttle flight. Atlantis will carry the Raffaello MPLM to deliver supplies, logistics and spare parts.
28 JUN
6th Shuttle-Mir docking

STS-134 51.6°
ISS 36th flight (ULF6); Endeavour will deliver the Alpha Magnetic Spectrometer (AMS-02) and ExPRESS Logistics Carrier 3 and several spare parts.
19 APR

STS-133 51.6°
ISS 35th flight (ULF5); *Leonardo* becomes permanent Multipurpose Module, ExPRESS Logistics Carrier 4; Critical spares.
24 FEB - 9 MAR *(KSC)*

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