SPACE SHUTTLE MISSIONS SUMMARY

FLT NO.	ORBITER	CREW (6+1 UP/6+1 DN) TITLE, NAMES & EVA'S	LAUNCH SITE, LIFTOFF TIME, LANDING SITES, ABORT TIMES	LANDING SITE/ RUNWAY, CROSSRANGE LANDING TIMES FLT DURATION, WINDS	SSME-TL NOM-ABORT EMERG THROTTLE PROFILE ENG. S.N.	SRB RSRM AND ET	ORBIT INC	ORBIT HA/HP	FSW	PAYLOAD WEIGHTS, PAYLOADS/ EXPERIMENTS	MISSION HIGHLIGHTS (LAUNCH SCRUBS/DELAYS, TAL WEATHER, ASCENT I-LOADS, FIRSTS, SIGNIFICANT ANOMALIES, ETC.)

SPACE SHUTTLE MISSIONS SUMMARY

STS-123/ ISS 1JA

SEQ FLT #122

KSC-122

PAD 39A-45

MLP-3

25TH SHUTTLE FLIGHT TO ISS

0V-105 (Flight 21) ENDEAVOUR

OMS PODS: LPO3-32 RPO4-28 FRC5-21

CDR:
Dominic L. Gorie (Flt 4 - STS-91, STS-99, STS-108)

P756/R242/V157/M211

PLT:
Gregory H. Johnson P757/R322/M278

MS 1/EV2:
Robert L. Behnken P758/R323/M279

MS 2/EV3:
Michael J. Foreman P759/R324/M280

MS 3:
Takao Doi, JAXA (Flt 2 - STS-87)

P760/R231/V195/M201

MS 4/EV1:
Richard M. Linnehan (Flt 4 - STS-78, STS-90, STS-109)

P760/R214/V150/M187

MS 5 UP/EV4/EXP 16/17 FLT ENG:
Garrett E. Reisman P761/R325/M281

MS 5 DN/EXP 16 FLT ENG:
Leopold Eyharts, ESA (UP on STS-122, Stay on ISS. Also flew on MIR Feb 1998.) P762/R321/M277

SS EVA 117
DOCKED QUEST EVA 40
EMU/TETHERED EVA 110
SCHEDULED EVA 108
DURATION 7:01

SSA EVA 118
DOCKED QUEST EVA 41
EMU/TETHERED EVA 111
SCHEDULED EVA 109
DURATION 7:09

Continued...

KSC 39A
071:06:28:14Z
2:28:14 AM EDT (P)
2:28:14 AM EDT (A)
Tuesday (17)
3/11/08 (9)

LAUNCH WINDOW:
4M54S
(PLT IN-PLANE)

EOM PLS: KSC
TAL: ZZA
TAL WX: BEN

SELECTED:
RTLS: KSC 15 N/N
TAL: ZZA 30L N/N
(MRN: NO-GO)
AOA: NOR 23 N/N
1ST DAY PLS: EDW 04 N/N

TDEL:
0.000 (P) -0.288 (A)

MAX Q NAV:
754.38 (P)
758.53 (A)

SRB STG:
2:05.44 (P)
2:04.64 (A)

PERF: NOMINAL

2 ENG TAL (ZZA):
2:39 (P)2:41 (A)

NEG RETURN:
3:54 3:55

PTA (U/S 158 FPS):
5:046 5:016

SE TAL (ZZA 104):
5:57 6:04

PTM (U/S 181 FPS):
6:05 6:03

SE PRESS 104:
6:56 6:57

Continued...

KSC 15 (KSC 68)
087:00:39:06Z
8:39:06 PM EDT
Wednesday (16)
03/26/08 (9)

DEORBIT BURN:
086:23:33:13.9Z

XRANGE:187.7 NM

ORBIT DIR: A/R (14)

AIM PT:
NOMINAL

MLGTD: 2174 FT
087:00:39:06Z
VEL: 202 KGS
200 KEAS
HDOT: -1.8 FPS

TD NORM 195:
2707 FT

DRAG CHUTE:
DEPLOY: 192 KEAS
087:00:39:10Z
NLGTD: 5351 FT
087:00:39:16Z
VEL: 161 KGS
158 KEAS
HDOT: -4.6 FPS

BRK INIT: 57 KGS

DRAG CHUTE JETTISON: 58 KGS
087:00:39:55Z

BRK DECEL FPS^2:
AVE 2.7 PK 4.1

WHEELS STOP:
087:00:40:36Z
13629 FT

ROLLOUT:
11455 FT
1:30 M:S

Continued...

104/104/109%

PREDICTED:
100/104.5/104.5/72/104.5

ACTUAL:
100/104.5/99/
72/104.5

1 = 2047 (11)
2 = 2044 (10)
3 = 2054 (7)

M 3 EOM:
WEIGHT:
208629.5 LBS
X CG:
1080.57 IN

LANDING:
WEIGHT:
208762 LB
X CG:
1081.8 IN

BI-133

RSRM 101

ET-126

SLWT 30

ET IMPACT:

MET 1:14:05

LAT:
36.723 S

LONG:
158.957W

51.6 (25)

DIRECT INSERTION

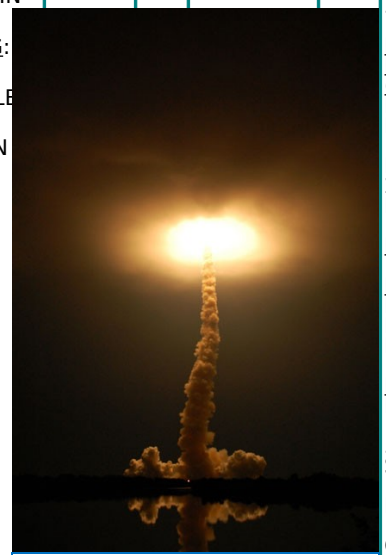
POST OMS-2:
124.9X84.8 NM

DEORBIT:
HA 190.0 NM
HP 22.5 NM

ENTRY VELOCITY:
25859 FPS

ENTRY RANGE:
4402 NM

OI-32 (3)



STS123-S-009 (11 March 2008) --- Overcast clouds at 6500 ft provided a spectacular night image as the clouds

CARGO:
38915 LBS

PAYLOAD CHARGEABLE:
30762 LBS

DEPLOYED:
29442 LBS

NON-DEPLOYED:
1132 LBS

MIDDECK:
188 LBS

SHUTTLE ACCUMULATED WEIGHTS:

DEPLOYED:
1423027 LBS

NON-DEPLOYED:
1601668 LBS

CARGO TOTAL:
3901248 LBS

PERFORMANCE MARGINS (LBS):
FPR: 2651
FUEL BIAS: 1063
FINAL TDDP: 2109
RECON: 5128

PAYLOADS:

PLB:
ISS-1JA (JAXA LOGISTICS MODULE)

MIDDECK:
ISS-1JA

5 CRYO TANK SETS

RMS (79)

ODS
OBSS
SSPTS

BRIEF MISSION SUMMARY: STS-123/1JA (25th ISS mission) delivered the first pressurized component of the Japanese Kibo Laboratory to ISS, delivered a Canadian robotic device called Dextre, and provided five spacewalks. Endeavour's 16-day flight was the longest shuttle mission to the ISS. The Japanese Experiment Logistics Module Pressurized Section (ELMPS or JLP), the smaller of two pressurized modules of Kibo, was attached temporarily to a docking port on the space-facing side of Harmony. Kibo, which means "hope," is the major Japanese (JAXA) contribution to the Station, and will increase its research capability in a variety of disciplines. The robot Dextre is designed somewhat like the human form with a torso, a head area (camera), and arm appendages. It rides on the SSRMS as a "dexterous tool for ORU changeout without requiring a space walk." This mission included representation of all five Station partner interests - the U.S., Japan, Canada, Russia, and the European Space Agency (ESA).

KSC W/D: OPF: 159, VAB HB-1: 7, PAD A: 23 = 189 Total Work Days (+ 14 holidays @ OPF)

LAUNCH POSTPONEMENTS:
- Added STS-123 to FDRD - launch date of NET 12/08/07 on 11/14/06
- Postponed to 02/14/08 on 04/16/07. Slip due to STS-117 rollback
- Postponed to 03/11/08 on 01/28/08. Slip due to ECO sensor problems experienced during December launch attempt of STS-122

LAUNCH SCRUBS: None

LAUNCH WINDOW:
Total launch window was 9 minutes 44 seconds with window open at 071:06:23:20Z and close at 071:06:33:04Z. Preferred Launch Time was 071:06:28:14Z (In-Plane Time) for a launch window of 4m54s.

Chief Astronaut Steve Lindsey flying the Shuttle Training Aircraft said, "It's a really nice night out here." PAO: "Florida's east coast is about to get an early sunrise!"

LAUNCH DELAYS: None. Launch occurred on time at 2:28 a.m. EDT, Tuesday, March 11, 2008. An eclipse of the GOES-East weather satellite prevented using any satellite imagery in the hour prior to launch. Fortunately, the low clouds remained well behaved as skies were cloudy but above the range safety and Return to Launch Site (RTLS) cloud ceiling limits.

Continued...

SPACE SHUTTLE MISSIONS SUMMARY

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SPACE SHUTTLE MISSIONS SUMMARY

STS-123/ ISS 1JA
Continued…

Continued…

SS EVA 119
DOCKED QUEST EVA 42
EMU/TETHERED EVA 112
SCHEDULED EVA 110
DURATION 6:47

SS EVA 120
DOCKED QUEST EVA 43
EMU/TETHERED EVA 113
SCHEDULED EVA 111
DURATION 6:24

SS EVA 121
DOCKED QUEST EVA 44
EMU/TETHERED EVA 114
SCHEDULED EVA 112
DURATION 6:02

MCC WHITE FCR (52)

FLIGHT DIRECTORS:
SHUTTLE:
ASC - B. C. Lunney
LD/O1 - M. P. Moses
O2 - R. E. LaBrode
PLNG - M. R. Abbott
ENT - R. S. Jones
MOD - P. L. Engelauf
Team 4 - R. S. Jones/ A. J. Ceccacci

ISS:
LD/O2 - D. J. Weigel
O1 - K. L. Alibaruho
O 3 - G. Kerrick
Team 4 - H. L. Rarick
IP FD - E. J. Nelson (I/F w/CSA & JAXA)

CAPCOMS:
SHUTTLE:
A/E - J. P. Dutton
K. A. Ford (Wx)
LD/O1 - T. W. Virts
O2 - N. J. Patrick
PLNG - B. A. Drew
Team 4 - N/A

Continued…

Continued…

MECO CMD:
8:23.6 8:22.6

VI:
25819 25817.6

OMS-2:
38:15 38:30
97.4 FPS 96.1 FPS

Continued…

WINDS:
1.5T 1.3L KTS
OFFICIAL:
01002P03 KTS
2H 2R KTS

DENS ALT:-336 FT

FLT DURATION:
15:18:10:52

S/T:
1153:00:57:10

OV-105:
235:02:18:33

DISTANCE:
6,577,857 sm

TOTAL SHUTTLE DISTANCE:

ISS016-E-032598 (12 March 2008) --- The Canadian-built Dextre robotic system and the Japanese Kibo laboratory (JLP) are visible in Endeavour's cargo bay on approach to ISS.

Continued…

TAL WEATHER:
Weather at the TAL sites was tricky as showers were monitored near Zaragoza, Spain and Istres, France during the launch countdown. Post cold front low level wind flow from the northwest brought showers to the windward sides of the Pyrenees and central French mountains. These showers dissipated as they crossed the high terrain. TAL weather was GO.

PERFORMANCE ENHANCEMENTS:
Include the standard set plus: 1) PE Operational High Q WIN/MAR, 2) OMS Assist, 3) A 52 nm MECO, and 4) Del Psi

FLIGHT DURATION CHANGES/LANDING:
Deorbit burn was planned for 086:21:58:14Z. Due to low clouds moving in at KSC, the deorbit burn was delayed to second opportunity at 086:23:33:13.9Z. Landing occurred at 087:00:39:06Z, Wednesday, 03/26/08, at 8:39:06 PM EDT.

FIRSTS/LASTS:
- First 16-day Space Station Assembly Mission, 12 days docked. (Longest mission is STS-67 - Spacelab, 16D 21H 47M 35S.)
- Tied the current mission record of five spacewalks held by the HST Servicing Missions (STS-61, STS-82, and STS-109). Most EVA's docked to ISS.
- A redesign to RSRM Nozzle Joints 2 and 5, the latter with an additional bolt enhancement, follows up the new Nozzle-to-Case J-leg Joint insulation configuration that debuted on STS-122's motors.
- First flight of a lighting system derived from an off-the-shelf flash (Nikon SB800) was added to a digital camera (in orbiter umbilical well) to capture photos of ET after separation for about 130 ft away.
- This is the last modified tank (before Columbia) and the next will be a tank built with all mods done in line.
- First on-orbit test of orbiter tile repair technique.
- First time the OBSS was left on the Station so that the next flight can deliver the large JAXA Kibo module.
- This mission marks a significant milestone with the inauguration of the JAXA IP support to real-time operations, adding them to the fold with ESA, CSA, and Russia. "We have reached a new pinnacle in the 'international' part of the Space Station operations."
- Spacelab Logistics Pallet (SLP) used by Dextre made its fourth and final flight to space, "concluding a long history that can be traced back before the first shuttle left the launch pad." - PAO.
- First flight with John Shannon as Shuttle Program Manager.

NOTE: The unmanned cargo ship Jules Verne, the ESA's first Automated Transfer Vehicle (ATV), launched toward ISS on March 7. It was parked well away from ISS at a safe distance

SPACE SHUTTLE MISSIONS SUMMARY

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STS-123/ ISS 1JA
Continued...

Continued...

ISS:
O1 - Z. Jones
LD/O2 - S. K. Robinson
O3 - M. T. Vande Hei
Team 4 - R. C. Dempsey

S123-E-007088 (18 March 2008) --- Canada's two armed robot, Dextre, is shown in the grasp of the station's robotic Canadarm2.

Continued...

NIGHT LAUNCH #30: Shannon: "We are launching in the dark."

NIGHT LANDING KSC #16: (#22 in Shuttle history)

RENDEZVOUS #70: Rendezvous and dock with ISS

EVENTS:
- OMS2 ignition at 071:07:06:44.0Z resulted in a 124.9 by 84.8 nm orbit.
- SRMS OBSS/LDRI survey of nosecap and port and starboard wing RCC (WLE's) was completed.
- TI maneuver at 073:00:42:21.9Z resulted in a 186.3 by 180.6 nm orbit.
- R-Bar Pitch Maneuver was performed. No issues
- Docking contact occurred at 073:03:46:54Z.
- Hard Dock occurred at 073:04:02:11Z
- ISS Hatch opened at 073:05:36:00Z, 12:36 AM CDT, Thursday, March 13, 2008, ISS crew welcoming
- IELK Seat Liner Transfer at 073:07:50Z (2:50 AM CDT, March 13, 2008). At that time Leopold Eyharts/ESA became a member of STS-123 and Garrett Reisman joined the ISS Expedition 16/17 as Flight Engineer.
- The first transfer item after hatch opening was swapping Garrett Reisman/MS for Leopold Eyharts (ESA)/Expedition 16 FE. The transfer was official when the form-fitting Soyuz seatliners were swapped. Eyharts spent 33 days as a member of ISS Expedition 16. With the on-time landing of March 26, Eyharts spent a total of 48 days in space.
- FD4/5: EVA 1: EV1 & EV4: JLP prepped for unberthing, shuttle robot arm grappled JLP, Orbital Replacement Unit (ORU) and Tool Changeout Mechanism installed on the Canadian Special Purpose Dexterous Manipulator (SPDM or Dextre) arm 2 and arm 1, shuttle arm unberthed JLP, and shuttle arm installed JLP onto Harmony zenith port (temporary location until Kibo delivery on STS-124). Unable to provide keep-alive power to SPDM (later determined to be flawed cable in pallet). EVA 1 duration 7:01
- FD6: While Expedition 16 and STS-123 crewmembers brought the Kibo logistics module to life, Dextre's power supply unit was brought to life via the SSRMS.
- FD6: EVA 2: EV1 & EV3: EVA ran long due to problems with the SPDM Arm Expandable Diameter Fasteners (EDF's) not releasing per procedure. Crew ended up using a pry bar. Time didn't permit removing some of the SPDM blankets. EV3 experienced RTV delamination. Per Rule {1JA_C2-105}, EMU OVERGLOVE EXCEPTIONS, crew continued the SPDM assembly task without donning overgloves due to the thermal constraints on SPDM. EV3 donned overgloves once the thermal critical tasks were complete. ISS multimeter was repaired and would later be swapped with shuttle multimeter prior to hatch closure. Installed the Node 2/JLP vestibule barrier assembly. EVA 2 duration 7:09

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SPACE SHUTTLE MISSIONS SUMMARY

STS-123/ ISS 1JA
Continued...

S123-E-009262 (24 March 2008) --- The ISS latest configuration is viewed from Endeavour post-separation.

SIGNIFICANT ANOMALIES:
Orbiter:
-Sensor Unit S/N 1150 on the port wing had excessive triggers (quantity 4452) during the first hour of MMOD monitoring for Late Inspection.
-Integrated Sensor Inspection System Sensor Pack 1 Pan Tilt Unit 10 degrees offset
-DCS OI1 card 1 failure
-FES shutdown on Primary A Controller
-GG Chamber pressure indicated a shift upward
-APU 1 fuel tank pressure decay
-LH OMS Pod mid surface temperature
-Sensor Unit 1150 (Ref Des: 65V08A01) on the port wing
-APU 3 seal cavity drain line pressures indicate slow decay.
-Body Flap tile damage
-Aft arrowhead damage
-STBD FWD RAD Retract Flexhose did not fully retract into RRSC (ref SPC# 205181853).
-APU 1 Gas Generator Chamber Pressure Transducer shift
-Cabin Temp Controller 1 noisy
-MPS E-3 LOX Inlet pressure showed a shift of 30 psi at Liftoff.
-MADS PCM MSRMNT gradually and abruptly moved to OSH throughout the MADS and MMU1/SSR1 recording phase.
-Lost OMS POD (RH OMS024) putty repair
-Damage to the V070-391044-174 (BRI-18) tile
-Damage to the V070-191101-043 (BRI-18) tile
SRB:
-Loss of data from SRB RH ET Observation Camera during Ascent
RSRM: None
SSME: None
ET: None
MOD:
-White-VTS-Servers hung
Integration:

Continued...

- FD8: RTV Loss in EVA Gloves: EV3's gloves were NO-GO for subsequent EVA's. First spare set used on EVA 4.
- FD8: EVA3: EV1 & EV2: Finished assembly of Dextre, including installation of tool holder assembly and a Camera Light Pan Tilt Assembly (CLPA) which serves as Dextre's eyes. Also, the Spacelab Logistics Pallet used for assembly was prepared for return to shuttle cargo bay. Attempted to install MISSE-6 experiment (unsuccessful - moved to EVA5). EVA 3 duration 6:53
- FD10: Japanese Prime Minister called to congratulate the crew.
- FD10: During press interview, asked to describe the fast-growing Space Station, Reisman said the crew was struck by the view during final approach and similarities with the famous Space Station scene in the movie "2001: A Space Odyssey" by Stanley Kubrick and Arthur C. Clarke. Clarke died during this mission on 3/19/08 at the age of 90. Clarke in "First on the Moon" stated, "The inspirational value of the space program is probably of far greater importance to education than any input of dollars...a whole generation is growing up which has been attracted to the hard disciplines of science and engineering by the romance of space."
- FD11: EVA4: EV2 & EV3: Tasks were Remote Power Control Module removal and replacement, and the Tile Repair Ablator Dispenser (T-RAD) detailed test objective worksite setup and demonstration. The demonstration was considered a "huge" success, but needs results from post-landing detailed analysis. EVA 4 duration 6:24
- FD13: EVA 5: EV2 & EV3: Primary tasks completed were positioning of OBSS to temporary home on ISS truss, installation of MISSE-6 experiment, and inspection of SARJ. EVA 5 duration 6:02
- FD14: Conducted Rigidizable Inflatable Gas Experiment (RIGEX) funded by the Air Force. RIGEX was designed to test how well ground models and computer simulations predict what happens to the inflated structures in weightlessness. Once rigid, the sample tubes aboard Endeavour were blasted with vibrations to test their structural integrity. The experiment was returned to Earth aboard the shuttle for further scientific analysis.
- Transfers:
  - Hardware transferred to Station (outside and inside): 25839 lbs
  - Hardware transferred to Station (outside): 23776 lbs
  - Hardware transferred to Station (inside): 1432 lbs
  - Japanese pressurized logistics module: 18377 lbs
  - Dextre - Special Purpose Dexterous Manipulator: 3431 lbs
  - Middeck items returned from ISS aboard Endeavour: 1565 lbs
  - Water transferred to Station: 608 lbs
  - Oxygen transferred to Station: N/A
  - Nitrogen transferred to Station: 23 lbs
- Undocked at 085:00:25:00Z followed by a

SPACE SHUTTLE MISSIONS SUMMARY