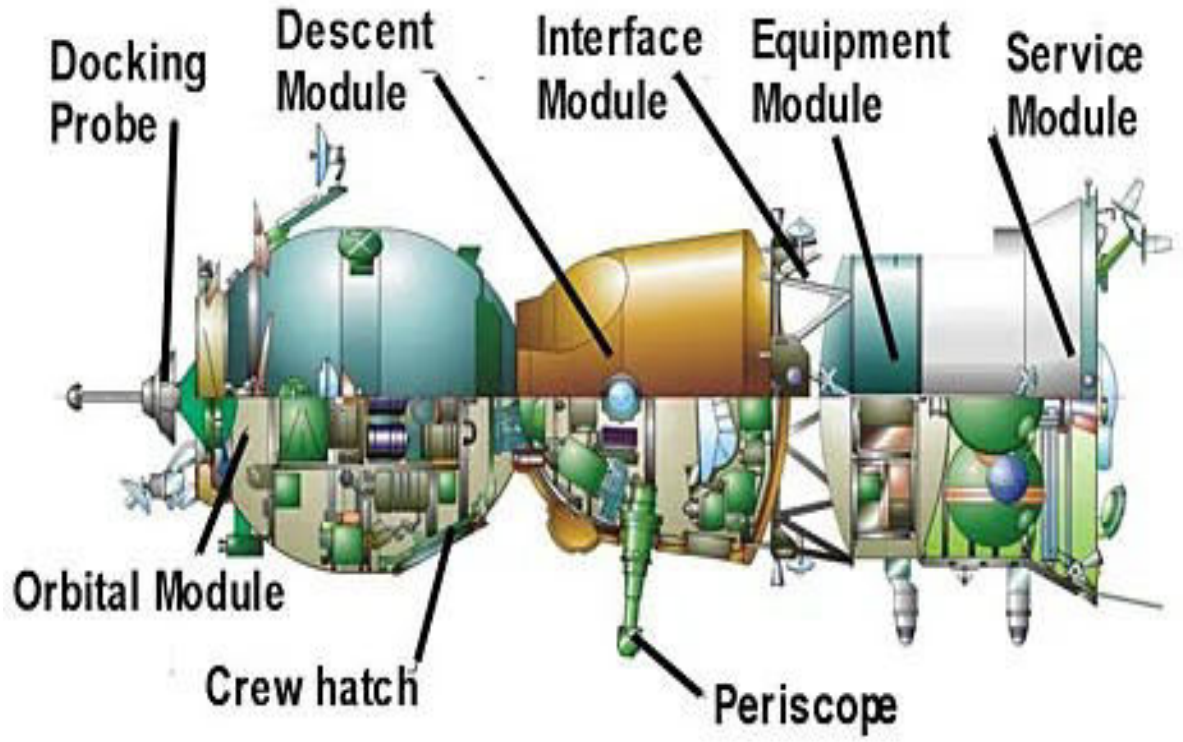
International Space Station

Chronology

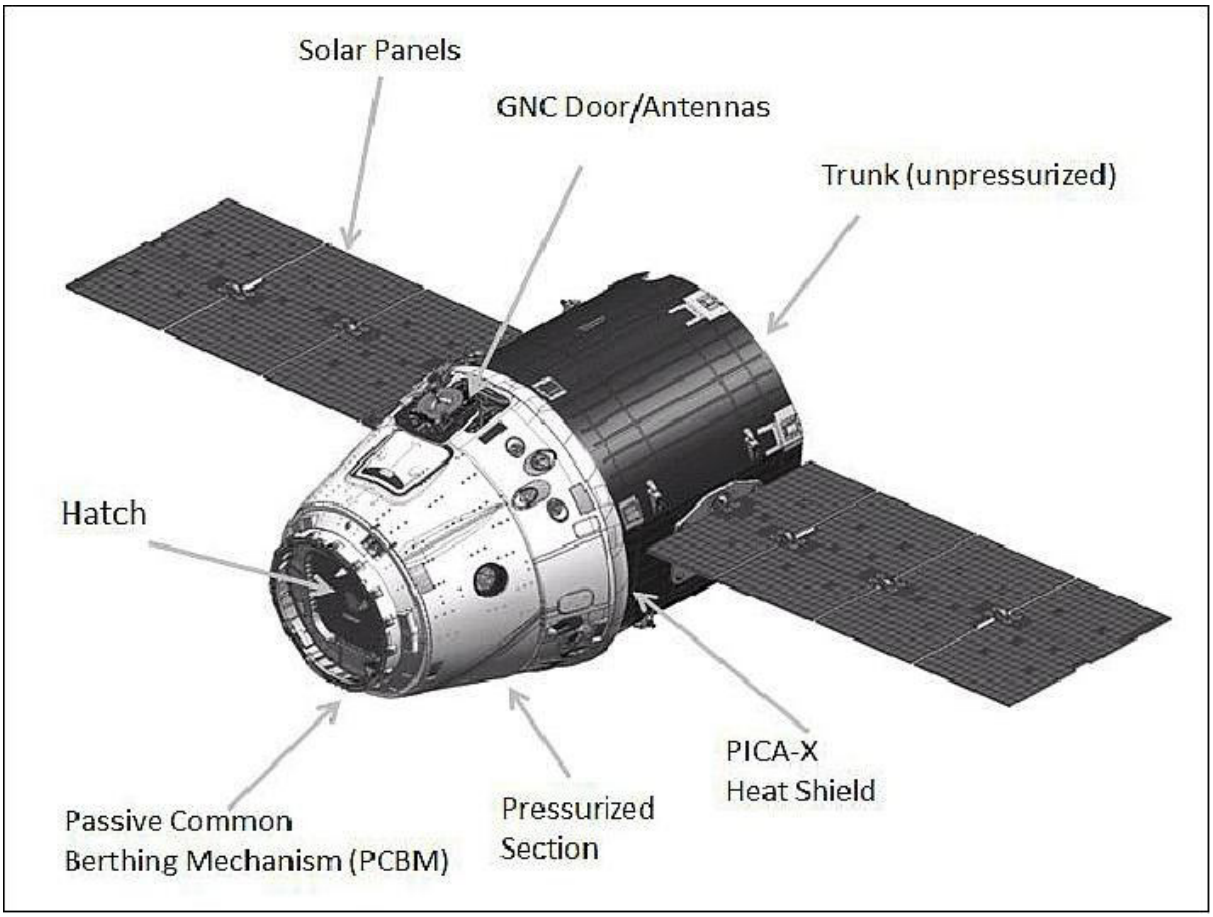
International Space Station

History of Flights

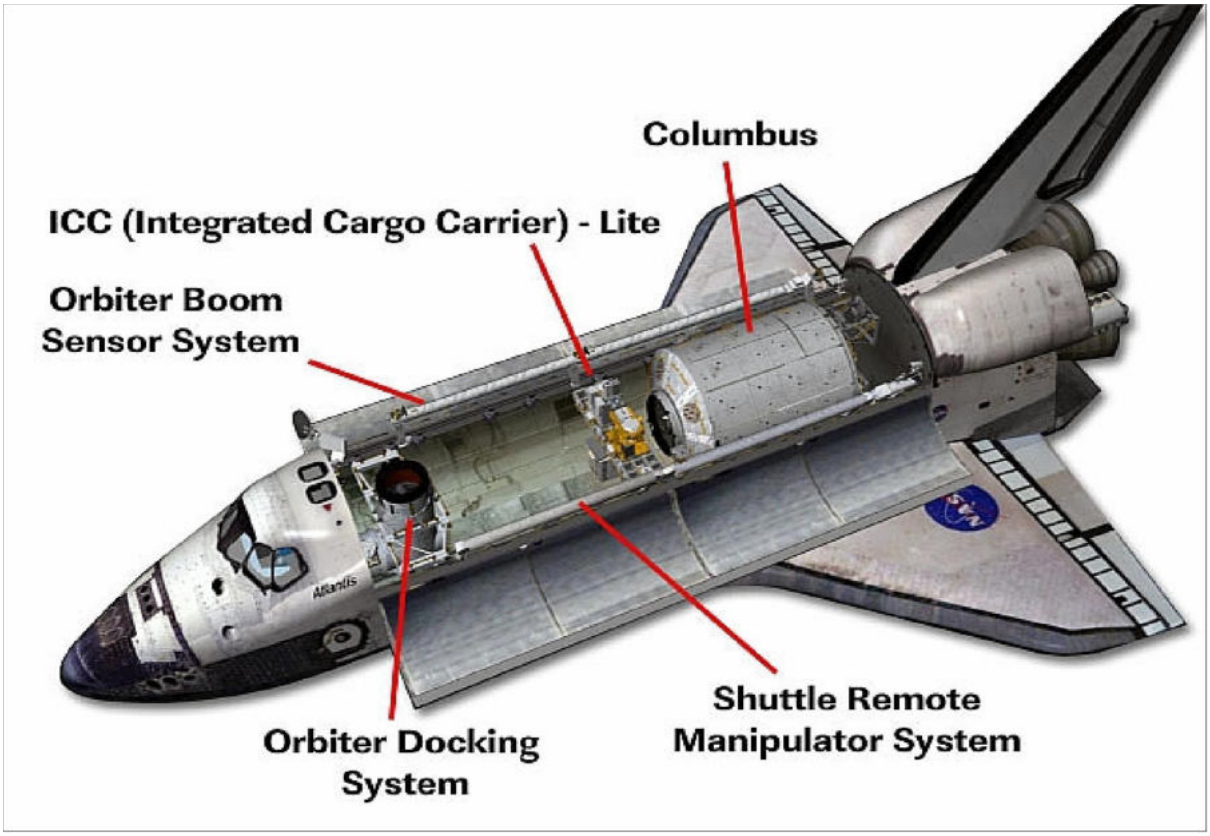
SOYUZ - Crew - / PROGRESS - Cargo Spacecraft [Russia]



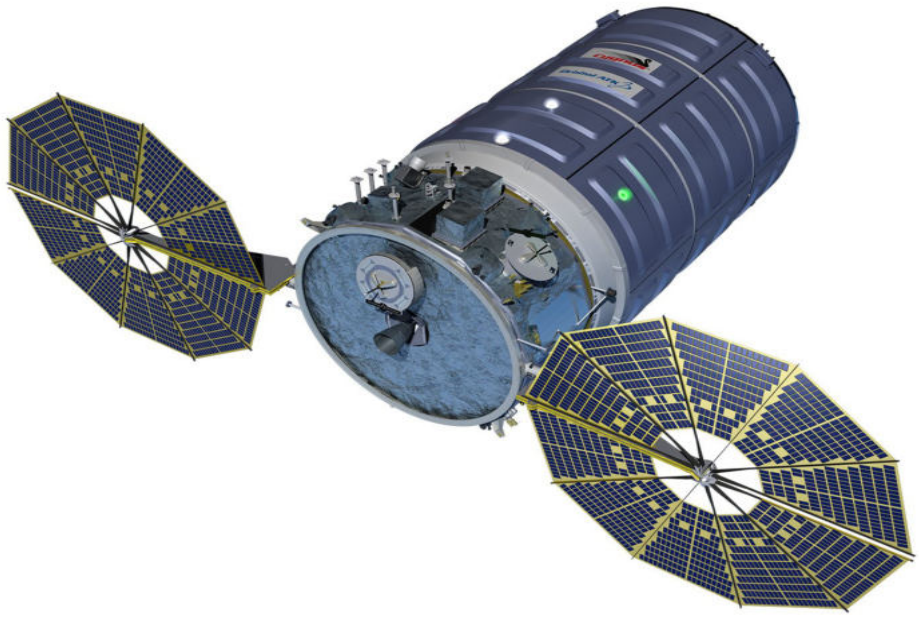
DRAGON - Crew - / DRAGON - Cargo Spacecraft [USA]



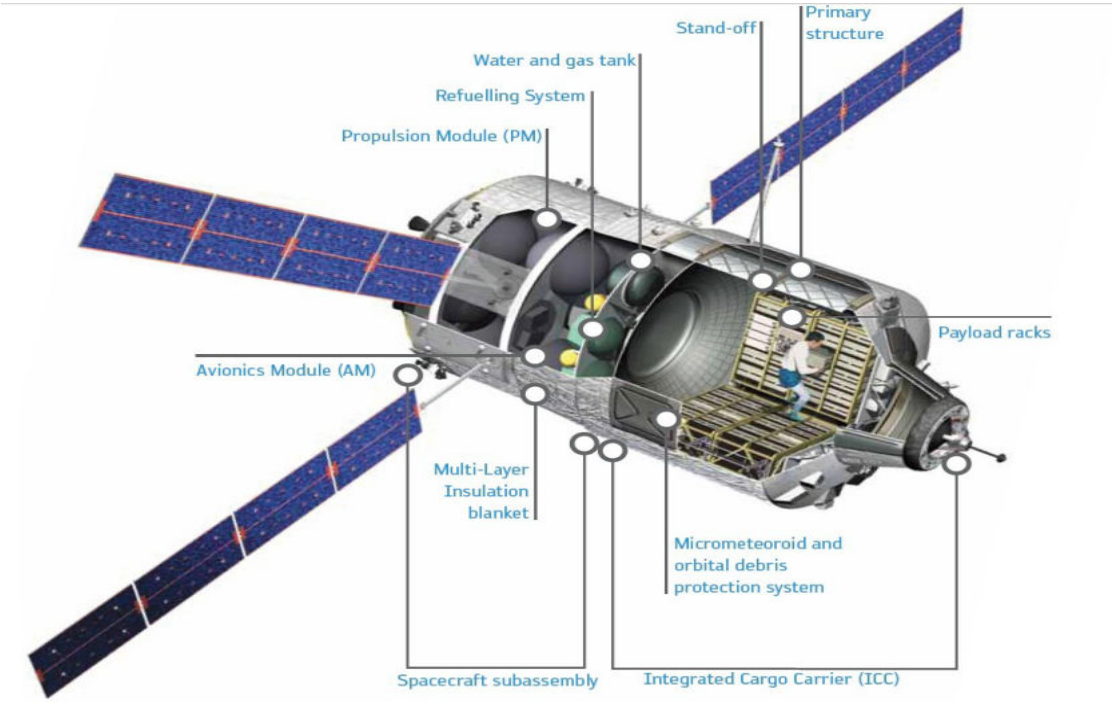
SPACE SHUTTLE - Crew / - Cargo Spacecraft [U S A]



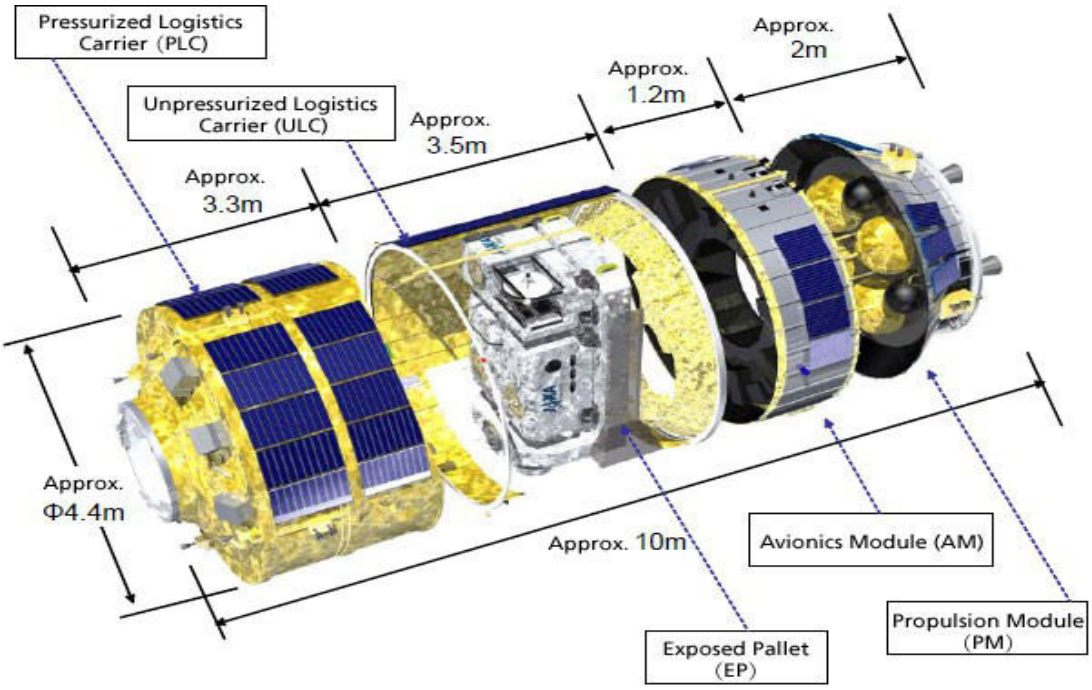
CYGNUS - Cargo Spacecraft [USA]



A T V [E S A]



H T V [JAXA]



History of Flights 1998 - 2000

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
1	FGB Zarya, first ISS module	1A/R	—	—	From November 20, 1998 up to now	Launch of Functional Cargo Block Zarya by Proton-K launch vehicle
2	Endeavour STS-88	2A	**US Crew:** Robert Cabana Frederick Sturckow Jerry Ross Nancy Currie James Newmann S. K. Krikalev (Russia)	December 4, 1998 – December 16, 1998, 11 days 19 h 18 min	December 4, 1998 – December 16, 1998, 11 days 19 h 18 min	Launch of mating module Unity (second ISS module) with pressurized mating adapters PMA-1 and PMA-2, its docking via PMA-1 to FGB Zarya aft axial port. Three EVAs under american programm (Jerry Ross, James Newmann)
3	Discovery STS-96	2A.1	**US Crew:** Kent Rominger Rick Douglas Husband Tamara Jernigan Ellen Ochoa Daniel Barry Julie Payette (Canada) V.I. Tokarev (Russia)	May 27, 1999 – June 6, 1999 9 days 19 h 13 min	May 27, 1999 – June 6, 1999 9 days 19 h 13 min	Cargo delivery and ISS outfitting. Docking to Unity module via pressurized mating adapter PMA-2. One EVA under american programm (Tamara Jernigan, Daniel Barry)
4	Atlantis STS-101	2A.2a	**US Crew:** James Halsell Scott Horowitz Mary Ellen Weber Jeffrey Williams James Voss Susan Helms Yu.V. Usachev (Russia)	May 19, 2000 – May 29, 2000 9 days 20 h 9 min	May 19,2000 – Ma 29, 2000 9 days 20 h 9 min	ISS outfitting and routine maintenance. Docking to Unity module via pressurized mating adapter PMA-2. One EVA under american programm (Jeffrey Williams, James Voss)
5	SM Zvezda, third ISS module	1R	—	—	From July 12, 2000 up to now	Launch of Service Module Zvezda by launch vehicle Proton-K on — July 26, 2000 docking to FGB Zarya forward axial port (FGB Zarya was active at docking)
6	Progress M1-3	1P	—	—	August 6, 2000 – November 1, 2000, 86 days 13 h 27 min	Propellant and cargo delivery. Docking to SM Zvezda IC aft on — August 8, 2000

7	Atlantis STS-106	2A.2b	**US Crew:** Terrence Wilcutt Scott Altman Edward Lu Richard A. Mastracchio Daniel C. Burbank Yu. I. Malenchenko (Russia) B. V. Morukov (Russia)	September 8, 2000 – September 20, 2000 11 days 19 h 10 min	September 8, 2000 – September 20, 2000 11 days 19 h 10 min	ISS outfitting and routine maintenance, Progress M1-3 unloading. Docking to Unity module via pressurized mating adapter PMA-2. One EVA under american programm (Edward Lu, Yu.I. Malenchenko).
8	Discovery STS-92	3A	**US Crew:** Brian Duffy Pamela Melroy Leroy Chiao William S. McArthur Peter J. K. Wisoff Michael Lopez-Alegria Koichi Wakata (Japan)	October 12, 2000 – October 24, 2000 12 days 21 h 43 min	October 12, 2000 – October 24, 2000 12 days 21 h 43 min	Delivery of Z1 primary truss section, pressurized adapter PMA-3 and three CMG to the ISS. Docking to Unity module via pressurized adapter PMA-2. Four EVAs under american programm (Leroy Chiao and William McArthur - 2 EVAs, Michael Lopez-Alegria and Peter Wisoff - 2 EVAs). Landing at Edwards air force base.
9	Soyuz TM-31	2R	**ISS-1 Crew:** William Shepherd (Commander, USA) Yu.P. Gidzenko (Flight Engineer, Russia) S.K. Krikalev (Flight Engineer, Russia)	October 31, 2000	October 31, 2000 — May 6, 2001 187 days 21 h 49 min	Docking to SM Zvezda IC. Implementation of fundamental, science and applied research. On February 24, 2001 relocation of Soyuz TM-31 to Zarya FGB nadir port. [ISS-1-Crew : Return by Discovery STS-102 see No.: 14]
10	Progress M1-4	2P	—	—	November 16, 2000 — February 8, 2001 84 days 15 h 13 min	Propellant and cargo delivery. Docking in remote operator mode to FGB Zarya nadir port on — November 18, 2000 Free flight on December 1- 26, 2000. The second docking in remote operator mode to FGB Zarya nadir port on December 26, 2000.
11	Endeavour STS-97	4A	**US Crew:** Brent Jett Michael Bloomfield Joseph Tanner Marc Garneau (Canada) Carlos Noriega	December 1, 2000 — December 12, 2000 10 days 19 h 57 min	December 1, 2000 — December 12, 2000 10 days 19 h 57 min	Delivery of the right primary truss P6 section with two SA to the ISS. Docking to Unity module via pressurized adapter PMA-3. Three EVAs under american programm (Joseph Tanner, Carlos Noriega).

History of Flights 2001

launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
12	Atlantis STS-98	5A	**US Crew:** Kenneth Cockrell Mark Polansky Robert Curbeam Marsha Ivins Thomas Jones	February 8, 2001 — February 20, 2001 12 days 21 h 20 min	February 8, 2001 — February 20, 2001 12 days 21 h 20 min	Delivery of laboratory module Destiny to the ISS and its docking to the ISS Unity module (instead of PMA-2). Docking to Unity module via pressurized adapter PMA-3, pressurized adapter PMA-2 is relocated to Destiny module. Three EVAs under american programm (Thomas Jones, Robert Curbeam). Landing at Edwards air force base.
13	Progress M-44	3P	—	—	February 26, 2001 — April 16, 2001 49 days 6 h 2 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — February 28, 2001
14	Discovery STS-102	5A.1	**US Crew:** James Wetherbee James Kelly Andrew Thomas Paul Richards	March 8, 2001 — March 21, 2001 12 days 19 h 49 min	March 8, 2001 — March 21, 2001 12 days 19 h 49 min	Delivery of the ISS-2 Expedition crew. Return of the ISS-1 Expedition crew. ISS outfitting using logistics module MPLM Leonard. Docking to module Destiny via pressurized adapter PMA-2. One EVA under american programm (Andrew Thomas, Paul Richards).
			At the launch : **ISS – 2-Crew:** Yu.V. Usachev (Commander, Russia) James Voss (Flight engineer, USA) Susan Helms (Flight engineer, USA)	March 8, 2001	—	Implementation of fundamental, science and applied research. On April 18, 2001 relocation of SoyuzTM-31 from Zarya FGB nadir port to Zvezda SM IC. One EVA under russian programm (James Voss, Yu.V. Usachev). One EVA under american programm (James Voss, Susan Helms) [ISS-2-Crew : Return on Discovery STS-105 see No.: 19]
			- - - - - - - - - - - - - - -	- - - - - - - - -		- -
			At the return : **ISS-1-Crew:** William Shepherd (Commander, USA) Yu.P. Gidzenko (Flight Engineer, Russia) S.K. Krikalev (Flight Engineer, Russia)	October 31, 2000 — March 21, 2001 140 days 23 h 38 min		[ISS-1-Crew : Launched with Soyuz TM-31 see No.: 9]

15	Endeavour STS-100	6A	**US Crew:** Kent Rominger Jeffrey Ashby Chris Hadfield (Canada) John Phillips Scott Parazynski Umberto Guidoni (ESA, Italy) Yu.V. Lonchakov (Russia)	April 19, 2001 — May 1, 2001 11 days 21 h 30 min	April 19, 2001 — May 1, 2001 11 days 21 h 30 min	ISS outfitting using logistics module MPLM Raphaello, delivery and mounting of the remote manipulator system (SSRMS) Canadarm-2 on the ISS. Docking of module Destiny via pressurized adapter PMA-2. Two EVAs under american programm (Chris Hadfield, Scott Parazynski). Landing at Edwards air force base.
16	Soyuz TM-32	2S	**Visiting Crew VC-1:** T.A. Musabaev (Commander, Russia) Yu.M. Baturin (Flight engineer, Russia - - - - - - - - - - - - - - - Dennis Tito (space flight participant, USA)	April 28, 2001 — May 6, 2001 7 days 22 h 4 min	April 28, 2001 — October 31, 2001 185 days 21 h 22 min	Planned replacement of crew rescue vehicle (SoyuzTM-31 with SoyuzTM-32). Implementation of fundamental, science and applied research. Flight of the first space tourist. Docking to FGB Zarya nadir port. [Visiting Crew VC-1: Return on SoyuzTM-31 see No.: 9]
17	Progress M1-6	4P	—	—	May 21, 2001 — August 22, 2001 93 days 11 h 18 min	Propellant and cargo delivery. Docking to Zvezda SM IC on — May 23, 2001
18	Atlantis STS-104	7A	**US Crew:** Steven Lindsey Charles Hobaugh Michael Gernhardt Janet Kavandi James Reilly	July 12, 2001 — July 25, 2001 12 days 18 h 35 min	July 12, 2001 — July 25, 2001 12 days 18 h 35 min	Delivery of airlock Quest to the ISS and its docking to Unity module. Docking to Destiny module via pressurized adapter PMA-2. Three EVAs under american programm (Michael Gernhardt, James Reilly).
19	Discovery STS-105	7A.1	**US Crew:** Scott Horowitz Frederick Sturckow Patrick Forrester Daniel Barry	August 11, 2001 — August 22, 2001 11 days 21 h 13 min	August 11, 2001 — August 22, 2001 11 days 21 h 13 min	Delivery of the ISS-3 expedition crew. Return of the ISS-2 expedition crew. ISS outfitting using logistics module MPLM Leonardo. Docking to Destiny module via pressurized adapter PMA-2. Two EVAs under american programm (Daniel Barry, Patrick Forrester).

	Discovery STS-105 cont.		*At the launch :* **<u>ISS-3 Crew:</u>** Frank Culbertson (Commander, USA) V.N. Dezhurov (Flight engineer, Russia) M.V. Tyurin (Flight engineer, Russia)	August 11, 2001	—	Implementation of fundamental, science and applied research. On October 19, 2001 relocation of SoyuzTM-32 from Zarya FGB nadir port to Pirs DC 1. Four EVAs (including one contingency EVA) under russian programm (V.N. Dezhurov and M.V. Tyurin - 3 EVAs including one contingency EVA, V.N. Dezhurov and Frank Culbertson – 1EVA). [ISS-3 Crew : Return on Endevour STS-108 see No.: 24]
			- - - - - - - - - - - - - - -	- - - - - - - - -		- -
			At the return : **<u>ISS – 2 Crew</u>:** Yu.V. Usachev (Commander, Russia) James Voss (Flight engineer, USA) Susan Helms (Flight engineer, USA)	March 8, 2001 — August 22, 2001 167 days 6 h 41 min		[ISS – 2 Crew: Launched with Discovery STS-102 see No.: 14]
20	Progress M-45	5P	—	—	August 21, 2001 — November 23, 2001 93 days 12 h 11 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft — August 23, 2001
21	Progress M-CO1	4R	—	—	September 15, 2001 — September 27, 2001 12 days 0 h 39 min <u>Pirs module:</u> 19 years, 315 days, 15 hours, 10 min, 56 sec	Delivery of docking compartment DC1 Pirs. Docking to Zvezda SM transfer compartment nadir port on — September 17, 2001 The Pirs docking compartment undocked from the space station and was slowly pulled away by the last Progress cargo spacecraft to dock to it (Progress MS-16 , No.: 236). The departure, from the nadir, or Earth-facing side of the Zvezda service module, marked the first major component of the ISS to be decommissioned and discarded.

22	Soyuz TM-33	3S	**Visiting Crew VC-2:** V.M. Afanasiev (Commander, Russia) Claudie Haignere (Flight engineer, ESA, France) K.M. Kozeev (Flight engineer, Russia)	October 21, 2001 — October 31, 2001 9 days 20 h 00 min	October 21, 2001 — May 5, 2002 185 days 18 h 52 min	Planned replacement of crew rescue vehicle (Soyuz TM-32 with Soyuz TM-33). Implementation of fundamental, science and applied research. (Russia), as well as scientific experiments under Andromede program (France). Docking to Zarya FGB nadir port [Visiting Crew VC-2: Return on Soyuz TM-32 see No.: 16]
23	Progress M1-7	6P	—	—	November 26, 2001 — March 20, 2002 113 days 7 h 57 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — November 28, 2001 Retraction was completed on December 3, 2002 after removing a foreign object from the SM docking assembly during EVA. On March 20, 2002 after undocking at 01:28:07 microsatellite Kolibry was launched.
24	Endeavour STS-108	UF-1	**US Crew:** Dominic Gorie Mark Kelly Linda Godwin Daniel Tani	December 6, 2001 — December 17, 2001 11 days 19 h 36 min	December 6, 2001 — December 17, 2001 11 days 19 h 36 min	Delivery of ISS-4 expedition crew. Return of ISS-3 expedition crew. ISS outfitting using logistics module MPLM Raphaello. Docking to module Destiny via pressurized adapter PMA-2. One EVA under american programm (Linda Godwin, Daniel Tani).
			At the launch : **ISS-4-Crew:** Yu.I. Onufrienko (Commander, Russia) Carl Walz (Flight engineer, USA) Daniel Bursch (Flight engineer, USA)	December 6, 2001	—	Implementation of fundamental, science and applied research. On April 20, 2002 relocation of SoyuzTM-33 from Zarya FGB nadir port to Pirs DC1. Two EVAs under russian programm (Yu.I. Onufrienko and Carl Walz - 1 EVA, Yu.I. Onufrienko and Daniel Bursch - 1 EVA). One EVA under american programm (Carl Walz, Daniel Bursch). [ISS-4 Crew: Return on Endeavour STS-111 see No.: 28]
			At the return : **ISS-3-Crew:** Frank Culbertson (Commander, USA) V.N. Dezhurov (Pilot, Russia) M.V. Tyurin (Flight engineer, Russia)	August 11, 2001 — December 17, 2001 128 days 20 h 45 min		[ISS – 3-Crew: Launched with Discovery STS-105 see No.: 19]

History of Flights 2002

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
25	Progress M1-8	7P	—	—	March 21,2002 — June 25, 2002 95 days 16 h 13 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft — March 24, 2002
26	Atlantis STS-110	8A	**US Crew:** Michael J. Bloomfield Steph en N. Frick Ellen Ochoa Lee Morin Jerry Ross Steven Smith Rex Walheim	April 8, 2002 — April 19, 2002 10 days 19 h 42 min	April 8, 2002 — April 19, 2002 10 days 19 h 42 min	Delivery and mounting of S0 (S-zero) central truss section to the ISS, installation of mobile transporter. Docking to Destiny module via pressurized adapter PMA-2. Four EVAs under american programm (Steven Smith and Rex Walheim - 2 EVAs, Lee Morin and Jerry Ross - 2 EVAs).
27	Soyuz TM-34	4S	**Visiting crew VC -3:** Yu.P. Gidzenko (Commander, Russia) Roberto Vittori (Flight engineer, ESA, Italy) - - - - - - - - - - - - - - - Mark Shuttleworth (space flight participant , RSA)	April 25, 2002 — May 5, 2002 9 days 21 h 25 min	April 25, 2002 — November 10, 2002 188 days 17 h 38 min	Planned replacement of crew rescue vehicle (SoyuzTM-33 with SoyuzTM-34). Implementation of fundamental, science and applied research. (Russia), as well as scientific experiments under Italian (Marko Polo), ESA and RSA programs. Docking to Zarya FGB nadir port. [Visiting crew VC -3: Return on SoyuzTM-33 see No.: 22]
28	Endeavour STS-111	UF-2	**US Crew:** Kenneth Cockrell Paul Lockhart Franklin Chang-Diaz Philippe Perrin (France)	June 6, 2002 — June 19, 2002 13 days 20 h 35 min	June 6, 2002 — June 19, 2002 13 days 20 h 35 min	Delivery of the ISS-5 expedition crew. Return of the ISS-4 expedition crew. ISS outfitting using logistics module MPLM Leonardo. Docking to Destiny module via pressurized adapter PMA-2. Three EVAs under american programm (Franklin Chang-Diaz, Philippe Perrin).

	Endeavour STS-111 cont,		*At the launch :* **<u>ISS-5 Crew:</u>** V.G. Korsun (Commander, Russia) Peggy Whitson (Flight engineer, USA) S.E. Treschev (Flight engineer, Russia) - - - - - - - - - - - - - - *At the return :* **<u>ISS-4 Crew:</u>** Yu.I. Onufrienko (Commander, Russia) Carl Walz (Flight engineer, USA) Daniel Bursch (Flight engineer, USA)	June 6, 2002 - - - - - - - - - - December 6, 2001 — June 19, 2002 195 days 19 h 38 min	—	Implementation of fundamental, science and applied research. Two EVAs under russian programm (V.G. Korsun and Peggy Whitson, V.G. Korsun and S.E. Treschev) [ISS-5 Crew: Return on Endeavour STS-113 see No.: 33] - [ISS-4 Crew: Launched with Endeavour STS-108 see No.: 24]
29	Progress M-46	8P	—	—	June 26, 2002 — October 14, 2002 110 days 5 h 45 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft — June 29, 2002 Undocking from ISS on — Sptember 24, 2002
30	Progress M1-9	9P	—	—	September 25, 2002 — February 1, 2003 129 days 3 h 2 min	Propellant and cargo delivery. Docking to Zvezda SM IC on — September 29, 2002
31	Atlantis STS-112	9A	**<u>US Crew:</u>** Jeffrey Ashby Pamela Melroy David Wolf Sandra Magnus Piers Sellers F.N. Yurchikhin (Russia)	October 7, 2002 — October 18, 2002 10 days 19 h 58 min	October 7, 2002 — October 18, 2002 10 days 19 h 58 min	Delivery and assembly of S1 truss section on the ISS. Docking to Destiny module via pressurized adapter PMA-2. Three EVAs under american programm (David Wolf, Piers Sellers).

32	Soyuz TMA-1	5S	**Visiting Crew VC-4:** S.V. Zaletin (Commander, Russia) Frank de Winne (Flight engineer, ESA, Belgium) Yu.V. Lonchakov (Flight engineer, Russia)	October 30, 2002 — November 10, 2002 10 days 20 h 53 min	October 30, 2002 — May 4, 2003 185 days 22 h 53 min	Planned replacement of the crew rescue vehicle (SoyuzTM-34 with SoyuzTMA-1). Implementation of fundamental, science and applied research. (Russia), as well as ESA scientific experiments (Odissea). Docking to Pirs DC 1. [Visiting Crew VC-4 : Return on SoyuzTM-34 see No.: 24]
33	Endevour STS-113	11A	**US Crew:** Jim Wetherbee Paul Lockhart Michael Lopez-Alegria John Herrington	November 24, 2002 — December 7, 2002 13 days 18 h 47 min	November 24, 2002 — December 7, 2002 13 days 18 h 47 min	Delivery of the ISS-6 expedition crew. Return of the ISS-5 expedition crew. Delivery and assembly of P1 truss section on the ISS. Docking to Destiny module via pressurized adapter PMA-2. Three EVAs under american programm (Michael Lopez-Alegria, John Herrington).
			At the launch : **ISS-6 Crew:** Kenneth Bowersox (Commander, USA) N.M. Budarin (Flight engineer, Russia) Donald Pettit (Flight engineer, USA)	November 24, 2002 — May 4, 2003 161 days 1 h 15 min	—	Implementation of fundamental, science and applied research. Two EVAs under american programm (Kenneth Bowersox, Donald Pettit). [ISS-6 Crew: Return on Soyuz TMA-1 see No.: 32 (ballistic descent)]
			At the return: **ISS-5 Crew:** V.G. Korsun (Commander, Russia) Peggy Whitson (Flight engineer, USA) S.E. Treschev (Flight engineer, Russia)	June 6, 2002 — December 7, 2002 184 days 22 h 14 min		[ISS-5-Crew : Launched with Endeavour STS-111 see No.: 28]

History of Flights 2003 (launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
34	Progress M-47	10P	—	—	February 22, 2003 — August 28, 2003 206 days 13 h 37 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — February 4, 2003
35	Soyuz TMA-2	6S	**ISS-7 Crew:** Yu.I. Malenchenko (Commander, Russia) Edward Lu (Flight engineer, USA)	April 26, 2003 — October 28, 2003 184 days 22 h 46 min	April 26, 2003 — October 28, 2003 184 days 22 h 46 min	Implementation of fundamental, science and applied research. Docking to Zaray FGB nadir port.
			At the return : **Visiting crew VC -5:** Pedro Duque (Flight engineer, ESA, Spain)	October 18,2003 — October 28, 2003 9 days 21 h 2 min		[Visiting crew VC -5: Launched with Soyuz TMA-3 see No.: 38]
36	Progress M1-10	11P	—	—	June 8, 2003 — October 3, 2003 117 days 1 h 37 min	Propellant and cargo delivery. Docking to Pirs DC1 on — June 11, 2003 From September 4, 2003 in free flight.
37	Progress M-48	12P	—	—	August 29, 2003 — January 28, 2004 152 days 11 h 9 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — August 31, 2003

38	Soyuz TMA-3	7S	**ISS-8 Crew:** Colin Michael Foale (Commander, USA) A.Yu. Kaleri (Flight engineer, Russia)	October 18, 2003 — April 30, 2004 194 days 18 h 33 min	October 18, 2003 — April 30, 2004 194 days 18 h 33 min	Implementation of fundamental, science and applied research. Docking to Pirs DC1. One EVA under russian programm (A.Yu. Kaleri, Michael Foale). Performance of scientific experiments under ESA program (Servantes).
			At the launch : **Visiting crew VC -5:** Pedro Duque (Flight engineer, ESA, Spain)	October 18, 2003	—	Performance of scientific experiments under ESA program (Servantes). [Visiting crew VC -5: Return on Soyuz TMA-2 see No.: 35]
			At the return : **Visiting crew VC -6:** Andre Kuipers (Flight engineer, ESA,the Netherlands)	April 19, 2004 — April 30, 2004 10 days 20 h 52 min		[Visiting crew VC -6: Launched with Soyuz TMA-4 see No.: 40]

History of Flights 2004

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
39	Progress M1-11	13P	—	—	January 29, 2004 — June 3, 2004 125 days 22 h 38 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — January 31, 2004 From May 24, 2004 in free flight
40	Soyuz TMA-4	8S	**ISS-9 Crew:** G.I. Padalka (Commander, Russia) Edward M. Fincke (Flight engineer, USA)	April 19, 2004 — October 24, 2004 187 days 21 h 16 min	April 19, 2004 — October 24, 2004 187 days 21 h 16 min	Implementation of fundamental, science and applied research. Docking to Zarya FGB nadir port. Four EVAs under russian programm (G.I. Padalka, Michael Fincke).
			At the start : **Visiting crew VC -6:** Andre Kuipers (Flight engineer, ESA, The Netherlands)	April 19, 2004	—	Performance of scientific experiments under ESA program (Delta). [Visiting crew VC -6: Return on SoyuzTMA-3 see No.: 38]
			At the return : **Visiting crew VC -7:** Yu.G. Shargin (Flight engineer, Russia)	October 14, 2004 — October 24, 2004 9 days 21 h 29 min		[Visiting crew VC -7: Launched with Soyuz TM-5 see No.: 43]
41	Progress M-49	14P	—	—	May 25, 2004 — July 30, 2004 65 days 22 h 49 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — May 27, 2004
42	Progress M-50	15P	—	—	August 11, 2004 — December 23, 2004 133 days 18 h 21 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — August 14, 2004

43	Soyuz TMA-5	9S	**ISS-10 Crew:** Leroy Chiao (Commander, USA) S.Sh. Sharipov (Flight engineer, Russia)	October 14, 2004 — April 25, 2005 192 days 19 h 2 min	October 14, 2004 — April 25, 2005 192 days 19 h 2 min	Implementation of fundamental, science and applied research. Docking to Pirs DC1. On November 29, 2004 relocation of SoyuzTMA-5 to Zarya FGB nadir port. Two EVAs under russian programm (S.Sh. Sharipov, Leroy Chiao).
			At the start : **Visiting crew VC -7:** Yu.G. Shargin (Flight engineer, Russia)	October 14, 2004	—	Performance of scientific experiments. [Visiting crew VC -7: Return on Soyuz TMA-4 see No.: 40]
			At the return: **Visiting crew VC -8:** Roberto Vittori (Flight engineer, ESA, Italy)	April 15, 2005 — April 25, 2005 9 days 21 h 22 min		[Visiting crew VC -8: Launched with Soyuz TM-6 see No.: 46]
44	Progress M-51	16P	—	—	December 24, 2004 — March 9, 2005 75 days 18 h 44 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — December 25, 2004 From February 27, 2005 in free flight

History of Flights 2005

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
45	Progress M-52	17P	—	—	February 28, 2005 — June 16, 2005 107 days 4 h 54 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — March 2, 2005
46	Soyuz TMA-6	10S	**ISS-11 Crew:** S.K. Krikalev (Commander, Russia) John Phillips (Flight engineer, USA)	April 15, 2005 — October 11, 2005 179 days 0 h 23 min	April 15, 2005 — October 11, 2005 179 days 0 h 23 min	Implementation of fundamental, science and applied research. Docking to Pirs DC1. On July 19, 2005 relocation of SoyuzTMA-5 to Zarya FGB nadir port. One EVA under russian programm (S.K. Krikalev, John Phillips).
			At the launch : **Visiting crew VC -8:** Roberto Vittori (Flight engineer, ESA, Italy)	April 15, 2005	—	Performance of scientific experiments under ESA and Italian programs (Eneide). [Visiting crew VC -8: Return on Soyuz TMA-5 see No.: 43]
			At the return : **Visiting crew VC -9:** Gregory Olsen (space flight participant, USA)	October 1, 2005 — October 11, 2005 9 days 21 h 14 min		[Visiting crew VC -9: Launched with Soyuz TM-7 see No.: 50]
47	Progress M-53	18P	—	—	June 17, 2005 — September 7, 2005 82 days 15 h 3 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — June 19, 2005
48	Discovery STS-114	LF1	**US Crew:** Eileen Collins James Kelly Soichi Noguchi (JAXA, Japan) Stephen Robinson Andrew Thomas Wendy Lawrence Charles Camarda	July 26, 2005 — August 9, 2005 13 days 21 h 41 min	July 26, 2005 — August 9, 2005 13 days 21 h 41 min	ISS outfitting using logistics module MPLM Raphaello. Docking to Destiny module via pressurized adapter PMA-2. Three EVAs under american programm (Soichi Noguchi, Stephen Robinson). Landing at Edwards air force base

49	Progress M-54	19P	—	—	September 8, 2005 — March 3, 2006 146 days 00 h 31 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — September 10, 2005
50	Soyuz TMA-7	11S	**ISS-12 Crew:** William McArthur (Commander, USA) V.I. Tokarev (Flight engineer, Russia)	October 1, 2005 — April 9, 2006 189 days 19 h 52 min	October 1, 2005 — April 9, 2006 189 days 19 h 52 min	Implementation of fundamental, science and applied research. Docking to Pirs DC-1. On November 11, 2005 SoyuzTMA-7 was relocated to Zarya FGB nadir port. On March 20, 2006 SoyuzTMA-7 was relocated to Zvezda SM IC. Two EVAs under american and russian programs (V.I. Tokarev, William McArthur).
			At the launch : **Visiting crew VC -9:** Gregory Olsen (space flight participant, USA)	October 1, 2005	—	Performance of scientific experiments under national and ESA programs. [Visiting crew VC -9: Return on Soyuz TMA-6 see No.: 46]
			At the return : **Visiting crew VC -10:** Marcus Pontes (Space flight participant, BSA, Brazil)	March 30, 2006 — April 9, 2006 9 days 21 h 17 min		[Visiting crew VC -10: Launched with Soyuz TM-8 see No.: 52]
51	Progress M-55	20P	—	—	December 21, 2005 — June 19, 2006 179 days 23 h 15 min	Propellant and cargo delivery. Docking to PIRS on — December 23, 2005

History of Flights 2006

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
52	Soyuz TMA-8	12S	**ISS – 13 Crew:** P.V. Vinogradov (Commander, Russia) Jeffry Williams (Flight engineer, USA)	March 30, 2006 — September 29, 2006 182 days 23 h 44 min	March 30, 2006 — September 29, 2006 182 days 23 h 44 min	Implementation of fundamental, science and applied research. Docking to Zarya FGB nadir port. One EVA under russian program (P.V. Vinogradov, Jeffry Williams). One EVA under american program (Jeffry Williams, Thomas Reiter).
			At the launch : **Visiting crew VC-10:** Marcus Pontes (Space flight participant, BSA, Brazil)	March 30, 2006	—	Performance of scientific experiments under Brazilian program («Centenario»). [Visiting crew VC-10: Return on Soyuz TMA-7 see No.: 50]
			At the return : **Visiting crew VC-11:** Anoushek Ansari (Space flight participant, USA)	September 18, 2006 — September 29, 2006 10 days 21 h 5 min		[Visiting crew VC-11: Launched with Soyuz TMA-9 see No.: 57]
53	Progress M-56	21P	—	—	April 24, 2006 — September 19, 2006 147 days 11 h 49 min	Propellant and cargo delivery. Docking to Zvezda SM IC on — April 26, 2006
54	Progress M-57	22P	—	—	June 24, 2006 — January 17, 2007 206 days 12 h 7 min	Propellant and cargo delivery. Docking to Zvezda SM IC on — June 26, 2006

55	Discovery STS-121	ULF1.1	**US Crew:** Steven Lindsey Mark Kelly Michael Fossum Lisa Nowak Stephanie Wilson Piers Sellers	July 4, 2006 — July 17, 2006 12 days 18 h 37 min	July 4, 2006 — July 17, 2006 12 days 18 h 37 min	Delivery of the third Expedition crewmember to the ISS. ISS outfitting using Leonardo MPLM. Docking to Destiny module via PMA-2. Three EVAs under american program (Piers Sellers, Michael Fossum).
			At the launch : Thomas Reiter (ESA, Germany)	July 4, 2006	—	Third ISS Expedition crewmember. [Thomas Reiter : Return on Discovery STS-116 see No.: 59]
56	Atlantis STS-115	12A	**US Crew:** Brent W. Jett jr., Christ. J. Ferguson Joseph R. Tanner Daniel C. Burbank Steven G. MacLean (Canada) Heidemarie M. Stefanyshyn-Piper	September 9, 2006 — September 21, 2006 11 days 19 h 7 min	September 9, 2006 — September 21, 2006 11 days 19 h 7 min	Delivery and assembly of P3/P4 truss sections with SA on the ISS. Docking to Destiny module via PMA-2. Three EVAs under american program (Joseph Tanner and Heidemarie Stefanyshyn-Piper 2 EVAs, Daniel Burbank and Steven MacLean - 1 EVA).
57	Soyuz TMA-9	13S	**ISS-14 Crew:** Michael Lopez-Alegria (Commander, USA) M.V. Turin (Flight engineer, Russia)	September 18, 2006 — April 21, 2007 215 days 8 h 22 min	September 18, 2006 — April 21, 2007 215 days 8 h 22 min	Implementation of fundamental, science and applied research. Docking to Zvezda SM IC aft on — Septermber 20, 2006 On October 10, 2006 SoyuzTMA-9 relocation to Zarya FGB nadir port. Soyuz TMA-9 SC relocation to Zvezda SM on March 29, 2006 Two EVAs under russian program (M.V. Turin, Michael Lopez-Alegria). Three EVAs under american program (Michael Lopez-Alegria, Sunita Williams).
			At the launch : **Visiting crew VC-11:** Anoushek Ansari (Space flight participant, USA)	September 18, 2006	—	Performance of scientific experiments under ESA program. [Visiting crew VC-11: Return on Soyuz TMA-8 see No.: 52]

			At the return : **Visiting crew VC-12:** Charles Simonyi (Space flight participant, USA)	April 7, 2007 — April 21, 2007 13 days 19 h 00 min		[Visiting crew VC-12: Launched with Soyuz TMA-10 see No.: 61]
58	Progress M-58	23P	—	—	October 23, 2006 — March 28, 2007 155 days 9 h 50 min	Propellant and cargo delivery. Docking to Zvezda SM IC on — October 26, 2006
59	Discovery STS-116	12A.1	**US Crew:** Mark Polansky William Oefelain Nicolas Patrick Robert Curbeam Christer Fuglesang (ESA, Sweden) Joan Higginbotham	December 10, 2006 — December 23, 2006 12 days 20 h 44 min	December 10, 2006 — December 23, 2006 12 days 20 h 44 min	Delivery of truss element P5 to the ISS and its installation on the ISS. Rotation of the third crew member of the long-duration expedition on the ISS. Mating with Destiny Module via pressurized adapter PMA-2. Two EVAs under american program (Robert Curbeam and Sunita Williams, Robert Curbeam and Christer Fuglesang).
			At the launch : Sunita Williams (USA)	December 10, 2006	—	Third crew member of the ISS long-duration expedition. [Sunita Williams : Return on Atlantis STS-117 see No.: 63]
			At the return : Thomas Reiter (ESA, Germany)	July 4, 2006 — December 23, 2006 171 days 3 h 54 min		[Thomas Reiter : Launched with Discovery STS-121 see No.: 55]

History of Flights 2007

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
60	Progress M-59	24P	—	—	January 18, 2007 — August 1, 2007 195 days 17 h 15 min	Propellant and cargo delivery. Docking to Pirs DC1 on — January 20,
61	Soyuz TMA-10	14S	**ISS-15 Crew:** F.N. Yurchkhin (Commander, Russia) O.V. Kotov (Flight engineer, Russia)	April 7, 2007 — October 21, 2007 196 days 17 h 5 min	April 7, 2007 — October 21, 2007 196 days 17 h 5 min	Implementation of fundamental, science and applied research. Docking to Zarya FGB nadir port on — April 9, 2007. Two EVAs under russian program (F.N. Yurchkhin and O.V. Kotov). One EVA under american program (Clayton Anderson, F. Yurchkhin).
			At the launch : **Visiting crew VC -12:** Charles Simonyi (Space flight participant, USA)	April 7, 2007	—	Performance of scientific experiments under Roskosmos program. [Visiting crew VC -12: Return on Soyuz TMA-9 see No.: 57]
			At the return : **Visiting crew VC -13:** Sheikh Muszaphar Shukor (Space flight participant, Malaysia)	October 10, 2007 — October 21, 2007 10 days 21 h 13 min		[Visiting crew VC -13: Launched with Soyuz TMA-11 see No.: 66]
62	Progress M-60	25P	—	—	May 12, 2007 — September 25, 2007 136 days 16 h 22 min	Propellant and cargo delivery. Docking to Zvezda SM IC aft on — May 15, 2007 From September 19, 2007 in free flight

63	Atlantis STS-117	13A	**US Crew:** Frederick Sturckow, Lee Archambaukt, Patrick Forrester, Steven Swanson, John Olivas, James Reilly	June 9, 2007 — June 22, 2007 13 days 20 h 12 min	June 9, 2007 — June 22, 2007 13 days 20 h 12 min	Delivery and assembly of truss members S3/S4 with SA set on ISS. Replacement of the third crew member of the long-duration expedition. Docking to Destiny module through thermal adapter PMA-2. Four EVAs under american program (James Reilly and John Olivas 2 EVAs, Patrick Forrester and Steven Swanson - 2 EVAs).
			At the launch : Clayton Anderson (USA)	June 9, 2007	—	Third crew member of the ISS long-duration expedition. [Clayton Anderson : Return on Discovery STS-120 see No.: 67]
			At the return : Sunita Williams (USA)	December 10, 2006 — June 22, 2007 194 days 18 h 2 min		[Sunita Williams : Launched with Discovery STS-116 see No.: 59]
64	Progress M-61	26P	—	—	August 2, 2007 — January 22, 2008 173 days 2 h 18 min	Propellant and cargo delivery. Docking to Pirs DC1 on — August 5, 2007 From December 22, 2007 in free flight

65	Endeavor STS-118	13A.1	**US Crew:** Scott Kelly, Charles Hobaugh, Tracy Caldwell, Richard Mastraccio, Dafydd Williams (Canada), Barbara Morgan, Benjamin Drew Jr.	August 9, 2007 — August 21, 2007 12 days 17 h 56 min	August 9, 2007 — August 21, 2007 12 days 17 h 56 min	Delivery of S5 tuss segment, platform for outside storage of ESP-3 to ISS, replacement of gyrodyne CMG #3. Four EVAs under american program (Richard Mastraccio and Dafydd Williams - 2 EVAs, Richard Mastraccio and Clayton Anderson - 1 EVA, Dafydd Williams and Clayton Anderson - 1 EVA).
66	Soyuz TMA-11	15S	**ISS-16 Crew:** Peggy Whitson (Commander, USA) Yu.I. Malenchenko (Flight engineer, Russia)	October 10, 2007 — April 19, 2008 191 days 19 h 7 min	October 10, 2007 — April 19, 2008 191 days 19 h 7 min	Implementation of fundamental, science and applied research. Docking to the port of Zarya Functional and Cargo Module — October 12, 2007. Five EVAs under american program (Peggy Whitson and Yu.I. Malenchenko - 1 EVA, Peggy Whitson and Daniel Tani - 4 EVAs).
			At the launch : **Visiting crew VC -13:** Sheikh Muszaphar Shukor (Space flight participant, Malaysia)	October 10, 2007	—	Conduct of scientific experiments under the Malaysia/ESA Program (MSM "Angkasa"). [Visiting crew VC -13: Return on Soyuz TMA-10 see No.: 61]
			At the return : **Visiting crew VC -14:** So Yeon Yi (Spaceflight participant, Korea)	April 8, 2008 — April 19, 2008 10 days 21 h 13 min		[Visiting crew VC -14 : Launched with Soyuz TMA-12 see No.: 73]

67	Discovery STS-120	10A	**US Crew:** Pamela Melroy, George Zamka, Scott Parazynski, Stephanie Wilson, Douglas Wheelock, Paolo Nespoli (ESA, Italy)	October 23, 2007 — November 7, 2007 15 days 2 h 23 min	October 23, 2007 — November 7, 2007 15 days 2 h 23 min	Orbital delivery of Node 2 (Harmony), resupply of the station with extra equipment and consumables. Rotation of the long-duration Increment third crewmember on the ISS Docking to Destiny Module through pressurized adapter PMA-2. Four EVAs under american program (S. Parazynski and D. Wheelock - 3 EVAs, Scott Parazynski and Daniel Tani 1 EVA).
			At the launch : Daniel Tani (USA)	October 23, 2007	—	Third crew member of the ISS long-duration expedition. Four extravehicular activities (EVAs). [Daniel Tani : Return on Atlantis STS-122 see No.: 70]
			- - - - - - - - - - - - - - -	- - - - - - - - - -		- -
			At the return : Clayton Anderson (USA)	June 9, 2007 — November 7, 2007 151 days 18 h 23 min		[Clayton Anderson : Launched with Atlantis STS-117 see No.: 63]
68	Progress M-62	27P	—	—	December 23, 2007 — February 15, 2008 54 days 3 h 17 min	Propellant and cargo delivery. Docking to Pirs DC1 on — December 26, 2007 Since February 4, 2008 Progress M-62 in autonomous flight.

History of Flights 2008

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
69	Progress M-63	28P	—	—	February 5, 2008 — April 7, 2008 61 days 23 h 33 min	Propellant and cargo delivery. Docking to Pirs DC1 on — February 7, 2008
70	Atlantis STS-122	1E	**US Crew:** Stephen Frick, Alan Poindexter, Leland Melvin, Rex Walheim, Hans Schlegel (ESA, Germany), Stanley Love	February 7, 2008 — February 20, 2008 12 days 18 h 22 min	February 7, 2008 — February 20, 2008 12 days 18 h 22 min	Delivery of module Columbus to the ISS. Rreplacement of the third crew member of the long-duration expedition, ISS outfitting optional equipment and consumable resource. Docking to Harmony module through pressurized adapter PMA-2. Three EVAs under american program (Rex Walheim and Stanley Love - 2 EVAs, Rex Walheim and Hans Schlegel - 1 EVA).
			At the launch : Leopold Eyharts (ESA, France)	February 7, 2008	—	Third crew member of the ISS long-duration expedition. [Leopold Eyharts : Return on Endeavour STS-123 see No.: 72]
			- - - - - - - - - - - - - - -	- - - - - - - - - -		- -
			At the return : Daniel Tani (USA)	October 23, 2007 — February 20, 2008 119 days 22 h 29 min		[Daniel Tani : Launched with Discovery STS-120 see No.: 67]
71	ATV "Joule Verne"	ATV1	—	—	March 9, 2008 — September 29, 2008 204 days 9 h 40 min	Test flight of the first ATV cargo space vehicle. Delivery of scientific equipment, fuel, food products, air and water. Docking to Instrument - Propulsion Module of SM Zvezda on — April 3, 2008. From September 6, 2008 in free flight.

72	Endeavour STS-123	1J/A	**US Crew:** Dominic L. Gorie, Gregory H. Johnson, Richard M. Linnehan, Robert L. Behnken, Michael J. Foreman, Takao Doi (JAXA, Japan)	March 11, 2008 — March 27, 2008 15 days 18 h 11 min	March 11, 2008 — March 27, 2008 15 days 18 h 11 min	In-orbit delivery of the first section of Japanese research module Kibo and Canadian Special Purpose Dexterous Manipulator Dextre. Replacement of the third crew member of the long-duration expedition on the ISS. ISS outfitting with optional equipment and consumables. Conduct of mounting operations on the ISS external surface. Docking to Harmony Module through pressurized adapter PMA-2 Five EVAs under american program (Richard Linnehan and Garrett Reisman - 1 EVA, Richard Linnehan and Michael Foreman - 1 EVA, Richard Linnehan and Robert Behnken - 1 EVA, Robert Behnken and Michael Foreman - 2 EVAs).
			At the launch : Garrett E. Reisman (USA)	March 11, 2008	—	Third crew member of the ISS long-duration expedition. [Garrett E. Reisman : Return on Discovery STS-124 see No.: 75]
			- - - - - - - - - - - - - - - *At the return :* Leopold Eyharts (ESA, France)	- - - - - - - - - - February 7, 2008 — March 27, 2008 48 days 4 h 54 min		- [Leopold Eyharts : Launched with Atlantis STS-122 see No.: 70]
73	Soyuz TMA-12	16S	**<u>ISS-17 Crew:</u>** S.A. Volkov (Commander, Russia) O.D. Kononenko (Flight engineer, Russia)	April 8, 2008 — October 24, 2008 198 days 16 h 20 min	April 8, 2008 — October 24, 2008 198 days 16 h 20 min	Implementation of fundamental, science and applied research. Docking to Pirs DC1 on — April 10, 2008 Two EVAs under russian program (S.A. Volkov, O.D. Kononenko).

	Soyuz TMA-12 cont.		*At the launch :* **Visiting crew VC -14:** So Yeon Yi (Spaceflight participant, Korea)	April 8, 2008	—	Performance of scientific experiments under Korea Astronaut Program. [So Yeon Yi : Return on Soyuz TMA-11 see No.: 66]
			At the return : **Visiting crew VC -15:** Richard A. Garriott (Spaceflight participant, USA)	October 12, 2008 — October 24, 2008 11 days 20 h 35 min		[Richard A. Garriott : Launched with Soyuz TMA-13 see No.: 77]
74	Progress M-64	29P	—	—	May 14, 2008 — September 9, 2008 117 days 1 h 10 min	Propellant and cargo delivery. Docking to the port of Zarya Functional and Cargo Module on — May 17, 2008 From September 1, 2008 in free flight
75	Discovery STS-124	1J	**US Crew:** Mark Edward Kelly, Kenneth Todd Ham, Karen L Nyberg, Ronald John Garan, Michael E. Fossum Akihiko Hoshide (JAXA, Japan)	June 1, 2008 — June 14, 2008 13 days 18 h 13 min	June 1, 2008 — June 14, 2008 13 days 18 h 13 min	Delivery to orbit of the main pressurized module PM and JEMRMS robotic arm of the Japanese research module Kibo Replacement of the third crew member of the long-duration expedition on the ISS. Outfitting ISS with additional equipment and consumables; performing installation work on the outside of the ISS. Docking to the Harmony module via pressurized docking adapter PMA-2. Three EVAs under american program (Michael Fossum, Ronald Garan).
			At the launch : Gregory E Chamitoff. (USA)	June 1, 2008	—	The third member of the ISS expedition crew. [Gregory E Chamitoff : Return on Endeavor STS-126 see No.: 78]

	Discovery STS-124 cont.		- - - - - - - - - - - - - - - *At the return :* Garrett E. Reisman (USA)	- - - - - - - - - - March 11, 2008 — June 14, 2008 95 days 8 h 47 min		- [Garrett E. Reisman : Launched with Endeavour STS123 see No.: 72]
76	Progress M-65	30P	—	—	September 10, 2008 — December 7, 2008 87 days 12 h 59 min	Propellant and cargo delivery. Docking to Instrument - Propulsion Module of SM Zvezda aft on — September 17, 2008. From November 14, 2008 in free flight. Conduct of a series of geophysical experiments.
77	Soyuz TMA-13	17S	**ISS-18 Crew:** Edward M. Fincke (Commander, USA) Yu.V. Lonchakov (Flight engineer, Russia)	October 12, 2008 — April 8, 2009 178 days 0 h 14 min	October 12, 2008 — April 8, 2009 178 days 0 h 14 min	Implementation of fundamental, science and applied research. Docking to Zarya FGB port on — October 14, 2008. Two EVAs under russian program (Yu.V. Lonchakov, Michael Fincke).
			At the launch : **Visiting crew VC -15:** Richard A. Garriott (Spaceflight participant, USA)	October 12, 2008	—	Performance of scientific experiments under GTA project. [Richard A. Garriott : Return on Soyuz TMA-12 see No.: 73]
			- - - - - - - - - - - - - - - *At the return :* **Visiting crew VC -16:** Charles Simonyi (Spaceflight participant, USA)	- - - - - - - - - - March 26, 2009 — April 8, 2009 12 days 19 h 26 min		- [Charles Simonyi : Launched with Soyuz TMA-14 see No.: 82] This was the 2nd flight from Charles Simony to the ISS. First Flight: Launch on Soyuz TMA-10, April 7, 2007 [No.61] Return on Soyuz TMA-9 April 21, 2007 [No. 57]

78	Endeavour STS-126	ULF2	**<u>US Crew:</u>** Chris. J. Ferguson Eric Allen Boe, Donald Roy Pettit, Stephen G. Bowen , Heidemarie Martha Stefanyshin-Piper, Robert S.Kimbrough	November 15, 2008 — December 1, 2008 15 days 20 h 29 min	November 15, 2008 — December 1, 2008 15 days 20 h 29 min	Preparing ISS for continuous operation with a crew of 6; Rotation of a third crew member of ISS expedition. Resupplying ISS with the use of logistics module MPLM Leonardo; conducting ISS maintenance and equipping on the outer surface of the US orbital segment; hardware recovery and delivering to Earth the results of the experiments conducted onboard ISS. Docking to the Harmony module via pressurized docking adapter PMA-2. Four EVAs under american program (Heidemarie Stefanyshin-Piper and Stephen Bowen - 2 EVAs, Heidemarie Stefanyshin-Piper and Shane Kimbrough - 1 EVA, S. Bowen and S. Kimbrough - 1 EVA).
			At the launch : Sandra Hall Magnus (USA)	November 15, 2008	—	The third member of the ISS expedition crew. [Sandra Hall Magnus : Return on Discovery STS-119 see No.: 81]
			- - - - - - - - - - - - - - -	- - - - - - - - - -		- -
			At the return : Gregory E Chamitoff. (USA)	June 1, 2008 — December 1, 2008 183 days 0 h 23 min		[Gregory E Chamitoff. : Launched with Discovery STS-124 see No.: 75]
79	Progress M-01M	31P	—	—	November 26, 2008 — February 8, 2009 83 days 19 h 41 min	Propellant and cargo delivery. Docking in the remote operator mode to Pirs DC1 on — November 30, 2008 Since February 6, 2008 in free flight. Conducting an applied engineering experiment and testing a new digital control system of the spacecraft in various operational modes.

History of Flights 2009

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
80	Progress M-66	32P	—	—	February 10, 2009 — May 18, 2009 97 days 9 h 25 min	Propellant and cargo delivery. Docking to Pirs DC1 on — February 13, 2009. From May 6, 2009 in free flight. Conduct of Plasma-Progress experiment.
81	Discovery STS-119	15A	**US Crew:** Lee J. Archambault , Dominic A.Antonelli, Joseph M. Acaba, John Lynch Phillips, Steven Ray Swanson, Richard R. Arnold	March 16, 2009 — March 28, 2009 12 days 19 h 30 min	March 16, 2009 — March 28, 2009 12 days 19 h 30 min	Delivery and mounting of the last section of solar arrays in the ISS USOS. Rotation of one ISS crewmember (NASDA astronaut Koichi Wakata replaced NASA astronaut Sandra Magnus) Pperformance of the ISS servicing and outfitting operations on the USOS external surface, return of the equipment and the results of the experiments conducted onboard the ISS to the Earth. Docking to Harmony module through pressurized adapter PMA-2. Three EVAs under american program (Steven S. and R. Arnold - 1 EVA, Steven Swanson and Joseph Acaba - 1 EVA, Richard Arnold and Joseph Acaba - 1 EVA).
			At the launch : Koichi Wakata (JAXA, Japan)	March 16, 2009	—	The third member of the ISS expedition crew. [Koichi Wakata : Return on Endeavour STS-127 see No.: 85]
			- - - - - - - - - - - - - - -	- - - - - - - - - -		- -
			At the return : Sandra Hall Magnus (USA)	November 15, 2008 — March 28, 2009 133 days 8 h 18 min		[Sandra Hall Magnus : Launched with Endeavour STS-126 see No.: 78]

82	Soyuz TMA-14	18S	**ISS-19 Crew:** G.I. Padalka (Commander, Russia) Michael Barratt (Flight engineer, USA)	March 26, 2009 — October 11, 2009 198 days 16 h 42 min	March 26, 2009 — October 11, 2009 198 days 16 h 42 min	Implementation of fundamental, science and applied research. Docking to Zvezda SM IC on — March 28, 2009. On June 3, 2009 SoyuzTMA-10 SC relocation to Pirs DC1. Two EVA's under russian program (G.I. Padalka, Michael Barratt).
			At the launch : **Visiting crew VC -16:** Charles Simonyi (Spaceflight participant, USA)	March 26, 2009	—	Performance of scientific experiments under program of the Russian VC - 16. This was the 2nd flight from Charles Simony to the ISS. [Charles Simonyi : Return on Soyuz TMA-13 see No.: 77]
			- - - - - - - - - - - - - - -	- - - - - - - - - -		- -
			At the return : **Visiting crew VC -17:** Guy Laliberte (Spaceflight participant, Canada)	September 30, 2009 — October 11, 2009 10 days 21 h 16 min		[Guy Laliberte : Launched with Soyuz TMA-16 see No.: 89]
83	Progress M-02M	33P	—	—	May 7, 2009 — July 13, 2009 66 days 21 h 52 min	Propellant and cargo delivery. Docking to Pirs DC1 on — May 12, 2009. Since June 30, 2009 in free flight. Flight tests of the modernized space vehicle systems, test approach to SM Zvezda docking port (up to 17 meters) — July 17, 2009
84	Soyuz TMA-15	19S	**ISS-20 Crew:** Roman Romanenko (Commander, Russia) Frank De Winne (Flight engineer, ESA, Belgium) Robert Thirsk (Flight engineer, Canada)	May 27, 2009 — December 1, 2009 187 days 20 h 42 min	May 27, 2009 — December 1, 2009 187 days 20 h 42 min	Implementation of fundamental, science and applied research. Docking to the port of Zarya Functional and Cargo Module on — May 29, 2009 Frank De Winne was the first ESA astronaut to command a space mission when he served as commander of ISS Expedition 21 (October to December 2009)

85	Endeavour STS-127	2J/A	**US Crew:** Mark L. Polansky, Douglas G. Hurley, David A. Wolf , Chris. J. Cassidy , Julie Payette, (CAN) Th. H. Marshburn	July 16, 2009 — July 31, 2009 15 days 16 h 45 min	July 16, 2009 — July 31, 2009 15 days 16 h 45 min	Delivery and mounting of the third section of Japanese Research Module Kibo. Rotation of one ISS crewmember (NASA astronaut Timothy Kopra replaced NASDA astronaut Koichi Wakata). Performance of the ISS servicing and outfitting operations on the USOS external surface, return of the equipment and the results of the experiments conducted onboard the ISS to the Earth. Five EVAs under american program (David Wolf and Timothy Kopra - 1 EVA, David Wolf and Thomas Marshburn - 1 EVA, David Wolf and Christopher Cassidy - 1 EVA, Christopher Cassidy and Thomas Marshburn - 2 EVA)
			At the launch : Timothy L. Kopra (USA)	July 16, 2009	—	The sixth member of the ISS expedition crew. [Timothy L. Kopra : Return on Discovery STS-128 see No.: 87]
			- - - - - - - - - - - - - - - *At the return :* Koichi Wakata (JAXA, Japan)	- - - - - - - - - - March 16, 2009 — July 31, 2009 137 days 15 h 4 min		- [Koichi Wakata : Launched with Discovery STS-119 see No.: 81]
86	Progress M-67	34P	—	—	July 24, 2009 — September 27, 2009 64 days 23 h 22 min	Propellant and cargo delivery. Docking to Zvezda SM IC on — July 29, 2009 From September 21, 2009 in free flight. Conduct of Plasma-Progress experiment.

87	Discovery STS-128	17A	**<u>US Crew:</u>** Fred. W. Sturckow, Kevin Anthony Ford, Patrick G. Forrester, Jose M. Hernandez, John Daniel Olivas, Christer Fuglesang (ESA, Sweden)	August 29, 2009 — September 12, 2009 13 days 20 h 54 min	August 29, 2009 — September 12, 2009 13 days 20 h 54 min	Delivery and mounting of the last section of solar arrays in the ISS USOS. Rotation of one ISS crewmember : NASA astronaut Nicole Stott replaced NASA astronaut Timothy L. Kopra Performance of the ISS servicing and outfitting operations on the USOS external surface, return of the equipment and the results of the experiments conducted onboard the ISS to the Earth. Docking to Harmony module through pressurized adapter PMA-2. Three EVAs under american program (John Olivas and Nicole Stott - 1 EVA, John Olivas and Christer Fuglesang - 2 EVAs).
			At the launch : Nicole Stott (USA)	August 29, 2009	—	[Nicole Stott : Return on Atlantis STS-129 see No.: 92]
			- - - - - - - - - - - - - - -	- - - - - - - - - -		- - - - - - - - - - - - - - - - - - - -
			At the return : Timothy L. Kopra (USA)	July 16, 2009 — September 12, 2009 58 days 2 h 50 min		[Timothy L. Kopra : Launched with Endeavour STS-127 see No.: 85]
88	HTV „Kounotori“	HTV1	—	—	September 10, 2009 — November 2, 2009 52 days 4 h 25 min	Test flight of the first cargo vehicle of HTV serie. Scientific hardware delivery for the ISS outfitting operations . It was docked with the ISS module Harmony by the dexterious manipulator on — September 18, 2009. Since October 30, 2009 in free flight.

89	Soyuz TMA-16	20S	**ISS-21/22 Crew:** Maxim Suraev (Commander, Russia) Jeffrey Williams (Flight engineer, USA)	September 30, 2009 — March 18, 2010 169 days 4 h 8 min	September 30, 2009 — March 18, 2010 169 days 4 h 8 min	Implementation of fundamental, science and applied research. Docking to Zvezda SM IC on — October 2, 2009. On January 21, 2010 SoyuzTMA-16 SC relocation to Module "Poisk" (MRM2). One EVA.
			At the launch : **Visiting crew VC -17:** Guy Laliberte (Spaceflight participant, Canada)	September 30, 2009	—	One Drop Foundation social and poetic mission. [Guy Laliberte : Return on Soyuz TMA-14 see No.: 82]
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			At the return : Maxim Suraev (Commander, Russia) Jeffrey Williams (Flight engineer, USA) only	—		—
90	Progress M-03M	35P	—	—	October 15, 2009 — April 27, 2010 194 days 17 h 36 min	Propellant and cargo delivery. Docking to Pirs DC1 — October 18, 2009. From April 22, 2010 in free flight. Conduct of Radar-Progress experiment.
91	Progress M-MRM2	5R	—	—	November 10, 2009 — December 8, 2009 27 days 5 h 16 min	Delivery of Mini-Research Module "Poisk" (MRM2). Docking with TC of SM Zvezda zenith „Poisk“ on — November 12, 2009.

92	Atlantis STS-129	ULF3	**<u>US Crew:</u>** Charles Hobaugh, Barry Wilmore, Randolph Bresnik, Michael Foreman, Leland Melvin, Robert Satcher	November 16, 2009 — November 27, 2009 10 days 19 h 21 min	November 16, 2009 — November 27, 2009 10 days 19 h 21 min	Delivery of more than 12 tons of cargo, preparation for docking with ISS of Tranquility module. Return of one crewmember (Nicole Stott) to the Earth. Performance of the ISS servicing and outfitting operations on the USOS external surface, return of the equipment and the results of the experiments conducted onboard the ISS to the Earth. Docking to Harmony module through pressurized adapter PMA-2. Three EVAs under american program (Michael Foreman and Robert Satcher, Michael Foreman and Randolph Bresnik, Robert Satcher and Randolph Bresnik).
			- - - - - - - - - - - - - -	- - - - - - - - - -		- -
			At the return : Nicole Stott (USA)	August 29, 2009 — November 27, 2009 90 days 10 h 45 min		[Nicole Stott : Launched with Discovery STS-128 see No.: 87]
93	Soyuz TMA-17	21S	**<u>ISS-22/23 Crew:</u>** Oleg Kotov (Commander, Russia) Timothy Creamer (Flight engineer, USA) Soichi Noguchi (Flight engineer, JAXA, Japan)	December 21, 2009 — June 2, 2010 163 days 5 h 32 min	December 21, 2009 — June 2, 2010 163 days 5 h 32 min	Implementation of fundamental, science and applied research. Docking to Zarya FGB port on — December 23, 2009 On May 12, 2010 Soyuz TMA-17 SC relocation to Zvezda SM IC One EVA under russian program (O.V. Kotov, M.V. Suraev).

History of Flights 2010

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
94	Progress M-04M	36P	—	—	February 3, 2010 — July 1, 2010 148 days 10 h 55 min	Propellant and cargo delivery. Docking to the aft port of SM Zvezda — February 5, 2010. From May 10, 2010 in free flight. Conduct of a series of geophysical experiments.
95	Endeavor STS-130	20A	**US Crew:** George Zamka, Terry Virts, Kathryn Hire, Stephen Robinson, Nicholas Patrick, Robert Behnken	February 8, 2010 — February 22, 2010 13 days 18 h 6 min	February 8, 2010 — February 22, 2010 13 days 18 h 6 min	Delivery of Tranquility Module and Cupola Module. Docking to Harmony module through pressurized adapter PMA-2. Three EVAs under american program (Robert Behnken, Nicholas Patrick).
96	Soyuz TMA-18	22S	**ISS-23/24 Crew:** Aleksandr Skvortsov (Commander, Russia) Mikhail Kornienko (Flight engineer, Russia) Tracy C. Dyson (Flight engineer, USA)	April 2, 2010 — September 25, 2010 176 days 1 h 19 min	April 2, 2010 — September 25, 2010 176 days 1 h 19 min	Implementation of fundamental, science and applied research. Docking to "Poisk" module port Four EVAs.
97	Discovery STS-131	19A	US Crew: Alan Poindexter, James Dutton, Richard Mastracchio, Dorothy Metcalf - Lindenburger Stephanie Wilson, Naoko Yamazaki (JAXA, Japan), Clayton Anderson	April 5, 2010 — April 20, 2010 15 days 2 h 48 min	April 5, 2010 — April 20, 2010 15 days 2 h 48 min	Resupplying ISS with the use of logistics module MPLM Leonardo. Conducting ISS maintenance and equipping on the outer surface of the US orbital segment; hardware recovery and delivering to Earth the results of the experiments conducted onboard ISS. Docking to Harmony module through pressurized adapter PMA-2. Three EVAs under american program (Richard Mastracchio, Clayton Anderson).

98	Progress M-05M	37P	—	—	April 28, 2010 — November 15, 2010 200 days 16 h 22 min	Propellant and cargo delivery. Docking in the remote operator mode to Pirs DC1 From October 25, 2010 in free flight. Conduct of a series of geophysical experiments.
99	Atlantis STS-132	ULF4	**US Crew:** Kennet Ham, Dominic Antonelli, Garrett Reisman, Michael Good, Stephen Bowen, Piers Sellers	May 14, 2010 — May 26, 2010 11 days 18 h 29 min	May 14, 2010 — May 26, 2010 11 days 18 h 29 min	Delivery of Mini-Research Module "Rassvet" (MRM1). Docking to Harmony module through pressurized adapter PMA-2. Three EVAs under american program (Garrett Reisman and Stephen Bowen, Stephen Bowen and Michael Good, Michael Good and Garrett Reisman).
100	Soyuz TMA-19	23S	**ISS-24/25 Crew:** Fyodor Yurchikhin (Commander, Russia), Shannon Walker (Flight engineer, USA), Douglas Wheelock (Flight engineer, USA)	June 16, 2010 — November 26, 2010 163 days 7 h 12 min	June 16, 2010 — November 26, 2010 163 days 7 h 12 min	Implementation of fundamental, science and applied research. Docking to Zvezda SM IC — June 18, 2010. On June 28, 2010 SoyuzTMA-19 SC relocation to Mini-Research Module "Rassvet" (MRM1). One EVA under russian program (F.N. Yurchikhin, M.B. Kornienko). Three EVAs under american program (Douglas Wheelock, Tracy Caldwell Dyson).
101	Progress M-06M	38P	—	—	June 30, 2010 — September 6, 2010 67 days 21 h 18 min	Propellant and cargo delivery. While approaching the ISS on 2 July 2010, the spacecraft aborted the docking procedure after a critical communications error. A second attempt at docking on 4 July 2010 was planned and subsequently succeeded. Docking to the aft port of SM Zvezda on — July 4, 2010 From August 31, 2010 in free flight. Conduct of a series of geophysical experiments.

102	Progress M-07M	39P	—	—	September 10, 2010 — February 20, 2011 163 days 6 h 35 min	Propellant and cargo delivery. Docking to the aft port of SM Zvezda on — September 12, 2010
103	Soyuz TMA-01M	24S	**ISS-25/26 Crew:** Alexander Kalery (Commander, Russia), Oleg Skripochka (Flight engineer, Russia), Scott Kelly (Flight engineer, USA)	October 8, 2010 — March 16, 2011 159 days 8 h 43 min	October 8, 2010 — March 16, 2011 159 days 8 h 43 min	Implementation of fundamental, science and applied research. Docking to Mini Research Module Poisk (MRM2) on — October 10, 2010 One EVA under russian program (F.N. Yurchikhin, O.I. Skripochka).
104	Progress M-08M	40P	—	—	October 27, 2010 — January 24, 2011 88 days 14 h 55 min	Propellant and cargo delivery. Docking in the remote operator mode to Pirs DC1 on — October 30, 2010.
105	Soyuz TMA-20	25S	**ISS-26/27 Crew:** Dmitriy Kondratiev (Commander, Russia), Paolo Nespoli (Flight engineer, ESA, Italy), Catherine Coleman (Flight engineer, USA)	December 15, 2010 — May 24, 2011 159 days 8 h 17 min	December 15, 2010 — May 24, 2011 159 days 8 h 17 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) on — December 17, 2010 Two EVA's under russian program (D.Yu. Kondratiev, O.Skripochka).

History of Flights 2011

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
106	HTV Kounotori	HTV2	—	—	January 22, 2011 — March 30, 2011 66 days 21 h 32 min	Delivery of science hardware for Station outfitting. Capture and berth to Harmony module Nadir port using SSRMS on — January 27, 2011 Relocation to Harmony module Zenith port. Due to avoid interference with the payload bay of the shuttle STS 133 Relocation back to Harmony module Nadir port on — March 10, 2011. Release from ISS on — February 18, 2011
107	Progress M-09M	41P	—	—	January 28, 2011 — April 26, 2011 88 days 11 h 51 min	Propellant and cargo delivery. Docking to Pirs DC on — January 30, 2011. From April 22, 2011 in a free flight. Conduct of a series of geophysical experiments.
108	ATV Johannes Kepler	ATV2	—	—	February 17, 2011 — June 21, 2011 124 days 22 h 59 min	Delivery of food, water, fuel, materials and equipment. Docking to SM Zvezda on — February 24, 2011.
109	Discovery STS-133	ULF5	**US Crew:** Steven Lindsey, Eric Boe, Alvin Drew, Steve Bowen, Michael Barratt, Nicole Stott	February 25, 2011 — March 9, 2011 12 days 19 h 4 min	February 25, 2011 — March 9, 2011 12 days 19 h 4 min	Delivery of the Leonardo Permanent Multipurpose Module (PMM) and cargo. Docking to Harmony module through pressurized adapter PMA-2 on — February 26, 2011 Two Space Shuttle EVA's under american program (S. Bowen, A. Drew)

110	Soyuz TMA-21	26S	**ISS-27/28 Crew:** Aleks. Samokutyaev (Commander, Russia), Andrei Borisenko (Flight engineer, Russia), Ronald Garan (Flight engineer, USA)	April 5, 2011 — September 16, 2011 164 days 5 h 50 min	April 5, 2011 — September 16, 2011 164 days 5 h 50 min	Implementation of fundamental, science and applied research. Docking to Mini Research Module Poisk (MRM2) on — April 7, 2011 One EVA
111	Progress M-10M	42P	—	—	April 27, 2011 — October 29, 2011 184 days 23 h 55 min	Propellant and cargo deliver Docking to Pirs DC on — April 29, 2011
112	Endeavor STS-134	ULF6	**US Crew:** Mark Kelly, Gregory Johnson, Andrew Feustel, Michael Fincke, Gregory Chamitoff, Roberto Vittori (ESA, Italy)	May 16, 2011 — June 1, 2011 15 days 17 h 39 min	May 16, 2011 — June 1, 2011 15 days 17 h 39 min	Delivery of the Alpha Magnetic Spectrometer AMS-2 and the ExPRESS Logistics Carrier 3 (ELC3). Docking to Harmony module through pressurized adapter PMA-2 on — May 18, 2011. Four Space Shuttle EVA's under american program (A. Feustel G. Chamitoff EVA-1, M. Fincke A. Feustel EVA-2 and EVA-3, M. Fincke G. Chamitoff EVA-4)
113	Soyuz TMA-02M	27S	**ISS-28/29 Crew:** Sergei Volkov (Commander, Russia), Michael Fossum (Flight engineer, USA), Satoshi Furukawa (Flight engineer, Japan)	June 7, 2011 — November 22, 2011 167 days 6 h 12 min	June 7, 2011 — November 22, 2011 167 days 6 h 12 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) on — June 10, 2011 One EVA
114	Progress M-11M	43P	—	—	June 21, 2011 — September 1, 2011 71 days 19 h 43 min	Propellant and cargo delivery. Docking to SM Zvezda on — June 23, 2011 From August 23, 2011 in a free flight. Conduct of several sessions of geophysical experiment Radar-Progress.

115	Atlantis STS-135	ULF7	**US Crew:** Chris. Ferguson, Douglas Hurley, Rex Walheim, Sandra Magnus	July 8, 2011 — July 21, 2011 12 days 18 h 28 min	July 8, 2011 — July 21, 2011 12 days 18 h 28 min	Delivery of a robotic device for refuelling RRM, cargoes, and equipment in the multipurpose logistics module (MPLM) Raffaello. Docking to Harmony module through pressurized adapter PMA-2 on — July 10, 2011 One Space Shuttle EVA under american program (M. Fossum, R. Garan) [last Space Shuttle flight]
116	Progress M-12M	44P	—	—	August 24, 2011 — reentering over the Altai Republic region of Russia	Propellant and cargo delivery. The spacecraft failed to reach its target orbit because of a malfunction in the LV third stage propulsion system 325 seconds into the flight.
117	Progress M-13M	45P	—	—	October 30, 2011 — January 25, 2012 86 days 17 h 7 min	Propellant and cargo delivery. Docking to Pirs DC1 on — November 2, 2011 After undocking from ISS — January 23, 2012 microsatellite Chibis-M was separated from Progress M-13M on — January 23, 2012
118	Soyuz TMA-22	28S	**ISS-29/30 Crew:** Anton Shkaplerov (Commander, Russia), Anatoliy Ivanishin (Flight engineer, Russia), Daniel Burbank (Flight engineer, USA)	November 14, 2011 — April 27, 2012 165 days 7 h 31 min	November 14, 2011 — April 27, 2012 165 days 7 h 31 min	Implementation of fundamental, science and applied research. Docking to Mini Research Module „Poisk“ (MRM2) on — November 16, 2011
119	Soyuz TMA-03M	29S	**ISS-30/31 Crew:** Oleg Kononenko (Commander, Russia), Andre Kuipers (Flight engineer, ESA, the Netherlands), Donald Pettit (Flight engineer, USA)	December 21, 2011 — July 1, 2012 192 days 18 h 59 min	December 21, 2011 — July 1, 2012 192 days 18 h 59 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) on — December 23, 2011 One EVA under russian program (O.Kononenko and A.Shkaplerov)

History of Flights 2012

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
120	Progress M-14M	46P	—	—	January 26, 2012 — April 28, 2012 93 days 15 h 33 min	Propellant and cargo delivery. Docking to Pirs DC1 on — January 28, 2012 From April 19, 2012 in a free flight. Conduct of Radar-Progress experiment.
121	ATV Edoardo Amaldi	ATV3	—	—	March 23, 2012 — October 3, 2012 193 days 20 h 0 min	Delivery of food, water, fuel, materials and equipment. Docking to SM Zvezda on — March 29, 2012 Undocking from ISS on — September 29, 2012
122	Progress M-15M	47P	—	—	April 20, 2012 — August 20, 2012 122 days 3 h 21 min	Delivery of propellant and cargoes, including SC Sfera-53. Docking to Pirs DC1 on — April 22, 2012. Since July 23, 2012 the Progress M-15M was to be in an autonomous flight for conducting flight tests of the system Kurs-NA. Docking with the use of new system Kurs-NA to Pirs DC1 on — July 29, 2012. Since July 31, 2012 in a free flight. Conduct of Radar-Progress experiment.
123	Soyuz TMA-04M	30S	**ISS-31/32 Crew:** Gennady Padalka (Commander, Russia), Sergei Revin (Flight engineer, Russia), Joseph Acaba (Flight engineer, USA)	May 15, 2012 — September 17, 2012 124 days 23 h 52 min	May 15, 2012 — September 17, 2012 124 days 23 h 52 min	Implementation of fundamental, science and applied research. Docking to Mini Research Module Poisk (MRM2) on — May 17, 2012.

124	Dragon CRS	SpX-D (COTS Demo 2)	—	—	May 22, 2012 — May 31, 2012 9 days 7 h 57 min	A test flight of the first commercial cargo vehicle. Delivery to ISS of various cargoes and return to the Earth of hardware items. Capture and berth to Harmony module port using SSRMS on — May 25, 2012 [splash down in the Pacific Ocean]
125	Soyuz TMA-05M	31S	**ISS-32/33 Crew:** Yuri Malenchenko (Commander, Russia), Sunita Williams (Flight engineer, USA), Akihiko Hoshide (Flight engineer, JAXA Japan)	July 15, 2012 — November 19, 2012 126 days 23 h 13 min	July 15, 2012 — November 19, 2012 126 days 23 h 13 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) on — July 17, 2012 One EVA under russian program (Padalka and .Malenchenko). Two EVAs under american program (Williams and Hoshide)
126	HTV Kounotori	HTV3	—	—	July 21, 2012 — September 14, 2012 55 days 3 h 21 min	Delivery of food, water, science hardware, five microsatellites. Capture and berth to Harmony module Nadir port using SSRMS on — July 27, 2012 Undocking from ISS on — September 12, 2012.
127	Progress M-16M	48P	—	—	August 1, 2012 — February 09, 2013 191 days 21 h 30 min	Propellant and cargo delivery. The first docking to Pirs DC1 according to the "fast scheme“ (5 h 43 min from the launch) on — August 2, 2012
128	Dragon CRS	SpX-1	—	—	October 8, 2012 — October 28, 2012 20 days 18 h 47 min	The first commercial flight to ISS Delivery of food, clothes and equipment and return to Earth the results of the experiments conducted onboard ISS. Capture and berth to Harmony module port using SSRMS on — October 10, 2012 [splash down in the Pacific Ocean]

129	Soyuz TMA-06M	32S	**ISS-33/34 Crew:** Oleg Novitskiy (Commander, Russia), Evgeny Tarelkin (Flight engineer, Russia), Kevin Ford (Flight engineer, USA)	October 23, 2012 — March 16, 2013 143 days 16 h 14 min	October 23, 2012 — March 16, 2013 143 days 16 h 14 min	Implementation of fundamental, science and applied research. Docking to Mini Research Module Poisk (MRM2) on — October 25, 2012 One EVA under american program (Sunita Williams and Akihiko Hoshide)
130	Progress M-17M	49P	—	—	October 31, 2012 — April 21, 2013 172 days 7 h 20 min	Propellant and cargo delivery. Docking to SM Zvezda according to the "fast scheme“ (5 h 52 min from the launch) on — October 31, 2012 From April 15, 2013 in a free flight. Conduct of Radar-Progress experiment.
131	Soyuz TMA-07M	33S	**ISS-34/35 Crew:** Roman Romanenko (Commander, Russia), Christopher Hadfield (Flight engineer, Canada), Thomas Marshburn (Flight engineer, USA)	December 19, 2012 — May 14, 2013 145 days 14 h 18 min	December 19, 2012 — May 14, 2013 145 days 14 h 18 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) on — December 21, 2012

History of Flights 2013

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
132	Progress M-18M	50P	—	—	February 11, 2013 — July 26, 2013 164 days 10 h 0 min	Propellant and cargo delivery. Docking to Pirs DC1 according to the "fast scheme,, (5 h 52 min from the launch) on — February 12, 2013
133	Dragon CRS	SpX-2	—	—	March 01, 2013 — March 26, 2013 25 days 1 h 24 min	Cargo delivery. Capture and berth to Harmony module port using SSRMS on — March 3, 2013 Return to Earth of the used equipment and the results of the experiments conducted onboard ISS. Waste disposal. [splash down in the Pacific Ocean]
134	Soyuz TMA-08M	34S	**ISS-35/36 Crew:** Pavel Vinogradov (Commander, Russia), Aleksandr Misurkin (Flight engineer, Russia), Christopher Cassidy (Flight engineer, USA)	March 29, 2013 — September 11, 2013 166 days 6 h 15 min	March 29, 2013 — September 11, 2013 166 days 6 h 15 min	Implementation of fundamental, science and applied research. Docking with the use of new system Kurs-NA to Mini Research Module Poisk (MRM2) according to the "fast scheme“ (5 h 44 min from the launch) on — March 29, 2013 One EVA under russian program (Vinogradov and Romanenko). One EVA under american program (C. Cassidy и T. Marshburn).
135	Progress M-19M	51P	—	—	April 24, 2013 — June 19, 2013 56 days 3 h 28 min	Propellant and cargo delivery. Successfully docked with the ISS two days later, despite some concerns about Progress M-19M KURS antenna, which failed to deploy on orbit — April 26, 2013 From June 11, 2013 in a free flight. Conduct of Radar-Progress experiment.

136	Soyuz TMA-09M	35S	**ISS-36/37 Crew:** Fyodor Yurchikhin (Commander, Russia), Luca Parmitano (Flight engineer, ESA, Italy), Karen Nyberg (Flight engineer, USA)	May 29, 2013 — November 11, 2013 166 days 6 h 17 min	May 29, 2013 — November 11, 2013 166 days 6 h 17 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) according to the "fast scheme“ (5 h 39 min from the launch) on — May 29, 2013 Three EVAs under russian program (F.N. Yurchikhin, A.A. Misurkin). Two EVAs under american program (C. Cassidy, L. Parmitano). Undocking from MRM1 and docking to SM IC — November 1, 2013
137	ATV Albert Einstein	ATV4	—	—	June 6, 2013 — November 2, 2013 150 days 9 h 48 min	Delivery of food, water, fuel, materials and equipment. Docking to SM Zvezda on — June 15, 2013 From October 28, 2013 in a free flight
138	Progress M-20M	52P	—	—	July 28, 2013 — February 11, 2014 198 days 19 h 9 min	Propellant and cargo delivery. Docking to Pirs DC1 according to the "fast scheme“ (5 h 41 min from the launch) on — July 28, 2013 From February 3, 2014 in a free flight. Conduct of Izgib experiment.
139	HTV Kounotori	HTV4	—	—	August 3, 2013 — September 7, 2013 34 days 10 h 22 min	Delivery of food, water, science hardware, spare parts and a conversational "crewmate" of the robot kind. Capture and berth to Harmony module Nadir port using SSRMS on — August 09, 2013 From Sep. 04, 2013 in a free flight

140	Cygnus „S. S. G. David Low“	Orb-D1	—	—	September 18, 2013 — October 23, 2013 34 days 0 h 33 min	The second USA commercial supplier flight to ISS. Delivery of various cargoes and waste disposal. Demo-flight capture and berth to Harmony module port using SSRMS on — September 29, 2013 Undocking from ISS on — October 22, 2013
141	Soyuz TMA-10M	36S	**ISS-37/38 Crew:** Oleg Kotov (Commander, Russia), Sergey Ryazanskiy (Flight engineer, Russia), Michael Hopkins (Flight engineer, USA)	September 26, 2013 — March 11, 2014 166 days 6 h 17 min	September 26, 2013 — March 11, 2014 166 days 6 h 17 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) according to the "fast scheme“ (5 h 47 min from the launch) on — September 26, 2013 One EVA under russian program (O.V. Kotov, S.N. Riazansky).
142	Soyuz TMA-11M	37S	**ISS-37/38/39 Crew:** Mikhail Tyurin (Commander, Russia), Rick Alan Mastraccio (Flight engineer, USA), Koichi Wakata (Flight engineer, JAXA Japan)	November 7, 2013 — May 14, 2014 187 days 21 h 44 min	November 7, 2013 — May 14, 2014 187 days 21 h 44 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) according to the "fast scheme“ (6 h 14 min from the launch) on — November 7, 2013 Two EVAs under russian program (O.V. Kotov, S.N. Riazansky). Two EVAs under american program (M. Hopkins, R. Mastraccio).
143	Progress M-21M	53P	—	—	November 26, 2013 — June 9, 2014 195 days 20 h 40 min	Propellant and cargo delivery. The Kurs-NA docking system was tested by Progress M-21M during a fly-by of the ISS on — November 28, 2013 Docking to AO SM Zvezda on — November 29, 2013 Due to problems with the Kurs-NA docking system during the last test in November 2013, another test with the system was successfully done during a two-day free flying period. Undocking from ISS on — April 23, 20014 Docking to AO SM Zvezda on — April 25, 2014

History of Flights 2014

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
144	Cygnus „S. S. Charles Gordon Fullerton“	Orb-1	—	—	January 9, 2014 — February 18, 2014 41 days 0 h 12 min	The second flight of Cygnus to ISS. Delivery of various cargoes and waste disposal. Capture and berth to Harmony module port using SSRMS on — January 12, 2014 Undocking from ISS on — February 18, 2014
145	Progress M-22M	54P	—	—	February 5, 2014 — April 18, 2014 71 days 23 h 22 min	Propellant and cargo delivery. Docking to Pirs DC1 according to the "fast scheme“ on — February 6, 2014 From April 7, 2014 in a free flight. Conduct of Radar-Progress experiment.
146	Soyuz TMA-12M	38S	**ISS-39/40 Crew:** Aleksandr Scvortsov (Commander, Russia), Oleg Artemyev (Flight engineer, Russia), Steven Ray Swanson (Flight engineer, USA)	March 26, 2014 — September 11, 2014 169 days 5 h 6 min	March 26, 2014 — September 11, 2014 169 days 5 h 6 min	Implementation of fundamental, science and applied research. Docking to Mini Research Module Poisk (MRM2) on — March 28, 2014 One EVA under american program (R. Mastraccio, S. Swanson).
147	Progress M-23M	55P	—	—	April 9, 2014 — August 1, 2014 113 days 7 h 15 min	Propellant and cargo delivery. Docking to Pirs DC1 according to the "fast scheme“ on — April 10, 2014 From July 23, 2014 in a free flight. Conduct of Radar-Progress experiment.

148	Dragon CRS	SpX3	—	—	April 18, 2014 — May 18, 2014 29 days 23 h 40 min	Cargo delivery to ISS Capture and berth to Harmony module port using SSRMS on — April 20, 2014 Return to Earth of the scientific and used equipment, the constructive parts and the results of the experiments conducted onboard ISS. [splash down in the Pacific Ocean]
149	Soyuz TMA-13M	39S	**ISS-40/41 Crew:** Maksim Suraev (Commander, Russia), Raid Wiseman (Flight engineer, USA), Alexander Gerst (Flight engineer, ESA, Germany)	May 28, 2014 — November 10, 2014 165 days 7 h 1 min	May 28, 2014 — November 10, 2014 165 days 7 h 1 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) according to the "fast scheme“ on — May 29, 2014 Two EVAs under russian program (A.A. Scvortsov, O.G. Artemyev).
150	Cygnus „S. S. Janice Voss “	Orb-2	—	—	July 13, 2014 — August 17, 2014 34 days 20 h 23 min	The third flight of Cygnus to ISS. Delivery of various cargoes and waste disposal. Capture and berth to Harmony module port using SSRMS on — July 16, 2014 Undocking from ISS on — August 15, 2014
151	Progress M-24M	56P	—	—	July 24, 2014 — November 20, 2014 119 days 1 h 1 min	Propellant and cargo delivery. Docking to Pirs DC1 according to the "fast scheme“ on — July 24, 2014. From October 27, 2014 in a free flight. Conduct of Otrazhenie-5 experiment.
152	ATV Georges Lemaître	ATV5	—	—	July 30, 2014 — February 15, 2015 200 days 17 h 24 min	Delivery of food, water, fuel, materials and equipment. Docking to SM Zvezda on — August 12, 2014 Undocking from ISS on — February 14, 2015.

153	Dragon CRS	SpX4	—	—	September 21, 2014 — October 25, 2014 34 days 13 h 45 min	Cargo delivery to ISS and return to Earth of the scientific hardware and the results of the experiments conducted onboard ISS. Capture and berth to Harmony module port using SSRMS on — September 23, 2014 [splash down in the Atlantic Ocean]
154	Soyuz TMA-14M	40S	**ISS-41/42 Crew:** Alex. Samokutyaev (Commander, Russia), Elena Serova (Flight engineer, Russia), Barry Wilmore (Flight engineer, USA)	September 26, 2014 — March 12, 2015 167 days 5 h 49 min	September 26, 2014 — March 12, 2015 167 days 5 h 49 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) according to the "fast scheme“ on — September 26, 2014 One EVA under russian program (M.V. Suraev, A.M. Samokutyaev). Two EVAs under american program (R. Wiseman and A. Gerst, R. Wiseman and B. Wilmore
155	Cygnus „S. S. Deke Slayton“	Orb-3	—	—	October 29, 2014	Delivery of various cargoes. The launch vehicle Antares suffered an accident during the launch moment.
156	Progress M-25M	57P	—	—	October 29, 2014 — April 26, 2015 179 days 5 h 47 min	Propellant and cargo delivery. Docking to Pirs DC1 according to the "fast scheme“ on — October 29, 2014 From April 25, 2015 in a free flight
157	Soyuz TMA-15M	41S	**ISS-42/43 Crew:** Anton Shkaplerov (Commander, Russia), Terry Virts (Flight engineer, USA), Samanta Cristoforetti (Flight engineer, ESA, Italy)	November 24, 2014 — June 11, 2015 199 days 16 h 42 min	November 24, 2014 — June 11, 2015 199 days 16 h 42 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) according to the "fast" scheme on — November 24, 2014 Three EVAs under american program (T. Virts and B. Wilmore)

History of Flights 2015

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
158	Dragon CRS	SpX5	—	—	January 10, 2015 — February 11, 2015 31 days 14 h 57 min	Cargo, scientific and resourse equipment delivery to ISS. Capture and berth to Harmony module port using SSRMS on — January 12, 2015 Undocking from ISS on — February 10, 2015 Return to Earth of the scientific and used equipment, the constructive parts and the results of the experiments conducted onboard ISS. Waste disposal. [splash down in the Atlantic Ocean]
159	Progress M-26M	58P	—	—	February 17, 2015 — August 14, 2015 178 days 3 h 16 min	Propellant and cargo delivery Docking to Zvezda SM according to the "fast scheme“ — February 17, 2015. Undocking from ISS on — August 14, 2015.
160	Soyuz TMA-16M	42S	**ISS-43/44 Crew:** Gennady Padalka (Commander, Russia),	March 27, 2015 — September 12, 2015 168 days 5 h 10 min	March 27, 2015 — September 12, 2015 168 days 5 h 10 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) according to the "fast scheme“ on — March 28, 2015 May 27. 2015: Commander Terry Virts and One-Year crew member Scott Kelly prepared the PMM (Permanent Multipurpose Module) for its relocation. On August 28, 2015 Soyuz TMA-16M SC relocation to TC of SM Zvezda.
			At the launch : **ISS - 43/44/45/46Crew:** Mikhail Kornienko (Flight engineer, Russia), Scott Kelly (Flight engineer, USA)	March 27, 2015	—	[ISS - 43/44/45/46Crew: Return on Soyuz TMA-18M see No.: 167]

			At the return : **Visiting crew VC-18 :** Andreas Mogensen (Flight engineer, Denmark), Aimbetov Aydyn (Flight engineer, Rep. Kazakhstan)	September 2, 2015 — September 12, 2015 9 days 20 h 15 min		[Visiting crew VC-18 : Launched with Soyuz TMA-18M see No.: 167]
161	Dragon CRS	SpX6	—	—	April 14, 2015 — May 21, 2015 36 days 20 h 31 min	Cargo, scientific and resourse equipment delivery to ISS. Capture and berth to Harmony module port using SSRMS on — April 17, 2015 Undocking from ISS on — May 21, 2015 Return to Earth of the scientific and used equipment, the results of the experiments conducted onboard ISS. Waste disposal. [splash down in the Pacific Ocean]
162	Progress M-27M	59P	—	—	April 28, 2015 — May 8, 2015 9 days 18 h 54 min	Propellant and cargo delivery. An off-nominal separation occurred between the LV 3rd stage and the logistics vehicle. All attempts at docking the Progress M-27M spacecraft to the orbiting laboratory were called off, just a day after the cargo freighter was launched. Stopped its existence at the 160th circuit.
163	Dragon CRS	SpX7	—	—	June 28, 2015	Cargo, scientific and resourse equipment delivery to ISS. At roughly 139 seconds after launch, the Falcon 9 rocket experienced an anomaly which resulted in the loss of the vehicle. (Falcon-9 Rocket disintegratation on the 3rd minute after the launch.)
164	Progress M-28M	60P	—	—	July 3, 2015 — December 19, 2015 169 days 6 h 32 min	Propellant and cargo delivery. Docking to Pirs DC1 on — July 5, 2015 Undocking from ISS on — December 19, 2015

165	Soyuz TMA-17M	43S	**ISS-44/45 Crew:** Oleg Kononenko (Commander, Russia), Kimiya Yui (Flight engineer, JAXA Japan), Kjell Lindgren (Flight engineer, USA)	July 23, 2015 — December 11, 2015 141 days 16 h 16 min	July 23, 2015 — December 11, 2015 141 days 16 h 16 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) according to the "fast scheme“ on — July 23, 2015
166	HTV Kounotori	HTV5	—	—	August 19, 2015 — September 29, 2015 41 days 8 h 42 min	Delivery of food, water, science hardware. Capture and berth to Harmony module Nadir port using SSRMS on — August 24, 2015 Undocking from ISS on — September 28, 2015
167	Soyuz TMA-18M	44S	**ISS-45/46 Crew:** Sergey Volkov (Commander, Russia)	September 2, 2015 — March 2, 2016 181 days 23 h 52 min	September 2, 2015 — March 2, 2016 181 days 23 h 52 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) on — September 4, 2015.
			At the launch : **Visiting crew VC-18 :** Andreas Mogensen (Flight engineer, Denmark), Aimbetov Aydyn (Flight engineer, Rep. Kazakhstan)	September 2, 2015	—	Implementation of national research programs. [Visiting crew VC-18 : Return on Soyuz TMA-16M see No.: 160]
			At the return : **ISS - 43/44/45/46Crew:** Mikhail Kornienko (Flight engineer, Russia), Scott Kelly (Flight engineer, USA)	March 27, 2015 — March 2, 2016 340 days 8 h 47 min		[ISS - 43/44/45/46Crew: Launched with Soyuz TMA-16M see No.: 160]

168	Progress M-29M	61P	—	—	October 1, 2015 — April 8, 2016 189 days 21 h 28 min	Propellant and cargo delivery. Docking to Zvezda SM according to the "fast scheme“ on — October 2, 2015 Undocking from ISS on — March 30, 2016 From March 30, 2016 in a free flight. Conduct of Izgib experiment.
169	Cygnus Atlas V „S. S. Deke Slayton II“	OA4	—	—	December 6, 2015 — February 20, 2016 75 days 18 h 15 min	Delivery of various cargoes and waste disposal. Capture and berth to Unity module port using SSRMS on — December 9, 2015 Cygnus is the first cargo ship to be berthed to the Earth-facing port on the Unity module. Undocking from ISS on — February 19, 2016
170	Soyuz TMA-19M	45S	**ISS-46/47 Crew:** Yuri Malenchenko (Commander, Russia), Timothy Kopra (Flight engineer, NASA), Timothy Peake (Flight engineer, ESA United Kingdom)	December 15, 2015 — June 18, 2016 185 days 22 h 12 min	December 15, 2015 — June 18, 2016 185 days 22 h 12 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) according to the "fast scheme“ on — December 15, 2015 Just prior to docking, the KURS automated docking system failed, resulting in an abort. This resulted in a manual docking successfully taking place around 10 minutes later.
171	Progress MS-01	62P	—	—	December 21, 2015 — July 3, 2016 194 days 22 h 15 min	Propellant and cargo delivery. Docking to Pirs DC1 on — December 23, 2015 Undocking from the ISS on July 1, 2016 and re-docking in teleoperator control mode within the framework of flight developmental testing. Undocking from ISS on — July 2, 2016

History of Flights 2016 (launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
172	Soyuz TMA-20M [last of Russia's Soyuz TMA-M series spacecraft]	46S	**ISS-47/48 Crew:** Alexey Ovchinin (Commander, Russia), Oleg Skripochka (Flight engineer, Russia), Jeffry Williams (Flight engineer, USA)	March 19, 2016 — September 12, 2016 172 days 3 h 47 min	March 19, 2016 — September 12, 2016 172 days 3 h 47 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) according to the "fast scheme“ on — March 19, 2016 The BEAM (see No. 175), the first human-rated expandable habitat, is fully-inflated on the ISS on — May 28, 2016
173	Cygnus Atlas V „S.S. Rick Husband“	OA6	—	—	March 23, 2016 — June 22, 2016 91 days 10 h 24 min	Delivery of various cargoes and waste disposal. Capture and berth to Unity module port using SSRMS on — March 26, 2016 Undocking from ISS on — June 14, 2016 for conducting of experiment to study combustion in microgravity in autonomous flight and launch of 4 nanosputniks.
174	Progress MS-02	63P	—	—	March 31, 2016 — October 14, 2016 198 days 21 h 15 min	Propellant and cargo delivery. Docking to TC of SM Zvezda on — April 02, 2016 Undocking from ISS on — October 14, 2016
175	Dragon CRS	SpX8	—	—	April 8, 2016 — May 11, 2016 32 days 22 h 11 min	The spacecraft is delivering almost 7,000 pounds of cargo, including the Bigelow Expandable Activity Module (BEAM). [The Falcon 9 rocket booster descended under engine power to a floating landing platform in the Atlantic Ocean, notching the first-ever rocket landing at sea minutes after liftoff from Cape Canaveral] Capture and berth to the Earth-facing port on the Harmony module using SSRMS on — April 10, 2016 Undocking from ISS on — May 11, 2016 Return to Earth of the scientific results of the experiments conducted onboard ISS. [splash down in the Pacific Ocean]

176	Soyuz MS - 01	47S	**ISS-48/49 Crew:** Anatoli Ivanishin (Commander, Russia), Takuya Onishi (Flight engineer, JAXA Japan), Kathleen Rubins (Flight engineer, USA)	July 7, 2016 — October 30, 2016 115 days 2 h 22 min	July 7, 2016 — October 30, 2016 115 days 2 h 22 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) on — July 9, 2016
177	Progress MS-03	64P	—	—	July 17, 2016 — January 31, 2017 198 days 20 h 42 min	Propellant and cargo delivery. Docking to Pirs DC1 on — July 19, 2016 Undocking from ISS on — January 31, 2017
178	Dragon CRS	SpX9	—	—	July 18, 2016 — August 26, 2016 39 days 11 h 3 min	Cargo, scientific and resourse equipment delivery to ISS. Delivery of International Docking Adapter (IDA) Capture and berth to Harmony nadir module port using SSRMS on — July 20, 2016 Undocking from ISS on — August 26, 2016 Return to Earth of the scientific results of the experiments conducted onboard ISS. [splash down in the Pacific Ocean]
179	Cygnus „S. S. Alan Poindexter“	OA5	—	—	October 18, 2016 — November 28, 2016 40 days 23 h 50 min	Delivery of various cargoes and waste disposal. Capture and berth to Unity module port using SSRMS on — October 23, 2016 Undocking from ISS on — November 21, 2016 for conducting of experiment to study combustion in microgravity in autonomous flight (Saffire-2) and launch of 4 nanosputniks.
180	Soyuz MS-02	48S	**ISS-49/50 Crew:** Sergey Ryzhikov (Commander, Russia), Andrey Borisenko (Flight engineer, Russia), Robert Kimbrough (Flight engineer, USA)	October 19, 2016 — April 10, 2017 173 days 3 h 16 min	October 19, 2016 — April 10, 2017 173 days 3 h 16 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) on — October 21, 2016.

181	Soyuz MS-03	49S	**ISS-50/51 Crew:** Oleg Novitsky (Commander, Russia), Thomas Pesquet (Flight engineer, ESA France),	November 17, 2016 — June 2, 2017 196 days 17 h 50 min	November 17, 2016 — June 2, 2017 196 days 17 h 50 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) on — November 20, 2016
			At the launch : **ISS-50/51/52 Crew:** Peggy Whitson (Flight engineer, USA)	November 17, 2016	—	Implementation of fundamental, science and applied research. [ISS-50/51/52 Crew: Return on Soyuz MS-04 see No.: 187]
			At the return : Oleg Novitsky (Commander, Russia), Thomas Pesquet (Flight engineer, ESA France) only	—		—
182	Progress MS-04	65P	—	—	December 1, 2016 14:51:52 UTC (8:51 p.m. Baikonur time)	Six minutes into the flight, the telemetry stopped coming from the spacecraft during the powered flight of the third stage of the Soyuz-U launch vehicle. The cargo vehicle was lost 382 seconds into flight. The Russian space agency Roscosmos has confirmed the Progress cargo resupply spacecraft bound for the International Space Station has been lost.
183	HTV Kounotori	HTV6	—	—	December 9, 2016 — February 6, 2017 58 days 1 h 38 min	Delivery of food, water, science hardware. Capture and berth to Harmony module nadir port using SSRMS on — December 13, 2016 Undocking from ISS on — January 27, 2017 for conducting an experiment (removal of debris from Earth orbit).

History of Flights 2017

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
184	Dragon CRS	SpX10	—	—	February 19, 2017 — March 19, 2017 28 days 0 h 7 min	Cargo, scientific and resourse equipment delivery First docking attempt on — February 21, 2017 failed Capture and berth to Harmony module port using SSRMS on — February 23, 2017 Undocking from ISS on — March 19, 2017 Return to Earth of the scientific and used equipment, the results of the experiments conducted onboard ISS. Waste disposal. [splash down in the Pacific Ocean]
185	Progress MS-05	66P	—	—	February 22, 2017 — July 21, 2017 148 days 15 h 42 min	Propellant and cargo delivery. Docking to Pirs DC1 on — February 24, 2017 Undocking from ISS on — July 20, 2017
186	Cygnus Atlas V „S.S. John Glenn“	OA7	—	—	April 18, 2017 — June 11, 2017 54 days 3 h 7 min	Delivery of various cargoes and waste disposal. Capture and berth to Node-1 Unity using SSRMS on — April 22, 2017 Undocking from ISS on — June 04, 2017 Cygnus will remain in orbit for a week for conducting of experiment to study combustion in microgravity in autonomous flight (SAFFIRE 3) and launch of 4 small sputniks Lemur-2.

187	Soyuz MS-04 [The 50th Soyuz to fly to the ISS since 2000]	50S	<u>ISS-51/52 Crew:</u> Fedor Yurchikhin (Commander, Russia), Jack Fischer (Flight engineer, USA) - - - - - - - - - - - - *At the return :* **<u>ISS-50/51/52 Crew:</u>** Peggy Whitson (Flight engineer, USA)	April 20, 2017 (07:13 UTC) — September 3, 2017 135 days 18 h 8 min - - - - - - - - - - November 17, 2016 — September 3, 2017 289 days 5 h 1 min	April 20, 2017 (07:13 UTC) — September 3, 2017 135 days 18 h 8 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) on — April 20, 2017 (13:18 UTC) - [ISS-50/51/52 Crew: Launched with Soyuz MS-03 see No.: 181]
188	Dragon CRS	SpX11	—	—	June 4, 2017 — July 3, 2017 28 days 15 h 7 min	Cargo, scientific and resourse equipment delivery Capture and berth to the Earth facing side of the Harmony module port using SSRMS on — June 05, 2017 Undocking from ISS on — July 03, 2017 [The Dragon freighter is the same ship that spent 34 days in space in September / October 2014 (SpX-4). The return marked the first time a Dragon capsule has splashed down at night.] [First nighttime splash down in the Pacific Ocean]
189	Progress MS-06	67P	—	—	June 14, 2017 — December 28, 2017 196 days 19 h 14 min	Propellant and cargo delivery. Docking to TC of SM Zvezda on — June 16, 2017

190	Soyuz MS-05	51S	**ISS-52/53 Crew:** Sergey Ryazanskiy (Commander, Russia), Randy Bresnik (Flight engineer, USA) Paolo Nespoli (Flight engineer, ESA Italy)	July 28, 2017 — December 14, 2017 138 days 16 h 57 min	July 28, 2017 — December 14, 2017 138 days 16 h 57 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) with a fast-tracked, four-orbit rendezvous (6h 13 min) on — July 29, 2017
191	Dragon CRS	SpX12	—	—	August 14, 2017 — September 17, 2017 33 days 22 h 9 min	Cargo, scientific and resourse equipment delivery Capture and berth to the Earth-facing side of the Harmony module port using SSRMS on — August 16, 2017 Undocking from ISS on — September 17, 2017 Return to Earth of the scientific and used equipment, the results of the experiments conducted onboard ISS. Waste disposal. [splash down in the Pacific Ocean]
192	Soyuz MS-06	52S	**ISS-53/54 Crew:** Alexander Misurkin (Commander, Russia), Mark Vande Hei (Flight engineer, USA), Joseph Acaba (Flight engineer, USA)	September 13, 2017 — February 28, 2018 168 days 5 h 14 min	September 13, 2017 — February 28, 2018 168 days 5 h 14 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) on — September 13, 2017
193	Progress MS-07	68P	—	—	October 14, 2017 — April 26, 2018 193 days 20 h 4 min	Propellant and cargo delivery. Docking to nadir docking port on the Pirs compartment (DC1) on — October 16, 2017. Undocking from ISS on — March 28, 2018 for conducting of scientific experiments in autonomous flight.

194	Cygnus Antares „S.S. Gene Cernan“	OA8E	—	—	November 12, 2017 — December 18, 2017 36 days 0 h 35 min	Delivery of various cargoes and waste disposal. Capture and berth to Unity module port using SSRMS on — November 14, 2017 Undocking from ISS on — December 6, 2017 for the launch of 14 small sputniks in autonomous flight.
195	Dragon CRS [Falcon 9 use the same first stage as on SpX11]	SpX13	—	—	December 15, 2017 — January 13, 2018 29 days 0 h 1 min	Cargo, scientific and resourse equipment delivery Capture and berth to the Earth-facing side of the Harmony module port using SSRMS on — December 17, 2017 [The Dragon freighter is the same ship that spent 36 days in space in April / May 2015 (SpX6)] [splash down in the Pacific Ocean] [Starting with SpX13, all future Dragon cargo resupply missions will utilize previously flown Dragon capsules.]
196	Soyuz MS-07	53S	**ISS-54/55 Crew:** Anton Shkaplerov (Commander, Russia), Scott Tingle (Flight engineer, USA), Norishige Kanai (Flight engineer, JAXA Japan)	December 17, 2017 — June 3, 2018 168 days 5 h 19 min	December 17, 2017 — June 3, 2018 168 days 5 h 19 min n	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) on — December 19, 2017

History of Flights 2018

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
197	Progress MS-08	69P	—	—	February 13, 2018 — August 30, 2018 197 days 17 h 53 min	Propellant and cargo delivery. Docking to nadir docking port on the Zvesda compartment on — February 15, 2018 Undocking from ISS on — August 23, 2018 for conducting of scientific experiments in autonomous flight.
198	Soyuz MS-08	54S	**ISS-55/56 Crew:** Oleg Artemiev (Commander, Russia), Andrew Feustel (Flight engineer, USA), Richard Arnold (Flight engineer, USA)	March 21, 2018 — October 4, 2018 196 days 18 h 1 min	March 21, 2018 — October 4, 2018 196 days 18 h 1 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) on — March 23, 2018
199	Dragon CRS [Falcon 9 use the same first stage as on SpX12]	SpX14	—	—	April 2, 2018 — May 5, 2018 33 days 1 h 30 min	Cargo, scientific and resourse equipment delivery. Capture and berth to Harmony module port (Node 2 Nadir) using SSRMS on — April 04, 2018 Undocking from ISS on — May 05, 2018 Return to Earth of the scientific and used equipment, the results of the experiments conducted onboard ISS. Waste disposal. [The Dragon freighter is the same ship that spent 33 days in space in April / May 2016 (SpX8)] [splash down in the Pacific Ocean]

200	Cygnus Antares „S. S. James Robert Thompson Jr.“	OA9E	—	—	May 21, 2018 — July 30, 2018 70 days 0 h 33 min	Delivery of various cargoes and waste disposal. Capture and berth to Unity module port using SSRMS on — May 24, 2018 Undocking from ISS on — July 15, 2018. Following its release, Cygnus launched 6 cubsats in autonomous flight. The cargo craft remain in orbit to allow the Cygnus flight control team to conduct engineering tests.
201	Soyuz MS-09	55S	**ISS-56/57 Crew:** Sergey Prokopiev (Commander, Russia), Alexander Gerst (Flight engineer, ESA Germany), Serena Aunon- Chandler (Flight engineer, USA)	June 6, 2018 — December 20, 2018 196 days 17 h 50 min	June 6, 2018 — December 20, 2018 196 days 17 h 50 min	Implementation of fundamental, science and applied research. Docking to Rassvet module (MRM1) on — June 08, 2018 [During the night of 29 August 2018, a small air leak in the ISS was noticed by ground control. A 2 mm hole in the Soyuz orbital module was discovered, and later have been hidden with patch job.]
202	Dragon CRS [Falcon 9 use the same first stage as on the start of the „TESS Satellite“]	SpX15	—	—	June 29, 2018 — August 4, 2018 35 days 12 h 35 min	Cargo, scientific and resourse equipment delivery to ISS. Capture and berth to Harmony module port using SSRMS on — July 2, 2018 Undocking from ISS on — August 4, 2018 Return to Earth of the scientific and used equipment, the results of the experiments conducted onboard ISS. Waste disposal. [The Dragon freighter is the same ship that spent 39 days in space in July / August 2016 (SpX9)] [splash down in the Pacific Ocean]
203	Progress MS-09	70P	—	—	July 10, 2018 — January 25, 2019 199 days 18 h 59 min	Propellant and cargo delivery. Docking to Pirs DC1 according to the "superfast scheme“ (3 h 40 min from the launch, just two orbits) on — July 10, 2018

204	HTV Kounotori	HTV7	—	—	September 22, 2018 — November 10, 2018 49 days 4 h 7 min	Delivery of food, water, science hardware. Capture and berth to Harmony module nadir port using SSRMS on — September 27, 2018 Undocking from ISS on — November 7, 2018 The HTV Small Re-entry Capsule (HSRC) , will serve as a pressurized reentry vehicle capable of safely and quickly returning experiments from the ISS for retrieval and dissemination to scientists. JAXA confirmed recovery of the test capsule.
205	Soyuz MS-10	56S	**ISS-57/58 Crew:** Alexey Ovchinin (Commander, Russia), Nick Hague (Flight engineer, USA)	October 11, 2018 08:40:15 UTC to 08:59:56 UTC 0 days 0 h 19 min 40 sec suborbital mission	October 11, 2018 08:40:15 UTC to 08:59:56 UTC 0 days 0 h 19 min 40 sec suborbital mission	**Abnormal LV launch** ***The Soyuz MS-10 launched from the Baikonur Cosmodrome in Kazakhstan to the ISS at Thursday, October 11, 2:40 p.m. Baikonur , 4:40 a.m. EDT, 08:40 UTC. Shortly after launch, there was an issue with the booster. "Emergency at 2 minutes and 45 seconds, a failure of the booster occured," Teams have confirmed the spacecraft separated from the booster and are in contact with the crew as the capsule returns in a ballistic decent mode. The Soyuz descending under its parachute and landing about 12 miles (20 kilometers) east of the remote Kazakh town of Dzhezkazgan. The search and recovery team has reached the landing site, and the crew is out of the capsule and in good condition.***
206	Progress MS-10	71P	—	—	November 16, 2018 Friday 18:14 UTC — June 5, 2019 199 days 18 h 15 min	Propellant and cargo delivery. Docking to TC of SM Zvezda on — Nov. 18, 2018 (19:28 UTC) [see No. 207] Undocking from ISS on — June 04, 2019

207	Cygnus Antares „ S.S. John Young“	NG10 (OA10)	—	—	November 17, 2018 Saturday 09:01 UTC — February 25, 2019 100 days 10 h 4 min	Delivery of various cargoes and waste disposal. Capture and berth to Earth-facing Unity module port using SSRMS on — Nov. 19, 2018 (12:31 UTC) [see No. 206] Undocking from ISS on — December 08, 2019 After separation from the ISS, Cygnus rise to a higher orbit (about 500 km), used a new CubeSat deployer, called SlingShot, developed by SEOPS to release two satellites (David and Goliath II Quantum Radar) on — February 08, 2019 Then Cygnus lowered its orbit to about 186 miles (300 kilometers), about 62 miles (100 kilometers) below the space station, to deploy KickSat-2, which itself is a deployer for 100 “ChipSats.” on — February 18, 2019
208	Soyuz MS-11	57S	**ISS-58/59 Crew:** Oleg Kononenko (Commander, Russia), David Saint-Jacques (Flight engineer, CSA), Ann McClain (Flight engineer, USA)	December 3, 2018 — June 25, 2019 203 days 15 h 17 min	December 3, 2018 — June 25, 2019 203 days 15 h 17 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) according to the "superfast scheme“ (6 h 2 min from the launch, just four orbits) on — December 3, 2018
209	Dragon CRS	SpX16	—	—	December 5, 2018 — January 14, 2019 39 days 10 h 54 min	Cargo, scientific and resourse equipment delivery to ISS. Capture and berth to Harmony module nadir port using SSRMS on — December 08, 2018. Undocking from ISS on — January 14, 2019. Return to Earth of the scientific, the results of the experiments conducted onboard ISS. [The Dragon freighter is the same ship that spent 28 days in space in February / March 2017 (SpX10)] [Second nighttime splashdown down in the Pacific Ocean]

History of Flights 2019

(launch dates are given in standard Moscow time)

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
210	Crew Dragon [Falcon 9]	SpaceX DM-1	unmanned	—	March 2, 2019 2:49 a.m. EST — March 8, 2019 8:45 a.m. EST [splash down in the Atlantic Ocean] 6 days 5 h 56 min	First test flight of Crew Dragon to ISS without crew. Docking to Harmony module forward port (N2 Fwd) via “soft capture” on : Docking : 11:02 UTC, March 03 Hatch open: 13:07 UTC , March 03 Hatch closed: 17:39 UTC, Mar. 07 Undocking: 07:31 UTC, March 08 Landing: 13:45 UTC, March 08 Landing approximately 230 miles off the coast of Cape Canaveral, Florida Return to Earth of 136 kg of various cargoes, including the results of the experiments conducted onboard ISS
211	Soyuz MS-12	58S	**ISS-59/60 Crew:** Aleksei Ovchinin (Commander, Russia), Nick Hague (Flight engineer, USA),	March 14, 2019 — October 3, 2019 202 days 15 h 46 min	March 14, 2019 — October 3, 2019 202 days 15 h 46 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Rassvet" (MRM1) after a 4-orbit, 6-hour journey on — March 15, 2019 Undocking from ISS on — October 03, 2019
			At the launch : **ISS-59/60/61 Crew:** Christina Koch (Flight engineer, USA)	March 14, 2019	—	[ISS-59/60/61 Crew: Return on Soyuz MS-13 see No.: 215]
			At the return : **Visiting crew VC -19:** H. Al Mansoori (Flight engineer, UAE)	September 25, 2019 — October 3, 2019 7 days 21 h 1 min		[Visiting crew VC -19: Launched with Soyuz MS-15 see No.: 220]

						The moment of docking of Soyuz MS-12 at the ISS was considered the official beginning of Expedition 59 , instead of a traditional start of a new long-duration shift with the departure of a previous crew. This break with tradition was apparently prompted by the Soyuz MS-10 launch accident which delayed staffing the station with its complete six-member crew and delaying the official start of Expedition 59
212	Progress MS-11	72P	—	—	April 4, 2019 — July 29, 2019 115 days 23 h 42 min	Propellant and cargo delivery. Docking to Pirs DC1 according to the "superfast scheme“ (3 h 21 min from the launch) on — April 4, 2019 Undocking from ISS on — July 29, 2019 [The launch from Baikonur on April 04, 2019 is the first of two flights by the Russian Soyuz rocket family in five-and-a-half hours. A separate team is preparing a Soyuz ST-B rocket for liftoff at the Guiana Space Center, the European-run spaceport in South America, with four commercial communications satellites]
213	Cygnus "S.S. Roger Chaffee,"	NG11	—	—	April 17, 2019 — December 6, 2019 232 days, 18 h 42 min	Delivery of various cargoes and waste disposal. Capture and berth to a berthing port on the nadir, or Earth-facing side of the station’s Unity module on — April 19, 2019 Undocking from ISS on — July 6, 2019 Within 24 hours of its release, Cygnus started its secondary mission, deploying a series of CubeSats.

214	Dragon CRS [Erststufe Falcon 9, B1056]	SpX17	—	—	May 4, 2019 — June 3, 2019 30 days 15 h 7 min	Cargo, scientific and resourse equipment delivery to ISS. Capture and berth to the Earth-facing side of the Harmony module port using SSRMS on — May 6, 2019. Undocking from ISS on — June 3, 2019 Return to Earth of the scientific results of the experiments conducted onboard ISS. [The Dragon freighter is the same ship that spent 33 days in space in August / September 2017 (SpX12)] [splash down in the Pacific Ocean]
215	Soyuz MS-13	59S	**ISS-60/61 Crew:** Alexandr Skvortsov (Commander, Russia), Luka Parmitano (Flight engineer, ESA Italy),	July 20, 2019 — February 6, 2020 200 days 16 h 44 min	July 20, 2019 — February 6, 2020 200 days 16 h 44 min	Implementation of fundamental, science and applied research. Docking to Zvezda Service Module, SM after a four-orbit, 6-hour, 20-min. Journey on — July 20, 2019 Redock of the Soyuz MS-13 from Zvezda to Mini-Research Module "Poisk" (MRM2) on — August 26, 2019
			At the launch : **ISS-60/61/62 Crew:** Andrew Morgan (Flight engineer, USA)	July 20, 2019	—	[ISS-60/61/62 Crew: Return on Soyuz MS-15 see No.: 220]
			At the return : **ISS-59/60/61 Crew:** Christina Koch (Flight engineer, USA)	March 14, 2019 — February 6, 2020 328 days 13 h 59 min		[ISS-59/60/61 Crew: Launched with Soyuz MS-12 see No.: 211]

						Fifty years to the day after Neil Armstrong stepped onto the surface of the moon, a NASA astronaut, an Italian flight engineer and a Russian commander blasted off from Kazakhstan July 20, 2019 aboard a Soyuz spacecraft. *In contrast, other anniversaries, such as Sputnik 1, seem almost like a historical footnote. April 12th is also usually only an important date for space fans:* *That was when the space shuttle flew for the first time in 1981 and since 2001 there has been the worldwide space party "Yuris Night" on this day.* *And of course there was the flight of a certain Yuri Alexeyevich Gagarin, who on April 12, 1961, pushed open the gate for manned space travel.*
216	Dragon CRS [Erststufe Falcon 9, B1056.2]	SpX18	—	—	July 25, 2019 — August 27, 2019 32 days 22 h 19 min	Cargo, scientific and resourse equipment delivery to ISS, incl. a new International Docking Adapter – 3 (IDA-3). Capture and berth to the Earth-facing side of the Harmony module port using SSRMS on — July 27, 2019 Undocking from ISS on — August 27, 2019 Return to Earth of the scientific results of the experiments conducted onboard ISS. [The Dragon freighter is the same ship that spent 36 days in space in April / May 2015 (SpX6) and 29 days in space in December 2017 / January 2018 (SpX13)] [splash down in the Pacific Ocean]
217	Progress MS-12	73P	—	—	July 31, 2019 — November 29, 2019 121 days 2 h 8 min	Propellant and cargo delivery. Docking to Pirs DC1 according to the "superfast scheme" (3 h 21 min from the launch) on — July 31, 2019 Undocking from ISS on — November 29, 2019

218	Soyuz MS-14 [LV - Soyuz - 2.1a] [Baikonur, LC 31/6]	60S	unmanned	—	August 22, 2019 — September 7, 2019 15 days 17 h 53 min	Cargo, scientific and resourse equipment delivery to ISS. Soyuz MS-14 lift off from the Baikonur for a test of its upgraded 2.1a Soyuz booster. The docking on August 24 on the station's Poisk module was aborted ahead of final approach due to issues with the KURS rendezvous system on the ISS. Redock of the Soyuz MS-13 from Zvezda to Mini-Research Module "Poisk" (MRM2) on — August 26, 2019, now the Zvezda aft port was free for Soyuz MS-14. Docking to Zvezda Service Module SM, aft on — August 27, 2019 Undocking from ISS on — September 06, 2019 Instead of a crew, the Soyuz MS-14 spaceship is hauling the Russian „Skybot F-850 robot“, a two-legged, two-armed humanoid stand-in for a cosmonaut ommander FEDOR - Final Experimental Demonstration Object Research
219	HTV Kounotori	HTV8	—	—	September 24, 2019 — November 3, 2019 39 days 10 h 4 min	Delivery of food, water, science hardware. Capture and berth to Harmony module port using SSRMS on — September 27, 2018 Undocking from ISS on — November 01, 2019
220	Soyuz MS-15	61S	**ISS-61/62 Crew:** O. Skripochka (Commander, Russia), Jessica Meir (Flight engineer, USA)	September 25, 2019 — April 17, 2020 204 days 15 h 19 min	September 25, 2019 — April 17, 2020 204 days 15 h 19 min	Implementation of fundamental, science and applied research. Docking to TC of SM Zvezda on — September 25, 2019 Undocking from ISS on — April 17, 2020

	Soyuz MS-15 cont.		*At the launch :* **Visiting crew VC 19 :** H. Al Mansoori (Flight engineer, UAE) - - - - - - - - - - - - - - - *At the return :* **ISS-60/61/62 Crew:** Andrew Morgan (Flight engineer, USA)	September 25, 2019 - - - - - - - - - - July 20, 2019 — April 17, 2020 271 days 12 h 49 min	—	Performance of scientific experiments under program of the Russian VC-19 [Visiting crew VC 19 : Return on Soyuz MS-12 see No.: 211] - [ISS-60/61/62 Crew: Launched with Soyuz MS-13 see No.: 215]
221	Cygnus „S.S. Alan Bean“	NG12	—	—	November 2, 2019 — March 17, 2020 136 days 9 h 0 min	Delivery of various cargoes and waste disposal. Capture and berth to Unity module port using SSRMS on — November 4, 2019 Undocking from ISS on — January 31, 2020 NG-12 is now starting its second mission phase until the end of February as an independently operating satellite (46 days). [Cygnus NG11 and NG12 : Withe the start of NG12 now two Cygnus spacecrafts are in space at the same time]
222	Dragon CRS [Erststufe Falcon 9, B1059]	SpX19	—	—	December 05, 2019 — January 07, 2020 32 days 22 h 11 min	Cargo, scientific and resourse equipment delivery to ISS. Capture and berth to Harmony module port, Earth-facing side, using SSRMS on — December 8, 2019 Undocking from ISS on — January 7, 2020 Return to Earth of the scientific results of the experiments conducted onboard ISS. [The Dragon freighter is the same ship that spent 34 days in space in Sep. / Oct. 2014 (SpX4) and 28 days in space in June/July 2017 (SpX11)] [splash down in the Pacific Ocean]

223	Progress MS-13	74P	—	—	December 6, 2019 — July 9, 2020 215 days 12 h 31 min	Propellant and cargo delivery. Docking to Pirs DC1 compartment on — December 9, 2019 Undocking from ISS on — July 8, 2020
224	Comercial Crew CST-100 Starliner [United Launch Alliance - Atlas V] «Boeing CST-100 Starliner» Spacecraft 3 „Calypso“	Boe-OFT (OFT-1)	unmanned	—	December 20, 2019 11:36:43 UTC — December 22, 2019 12:58:53 UTC [White Sands Missile Range, New Mecixo, USA] 2 days 1 h 22 min	First test flight of Comercial Crew CST-100 STARLINER to ISS without crew, but loaded with 250 kg of cargo. The uncrewed Boeing Starliner spacecraft launched on a United Launch Alliance Atlas V rocket at 6:36 a.m. EST, from Space Launch Complex 41 at Cape Canaveral Air Force Station on a flight test to the ISS. The Starliner did not reach the planned orbit and will not dock to the space station. Due to an error in the Mission Elapsed Time counter, after separation from the LV vehicle the spacecraft spent too much propellant on correcting its position, precluding any chance of rendezvous and docking with the ISS. Teams worked quickly to ensure the spacecraft was in a stable orbit and preserved enough fuel for a landing opportunity. Boeing and NASA plan to land the spacecraft at White Sands, New Mexico on December 22, 2019 Landing on : — December 22, 2019 at 07:58 a.m. EST at White Sands Missile Range, New Mecixo, USA (night landing). Instead of a crew, the CST-100 spaceship is hauling a two-legged, two-armed american anthropometric test dummy, named „Rosie“.

№	Space Vehicle	Flight Number	Crew	Flight Dates and Duration		Flight Tasks
				Crew	Space Vehicle	
225	Cygnus „S.S. Robert Henry Lawrence, Jr.“	NG13	—	—	February 15, 2020 — May 29, 2020 103 days, 23 h, 7 min	Delivery of various cargoes and waste disposal. Capture and berth to Earth-facing port of the Unity module using SSRMS on — February 18, 2020 Undocking from ISS on — May 11, 2020 Continue more science before its ultimate demise at the end of May deorbit to burn up in Earth's atmosphere [This is the second time two Cygnus spacecraft are in flight at the same time, as the NG12 vehicle remains in orbit after departing from the station on January 31, 2020] [see No.: 221]
226	Dragon CRS [Erststufe Falcon 9 B1059.1]	SpX20	—	—	March 7, 2020 — April 7, 2020 31 days, 13 h, 59 min	Cargo, scientific and resourse equipment delivery to ISS. Capture and berth to Harmony module port using Canadarm-2 on — March 9, 2020 Undocking from ISS on — April 7, 2020 [The Dragon freighter is the same ship that spent 28 days in space in Feb./March 2017 (SpX10) and 39 days in space in December 2018 / Jan. 2019 (SpX16)] [For the final time, a SpaceX Dragon cargo capsule was released from the ISS robotic arm and splashed down hours later in Pacific Ocean southwest of Los Angeles] [Next flights switch to Dragon 2 Cargo / Crew Dragon under the Phase 2 CRS contract]

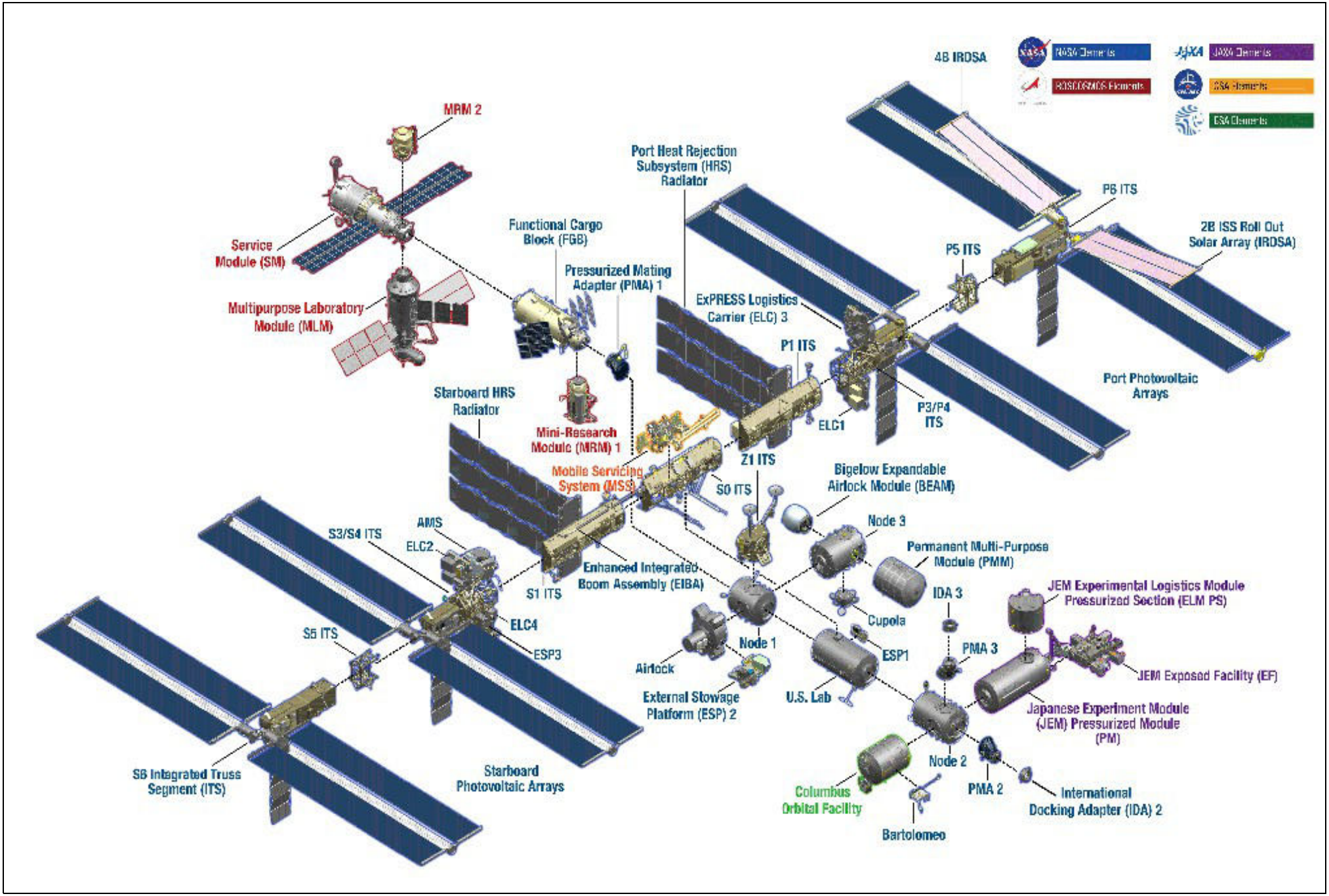
227	Soyuz MS-16 [upgraded 2.1a Soyuz booster]	62S	**ISS-62/63 Crew:** Anatoly Ivanishin (Commander, Russia), Ivan Wagner (Flight engineer, Russia), Christopher Cassidy (Flight engineer, USA)	April 09, 2020 — October 22, 2020 02:54 UTC 180 days 1 h 2 min	April 09, 2020 — October 22, 2020 02:54 UTC 180 days 1 h 2 min	Implementation of fundamental, science and applied research. Docking to Mini-Research Module "Poisk" (MRM2) on — April 9, 2020 Undocking from ISS on — October 21, 2020 [23:32 UTC]
228	Progress MS-14	75P	—	—	April 25, 2020 01:42 UTC — April 29, 2021 00:42 UTC 370 days 1 h 42min	Propellant and cargo delivery. Docking to TC of SM Zvezda module according to the "superfast scheme“ (3 h 20 min from the launch) on — April 25, 2020 [05:12 UTC] Undocking from ISS on — April 27, 2021 [23:11 UTC]
229	HTV Kounotori	HTV9	—	—	May 20, 2020 — August 20, 2020 91 days 13 h 36 min	Delivery of food, water, science hardware. Capture and berth to Harmony module port using SSRMS on — May 25, 2020 Undocking from ISS on — August 18, 2020

230	Crew Dragon Endeavour [Capsule No. :206] «Dragon V2» [Erststufe Falcon 9 B1058.1]	SpaceX DM-2 [SpaceX Demo-2]	**ISS-63 Crew:** Douglas Harly (Spacecraft Commander or CDR, USA), Robert Behnken (Joint Operations Commander, but for radio calls, Pilot (PLT), USA)	May 30, 2020 19:22:45 UTC — August 2, 2020 18:48:06 UTC 63 days 23 h 25 min	May 30, 2020 19:22:45 UTC — August 2, 2020 18:48:06 UTC 63 days 23 h 25 min [splash down in the Gulf of Mexico]	The first crewed flight to the ISS of the US commercial reusable spacecraft. Tasks to check the performance of Falcon 9 LV, Crew Dragon spacecraft, ground infrastructure, as well as launch, rendezvous, docking with ISS and splashdown operations. Automatic docking to the docking adapter on the Harmony Node module fwd. port on : Docking: 14:27 UTC May 31 Hatch open: 7:02 UTC May 31 Hatch closed: 21:36 UTC August 01 Undocking: 3:35 UTC August 01 Landing: 18:48 UTC August 02 Landing appr. 39 mils (63km) south of Pensacola / Mobile at the splashdown site „Pensacola“ / Gulf of Mexico At the recovery ship „Go Navigator“ : Hatch open: 19:59 UTC August 02 [SpaceX technicians detected elevated levels of nitrogen tetroxide outside the spacecraft. The recovery team purged part of the spacecraft to rid it of the toxic contaminants before opening the hatch] [It is the first crewed orbital spaceflight launched from the United States since the final Space Shuttle mission, in 2011, and also the first crewed orbital flight ever operated by a commercial provider. The first stage landed on the „Autonomous Spaceport Drone Ship“ with the name „Of Course I Still Love You“ for recovery and reuse.]
231	Progress MS-15	76P	—	—	July 23, 2020 — February 9, 2021 200 days 18 h 46 min	Propellant and cargo delivery. Docking to Pirs DC1 according to the "superfast scheme“ (3 h 18 min 31 s from the launch) on — July 23, 2020 Undocking from ISS on — February 9, 2021

232	Cygnus „S.S. Kalpana Chawla“	NG14	—	—	October 3, 2020 — January 26, 2021 115 days, 19 h, 6 min	Delivery of various cargoes and waste disposal. Capture and berth to Unity module’s Earth-facing port using SSRMS on — October 5, 2020 Undocking from ISS on — January 6, 2021 Cygnus orbit the Earth on its own until January 26, 2021 for a series of flight tests and automated science experiments before deorbiting above the Pacific Ocean for a fiery, but safe destruction.
233	Soyuz MS-17	63S	**ISS-63/64 Crew:** Sergey Ryzhikov (Commander, Russia), Sergey Kud-Sverchkov (Flight engineer, Russia), Kathleen Rubins (Flight engineer, USA)	October 14, 2020 — April 17, 2021 184 days 23 h 10 min	October 14, 2020 — April 17, 2021 184 days 23 h 10 min	Implementation of fundamental, science and applied research. Docking to „Rassvet“ docking port (MRM-1) according to the "superfast scheme“ (3h 3min 45sec from the launch) on — October 14, 2020 Soyuz MS-17 relocation from Rassvet to Poisk (MRM-2) on — March 19, 2021 Undocking from ISS on — April 17, 2021 The re-docking of the Soyuz MS-17 spacecraft is due to the need to carry out the crew's space ejection (EVA-48) in order to complete the preparations for undocking and removing the «PIRS» (SO-1) module for subsequent docking of the laboratory module «NAUKA» at this point.
234	Crew Dragon Resilience [Capsule No. :207] [Erststufe Falcon 9 B1061.1]	SpaceX Crew-1	**ISS-64/65 Crew:** Michael Hopkins (Commander, USA), Victor Glover (Pilot, USA), Shannon Walker (Mission specialist, USA), Soichi Noguchi (Mission specialist, JAXA Japan)	November 16, 2020 00:27 UTC — May 02, 2021 06:56 UTC 167 days, 6 h 29 min	November 16, 2020 00:27 UTC — May 02, 2021 06:56 UTC 167 days, 6 h 29 min	The first scheduled flight to the ISS of the US commercial reusable spacecraft Dragon. Implementation of fundamental, science and applied research. Docking to the forward-facing port of the space station's Harmony node module on — November 17, 2020 [04:01 UTC] [The autonomous docking marked the end of a 27.5-hour rendezvous.]

	Crew Dragon cont.				[nighttime splash down in the Gulf of Mexico]	SpaceX Dragon Crew transferred the spacecraft from the forward port of the Harmony module to its zenith or space port on — April 5, 2021 Undocking from ISS on — May 2, 2021 [„Resilience“ is the 100th crewed spacecraft to arrive at the International Space Station.] [First night splashdown of a U.S. crewed spacecraft since Apollo 8]
235	Dragon CRS [Erststufe Falcon 9 B1058.41]	SpX21	—	—	December 06, 2020 — January 14, 2021 01:26 UTC 38 days, 9 h, 9 min	Delivery of more than 6,400 pounds of space freight, including the NanoRacks Bishop airlock. Automatic docking to the space-(zenith)-facing port of the space station's Harmony node 2 module on — December 7, 2020 Undocking from ISS on —January 12, 2021 [This is the first automated docking of the Cargo Dragon] Dragon’s main payload is the NanoRacks Bishop airlock that will be robotically attached to the Node 3 Tranquility module The Nanoracks Bishop Airlock Module will serve as another door to space, helping to move larger payloads inside and outside the station. The Nanoracks Bishop Airlock can be attached to Module 3 and opened to space to release satellites and run experiments. It can also be detached and moved to different locations. Taking advantage of the opportunity to expose experiments to different elements such as sunlight or atomic oxygen, this flexibility enables a wide range of research possibilities. [splash down in the Gulf of Mexico]

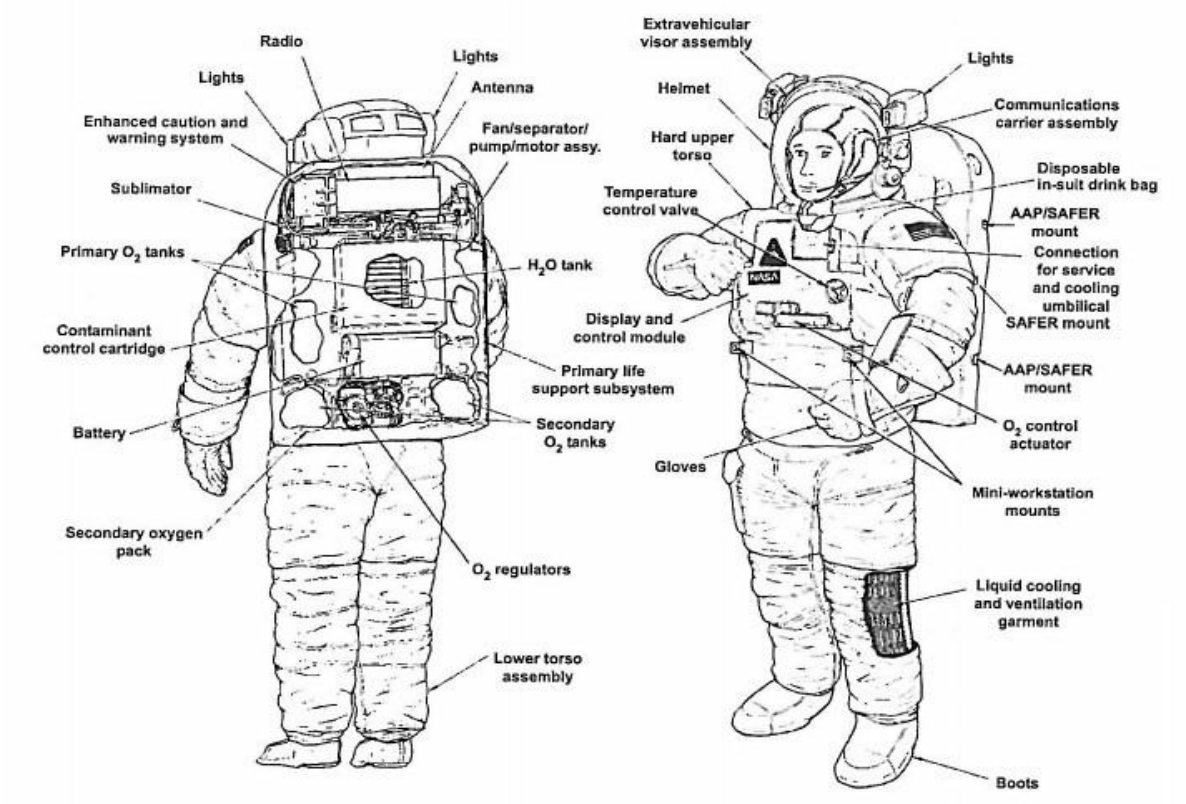
As of December 31, 2020,
243 astronauts, cosmonauts, and space tourists
from 19 different nations have visited the space station, many of them multiple times.


4B IRDSA
MRM 2
Port Heat Rejection Subsystem (HRS) Radiator
P6 ITS
Functional Cargo Block (FGB)
2B ISS Roll Out Solar Array (IRDSA)
P5 ITS
Service Module (SM)
Pressurized Mating Adapter (PMA) 1
ExPRESS Logistics Carrier (ELC) 3
Multipurpose Laboratory Module (MLM)
P1 ITS
Port Photovoltaic Arrays
Starboard HRS Radiator
P3/P4 ITS
ELC1
Mini-Research Module (MRM) 1
Z1 ITS
Mobile Servicing System (MSS)
S0 ITS
Bigelow Expandable Airlock Module (BEAM)
Node 3
AMS
S3/S4 ITS
ELC2
Permanent Multi-Purpose Module (PMM)
Enhanced Integrated Boom Assembly (EIBA)
S1 ITS
IDA 3
JEM Experimental Logistics Module Pressurized Section (ELM PS)
Cupola
ELC4
Node 1
S5 ITS
ESP3
PMA 3
ESP1
Airlock
JEM Exposed Facility (EF)
External Stowage Platform (ESP) 2
U.S. Lab
Japanese Experiment Module (JEM) Pressurized Module (PM)
Node 2
S6 Integrated Truss Segment (ITS)
Starboard Photovoltaic Arrays
PMA 2
Columbus Orbital Facility
International Docking Adapter (IDA) 2
Bartolomeo

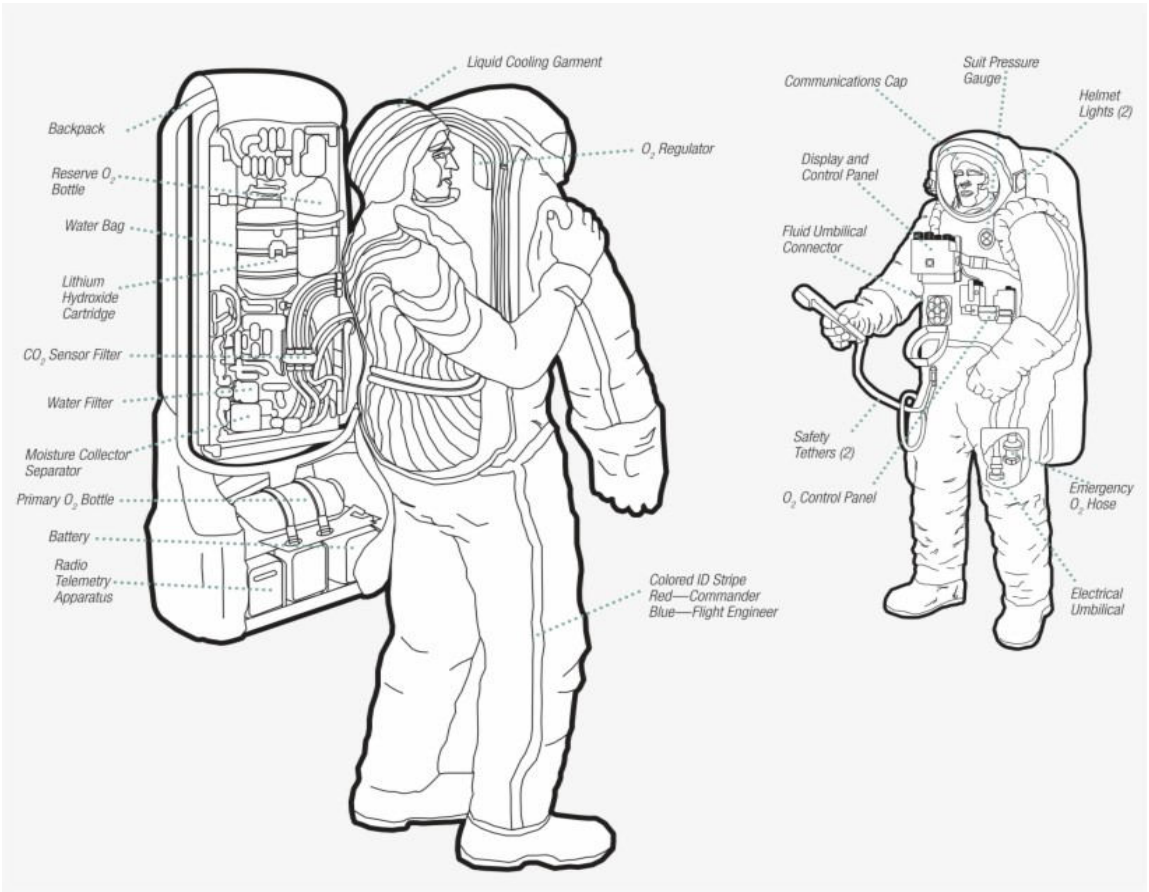
International Space Station

Chronology of Extravehicular Activity

NASA EVA Spacesuit [USA]



Orlan VKD Spacesuit [Russia]



Cronology of Extravehicular Activity 1998 - 2000

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
1	STS-88 EVA-1 (from Endeavour)	J. Ross J. Newman	December 7, 1998 22 h 10 min — December 8, 1998 5 h 31 min	7 h 21 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Laying and connecting power and data cables between the pressurized mating adapter PMA-1 and Zarya module on the ISS, PMA-1 and Unity module, Unity and PMA-2
2	STS-88 EVA-2 (from Endeavour)	J. Ross J. Newman	December 9, 1998 20 h 33 min — December 10, 1998 3 h 35 min	7 h 02 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing and connecting two temporary S-band communication antennas on Unity vodule on the ISS, removal of launch restraints from the petals of the CBM berthing mechanisms on the port and zenith docking ports of the Unity module, manual deployment of the TORU system antenna on the Zarya module
3	STS-88 EVA-3 (from Endeavour)	J. Ross J. Newman	December 12, 1998 20 h 33 min — December 13, 1998 3 h 32 min	6 h 59 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Manual deployment of the second antenna of the TORU system, installation of a handrail and re-installation of the Komplast panel on Zarya module of the ISS, tests of the simplified aid for EVA rescue (SAFER)
4	STS-96 EVA-1 (from Discovery)	T. Jernigan D. Barry	2 h 56 min — 10 h 51 min May 30, 1999	7 h 55 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of the OTD cargo crane on the pressurized mating adapter PMA-1 on the ISS, installation of the operator's post for the cargo crane GStM-2 on the pressurized mating adapter PMA-2
5	STS-101 EVA-1 (from Atlantis)	J. Williams J. Voss	1 h 48 min — 8 h 32min May 22, 2000	6 h 44 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacement of the temporary port S-band communications antenna and installation of eight handrails on the Unity module on the ISS, assembly of the operator post, beam and mobile link of the cargo boom GStM-2 on the pressurized mating adapter PMA-2 and its transfer to the pressurized mating adapter PMA-1, reseating the OTD onto the pressurized mating adapter PMA-1
6	STS-106 EVA-1 (from Atlantis)	E. Lu Y. Malenchenko	4 h 47 min — 11 h 01 min September 11, 2000	6 h 14 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Laying and connecting electrical and TV cables, control and data cables and a cable of the temetry system Transit-B between modules Zarya and Zvezda on the ISS, installing the beam of the magnetometr SM-8M, manual deployment of the docking target on the Zvezda module, taking pictures of a section of the solar array panel SB-2 on Zvezda module which failed to fully deploy

7	STS-92 EVA-1 (from Discovery)	L. Chiao W. McArthur	14 h 27 min — 20 h 55 min October 15, 2000	6 h 28 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Laying and connecting power and data cables between the Unity module and Z1 secion on the ISS. Relocation of the S-band communications antenna SASA, installation of the toolkit ETSD-1, assembly and deployment of a Ku-band antenna on the Z1 section
8	STS-92 EVA-2 (from Discovery)	P. Wisoff M. Lopez-Alegria	14 h 15 min — 21 h 22 min October 16, 2000	7 h 07 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Laying and connecting power and data cables between the Unity module and the pressurized mating adapter PMA-3 on the ISS, installation of two sets of the CID electrical breakers on the Z1 secion.
9	STS-92 EVA-3 (from Discovery)	L. Chiao W. McArthur	14 h 30 min — 21 h 18 min October 17, 2000	6 h 48 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of two direct current converter units DDCU and a toolkit ETSD-2 on section Z1 on the ISS
10	STS-92 EVA-4 (from Discovery)	P. Wisoff M. Lopez-Alegria	15 h 00 min — 21 h 56 min October 18, 2000	6 h 56 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Relocation of the FRGF grappling fixture and deployment of the duct for electric cables and ammonia lines on Z1 truss on the ISS, tests of the simplified aid for EVA rescue (SAFER)
11	STS-97 EVA-1 (from Endeavour)	J. Tanner C. Noriega	December 3, 2000 18 h 35 min — December 4, 2000 2 h 08 min	7 h 33 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Establishing a mechanical joint between truss P6 and truss Z1 on the ISS, conncecting power and control cables between trusses Z1 and P6, preapring for deployment of solar arrays and for radiator on truss P6
12	STS-97 EVA-2 (from Endeavour)	J. Tanner C. Noriega	17 h 21 min — 23 h 58 min December 5, 2000	6 h 37 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting ammonia lines between trusses Z1 and P6 on the ISS, removal of thermal protective covers from asignal processor and direct current conversion unit DDCU and preparation for deployment of the aft radiator on truss P6, relocation of S-band communications antenna SASA from truss Z1 to P6, disconnecting cables between pressurized mating adapter PMA-2 and Unity module
13	STS-97 EVA-3 (from Endeavour)	J. Tanner C. Noriega	16 h 13 min — 21 h 23 min December 7, 2000	5 h 10 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Taking up the slack of pulling cables in the deployed solar aray panel 2B, preparations for deployment of the starboard radiator and installation of the floating potential sensor FPP on truss P6 on the ISS

Cronology of Extravehicular Activity 2001

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
14	STS-98 EVA-1 (from Atlantis)	T. Jones R. Curbeam	15 h 50 min — 23 h 24 min February 10, 2001	7 h 34 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Providing mechanical interface between pressurized mating adapter PMA-2 and MBM assembly of truss Z1 on the ISS, preparing Destiny module for berthing to the station (disconnecting power cables of temporary heaters and removal of thermal protective cover from the aft docking port), preparations for deployment of starboard radiator on truss P6, connecting ammonia lines and power cables and transmitting data between truss Z1 and Destiny module. Warming up Curbeam's spacesuit in the sunlight and brushing it to remove particles of ammonia spilled while connecting fluid connector M3
15	STS-98 EVA-2 (from Atlantis)	T. Jones R. Curbeam	15 h 59 min — 22 h 49 min February 12, 2001	6 h 50 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Disconnecting pressurized mating adapter PMA-2 from assembly MBM of truss Z1 on the ISS, removing thermal protective cover from the fore docking port on the Destiny module, installing PDGF grapple fixture for SSRMS robotic arm, protective cover on the window and zero-torque vent valve on the Destiny module, connecting power and data cables between pressurized mating adapter PMA-2 and Destiny module
16	STS-98 EVA-3 (from Atlantis)	T. Jones R. Curbeam	14 h 48 min — 20 h 13 min February 14, 2001	5 h 25 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing a backup S-band antenna on Z1 truss on the ISS, finalizing preparations for deployment of starboard radiator on P6 truss, DTO-675 experiment (trying out the rescue of an inhured crewmember)
17	STS-102 EVA-1 (from Discovery)	J. Voss S. Helms	5 h 12 min — 14 h 08 min March 11, 2001	8 h 56 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Disconnecting power and data cables between the Unity module and the pressurized mating adapter PMA-3 on the ISS, dismantling the temporary port S-band communications antenna from the Unity module, installing LCA support and a duct with cables on the Destiny module. [The longest EVA] (astronauts remained in the Dicovery orbiter's airlock for more than 2,5 hours ready to assist in case of any problems during berthing of the pressurized mating adapter to the port CBM on the Unity module)

18	STS-102 EVA-2 (from Discovery)	A. Thomas P. Richards	5 h 23 min — 11 h 44 min March 13, 2001	6 h 21 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of the External Stowage Platform ESP-1 on the module Destiny on the ISS, installation ofthe ammonia flow control unit PFCS on the ESP-1 platform. [The hundredth EVA in US spacesuits]
19	STS-100 EVA-1 (from Endeavour)	C. Hadfield S. Parazynski	11 h 45 min — 18 h 55 min April 22, 2001	7 h 10 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting four temporary power and data cables to the SLP platform and installing UHF-band communications antenna on the Destiny module on the ISS, preparing SSRMS robotic arm: removal of thermal protective covers, unbolting, raising and unfolding stowed shoulders
20	STS-100 EVA-2 (from Endeavour)	C. Hadfield S. Parazynski	12 h 34 min — 20 h 14 min April 24, 2001	7 h 40 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting power and data cables to the PDGF graple fixture for SSRMS robotic arm on the Destiny module on the ISS, dismantling a temporary starbord S-band communications antenna from the Unity module, installation of the direct current switching unit DCSU on the ESP-1 platform, disconnecting four temporary power and data cables from the SLP platform
21	ISS Expedition ISS-2 EVA-1 (*) RUS – No.: VKD-1 *[RS VKD 1 under the Russian program]*	Y.V. Usachev (waist high) J. Voss (waist high)	14 h 21 min — 14 h 40 min June 8, 2001	19 min (from opening to the closure of the exit hatch)	Installation of the cone cover on the transfer compartement of Zvezda module on the -Y docking port to support the docking of cargo spacecraft /module Progress M-DC1 to the ISS [(*) : EVA / VKD from the transfer compartment of the Zvezda module]
22	STS-104 EVA-1 (from Atlantis)	M. Gernhardt J. Reilly	3 h 10 min — 9 h 09 min July 15, 2001	5 h 59 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Preparing Quest module for berthing to the ISS (disconnecting temporary heater power cables, removing protective cover from the docking port, installation of attachment points for high-pressure tanks)
23	STS-104 EVA-2 (from Atlantis)	M. Gernhardt J. Reilly	3 h 04 min — 9 h 33 min July 18, 2001	6 h 29 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of three high-pressure tanks (two with oxygen and one with nitrogen) on the Quest module on the ISS
24	STS-104 EVA-3 (from the Quest module)	M. Gernhardt J. Reilly	4 h 35 min — 8 h 37 min July 21, 2001	4 h 02 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of high-pressure nitrogen tank on the Quest module on the ISS, laying a cable to support communications in Orlan spacesuit during spacewalks from Quest

25	STS-105 EVA-1 (from Discovery)	D. Barry P. Forrester	13 h 58 min — 20 h 14 min August 16, 2001	6 h 16 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of the EAS ammonia tank on P6 truss on the ISS, inatallation of containers PEC-1 and PEC-2 of the MISSE experiment on the Quest module
26	STS-105 EVA-2 (from Discovery)	D. Barry P. Forrester	13 h 42 min — 19 h 11 min August 18, 2001	5 h 29 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing handrails and laying cables for temporary power supply to heaters on truss S0 on the Destiny module on the ISS.
27	ISS Expedition ISS-3 EVA-1 (from the Pirs module) RUS – No.: VKD-2	V.N. Dezhurov M.V. Tyurin	14 h 24 min — 19 h 22 min October 8, 2001	4 h 58 min (from opening to the closure of the exit hatch)	Mating electrical connectors of the radio telemetry system Transit-B to support communications for Orlan spacesuits, installation of egress device, four handrails on egress hatches, cargo boom GStM-1 and beams with antennas AR-VKA and 2AR-VKA of the radio system Kurs.
28	ISS Expedition ISS-3 EVA-2 (from the Pirs module) RUS – No.: VKD-3	V.N. Dezhurov M.V. Tyurin	9 h 17 min — 15 h 08 min October 15, 2001	5 h 51 min (from opening to the closure of the exit hatch)	Installation of three panels of the MPAC&SEED experiment and Kromka 1-0 tablet on Zvezda module on the ISS, replacement of a plate with the Russian flag by a plate with the Kodak logo on the Pirs module
29	ISS Expedition ISS-3 EVA-3 (from the Pirs module) RUS – No.: VKD-4	V.N. Dezhurov F. Culbertson	November 12, 2001 21 h 41 min — November 13, 2001 2 h 46 min	5 h 05 min (from opening to the closure of the exit hatch)	Laying and connecting cables of the Kurs RF-system between modules Zvezda and Pirs on the ISS, testing cargo boom GStM-1, examining the side of the SB-2 solar array on Zvezda which failed to fully deploy. [The hundredth EVA in Russian spacesuits]
30	ISS Expedition ISS-3 EVA-4 (from the Pirs module) RUS – No.: VKD-5	V.N. Dezhurov M.V. Tyurin	13 h 20 min — 16 h 06 min December 3, 2001	2 h 46 min (from opening to the closure of the exit hatch)	Removing a sealing rubber ring from the docking port on the instrumentation and propulsion compartment of the Zvezda module, which was left there by cargo spacecraft Progress M-45 and was preventing the structural latching of Progress M1-7, taking pictures of capacitor sensors of micrometeoroid control system on Zvezda
31	STS-108 EVA-1 (from Endeavour)	L. Godwin D. Tani	17 h 52 min — 22 h 04 min December 10, 2001	4 h 12 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing thermal blankets on the BGA gimble assemblies of the 2B and 4B solar panels on the P6 truss on the ISS

Cronology of Extravehicular Activity 2002

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
32	ISS Expedition ISS-4 EVA-1 (from the Pirs module) RUS – No.: VKD-6	Y.I. Onufrienko C. Walz	January 14, 2002 20 h 59 min — January 15, 2002 3 h 02 min	6 h 03 min (from opening to the closure of the exit hatch)	Transfer of the cargo boom GStM-2 from the pressurized mating adapter PMA-1 onto the Pirs module using cargo boom GStM-1, installing ham radio antenna WA-3 onto Zvezda module on the ISS
33	ISS Expedition ISS-4 EVA-2 (from the Pirs module) RUS – No.: VKD-7	Y.I. Onufrienko D. Bursch	15 h 19 min — 21 h 18 min January 25, 2002	5 h 59 min (from opening to the closure of the exit hatch)	Installing six deflector shields on the attitude control thrusters, ham radio antenna WA-4, Platan-M hardware and cartridges SKK No. 1-SM and SKK No.2-SM, examining window No.7, replacing tablet Kromka 1-0 with Kromka 1-1 of Zvezda module of the ISS, installing cartridge SKK No.1-DC on the Pirs module
34	ISS Expedition ISS-4 EVA-3 (from the Quest module) USA – No.: 1	C. Walz D. Bursch	11 h 38 min — 17 h 25 min February 20, 2002	5 h 47 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Transfer of the cargo boom from the pressurized mating adapter PMA-1 onto Zarya module on the ISS, providing support for the check-out of the dicrect current converters on the P6 truss, dismantling four thermal blankets from Z1 truss, examining containers PEC-1 and PEC-2 of the MISSE experiement on the Quest module
35	STS-110 EVA-1 (from the Quest module)	S. Smith R. Walheim	14 h 36 min — 22 h 24 min April 11, 2002	7 h 48 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of two forward struts of MTS between truss S0 and Destiny module on the ISS, three trays for power and data cables and ammonia lines onto Destiny, connecting cables and lines for activation of truss S0, laying and connecting cable TUS-1 to the zenith unit IUA of the mobile transporter MT
36	STS-110 EVA-2 (from the Quest module)	J. Ross L. Morin	14 h 09 min — 21 h 39 min April 13, 2002	7 h 30 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of two aft MTS struts between S0 truss and Destiny module on the ISS, laying and connecting the TUS-2 cable to the nadir IUA unit of mobile transporter MT, dismantling two launch containers from S0 truss.
37	STS-110 EVA-3 (from the Quest module)	S. Smith R. Walheim	13 h 48 min — 20 h 15 min April 14, 2002	6 h 27 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Reconfiguring SSRMS power source from Destiny to S0 truss ISS, dismantling launch restraints and thermal blankets from mobile transporter MT

38	STS-110 EVA-4 (from the Quest module)	J. Ross L. Morin	14 h 29 min — 21 h 06 min April 16, 2002	6 h 37 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing a walkway with handrails between S0 truss and Quest module on the ISS, two lights on the Unity and Destiny modules, charged particles spectrometer EV-CPDS and handrails on truss S0
39	STS-111 EVA-1 (from the Quest module)	F. Chang-Diaz P. Perrin	15 h 27 min — 22 h 41 min June 9, 2002	7 h 14 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing a PDGF grapple fixture onto truss P6 on the ISS, temporarily installing a kit with six additional debris panel onto pressurized mating adapter PMA-1, removing thermal blankedts from the Mobile Base System (MBS)
40	STS-111 EVA-2 (from the Quest module)	F. Chang-Diaz P. Perrin	15 h 20 min — 20 h 20 min June 11, 2002	5 h 0 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting power and data cables between mobile transporter MT and Mobile Base System MBS on the S0 truss on the ISS, attaching MT to MBS, moving the POA payload accomodation device on the MBS into the working position, installing he CLPA steerable camera/light onto MBS
41	STS-111 EVA-3 (from the Quest module)	F. Chang-Diaz P. Perrin	15 h 16 min — 22 h 33 min June 13, 2002	7 h 17 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing wrist roll joint on the SSRMS robotic arm on the ISS
42	ISS Expedition ISS-5 EVA-1 (from the Pirs module) RUS – No.: VKD-8	V.G. Korzun P. Whitson	9 h 25 min — 13 h 48 min August 16, 2002	4 h 23 min (from opening to the closure of the exit hatch)	Using cargo boom GStM-2 to trasfer from the pressurized mating adapter PMA-1 and install onto Zvezda module on the ISS six additional micrometeoroid panels
43	ISS Expedition ISS-5 EVA-2 (from the Pirs module) RUS – No.: VKD-9	V.G. Korzun S.E. Treshchev	5 h 27 min — 10 h 48 min August 26, 2002	5 h 21 min (from opening to the closure of the exit hatch)	Installing a restraint pad and four guides on handrails on Zarya module on the ISS, dismantling panel No. 1 of the MPAC&SEED harware and shifting panels No. 2 and No. 3, replacement of the tablet Kromka 1-1 by Kromka 1-2, installing ham radio antennas WA-1 and WA-2 and examining dismountable съемного condenser sensor of the systrem for micrometeorid control on Zvezda module
44	STS-112 EVA-1 (from the Quest module)	D. Wolf P. Sellers	15 h 21 min — 22 h 22 min October 10, 2002	7 h 01 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Removing launch locks from the radiator beam and installing S-band communications antenna and ETVCG TV-camera on S1 truss on the ISS, connecting power and data cables between S0 and S1 trusses, removing launch restraints from the CETA 1 trolley

45	STS-112 EVA-2 (from the Quest module)	D. Wolf P. Sellers	14 h 31 min — 20 h 35 min October 12, 2002	6 h 04 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing inserts into fluid connectors of ammonia lines between Z1 and P6 trusses on the ISS, between Z1 truss and Destiny module and on the valve modules of the radiator beam on S1 truss, installing ETVCG TV-camera on Destiny, dismantling launch restraints from the CETA 1 cart, connecting ammonia tank and removing launch locks from radiator beam on S1 truss
46	STS-112 EVA-3 (from the Quest module)	D. Wolf P. Sellers	14 h 11 min — 20 h 47 min October 14, 2002	6 h 36 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Restoring to working condition the nadir IUA unit of mobile transporter MT on the ISS, installing two ammonia line jumpers between S0 and S1 trusses, removing two launch brackets and installing inserts into fluid connextors on ammonia lines on truss S1
47	STS-113 EVA-1 (from the Quest module)	M. Lopez-Alegria J. Herrington	November 26, 2002 19 h 49 min — November 27, 2002 2 h 34 min	6 h 45 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting power and data cables between S0 and P1 trusses on the ISS, dismantling launch restraints from the CETA 2 cart, removing two launch brackets and installing inserts into fluid connectors of ammonia lines on truss P1, installing wireless video system transceiver WETA No.1 onto the Unity module
48	STS-113 EVA-2 (from the Quest module)	M. Lopez-Alegria J. Herrington	November 28, 2002 18 h 36 min — November 29, 2002 0 h 46 min	6 h 10 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Instulling two annonia line jumpers between S0 and P1 trusses on the ISS, installing inserts into fluid connectors of ammonia lines and wireless video system transceiver WETA No.2, and removing launch locks from the radiator beam on P1 truss, trasferring CETA2 cart from P1 to S1 truss.
49	STS-113 EVA-3 (from the Quest module)	M. Lopez-Alegria J. Herrington	November 30, 2002 19 h 25 min — December 1, 2002 2 h 25 min	7 h (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Setting into the working position the UHF-band communiczaation antenna on truss P1 on the ISS, installing inserts on the fluid connectors of ammonia lines between Z1 and P6 trusses, between Z1 truss and Destiny module on the valve modules of the radiator beam on P1 truss, connecting ammonia tank on P1 truss

Cronology of Extravehicular Activity 2003

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
50	ISS Expedition ISS-6 EVA-1 (from the Quest module) USA – No.: 2	K. Bowersox D. Pettit	12 h 50 min — 19 h 41 min January 15, 2003	6 h 51 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Preparing for deployment of the mid radiator on P1 truss on the ISS, cleaning nadir docking port on the Unity module
51	ISS Expedition ISS-6 EVA-2 (from the Quest module) USA – No.: 3	K. Bowersox D. Pettit	12 h 40 min — 19 h 06 min April 8, 2003	6 h 26 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Disconnecting power from the bolts between trusses S1 and S0 and between trusses S0 and P1, replacing the remote power controller module RPCM on the mobile transporter MT, installing a lanp on truss S1, reconfiguring power for control moment gyros CMG-2 and CMG-3

Cronology of Extravehicular Activity 2004

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
52	ISS Expedition ISS-8 EVA-1 (from the Pirs module) RUS – No.: VKD-10	A.Yu. Kaleri M. Foale	February 26, 2004 21 h 17 min — February 27, 2004 1 h 13 min	3 h 56 min (from opening to the closure of the exit hatch)	Replacing removable cartridge SKK No.1-DC with SKK No.2-DC on the Pirs module on the ISS, dismantling panel No.2 of the MPAC&SEED equipment and shifting panel No.3, installing an anthropomorphic dummy Matryoshka-E and replacing SKK No.1-SM with SKK No.3-SM on Zvezda module. The spacewalk was cut short due to a malfunction of the cooling system in the A.Yu. Kaleri's spacesuit caused by accidental compression of one of the pipes
53	ISS Expedition ISS-9 EVA-1 (from the Pirs module) RUS – No.: VKD-11	G.I. Padalka (inside) M. Fincke	21 h 57 min — 22 h 10 min June 24, 2004	13 min (from opening to the closure of the exit hatch)	The spacewalk cut short due to oxygen leak from the prime tank of Michael Fincke's spacesuit
54	ISS Expedition ISS-9 EVA-2 (from the Pirs module) RUS – No.: VKD-12	G.I. Padalka M. Fincke	June 30, 2004 21 h 19 min — July 1, 2004 2 h 59 min	5 h 40 min (from opening to the closure of the exit hatch)	Replacing the remote power controller module RPCM of the control moment gyro CMG-2 on S0 truss and installing pressure and precipitation control unit on the Pirs module
55	ISS Expedition ISS-9 EVA-3 (from the Pirs module) RUS – No.: VKD-13	G.I. Padalka M. Fincke	6 h 58 min — 11 h 28 min August 3, 2004	4 h 30 min (from opening to the closure of the exit hatch)	Replacing retrievable cartridge SSK No.2-SM with SSK No.4-SM and tablet Kromka 1-2 with Kromka 1-3, dismantling six laser retroreflectors LSV and Platan-M equipment, installing three upgraded laser retro reflectors LSV-M, videometer target and antennas WAS No. 1,2 of spacecraft-to-spacecraft RF link
56	ISS Expedition ISS-9 EVA-4 (from the Pirs module) RUS – No.: VKD-14	G.I. Padalka M. Fincke	16 h 43 min — 22 h 04 min September 3, 2004	5 h 21 min (from opening to the closure of the exit hatch)	Replacing removable panel No.1 of the flow controller and installling four safety tether fairleads on Zarya module, installing three spacecraft-to-spacecraft RF-link antennas WAL No. 1, 2, 3 on Zvezda module

Cronology of Extravehicular Activity 2005

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
57	ISS Expedition ISS-10 EVA-1 (from the Pirs module) RUS – No.: VKD-15	S.Sh. Sharipov L. Chiao	7 h 41 min — 13 h 11 min January 26, 2005	5 h 30 min (from opening to the closure of the exit hatch)	Installing on Zvezda module the a universal work platform URM-D and assembling on it a robotic arm Robotik, and transferring panel No.3 of the MPAC&SEED experiment replacing it with a transceiver with TM/TC antenna, installing Biorisk-MSN equipment on the Pirs module
58	ISS Expedition ISS-10 EVA-2 (from the Pirs module) RUS – No.: VKD-16	S.Sh. Sharipov L. Chiao	6 h 25 min — 10 h 55 min March 28, 2005	4 h 30 min (from opening to the closure of the exit hatch)	Installing three spacecraft-to-spacecraft RF-link antennas WAL No. 4, 5, 6 and antenna assembly of the satellite navigation equipment ASN-M onto Zvezda module, manually launching an engineering research nanosatellite TNS-0 No.1
59	STS-114 EVA-1 (from Discovery)	S. Noguchi S. Robinson	9 h 46 min — 16 h 36 min July 30, 2005	6 h 50 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Demonstrating methods of repairing damaged thermal protection tiles and RCC panels of the Shuttle Orbiter wing leading edges, installing attachement device for external stowage platform onto Quest airlock, replacing GPS antenna AA No. 2 on S0 truss, reconfiguring cables on Z1 truss in order to restore power to control moment gyro CMG-2, retreiving PEC-1 and PEC-2 containers of the MISSE experiment from Quest
60	STS-114 EVA-2 (from Discovery)	S. Noguchi S. Robinson	8 h 42 min — 15 h 56 min August 1, 2005	7 h 14 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing control moment gyro CMG-1 on Z1 truss

61	STS-114 EVA-3 (from Discovery)	S. Noguchi S. Robinson	8 h 48 min — 14 h 49 min August 3, 2005	6 h 01 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing External Stowage Platform ESP-2 onto ESP attachment device, installing container PEC-5 of the MISSE experiment onto P6 truss, removing FRGF grapple fixture from ESP-2, removing two protruding fillers of the gap between thermal protection tiles on the Orbiter's underside
62	ISS Expedition ISS-11 EVA-1 (from the Pirs module) RUS – No.: VKD-17	S.K. Krikalev J. Phillips	19 h 02 min — 23 h 59 min August 18, 2005	4 h 57 min (from opening to the closure of the exit hatch)	Retreiving container No.1 of the Biorisk-MSN equipment from the Pirs module, dismantling panel No.3 of the MPAC&SEED equipment and anthropomorphic dummy Matryoshka-E, instllling a backup TV camera and replacing retreivable cartridge SKK No.3-SM with SKK No.5-SM on Zvezda module
63	ISS Expedition ISS-12 EVA-1 (from the Quest module) RUS – No.: VKD-18	W. McArthur V.I. Tokarev	15 h 32 min — 20 h 54 min November 7, 2005	5 h 22 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing external TV camera ETVCG onto P1 truss, dismantling rotary joint motor controller RJMC of the radiator beam from S1 truss, removing the floating potential probe FPP from P6 truss and jettisonning it, replacing a remote power controller module RPCM on mobile transporter MT

Cronology of Extravehicular Activity 2006

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
64	ISS Expedition ISS-12 EVA-2 (from the Pirs module) USA – No.: 4	V.I. Tokarev W. McArthur	February 3, 2006 22 h 44 min — February 4, 2006 4 h 27 min	5 h 43 min (from opening to the closure of the exit hatch)	Launching minisatellite RadioSkaf (SuitSat) No.1, relocating cargo boom adapter from Zarya module onto pressurized mating adapter PMA-3, getting cable TUS-1 out of the emergency cutter on the zenith IUA unit of mobile transporter MT, dismantling container No. 2 of the Biorisk-MSN equipment from Pirs module, monitoring the exterior of the Russian Segment (Panorama experiment)
65	ISS Expedition ISS-13 EVA-1 (from the Pirs module) RUS – No.: VKD-19	P.V. Vinogradov J. Williams	June 1, 2006 22 h 48 min — June 2, 2006 5 h 19 min	6 h 31 min (from opening to the closure of the exit hatch)	Installing a nozzle on the filler valve KZZ on the transfer compartment of Zvezda module to assure proper venting of hydrogen from the oxygen generation system Elektron-VM, retrieving tray Kromka 1-3, dismantling the third container of the Biorisk-MSN equipment and the pressure and precipitation control unit from Pirs module, replaced TV camera on the mobiles transporter MBS of the US orbital segment
66	STS-121 EVA-1 (from the Quest module)	P. Sellers M. Fossum	13 h 17 min — 20 h 48 min July 8, 2006	7 h 31 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing a cutter blade blocker in the zenith IUA assembly of the mobile transporter MT and connecting cable TUS-1 to the IUA on the ISS, dynamic tests of the combined RMS robotic arm and the OBSS arm as a platform enabling astronauts to make repairs to damaged thermal protection of the Shuttle Orbiter
67	STS-121 EVA-2 (from the Quest module)	P. Sellers M. Fossum	12 h 14 min — 19 h 01 min July 10, 2006	6 h 47 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing a pump module onto ESP-2 platform, replacing nadir IUA assemblies on mobile transporter MT and TUS-RA on S0 truss, laying and conneting the TUS-2 cable to the IUA
68	STS-121 EVA-3 (from the Quest module)	P. Sellers M. Fossum	11 h 20 min — 18 h 31 min July 12, 2006	7 h 11 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Filming with an infrared camera RCC panels on the leading edges of the Shuttle Orbiter's port and starboard wings. Demonstrating a method for repairing damaged samples of RCC panels, installing the FGB grapple fixture onto ammonia tank on S1 truss

69	ISS Expedition ISS-13 EVA-2 (from the Quest module) USA – No.: 5	J. Williams T. Reiter	14 h 04 min — 19 h 58 min August 3, 2006	5 h 54 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing the floating potential measuring unit FPMU and a rotary joint motor controller RJMC amd replacing multiplexor/demultiplexor on the S1 truss, installation of two containers of experiment MISSE-3/4 onto Quest module, shooting with an infrared camera dmaged samples of the Orbiter's RCC panels, dismantling GPS-2 antenna on S0 truss, installing a non-propulsive vent NPV on the Destiny module
70	STS-115 EVA-1 (from the Quest module)	J. Tanner H. Stefanyshyn-Piper	9 h 17 min — 15 h 43 min September 12, 2006	6 h 26 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connectig power and control cables between P1 and P3 trusses, preparing for solar array deployment on P4 truss, preparing port solar array rotary joint between trusses P3 and P4
71	STS-115 EVA-2 (from the Quest module)	D. Burbank S. MacLean	9 h 05 min — 16 h 16 min September 13, 2006	7 h 11 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Preparing the port solar array rotary joint SARJ between trusses P3 and P4, clearing tway for the movement of the mobile transporter along P3 truss
72	STS-115 EVA-3 (from the Quest module)	J. Tanner H. Stefanyshyn-Piper	10 h 00 min — 16 h 42 min September 15, 2006	6 h 42 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Dismantling container PEC-5 of the MISSE experiment and installing locks on the bolts of the BGA drives on P6 truss, preapring for radiator deployment on P4 truss, replacing signal processor, transponder and S-band antenna on S1 truss, shooting with an infrared camera the RCC panals on the leading edge of the starboard wing of the shuttle orbiter

73	ISS Expedition ISS-14 EVA-1 (from the Pirs module) RUS – No.: VKD-20	M.V. Tyurin M. Lopez-Alegria	0 h 17 min — 5 h 55 min November 23, 2006	5 h 38 min (from opening to the closure of the exit hatch)	Conducting commercial experiment Golf on the ISS, failed attempts to move the 2AO-VKA antenna of Progress M-58 vehicle into the closed position, relocating the WAL-2 antenna of the vehicle-to-vehicle RF link, installing the BTN detector unit
74	STS-116 EVA-1 (from the Quest module)	R. Curbeam C. Fuglesang	December 12, 2006 20 h 31 min — December 13, 2006 3 h 07 min	6 h 36 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Providing support for connecting P5 truss to P4 truss, relocating the PVRGF grapple fixture of the radiator, connecting power and data cables between P5 and P4 trusses, replacing ETVCG camera on S1 truss, opening CLA lock on P5 truss
75	STS-116 EVA-2 (from the Quest module)	R. Curbeam C. Fuglesang	December 14, 2006 19 h 41 min — December 15, 2006 0 h 41 min	5 h 0 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Reconfiguring channels 2 and 3 of the power supply system EPS of the ISS US segment, relocating two CETA carts, installing protective covers on the force and moment sensors FMS at the end efectors LEE of the SSRMS robotic arm
76	STS-116 EVA-3 (from the Quest module)	R. Curbeam S. Williams	December 16, 2006 19 h 25 min — December 17, 2006 2 h 56 min	7 h 31 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Reconfiguring channels 1 and 4 of the power supply system EPS of the ISS US segment, installing adjustable grapple bar AGB onto the flex hose rotary coupler FHRC on the ESP-2 platform, preforming a temporary installation of an adapter with 17 additional debris sheild panels on the pressurized mating adapter PMA-3, providing support for the stowage of solar array 4B on the P6 truss
77	STS-116 EVA-4 (from the Quest module)	R. Curbeam C. Fuglesang	December 18, 2006 19 h 00 min — December 19, 2006 1 h 38 min	6 h 38 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Assisting in full retraction of solar array 4B on P6 truss

Cronology of Extravehicular Activity 2007

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
78	ISS Expedition ISS-14 EVA-2 (from the Quest module) USA – No.: 6	M. Lopez-Alegria S. Williams	15 h 14 min — 23 h 09 min January 31, 2007	7 h 55 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Reconfiguring loop A of the Destiny module thermal control system, providing support for the stowage of starboard radiator on the P6 truss, laying cables of the SSPTS system.
79	ISS Expedition ISS-14 EVA-3 (from the Quest module) USA – No.: 7	M. Lopez-Alegria S. Williams	13 h 38 min — 20 h 49 min February 4, 2007	7 h 11 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Reconfiguring loop B of the Destiny module thermal control system, providing support for the retraction of the aft radiator on the P6 truss, removing a sunshade from an MDM computer.
80	ISS Expedition ISS-14 EVA-4 (from the Quest module) USA – No.: 8	M. Lopez-Alegria S. Williams	13 h 26 min — 20 h 06 min February 8, 2007	7 h 11 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Jettisoning thermal shrouds from P3 truss, deploying the upper Unpressurized Cargo Carrier Assembly Attachment System (UCCAS) on the P3 truss, removing launch locks from the RTAS attachment system on the P5 truss, connecting cables of the SSPTS system.
81	ISS Expedition ISS-14 EVA-5 (from the Pirs module) RUS – No.: VKD-21	M.V. Tyurin M. Lopez-Alegria	10 h 27 min — 16 h 45 min February 22, 2007	6 h 18 min (from opening to the closure of the exit hatch)	Releasing and retracting the 2AO-VKA antenna on Progress M-58 spacecraft, replacing a retrievable cartridge SKK No.5-SM with SKK No.9-SM on Zvezda module, connecting a BTN detector unit.
82	ISS Expedition ISS-15 EVA-1 (from the Pirs module) RUS – No.: VKD-22	F.N. Yurchikhin O.V. Kotov	May 30, 2007 19 h 05 min — May 31, 2007 0 h 30 min	5 h 25 min (from opening to the closure of the exit hatch)	Trasferring 17 additional debris shielding panels using cargo boom GStM-2 from the pressurized mating adapter PMA-3 to Zvezda module and installling on it five panels, laying and connecting a new high-frequency cable in order to restore the operation of the satellite navigation equipment on the ISS
83	ISS Expedition ISS-15 EVA-2 (from the Pirs module) RUS – No.: VKD-23	F.N. Yurchikhin O.V. Kotov	14 h 23 min — 20 h 01 min June 6, 2007	5 h 38 min (from opening to the closure of the exit hatch)	Installing the Biorisk-MSN equipment on the Pirs module, laying and laying and connecting a cable of the station local are network ISL on Zarya module, installing 12 additional debris shield panels on Zvezda module

84	STS-117 EVA-1 (from the Quest module)	J. Reilly J. Olivas	June 11, 2007 20 h 02 min — June 12, 2007 2 h 17 min	6 h 15 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting power and control cables between S1 and S3 trusses, preparing for solar array and radiator deployment on S4 truss, installing drive lock assembly DLA-2 on the starboard SARJ rotary joint between S3 and S4 trusses
85	STS-117 EVA-2 (from the Quest module)	P. Forrester S. Swanson	June 13, 2007 18 h 28 min — June 14, 2007 1 h 44 min	7 h 16 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Assisting in partial retraction of solar array 2B on P6 truss, installing drive lock assembly DLA-1 on the starboard SARJ rotation joint between S3 and S4 trusses
86	STS-117 EVA-3 (from the Quest module)	J. Reilly J. Olivas	June 15, 2007 17 h 24 min — June 16, 2007 1 h 22 min	7 h 58 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Securing a protruding piece of a thermal blanket on the port pod of the Shuttle Orbiter Orbital Maneuvering System (OMS), replacing water dump valve with hydrogen ventilation valve on the Destiny module, assisting in complete retraction of solar array 2B on P6 truss
87	STS-117 EVA-4 (from the Quest module)	P. Forrester S. Swanson	16 h 25 min — 22 h 54 min June 17, 2007	6 h 29 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing a stanchion on truss S3, removal of restraints on SARJ joint between S3 and S4 trusses, laying and connectin a cables of the station local area network ISL on the Destiny module and pressurized mating adapter PMA-1, opening hydrogen vent valve on the Destiny module
88	ISS Expedition ISS-15 EVA-3 (from the Quest module) RUS – No.: VKD-24	C. Anderson F.N. Yurchikhin	10 h 24 min — 18 h 05 min July 23, 2007	7 h 41 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Reconfiguring power supply unit of S-band SASA antennas on Z1 truss, replacing a Remote Power Controller Module (RPCM) on S0 truss, dismantling and jettisoning flight support equipment of the VSSA stanchions and EAS ammonia tank, cleanin the nadir common berthing mechanism on the Unity module, removing GPS-4 antenna from S0 truss
89	STS-118 EVA-1 (from the Quest module)	R. Mastracchio J. Williams	16 h 28 min — 22 h 45 min August 11, 2007	6 h 17 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Providing support for connecting S5 truss to S4 truss, relocating the PVRGF grapple fixture of the radiator, connecting power and data cables between S5 and S4 trusses, securing the forward radiator on the P6 truss after its retraction

90	STS-118 EVA-2 (from the Quest module)	R. Mastracchio J. Williams	15 h 32 min — 22 h 00 min August 13, 2007	6 h 28 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing the control moment gyro CMG-3 on Z1 truss, while installing the old CMG-3 nto ESP-2 platform
91	STS-118 EVA-3 (from the Quest module)	R. Mastracchio C. Anderson	14 h 37 min — 20 h 05 min August 15, 2007	5 h 28 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Relocating the S-band antenna from P6 truss to P1 truss, installing signal processor and transponder onto P1 truss, moving two CETA carts, removing transponder from P6 truss
92	STS-118 EVA-4 (from the Quest module)	J. Williams C. Anderson	13 h 17 min — 18 h 19 min August 8, 2007	5 h 02 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing two holders for the OBSS boom onto S1 truss, tightening bolts of the S-band antenna on the Z1 truss, dismantling two containers of the MISSE-3/4 experiment from the Quest module, installing antennas for External Wireless Instrumentation System (EWIS) onto Destiny module
93	STS-120 EVA-1 (from the Quest module)	S. Parazynski D. Wheelock	10 h 02 min — 16 h 16 min October 26, 2007	6 h 14 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Moved an S-band antenna assembly from Z1 truss to the Shuttle Orbiter payload bay, preparing Harmony module for installation onto the ISS, disconnecting ammonia loines between Z1 and P6 trusses, installing thermal protection shroud onto the aft radiator on P6 truss
94	STS-120 EVA-2 (from the Quest module)	S. Parazynski D. Tani	9 h 32 min — 16 h 05 min October 28, 2007	6 h 33 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Disconnecting power and control cables between Z1 and P6 trusses, providing support for detaching P6 truss from Z1 truss, inspecting the port SARJ rotary joint between S3 and S4 trusses, reconfiguring pyros for radiator deployment on the S1 truss
95	STS-120 EVA-3 (from the Quest module)	S. Parazynski D. Wheelock	8 h 45 min — 15 h 53 min October 30, 2007	7 h 08 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Providing support for connecting P6 truss to P5 truss and connecting power and control cables between them, preparation of the fore radiator on the P6 truss for deployment, reconfguring pyros for radiator deployment on S1 and P1 trusses, inspection of the port SARJ rotary joint between P3 and P4 trusses, moving the Main Bus Switching Unit (MBSU) from the Shuttle Orbiter payload bay to the ESP-2 platform

96	STS-120 EVA-4 (from the Quest module)	S. Parazynski D. Wheelock	10 h 03 min — 17 h 22 min November 3, 2007	7 h 19 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Cutting off an entangles guide rope and installing stabilizing ties in the damaged area of the solar array 4B on the P6 truss in order to assure its full deployment
97	ISS Expedition ISS-16 EVA-1 (from the Quest module) USA – No.: 9	P. Whitson Y. Malenchenko	9 h 54 min — 16 h 49 min November 9, 2007	6 h 55 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Preparing pressurized mating adapter PMA-2 and Harmony module for transfer to their designated locations, replacing a remote power controller module RPCM on S0 truss
98	ISS Expedition ISS-16 EVA-2 (from the Quest module) USA – No.: 10	P. Whitson D. Tani	10 h 10 min — 17 h 26 min November 20, 2007	7 h 16 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting ammonia lines of Loop A of the external thermal control system and power cables of the Harmony module
99	ISS Expedition ISS-16 EVA-3 (from the Quest module) USA – No.: 11	P. Whitson D. Tani	9 h 50 min — 16 h 54 min November 24, 2007	7 h 04 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting ammonia lines of Loop B of the external thermal control system of the Harmony module, inspection of the starboard SARJ rotary joint between S3 and S4 trusses
100	ISS Expedition ISS-16 EVA-4 (from the Quest module) USA – No.: 12	P. Whitson D. Tani	9 h 50 min — 16 h 46 min December 18, 2007	6 h 56 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Inspecting the Beta Gimbal Assembly (BGA) of solar array 1A on the S4 truss and the starboard SARJ rotary joint between S3 and S4 trusses

Cronology of Extravehicular Activity 2008

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
101	ISS Expedition ISS-16 EVA-5 (from the Quest module) USA – No.: 13	P. Whitson D. Tani	9 h 56 min — 17 h 06 min January 30, 2008	7 h 10 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing the BMRRM module of the Beta Gimbal Assembly (BGA) of solar array 1A on the S4 truss and inspecting the starboard SARJ rotary joint between S3 and S4 trusses
102	STS-122 EVA-1 (from the Quest module)	R. Walheim S. Love	14 h 13 min — 22 h 11 min February 11, 2008	7 h 58 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Preparing Columbus module for attachment to the ISS
103	STS-122 EVA-2 (from the Quest module)	R. Walheim H. Schlegel	14 h 27 min — 21 h 12 min February 13, 2008	6 h 45 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing the NTA nitrogen tank on the P1 truss
104	STS-122 EVA-3 (from the Quest module)	R. Walheim S. Love	13 h 07 min — 20 h 32 min February 15, 2008	7 h 25 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing scientific equipment SOLAR and EuTEF on Columbus module, moving a failed control moment gyro CMG-3 from ESP-2 platform to the Shuttle Orbiter payload bay
105	STS-123 EVA-1 (from the Quest module)	R. Linnehan G. Reisman	1 h 18 min — 8 h 19 min March 14, 2008	7 h 01 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Preparing JEM ELM-PS section for attachment to the ISS, beginning the assembly of Dextre manipulator
106	STS-123 EVA-2 (from the Quest module)	R. Linnehan M. Foreman	March 15, 2008 23 h 49 min — March 16, 2008 6 h 57 min	7 h 08 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Continuing the assembly of the Dextre manipulator

107	STS-123 EVA-3 (from the Quest module)	R. Linnehan R. Behnken	March 17, 2008 22 h 51 min — March 18, 2008 5 h 44 min	6 h 53 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Completing the assembly of the Dextre manipulator on the ISS, installing a spare joint for the SSRMS robotic arm and direct curent switching units DCSU onto ESP-2 platform
108	STS-123 EVA-4 (from the Quest module)	R. Behnken M. Foreman	March 20, 2008 22 h 04 min — March 21, 2008 4 h 28 min	6 h 24 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing remote power controller module RPCM on S0 truss, conducting experiment DTO-848
109	STS-123 EVA-5 (from the Quest module)	R. Behnken M. Foreman	March 22, 2008 20 h 34 min — March 23, 2008 2 h 36 min	6 h 02 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing the OBSS boom onto S1 truss, installing two continers of the MISSE-6 experiment on Columbus module
110	STS-124 EVA-1 (from the Quest module)	M. Fossum R. Garan	16 h 22 min — 23 h 10 min June 3, 2008	6 h 48 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Dismantling the OBSS boom from S1 truss, preparing JEM PM module for berthing to the ISS, inspection of the starboard SARJ rotary joint between S3 and S4 trusses
111	STS-124 EVA-2 (from the Quest module)	M. Fossum R. Garan	15 h 04 min — 22 h 15 min June 5, 2008	7 h 11 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of two JTVE cameras on the JEM PM module, preparing JEM RMS robotic arm, preparing the JEM PM module for the transfer of the JEM ELM-PS section to it, removing ETVCG camera from P1 truss, inspecting the port SARJ rotary joint between P3 and P4 trusses
112	STS-124 EVA-3 (from the Quest module)	M. Fossum R. Garan	13 h 55 min — 20 h 28 min June 8, 2008	6 h 33 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing the NTA nitrogen tanks on S1 truss, installing ETVCG camera onto P1 truss, preparing JEM RMS robotic arm

113	ISS Expedition ISS-17 EVA-1 (from the Pirs module) RUS – No.: VKD-25	S.A. Volkov O.D. Kononenko	July 10, 2008 18 h 48 min — July 11, 2008 1 h 06 min	6 h 18 min (from the opening to the closure of the exit hatch)	Repairing Soyuz TMA-12 spacecraft by mechanically demating one of the five locks connecting the descent vehicle and instrumentation and propulsion compartment
114	ISS Expedition ISS-17 EVA-2 (from the Pirs module) RUS – No.: VKD-26	S.A. Volkov O.D. Kononenko	17 h 08 min — 23 h 02 min July 15, 2008	5 h 54 min (from the opening to the closure of the exit hatch)	Installing a docking target onto transfer compartemnt of Zvezda module and taking its pictures using cargo boom GStM-1, installing telescope spectrometer Vsplesk on the ISS, retrieving the first container of the Biorisk-MSN experiment
115	STS-126 EVA-1 (from the Quest module)	H. Stefanyshyn-Piper S. Bowen	November 18, 2008 18 h 09 min — November 19, 2008 1 h 01 min	6 h 52 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Transferring NTA nitrogen tank from the ESP-3 platform to Space Shuttle payload bay, transferring the FHRC rotary coupler from the Shuttle Orbiter to the ESP-3, performing the initial phase of repairs on the starboard SARJ rotary joint between S3 and S4 trusses
116	STS-126 EVA-2 (from the Quest module)	H. Stefanyshyn-Piper S. Kimbrough	November 20, 2008 17 h 58 min — November 21, 2008 0 h 43 min	6 h 45 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Relocating two CETA carts on the ISS, servicing end effector A of the SSRMS robotic arm, continuing the repairs on starboard SARJ rotary joint between S3 and S4 trusses
117	STS-126 EVA-3 (from the Quest module)	H. Stefanyshyn-Piper S. Bowen	November 22, 2008 18 h 01 min — November 23, 2008 0 h 58 min	6 h 57 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Continuing repairs on the starboard SARJ rotary joint between S3 and S4 trusses
118	STS-126 EVA-4 (from the Quest module)	S. Bowen S. Kimbrough	November 24, 2008 18 h 24 min — November 25, 2008 0 h 31 min	6 h 07 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Completing repairs on the starboard SARJ rotary joint between S3 and S4 trusses, servicing the port SARJ rotary joint between P3 and P4 trusses, installing ETVCG camera on P1 truss, installing a GPS antenna onto JEM ELM-PS section
119	ISS Expedition ISS-18 EVA-1 (from the Pirs module) RUS – No.: VKD-27	Y.V. Lonchakov M. Fincke	0 h 52 min — 6 h 29 min December 23, 2008	5 h 37 min (from the opening to the closure of the exit hatch)	Installing Langmuir probe, retrieving the second container of the Biorisk-MSN experiment, installing the IPI-SM hardware on Zvezda module, installing and subsequently removing EXPOSE-R hardware due to its failure to power up

Cronology of Extravehicular Activity 2009

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
120	ISS Expedition ISS-18 EVA-2 (from the Pirs module) RUS – No.: VKD-28	Y.V. Lonchakov M. Fincke	16 h 22 min — 21 h 10 min March 10, 2009	4 h 48 min (from the opening to the closure of the exit hatch)	Removing arimide tapes from the area of the docking target and antennas AR-VKA and 2AR-VKA on the Pirs module, reinstalling and hooking up the EXPOSE-R hardware on Zvezda module, monitoring the condition of exturnal surfaces and structural elements on the ISS Russain Segment under Panorama-2009 program
121	STS-119 EVA-1 (from the Quest module)	S. Swanson R. Arnold	17 h 16 min — 23 h 23 min March 19, 2009	6 h 07 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Tightening bolts and connecting power and control cables between S5 and S6 trusses, preparing for deployment of solar arrays and the radiator of the S6 truss
122	STS-119 EVA-2 (from the Quest module)	S. Swanson J. Acaba	16 h 51 min — 23 h 21 min March 21, 2009	6 h 30 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Tightening bolts on storage batteries of the P6 truss, taking infrared photoes and videos of radiators on S1 and P1 trusses, installing a GPS antenna onto the JEM ELM-PS section
123	STS-119 EVA-3 (from the Quest module)	R. Arnold J. Acaba	15 h 37 min — 22 h 04 min March 23, 2009	6 h 27 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Relocating CETA 2 cart on the ISS, servicing end effector B of the SSRMS robotic arm, reconfiguring cables on control panels for the bolts of the attachment system of S1 and S3 trusses
124	ISS Expedition ISS-20 EVA-1 (from the Pirs module) RUS – No.: VKD-29	G.I. Padalka M. Barratt	7 h 52 min — 12 h 46 min June 5, 2009	4 h 54 min (from the opening to the closure of the exit hatch)	Dismantiling antennas 4AO-VKA, AR-VKA and 2AR-VKA of Kurs-P rendezvous and docking system on Zvezda module, connecting antenna cables, taking pictures of antennas using GStM-2 cargo boom, testing new spacesuits Orlan-MK
125	ISS Expedition ISS-20 EVA-2 (in the transfer compartment of the Zvezda module)	G.I. Padalka (inside) M. Barratt (inside)	6 h 55 min — 7 h 07 min June 10, 2009	12 min (from the opening to the closure of the exit hatch)	Replacing a flat cover with a conical cover on the upper docking port of Zvezda module transfer compartment

126	STS-127 EVA-1 (from the Quest module)	D. Wolf T. Kopra	16 h 19 min — 21 h 51 min July 18, 2009	5 h 32 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Preparing the JEM EF external platform for attachment to the ISS, deploying the nadir Unpressurized Cargo Carriers Attachment System UCCAS on the P3 truss
127	STS-127 EVA-2 (from the Quest module)	D. Wolf T. Marshburn	15 h 27 min — 22 h 20 min July 20, 2009	6 h 53 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Relocating SGANT antenna, pump module PM and linear drive unit LDU from platform ICC-VLD to platform ESP-3, installing FGB grappling fixture onto ammonia tank ATA of P1 truss
128	STS-127 EVA-3 (from the Quest module)	D. Wolf C. Cassidy	14 h 32 min — 20 h 31 min July 22, 2009	5 h 59 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Preparing cargoes on the JEM ELM-ES section for transfer to the external platform JEM EF, replacing two Channel 2B storage bateries of P6 truss
129	STS-127 EVA-4 (from the Quest module)	C. Cassidy T. Marshburn	13 h 54 min — 21 h 06 min July 24, 2009	7 h 12 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing four Channel 2B storage batteries of P6 truss
130	STS-127 EVA-5 (from the Quest module)	T. Marshburn C. Cassidy	11 h 33 min — 16 h 27 min July 27, 2009	4 h 54 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Adjusting thermal cover on the Dextre robotic arm, reconfiguring Control Moment Gyros (CMG) on the switchboard of Z1 truss, installing two video camerass on the JEM EF external platform
131	STS-128 EVA-1 (from the Quest module)	J. Olivas N. Stott	September 1, 2009 21 h 49 min — September 2, 2009 4 h 24 min	6 h 35 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Dismantling an old ATA ammonia tank from P1 truss and attaching it temporarily to the SSRMS robotic arm, transferring two containers of the MISSE-6 experiment and the EuTEF scientific equipment from Columbus module to the payload bay of the Space Shuttle Orbiter

132	STS-128 EVA-2 (from the Quest module)	J. Olivas C. Fuglesang	September 3, 2009 22 h 12 min — September 4, 2009 4 h 51 min	6 h 39 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Transfering the old ATA ammonia tank from the SSRMS robotic arm to the Orbiter payload bay, transferring a new ATA installing the FGB grapple fixture onto the ATA ammonia tank on the S1 truss
133	STS-128 EVA-3 (from the Quest module)	J. Olivas C. Fuglesang	September 5, 2009 20 h 39 min — September 6, 2009 3 h 40 min	7 h 01 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Deploying the zenith attachment system PAS on S3 truss, replacing the rate gyro assembly RGA-2 and the remote power controller module RPCM on S0 truss, installing two GPS antennas onto S0 truss
134	STS-129 EVA-1 (from the Quest module)	M. Foreman R. Satcher	14 h 24 min — 21 h 01 min November 19, 2009	6 h 37 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing a spare S-band antenna subassembly SASA onto Z1 truss, laying a cable for SGANT antenna for communications with Earth, instlling a bracket for ammonia lines on the Unity module, lubricating bearings in the grapple "snares" of POA on the Nobile Base System and the end-effector of the Japanese robotic arm, deploying the nadir PAS attachment system on the S3 truss
135	STS-129 EVA-2 (from the Quest module)	M. Foreman R. Bresnik	14 h 31 min — 20 h 39 min November 21, 2009	6 h 08 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing antenna for automatic identification system and a ham radio antenna on the Columbus module, deploying the zenit PAS attachment system on S3 truss, relocating the floating potential measurement unit FPMU from S1 truss to P1 truss, installing a transceiver for wireless video system WETA No.3 on the S3 truss
136	STS-129 EVA-3 (from the Quest module)	R. Satcher R. Bresnik	13 h 24 min — 19 h 06 min November 23, 2009	5 h 42 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Instlling a high-pressure oxygen tank on the Quest airlock and PEC-7A and PEC-7B containers of the MISSE experiment onto the ELC-2 platform, unscrewing bolts on the ammonia tank on S1 truss, installing ammonia jumpers between S1 and S3 trusses and P1 and P3 trusses

Cronology of Extravehicular Activity 2010

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
137	ISS Expedition ISS-22 (from the Pirs module) RUS – No.: VKD-30	O.V. Kotov M.V. Surayev	10 h 05 min — 15 h 49 min January 14, 2010	5 h 44 min (from the opening to the closure of the exit hatch)	Laying and connecting cables of the RF system Kurs and an Ethernet nework cable between Zvezda and Poisk modules, installing a Kurs system antenna, docking targets, multi-layer insulation flaps and handrails on egress hatches on the Poisk module, retreivent scientific equipment Biorisk-MSN from the Pirs module
138	STS-130 EVA-1 (from the Quest module)	R. Behnken N. Patrick	2 h 17 min — 8 h 49 min February 12, 2010	6 h 32 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Preparing Tranquility module for attachment to the ISS, removing a temporary platform for replaceable units from dexterous manipulator Dextre, connecting data and temporary power cables between Tranquility and Unity modules
139	STS-130 EVA-2 (from the Quest module)	R. Behnken N. Patrick	2 h 20 min — 8 h 14 min February 14, 2010	5 h 54 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Laying and connecting ammonia jumpers between Tranquility and Destiny modules, activation of the A loop of the Tranquility thermal control system, removing locks from the petals of the docking mechanism on the Tranquility nadir port, installing a zero-torque valve and thermal protection covers on the Tranquilty launch locks
140	STS-130 EVA-3 (from the Quest module)	R. Behnken N. Patrick	2 h 15 min — 8 h 03 min February 17, 2010	5 h 48 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting data and heater cables between the pressurized mating adapter PMA-3 and Tranquility module, activating loop B of Tranquility thermal control system, disconnecting temporary power cable from Tranquility , removing thermal protection covers and locks from the windows of the Cupola module, installing handrails on Tranquility, laying video signal converter cable for the SSRMS grapple fixture on Zarya module

141	STS-131 EVA-1 (from the Quest module)	R. Mastracchio C. Anderson	5 h 31 min — 11 h 58 min April 9, 2010	6 h 27 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Relocating a new ATA ammonia tank from the Shuttle's payload bay onto the MSS mobile base system, disconnecting ammonia and nitrogen lines from the old ammonia tank on the S1 truss, retrieving MPAC & SEED scientific equipment from the external platform of the Japanese Kibo module, replacing Rate Gyro Assembly RGA-1 on S0 truss
142	STS-131 EVA-2 (from the Quest module)	R. Mastracchio C. Anderson	5 h 30 min — 12 h 56 min April 11, 2010	7 h 26 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Supporting transfer of the old ammonia tank from S1 truss onto mobile base system, installing fasteners for radiator holds onto P1 truss, supporting transfer of the new ammonia tank from the mobile base system onto S1 truss and connecting to it heater power cables
143	STS-131 EVA-3 (from the Quest module)	R. Mastracchio C. Anderson	6 h 14 min — 12 h 38 min April 13, 2010	6 h 24 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting ammonia and nitrogen lines to the new ammonia tank, returning micrometeoroid shields into Quest air lock, providing support for the transfer of the old ammonia tank from the mobile base system to the Space Shutlle payload bay
144	STS-132 EVA-1 (from the Quest module)	G. Reisman S. Bowen	11 h 54 min — 19 h 19 min May 17, 2010	7 h 25 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing and connecting a spare Ku-band SGANT antenna onto Z1 truss, installing an improved platform for replacable units on the dextrous manipulator Dextre, breaking torque on bolts holding the new storage batteries to the ICC-VLD2 cargo carrier
145	STS-132 EVA-2 (from the Quest module)	S. Bowen M. Good	10 h 38 min — 17 h 47 min May 19, 2010	7 h 09 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Getting the camera turning mechanism on the OBSS boom free from the cable preventing its rotation, replacing four Channel 4B storage batteries on the P6 truss, take of the spare SGANT Ku-band antenna on the Z1 truss
146	STS-132 EVA-3 (from the Quest module)	M. Good G. Reisman	10 h 27 min — 17 h 13 min May 21, 2010	6 h 46 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Connecting a spare ammonia humper between P4 and P5 trusses, installing two Channel 4B storage batteries on the P6 truss, transferrring PDGF grapple fixture for SSRMS robotic arm from the Space Shuttle payload bay to the Quest airlock, reinstalling fasteners for radiator holders on P1 truss

147	ISS Expedition ISS-24 EVA-1 (from the Pirs module) RUS – No.: VKD-31	F.N. Yurchikhin M.B. Korniyenko	4 h 11 min — 10 h 54 min July 27, 2010	6 h 43 min (from the opening to the closure of the exit hatch)	Replacing a TV camera on the Zvezda module propulsion compartment and subsequent jettisoniong of the old camera, laying and connecting cables of the Rassvet module onboard equipment control system to the Zvezda module and the cables of the Kurs RF system of the Rassvet module to the Zarya module
148	ISS Expedition ISS-24 EVA-2 (from the Quest module) USA – No.: 14	D. Wheelock T. Caldwell-Dyson	11 h 19 min — 19 h 22 min August 7, 2010	8 h 03 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	An attempt to replace on S1 truss a failed pump module of the A loop of the US segement thermal control system, failed due to ammonia spillage during demating of a quick disconnect in one of the four fluid lines
149	ISS Expedition ISS-24 EVA-3 (from the Quest module) USA – No.: 15	D. Wheelock T. Caldwell-Dyson	12 h 27 min — 19 h 53 min August 11, 2010	7 h 26 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Dismantling the failed pump module of the A loop in the US segment thermal control system and its transfer from the S1 truss to the mobile base system MBS
150	ISS Expedition ISS-24 EVA-4 (from the Quest module) USA – No.: 16	D. Wheelock T. Caldwell-Dyson	10 h 20 min — 17 h 40 min August 16, 2010	7 h 20 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Transferring the new pump module from the external storage platform ESP-2 onto S1 truss and its integration into the A loop of the US Segment thermal control system
151	ISS Expedition ISS-25 (from the Pirs module) RUS – No.: VKD-32	F.N. Yurchikhin O.I. Skripochka	14 h 55 min — 21 h 23 min November 15, 2010	6 h 28 min (from the opening to the closure of the exit hatch)	Taking swab samples from the multi-layer insulation on Zvezda and Pirs modules within the framework of the Test experiment, installing on the Zvezda module a portable multipurpose worksation URM-D and dismantling the Robotik robotic arm, installing a retrievable container cartridge SKK No. 1-M2 on the Poisk module, removing a TV camera from the Rassvet module on the side of the active docking port

Cronology of Extravehicular Activity 2011

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
152	ISS Expedition ISS-26 EVA-1 (from the Pirs module) RUS – No.: VKD-33	D.Y. Kondratyev O.I. Skripochka	14 h 29 min — 19 h 51 min January 21, 2011	5 h 22 min (from the opening to the closure of the exit hatch)	Installing a high-rate data transmission system box on the Zvezda module, dismantling scientific equipment IPI-SM and EXPOSE-R, installing TV camera on the Rassvet module on the side of the passive docking port
153	ISS Expedition ISS-26 EVA-2 (from the Pirs module) RUS – No.: VKD-34	D.Y. Kondratyev O.I. Skripochka	13 h 30 min — 18 h 20 min February 16, 2011	4 h 50 min (from the opening to the closure of the exit hatch)	Installing Foton-Gamma hardware and a radiometry system RK-21-8 onto Zvezda module, dismantling and hettisoning the Yakor device, removing Komplast panels No.2 and No.10 on Zarya module
154	STS-133 EVA-1 (from the Quest module)	S. Bowen A. Drew	15 h 46 min — 22 h 20 min February 28, 2011	6 h 34 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Extending a backup power cable between Unity and Tranquility modules, transferring the failed pump module of the A loop int the US Segment thermal control system from Mobile Base System to the external platform ESP-2, providing a TV camera on S1 truss with rotation device, extending the "railroad" on the S3 truss, conducting a Japanese experiment Message in a Bottle
155	STS-133 EVA-2 (from the Quest module)	S. Bowen A. Drew	15 h 42 min — 21 h 56 min March 2, 2011	6 h 14 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Venting residual ammonia from the failed pump module of the A loop in the US Segment thermal control system, transferring LWAPA adapter from Columbus module into the payload bay of the Discovery Orbiter, removing thermal insulation from equipment on the ELC-4 platform, installing a TV camera on the dextrous manipulator Dextre and a light on the P3 truss, relocating a cargo boom adapter from the pressurized mating adapter to Zarya module

156	STS-134 EVA-1 (from the Quest module)	A. Feustel G. Chamitoff	7 h 10 min — 13 h 29 min May 20, 2011	6 h 19 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Dismantling containers PEC-7A and PEC-7B of the MISSE experiment from the external platform ELC-2 and installing container PEC-8, - a light on the S3 truss, - a thermal protection blanket on the starboard SARJ rotary joint between S3 and S4 trusses, - ammonia jumpers between P3 and P4 trusses and between P5 and P6 trusses and EWC wireless communication antennas on the Destiny module
157	STS-134 EVA-2 (from the Quest module)	M. Fincke A. Feustel	6 h 05 min — 14 h 12 min May 22, 2011	8 h 07 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Supporting the replenishment of ammonia in the thermal control system of the photovoltaic module PVTCS on P6 truss, supporting the port SARJ rotary joint between P3 and P4 trusses, installing fasteners for the radiator grapples on S1 truss, installing cover on the TV camera of the dextrous manipulator Dextre and lubricating bearings of the snares or its grapple
158	STS-134 EVA-3 (from the Quest module)	M. Fincke A. Feustel	5 h 43 min — 12 h 37 min May 25, 2011	6 h 54 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing the PDGF grapple fixture for the SSRMS robotic arm and video signal converter onto Zarya module, laying backup powe cables between Unity and Zarya modules, connecting EWC wireless communications antenna on the Destiny module, infrared imaging of STP-H3 equipment on the ELC-3 platform, installing thermal protection on the robotic arm grapple fixture on a high-pressure gas tank

159	STS-134 EVA-4 (from the Quest module)	M. Fincke G. Chamitoff	4 h 15 min — 11 h 39 min May 27, 2011	7 h 24 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Supporting installation of the OBSS boom onto S1 truss, transferring PDGF grapple fixture for the SSRMS robotic arm from P6 truss to OBSS, dismantling from the OBSS the EFGF grapple fixture, removing restraints from the spare arm of the dextrous manipulator Dextre on the ELC-3 platform, taking pictures of the STP-H3 hardware
160	STS-135 EVA-1 (from the Quest module) < ISS >, USA – No.: 17	M. Fossum R. Garan	13 h 22 min — 19 h 53 min July 12, 2011	6 h 31 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Transferring a failed pump module of Loop A in the thermal control system of the US segment from the external platform ESP-2 into the payload bay of the Atlantis Space Shuttle Orbiter and experimental RRM equipment for robotics-assisted refuelling of satellites from the Orbiter to the dextrous manipulator Dextre, installing optical reflector ORM at E-III R/W for the MISSE-8 experiment on the external platform ELC-2 and thermal protective cover onto the docking port of the pressurized mating adapter PMA-3
161	ISS Expedition ISS-28 EVA-1 (from the Pirs module) RUS – No.: VKD-35	S.A. Volkov A Samokutiayev	14 h 51 min — 21 h 13 min August 3, 2011	6 h 22 min (from the opening to the closure of the exit hatch)	Launching a microsatellite RadioSkaf-B, installing and connecting the onboard laser commmunications terminal BTLS-N and dismantling the 4AO-VKA antenna of the Kurs RF system on Zvezda module, installing Biorisk-MSN equipment onto Pirs module

Chronology of Extravehicular Activity 2012

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
162	ISS Expedition ISS-30 EVA-1 (from the Pirs module) RUS – No.: VKD-36	O.D. Kononenko A.N. Shkaplerov	14 h 31 min — 20 h 46 min February 16, 2012	6 h 15 min (from the opening to the closure of the exit hatch)	Trasferring the cargo boom GStM-1 from the Pirs module onto the Poisk module, installing two panels with specimens within the framework of the Vynoslivost experiment onto Poisk module, taking swap samples off the multi-layer insulation of Zvezda module within the Test experiment
163	ISS Expedition ISS-32 EVA-1 (from the Pirs module) RUS – No.: VKD-37	G.I. Padalka Y. Malenchenko	15 h 37 min — 21 h 28 min August 20, 2012	5 h 51 min (from the opening to the closure of the exit hatch)	Transferring the cargo boom GStM-2 from the Pirs module to Zarya module, manual launch of the Sfera-53 satellite, insatlling five additional meteoroid shield panels on the smaller diameter working compartment of the Zvezda module, dismantling container No.1 of the Biorisk-MSN equipment and installing two struts of the egress device on Pirs module
164	ISS Expedition ISS-32 EVA-2 (from the Quest module) USA – No.: 18	S. Williams A. Hoshide	12 h 16 min — 20 h 33 min August 30, 2012	8 h 17 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing the MBSU-1 (Main Bus Switching Unit) on S0 truss (the replacement unit remained disconnected because of the failure to tighten the H2 bolt), laying on the pressurized adapter PMA-1 and node module Unity one of two cables to supply power to the planned Russian Multipurpose Laboratory Module Nauka
165	ISS Expedition ISS-32 EVA-3 (from the Quest module) USA – No.: 19	S. Williams A. Hoshide	11 h 06 min — 17 h 34 min September 5, 2012	6 h 28 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Completing the installation of the Main Bus Switching Unit MBSU-1 on the S0 truss, replacement of the Camera Light Pan &Tilt Assembly CLPA on the B shoulder of the SSRMS robotic arm
166	ISS Expedition ISS-33 EVA-1 (from the Quest module) USA – No.: 20	S. Williams A. Hoshide	12 h 29 min — 19 h 07 min November 1, 2012	6 h 38 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Disconnecting the thermal control system of the photovoltaic module PVTCS of channel 2B on P6 truss from the fore radiator and connecting it to the aft radiator, supporting the aft radiator deployment

Chronology of Extravehicular Activity 2013

VA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
167	ISS Expedition ISS-35 EVA-1 (from the Pirs module) RUS – No.: VKD-38	P.V. Vinogradov R.Y. Romanenko	14 h 03 min — 20 h 40 min April 19, 2013	6 h 37 min (from the opening to the closure of the exit hatch)	Installing equipement of the first phase of the Obstanovka experiment and replacing videometer target on Zvezda module, dismantling container No.2 of the Biorisk-MSN equipment from the Pirs module and the first panel from the Vynoslivost experiment (accidentally floated away from P.V. Vinogradov) from the Poisk module
168	ISS Expedition ISS-35 EVA-2 (from the Quest module) USA – No.: 21	C. Cassidy T. Marshburn	12 h 44 min — 18 h 14 min May 11, 2013	5 h 30 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Inspecting and replacing Pump Flow Control Subassembly PFCS of the termal control system of the photovoltaic module PVTCS of the 2B cannel on P6 truss in order to fix the ammonia leak which started on May 9, 2013
169	ISS Expedition ISS-36 EVA-1 (from the Pirs module) RUS – No.: VKD-39	F.N. Yurchikhin A.A. Misurkin	13 h 31 min — 20 h 06 min June 24, 2013	6 h 35 min (from the opening to the closure of the exit hatch)	Replacing the replaceable panel No.2 of the flow control regulator and installing holders and guides on Zarya module, installing Indicator-ISS equipment and removing the second panel of the Vynoslivost experiment from the Poisk module, dismantling the Foton-Gamma hardware and installing soft handholds onto Zvezda module
170	ISS Expedition ISS-36 EVA-2 (from the Quest module) USA – No.: 22	C. Cassidy L. Parmitano	12 h 02 min — 18 h 09 min July 9, 2013	6 h 07 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing a failed transceiver / controller of the Ku-band SGANT-2 antenna on Z1 truss, dismantling the PEC-8 container of the MISSE experiment and optical reflector ORMatE-III R/W from the outer platform ELC-2, installing radiator holders on trusses S1 and P1, laying on the pressurized adapter PMA-1 and node module Unity a second cable to provide power to the planned Russian multipurpose laboratory module Nauka, removing the failed Camera Light Pan-Tilt Assembly CLPA from the Mobile Base System MBS, installing thermal protective cover onto a docking prot of the pressurized adapter PMA-2

171	ISS Expedition ISS-36 EVA-3 (from the Quest module) USA – No.: 23	C. Cassidy L. Parmitano	11 h 57 min — 13 h 29 min July 16, 2013	1 h 32 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing a Y-jumper onto Z1 truss and connecting the data cable of the PDGF grapple fixture for the SSRMS robotic arm on Zarya module. The spacewalk was cut short because some water appeared in L. Parmitano's spacesuit
172	ISS Expedition ISS-36 EVA-4 (from the Pirs module) RUS – No.: VKD-40	F.N. Yurchikhin A.A. Misurkin	14 h 36 min — 22 h 05 min August 16, 2013	7 h 29 min (from the opening to the closure of the exit hatch)	Installing a soft handhold between modules Poisk and Zarya, laying along the Zarya module four power cables and an Ethernet network cable for the planned Nauka module, installing a second panel of the Vynoslivost experiment on the Poisk module.
173	ISS Expedition ISS-36 EVA-5 (from the Pirs module) RUS – No.: VKD-41	F.N. Yurchikhin A.A. Misurkin	11 h 34 min — 17 h 32 min August 22, 2013	5 h 58 min (from the opening to the closure of the exit hatch)	Dismantling the onboard terminal for laser communications BTLS-N, installing an outboard workstation with a two-axis pointing platform, inspecting and tightening loose bolts on thermal protective covers of antennas for spacecraft-to-spacecraft communications link WAL and installing two soft handholds onto Zvezda module, taking swab samples off the surface of the egress hatch VL-2 of the Poisk module within the framework of the Test experiment
174	ISS Expedition ISS-37 EVA-1 (from the Pirs module) RUS – No.: VKD-42	O.V. Kotov S.N. Ryazansky	14 h 34 min — 20 h 24 min November 9, 2013	5 h 50 min (from the opening to the closure of the exit hatch)	"Taking an Olympic torch out into open space“, dismantling an ancor from the transfer compartment of the Zvezda module (it turned out to be impossible to install it in the right position on the outboard workstation), installing a removable rotary handhold on an outboard workstation, dismantling a locking device from a two-axis pointing platform and disconnecting radiometry system RK-21-8 on the Zvezda module (its antenna could not be folded because of a problem with one of its two locks)

175	ISS Expedition ISS-38 EVA-1 (from the Quest module) USA – No.: 24	R. Mastracchio M. Hopkins	12 h 01 min — 17 h 29 min December 21, 2013	5 h 28 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Dismantling a failed pump module of the A loop in the US segment thermal control system and its transfer from the S1 truss to the mobile base system MBS
176	ISS Expedition ISS-38 EVA-2 (from the Quest module) USA – No.: 25	M. Hopkins R. Mastracchio	11 h 53 min — 19 h 23 min December 24, 2013	7 h 30 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Transferring the new pump module from the external platform ESP-3 onto S1 truss and integrating it into the A loop of the US Segment thermal control system
177	ISS Expedition ISS-38 EVA-3 (from the Pirs module) RUS – No.: VKD-43	O.V. Kotov S.N. Ryazansky	13 h 00 min — 21 h 07 min December 27, 2013	8 h 07 min (from the opening to the closure of the exit hatch)	Installing anchor on the outboard workstation, installing and subsequently removing Canadian high and medium definition cameras made by UrtheCast because of a power supply failure, dismantling the removable rotary handhold from the outboard workstation, removing and jettisonning spectrometer telescope Vsplesk, installing the Seismoprognoz equipment on the Zvezda module. [The longest spacewalk in Russian spacesuits]

Chronology of Extravehicular Activity 2014

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
178	ISS Expedition ISS-38 EVA-4 (from the Pirs module) RUS – No.: VKD-44	O.V. Kotov S.N. Ryazansky	14 h 00 min — 20 h 08 min January 27, 2014	6 h 08 min (from the opening to the closure of the exit hatch)	Re-installing and connecting Canadian high- and medium-resolution cameras made by UrtheCast onto Zvezda module, removing WIF adapter from the end effector on the B shoulder of the SSRMS robotic arm, dismantling the removable cartridge/container SKK No.2-SO from the Pirs module
179	ISS Expedition ISS-39 EVA-1 (from the Quest module) USA – No.: 26	R. Mastracchio S. Swanson	13 h 56 min — 15 h 32 min April 23, 2014	1 h 36 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing multiplexer/ demultiplexer EXT-2 and opening doors on the starboard and port units of the secondary power distribution assembly (SPDA) on the S0 truss
180	ISS Expedition ISS-40 EVA-1 (from the Pirs module) RUS – No.: VKD-45	A.A. Skvortsov O.G. Artemyev	14 h 10 min — 21 h 33 min June 19, 2014	7 h 23 min (from the opening to the closure of the exit hatch)	Installing an active phased antenna array of the Unified Command and Telemetry System on Zvezda module for communications with the ground via relay satellites of the Luch system, relocating a second set of plasma wave equipment of the first phase of Obstanovka experiment, taking swab samples from window No.2 within the framework of the Test experiment and replacing a load-carrying truss with a connection span, including re-installation of the antenna for high data rate transmission system and TM/TC transceiver and jettisoning of the load-carrying truss
181	ISS Expedition ISS-40 EVA-2 (from the Pirs module) RUS – No.: VKD-46	A.A. Skvortsov O.G. Artemyev	14 h 02 min — 19 h 12 min August 18, 2014	5 h 10 min (from the opening to the closure of the exit hatch)	Manually launching a Russian-Peruvian nanosatellite NS-1 (Chasqui-1), installing EXPOSE-R2 equipment and taking swab samples from window No.13 within the framework of the Test experiment on Zvezda module, installing a Plume Impingement and Deposit Monitoring unit, removing the second panel of the Vynoslivost experiment and replacing the removable cartridge container SKK No.1-M2 with SKK No. 2-M2 on the Pirs module, dismantling container No.3 of the Biorisk-MSN equipment from the Pirs module

182	ISS Expedition ISS-41 EVA-1 (from the Quest module) USA – No.: 27	R. Wiseman A. Gerst	12 h 30 min — 18 h 43 min October 7, 2014	6 h 13 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Relocating a failed pump module in the A loop of the thermal control system of the US segment from the mobile base system onto the outboard platform ESP-2, replacing a light on the ETVCG camera on the Lab module Destiny, installing the MTRA unit for backup power supply of the mobile transporter
183	ISS Expedition ISS-41 EVA-2 (from the Quest module) USA – No.: 28	R. Wiseman B. Wilmore	12 h 16 min — 18 h 50 min October 15, 2014	6 h 27 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing a sequetial shunt unit SSU on the S4 truss, trasferring APFR restraint and tool holder from P1 truss to S0 truss, dismantling the failed ETVCG camera from P1 truss, relocating the trasceiver of the wireless video system WETA No. 2 from the P1 truss onto the node module Harmony and replacing it with a new ETVCG camera
184	ISS Expedition ISS-41 EVA-3 (from the Pirs module) RUS – No.: VKD-47	M.V. Surayev A. Samokutyaev	13 h 28 min — 17 h 06 min October 22, 2014	3 h 38 min (from the opening to the closure of the exit hatch)	Dismantling and hettisoning the radiometry system PK-21-8 from the Zvezda Service Module, removing the protective cover from EXPOSE-R2 equipment, dismantling and jettisoning antennas 2ASF1-M-VKA No.1 and No.2 of the Kurs RF system from the Mini Research Module Poisk, taking swab samples from the window on the egress hatch VL No.2 within the framework of the Test experiment on the Pirs docking compartment

Chronology of Extravehicular Activity 2015

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
185	ISS Expedition ISS-42 EVA-1 (from the Quest module) USA – No.: 29	B. Wilmore T. Virts	12 h 44 min — 19 h 17 min February 21, 2015	6 h 33 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Routing power and data cables on pressurized mating adapter PMA2 in the nose part of the ISS USOS Node2 required to install the International Docking Assembly IDA-1 on Node 2 PMA2.
186	ISS Expedition ISS-42 EVA-2 (from the Quest module) USA – No.: 30	B. Wilmore T. Virts	11 h 45 min — 18 h 29 min February 25, 2015	6 h 44 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Removing the pressurized mating adapter PMA2 cover to install Docking assembly IDA 1. Completing routing of IPIM cables associated with IDA 1. Lubricating Latching End Effector (LEE A) (ball screws and grooves). Clearing CBM capture latches on the nose part of Node3 to prepare for PMM relocation. Removing NPV valve and handrail on module Node3.
187	ISS Expedition ISS-42 EVA-3 (from the Quest module) USA – No.: 31	B. Wilmore T. Virts	12 h 44 min — 17 h 25 min March 1, 2015	5 h 41 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing equipment on the ISS USOS external surface to activate the communications system for visiting vehicles: (two antennas and two reflectors on truss P3, two antennas and one reflector on truss S3). Routing antenna cables on trusses P3, S3. Returning two mates GTEC to the ISS (additionally performed).

188	ISS Expedition ISS-44 EVA-1 (from the Pirs module) RUS – No.: VKD-48	G.I. Padalka M.B. Kornienko	17 h 19 min — 22 h 50 min August 10, 2015	5 h 31 min (from the opening to the closure of the exit hatch)	Installation of soft handrails on Zvezda module, eplacement of PCE AFD WAL6 antenna (plane II, SM WC small diameter), cleaning of window #2 (plane IV, SM WC), installation of antennas PCE AFD WAL1-WAL5 protective caps, imagery of science hardware Expose-R, removal of sensor unit of experiment Obstanovka on SM and its delivery to CO1, wipe sampling t from SA-IV, radiator panel of WC small diameter, plane IV and near the drainage valves of system Vozdukh and Electron (SE Test), photography of the Electron system union, changing of orientation of pressure monitoring unit on MRM2 Poisk, imagery of external surface of the ISS RS.
189	ISS Expedition ISS-45 EVA-1 (from the Quest module) USA – No.: 32	S. Kelly K. Lindgren	15 h 10 min — 22 h 26 min October 28, 2015	7 h 16-min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The main bus switching unit (MBSU) MLI on external logistics carrier ELC-2 was removed and photo survey of MBSU connectors was performed. The Alpha Magnetic Spectrometer AMS-02 blanket and AMS thermal control system radiator (TTCS AMS) were installed. Latching End Effector LEE B (equalization brackets and deployment rollers were lubricated) on external stowage platform ESP-2 was lubricated – not completed. The power and data system cables on PMA-3 docking adapter and in ISS USOS Node 3 nadir were routed for subsequent transfer of the International docking adapter IDA-2 fully completed.

190	ISS Expedition ISS-45 EVA-2 (from the Quest module) USA – No.: 33	S. Kelly K. Lindgren	14 h 22 min — 22 h 10 min November 28, 2015	7 h 48-min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Photovoltaic radiator (PVR) of Photovoltaic Thermal Control System (PVTCS) was re-integrated. PVTCS/EETCS NH3 system of Loop 2B was refilled from ATA tank of Truss P1 (as it was done during Flight STS-134). EAS jumpers of system (PVTCS isolation from EETCS) were reconfigured. Alpha Joint Interface Structure (AJIS) struts # 3 and #4 were re-torqued and heat protection was installed, re-torque of strut #3 bolts was partially completed. The Starboard Crew and Equipment Translation Aid CETA cart was reconfigured
191	ISS Expedition ISS-46 EVA-1 (from the Quest module) USA – No.: 34	S. Kelly T. Kopra	15 h 45 min — 19 h 01 min December 21, 2015	3 h 16 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	CETA cart brakes were released, the Mobile Transporter MT was secured at Worksite 4 (WS4); the Secondary Power Distribution Assembly (SPDA) doors were open; the International Docking Assembly Adapter IDA3 cables were routed, the Multipurpose Laboratory Module (MLM) Ethernet cable was routed.

Chronology of Extravehicular Activity 2016

EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
192	ISS Expedition ISS-46 EVA-2 (from the Quest module) USA – No.: 35	T. Kopra T. Peakea	12 h 47 min — 17 h 26 min January 15, 2016	4 h 39 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacement of the failed voltage regulator (SSU 1B) with a new one, installation of Node 3 non-propulsive vent (NPV); routing of cable W2288 (white-green) of the International docking assembly IDA 3; partial mating of Ethernet cable for upgraded MDM. Note: The activities were completed ahead of schedule due to appearance of cold water on the inner surface of Tim Kopra's pressurized helmet.
193	ISS Expedition ISS-46 EVA-3 (from the Pirs module) RUS – No.: VKD-49	S. Volkov Yu. Malenchenko	12 h 54 min — 17 h 39 min February 3, 2016	4 h 45 min (from the opening to the closure of the exit hatch)	Jettisoning the flash-drive containing a video recording of TV messages for participants of All-Russian event SMS on the ISS: "70 thousands thanks". Conduct of the Test experiment – wipe samples from the external surface of DC1 VL-1 and in window cover drive zone #8 were taken. Installation of two gap spanners on conical part of FGB TCC-2 (plane III). Performance of space experiment Restavratsiya: installation of sample tray on the output exposure unit, application of film coatings on the samples, status monitoring of exterior surfaces and photo survey of the ISS RS structural elements.
194	ISS Expedition ISS-48 EVA-1 (from the Quest module) USA – No.: 36	J. Williams K. Rubins	12 h 02 min — 17 h 57 min August 19, 2016	5 h 55 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	IInstallation of the new International docking adapter IDA2 on PMA2 of ISS USOS Node2; Outfitting of adapters IDA2 and PMA2; routing of cables to IDA2 and IDA3; mating power and data cables to IDA2; routing Ethernet cable and connecting it to MDM EPIC
195	ISS Expedition ISS-48 EVA-2 (from the Quest module) USA – No.: 37	J. Williams K. Rubins	11 h 51 min — 18 h 36 min September 1, 2016	6 h 45 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Retraction of Trailing Thermal Control Radiator TTCR, installation of cinches and shroud. Photo survey of Alpha Joint Interface Structure (AJIS) struts. Installation of external high-resolution cameras on ports CP08 and CP09 of External Television Camera Group (ETVCG). Replacement of lamp on port CP09. Removal and stowage of pump flow control system (PFCS) MLI of the USOS SA cooling system. Starboard CETA Cart brake handle tie down.

Chronology of Extravehicular Activity 2017

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
196	ISS Expedition ISS-50 EVA-1 (from the Quest module) USA – No.: 38	R. Kimbrough P. Whitson	12 h 22 min — 18 h 51 min January 6, 2017	6 h 29 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacement of Nickel Hydrogen (NiH2) batteries from EP S4 Integrated Equipment Assembly (IEA) Channel 3A with three lithium-ion batteries. Removal of S3 truss CETA cart light. Photo survey of Alpha Magnetic Spectrometer (AMS). Rousting of MDM Ethernet cable. Placing longitudinal protection covers on Node 3.
197	ISS Expedition ISS-50 EVA-2 (from the Quest module) USA – No.: 39	R. Kimbrough T. Pesquet	11 h 21 min — 17 h 17 min January 13, 2017	5 h 56 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacement of Nickel Hydrogen (NiH2) batteries from S4 Integrated Equipment Assembly (IEA) Channel 1A with three lithium-ion batteries. Replacement of Camera Light Pan Tilt Assembly (CLPA) on the Mobile Transporter Relay Assembly (MTRA) of MBS mast. Vertical installation of the solar array protection cover restraints and stowage of longitudinal protection covers of module Node 3. Installation of MMOD on Node 3. Installation of the interface adapter for the worksite accommodating foot restrains APFR. Routing of MDM Ethernet cable. Photo survey of the ISS USOS surface
198	ISS Expedition ISS-50 EVA-3 (from the Quest module) USA – No.: 40	R. Kimbrough T. Pesquet	11 h 22 min — 17 h 50 min March 24, 2017	6 h 28 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacement of the external unit EXT-2-MDM (controlling USOS solar arrays, external thermal control system ETCS and external robotics) with the MDM unit with Enhanced Processor and Integration Communications Card (EPIC) on the S0 truss. Inspection of the Radiator Beam Valve Module (RBVM) of the External Thermal Control System (ETCS) on the P1 truss in order to locate an ammonia leak (no ammonia leak was detected in the RBVM). Detaching the communications line connectors on PMA3 module, installing protective caps on the connectors and securing the communications line with wire restraints to the bulkhead of the Node3 module (to enable transfer of the PMA3 module from Node3 to Node2). Lubricating Latching End Effector (LEE) of the SPDM robotic manipulator. Replacing video equipment on the JEMRMS robotic arm and in the fore section of the JEM module. Replacement of a faulty lamp S1-1 on the CETA cart of the S3 truss segment.

199	ISS Expedition ISS-50 EVA-4 (from the Quest module) USA – No.: 41	R. Kimbrough P. Whitson	11 h 25 min — 18 h 28 min March 30, 2017	7 h 03 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacement of the MDM unit with the enhanced EPIC MDM. Installing 3 (instead of 4, one shield was lost in the course of the EVA) longitudinal protective shields on Node 3. Installation of the encircling protective shield on the PMA 3 module. Removal of protective cover on the PMA 3 module. Connecting cables on the PMA 3 module. Closing the flap of protective cover for the central disk on the Node 3 module.
200	ISS Expedition ISS-51 EVA-1 (from the Quest module) USA – No.: 42	P. Whitson D. Fischer	13 h 08 min — 17 h 21 min May 12, 2017	4 h 13 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Removing and replacing USOS EXPRESS carrier avionics (ExPCA) on ELC4. Installing a special cap on bus 1553 connector of Alpha Magnetic Spectrometer (AMS). Installing the protective screen on PMA3 nose part. Securing MLI on JEM RMS. Moving APFR foot restraint from COL to PMA-3.
201	ISS Expedition ISS-51 EVA-2 (from the Quest module) USA – No.: 43	P. Whitson D. Fischer	12 h 20 min — 15 h 06 min May 23, 2017	2 h 46 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacement of failed MDM EXT-1 on starboard truss S0. Installation of EWC system antenna on LAB nadir.
202	ISS Expedition ISS-52 EVA-1 (from the Pirs module) RUS – No.: VKD-50	F. Yurchihin S. Ryazansky	14 h 36 min — 22 h 10 min August 17, 2017	7 h 34 min (from the opening to the closure of the exit hatch)	Deploying the TOMSK-ТПУ 120, THC-0 No.2, TC530-ZERKALO nanosatellites, two Tanyusha-1 and 2 YUZGU nanosatellites; performing imagery of removable cassette CKK No.9 installed on SM; removing the mechanical adapter holding the Restavratsiya experiment tray; installing the Impakt experiment tray on I plane of SM IC; conducting imagery of the securing assembly and root drive of the high gain antenna (OHA) on SM IC; mounting braces on MRM2 and SM; installing the adapter with thermometers ТП228 on MRM -2 for exposure; performing the Test space experiment, monitoring the state of external surfaces and photographing the structural elements of ISS RS; panoramic shooting for TV company "Russia Today"..

203	ISS Expedition ISS-53 EVA-1 (from the Quest module) USA – No.: 44	R. Bresnik M. Vande Hei	12 h 02 min — 18 h 53 min October 5, 2017	6 h 51 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacement of the failed Latching End Effector LEE A of the SSRMS robotic arm with a new one; placing the failed latching end edector on the mobile transportation system MBS. Additional completed tasks: dismantling protective cover from the DCSU preparing the FHRC unit
204	ISS Expedition ISS-53 EVA-2 (from the Quest module) USA – No.: 45	R. Bresnik M. Vande Hei	11 h 55 min — 18 h 18 min October 10, 2017	6 h 23 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Changing the position of a handle on the High-Pressure Gas Tank (HPGT) on the Airlock module; installing an APFR foot restraint and an extension adapter for workstation interface WIF on the latching end effector LEE A of the SSRMS robotic arm; changing the position of the PFCS pumping unit through 90 degrees to provide access to the venting valve; replacing the ETVCG equipment frame on the CP9 port with a new one; replacing protective cap on the lens of the camera of the CLPA assembly with a new one; lubricating end effector LEE A of the SSRMS robotic arm; dismantling handrails on the Node 3 module. Additional completed tasks: lubricating ball bearings of the latching end effector LEE A of the SSRMS robotic arm; removal of MLI from the BCSU switching unit on the ELC-1 carrier; removal of MLI from the DCSU switching unit on the platform ESP-2.
205	ISS Expedition ISS-53 EVA-3 (from the Quest module) USA – No.: 46	R. Bresnik J. Acaba	11 h 45 min — 18 h 30 min October 20, 2017	6 h 45 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing a fuse on enhanced ORU temporary platform (EOTP); installing a high-definition camera on the CP3 port; removing MLI from the MBSU unit ; securing MLI blanket on the DCSU unit with a locking wire; installing a new CLA unit from the spares kit on the end effector LEE A. Additional completed tasks: lubricating ball bearings of the latching end effector LEE A of the SSRMS robotic arm; removing MLI from the ESP2 platform; installing two T-handles onto on the RGB rig on the port side of truss P1.

Chronology of Extravehicular Activity 2018

EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
206	ISS Expedition ISS-54 EVA-1 (from the Quest module) USA – No.: 47	M. Vande Hei S. Tingle	11 h 46 min — 19 h 09 min January 23, 2018	7 h 23 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Replacing the SSRMS latching end effector LEE B on Canadarm2 with backup grapple fixture LEE on the external stowage platform ESP-2 (due to performance degradation of the cable-loop that limited the capture capabilities).
207	ISS Expedition ISS-54 EVA-2 (from the Pirs module) RUS – No.: VKD-51	A. Misurkin A. Shkaplerov	15 h 34 min — 23 h 46 min February 2, 2018	8 h 12 min (from the opening to the closure of the exit hatch)	Cosmonauts removed the decommissioned antenna receiving device and installed a new receiving module of the broadband communication system on the instrument package of the high gain antenna at the aft end of the Zvezda service module. The cosmonauts also performed a number of additional operations with equipment installed on the external surface of the station. [That made the February 2, 2018 spacewalk the longest in the history of Russia's space program]
208	ISS Expedition ISS-54 EVA-3 (from the Quest module) USA – No.: 48	M. Vande Hei N. Kanai	11 h 58 min — 17 h 50 min February 16, 2018	5 h 52 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Transferring latching end effector LEE A (removed from SSRMS on October 5, 2017, see No.: 203) to the Airlock (planned to be returned to the ground on logistics vehicle SpX14). Transferring LEE B (removed from SSRMS on January 23, 2018, see No.: 206) from the external storage platform ESP-2 to MBS of mobile transporter MT. Lubricating end effector LEE B on SSRMS.
209	ISS Expedition ISS-55 EVA-1 (from the Quest module) USA – No.: 49	A. Feustel R. Arnold	13 h 28 min — 19 h 38 min March 29, 2018	6 h 10 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of the external wireless communications system antennas on the Node3 module. Replacement of external TV camera equipment group. Moving jumpers on Pump Flow Control Subassembly unit to support replacement of this unit in the course of a subsequent EVA. Preparing pump module PM on ESP-2 platform in case of an off-nominal EVA. [This is the 100th spacewalk conducted by expedition crew members of the ISS]

210	ISS Expedition ISS-55 EVA-2 (from the Quest module) USA – No.: 50	A. Feustel R. Arnold	11 h 38 min — 18 h 08 min May 16, 2018	6 h 30 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Transfer of pump and flow control system units : the failed unit is moved to platform ESP1 and the spare unit is placed on EOTP platform for further installation. Replacement of equipm. Group of the external TV camera on port SR13. Replacement of the faulty space-ground transmitter-receiver communication unit. Additional tasks were also accomplished.
211	ISS Expedition ISS-56 EVA-1 (from the Quest module) USA – No.: 51	A. Feustel R. Arnold	12 h 05 min — 18 h 50 min June 14, 2018	6 h 45 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installation of two HD TV cameras on the end-face of the Node 2 module. Opening MMOD shield on the fore end-face of the LAB module. Laying cables from the fore end of the LAB module to the fore end of the Node2 module. Closing and securing the stuck cover of the CATS payload telescope. Restoring the functionality of the HD camera and the light on the CP3 port. Additionally completed tasks: moving the lifting tool for transferring cargo (AGB) from ESP2 to ELC4; securing service locks on the main hinge of the container for SA sheet on the segment 3A (S4).
212	ISS Expedition ISS-56 EVA-2 (from the Pirs module) RUS – No.: VKD-52	O. Artemiev C. Prokopiev	August 15, 2018 16 h 17 min — August 16, 2018 00 h 03 min	7 h 46 min (from the opening to the closure of the exit hatch)	Removal of the device with samples of microorganisms in the framework of the Test experiment, installation of scientific equipment for the Icarus experiment. Two nanosatellites Tanyusha-SWSU and two nanosatellites SiriusSat were launched. Filming on video a panoramic view of the station space environment and the Earth surface.
213	ISS Expedition ISS-57 EVA-1 (from the Pirs module) RUS – No.: VKD-53	S. Prokopiev O. Kononenko	December 11, 2018 18 h 59 min — December 12, 2018 2 h 45 min	7 h 45 min (from the opening to the closure of the exit hatch)	Opening up MLI and MMOD shields in the vicinity of the hole on the outer surface of of the Orbital Module of Soyuz MS-09. The area with the hole was photographed and shot on video. The hole was inspected and samples were taken.

Chronology of Extravehicular Activity 2019

EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	**The EVA tasks and features**
214	ISS Expedition ISS-59 EVA-1 (from the Quest module) USA – No.: 52	Nick Hague Ann McClain	11 h 58 min – 18 h 36 min March 22, 2019	6 h 38 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing adapter plates on the starboard end surface of S0 truss and taking pictures of a bag with V-shaped guides (used for dismantling/installing heat rejection subsystem (HRS) radiators by SSRMS). Installing three mounting panels A,B,C on the IEA external equipment assembly of channel 4A. Moving two NiH2 batteries from mounting faces to mounting panels A and B. Additionally performed were: cleaning of the CBM docking mechanism on the nadir port of NODE1; taking pictures of the S0 patch cable to look for ungrounded connectors; taking pictures of the airlock thermal protection.
215	ISS Expedition ISS-59 EVA-2 (from the Quest module) USA – No.: 53	Nick Hague Christina Koch	11 h 40 min – 18 h 22 min March 29, 2019	6 h 42 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Installing adjustable grapple bar AGB-L with a lock on the external platform ESP-2 for equipment storage. Removing three mounting panels E, F, D from EP panel (external stowage platform delivered on the HTV7 spacecraft) and installing them on the external equipment assembly IEA of the power supply channel 2A of the P4 truss. Transfer of one NiH2 battery on the IEA assembly from mounting surface 2 to mounting panel E. Preparing IEA assembly on truss P6 for replacement of obsolete NiH2 batteries with new Li-Ion batteries after their delivery onboard the ISS. Installation of a flexible handrail to support crew translation. Inspection of interface units with WIF worksite (to restrain equipment and tools). Preparing charge/discharge unit BDCU and Li-Ion battery 4A3 for operations with SPDM (in order to troubleshoot the battery 4A3 installed on March 22, 2019, see No.: 214).

216	ISS Expedition ISS-59 EVA-3 (from the Quest module) USA – No.: 54	Anne McClain David Saint-Jacques	11 h 30 min – 17 h 56 min April 8, 2019	6 h 26 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Moving the mounting panel on the external equipment assembly IEA of the power channel 4A truss P4 from mounting surface 6 to mounting surface 2 in order to provide the ability to replace the faulty Li-ion battery 4A3 (installed on March 22, 2019, see No.: 214) with two NiH2 batteries using a robotic arm. Hooking up Ethernet cable “spider” to the Lab module forward section under protective screen C2-01. Installing backup jumper cables and routing them from zenith of module Node1 to the aft part of S0 truss. Installing anti-slip mechanisms TSOP on the trunnions of the Columbus modules in order to prevent slippage of the European payload accommodation platform Bartolomeo (after its delivery to orbit). <u>Note:</u> It was planned to install on the Columbus module trunnions two anti-slip mechanisms TSOP (the main and the backup ones) during that EVA. Due to technical difficulties during installation only one additional TSOP mechanism was installed. Pictures were taken of the main TSOP mechanism and of the mounting seat for subsequent analysis of the situation. Additionally completed tasks: laying Ethernet cable “spider” on the Lab module (within the framework of upgrading the EWC system).

217	ISS Expedition ISS-59 EVA-4 (from the Pirs module) RUS – No.: VKD-54	O. Kononenko A. Ovchinin	15 h 43 min — 21 h 43 min May 29, 2019	6 h 01 min (from the opening to the closure of the exit hatch)	Greetings to A.A. Leonov on the occasion of his 85th anniversary. Installation of the crossover handrail between MRM2 and FGB. Dismantling an adapter with brassboard sensors TP228 from handrail 6005 of MRM2. Dismantling exposure facilities Test #15 and #16 on MRM2. Taking wipe samples in the vicinity of the SM valves CMB-15, CMB-39 within the framework of space experiment Test. Removing panels #1 and #2 of space experiment ‘Endurance’. Cleaning the outer surfaces of the glass panels of the VL2 egress hatch window on the MRM2 module. Re-orienting the unit for monitoring pressure and deposition of contaminants on MRM2. Removing a roll of cloth from handrail 2312 SM. Disconnecting cables and dismantling measuring units PVK1 and PVK2 (plasma wave complex) from ShKD1 and ShKD2 (beam with a sensor set) of space experiment Obstanovka with subsequent disposal by the push-away method.
218	ISS Expedition ISS-60 EVA-1 (from the Quest module) USA – No.: 55	Nick Hague Andrew Morgan	12 h 27 min — 18 h 59 min August 21, 2019	6 h 32 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Performing operations to connect power and data cables to the new docking module IDA-3, installed on the adapter PMA-3. The IDA-3 was installed using robotic arm Canadarm 2 controlled by astronauts from onboard the ISS several hours before the space walk.
219	ISS Expedition ISS-61 EVA-1 (from the Quest module) USA – No.: 56	Andrew Morgan Christina Koch	11 h 39 min — 18 h 40 min October 6, 2019	7 h 01 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The first of the EVAs planned for replacing the station batteries. Upgrade the orbiting lab’s power systems and repair a cosmic particles detector

220	ISS Expedition ISS-61 EVA-2 (from the Quest module) USA – No.: 57	Andrew Morgan Christina Koch	11 h 38 min — 18 h 23 min October 11, 2019	6 h 45 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The second of the EVAs planned for replacing the station batteries.
221	ISS Expedition ISS-61 EVA-3 (from the Quest module) USA – No.: 58	Christina Koch Jessica Meir <u>First :</u> All - Female Spacewalk	11 h 38 min — 18 h 55 min October 18, 2019	7 h 17 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The third of the EVAs planned for replacing the station batteries. [The first women-only spacewalk in history]
222	ISS Expedition ISS-61 EVA-4 (from the Quest module) USA – No.: 59	Andrew Morgan Luka Parmitano	11 h 39 min — 18 h 18 min November 15, 2019	6 h 39 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The first of the EVAs planned for repairing the system for cooling the magnetic alpha spectrometer AMS.
223	ISS Expedition ISS-61 EVA-5 (from the Quest module) USA – No.: 60	Andrew Morgan Luka Parmitano	12 h 02 min — 18 h 35 min November 22, 2019	6 h 33 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The second of the EVAs planned for repairing the system for cooling the magnetic alpha spectrometer AMS.
224	ISS Expedition ISS-61 EVA-6 (from the Quest module) USA – No.: 61	Andrew Morgan Luka Parmitano	11 h 31 min — 17 h 33 min December 02, 2019	6 h 02 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The third of the EVAs planned for repairing the system for cooling the magnetic alpha spectrometer AMS.

Chronology of Extravehicular Activity 2020

(EVA / VKD dates are given in UTC)

№	Space Flight	Members	Started and Ended	Duration, Criterion	The EVA tasks and features
225	ISS Expedition ISS-61 EVA-7 (from the Quest module) USA – No.: 62	Christina Koch Jessica Meir	11 h 35 min — 19 h 04 min January 15, 2020	7 h 29 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The fourth of the EVAs planned for replacing the station batteries. get-ahead task of relocating a additional nickel-hydrogen battery to the external pallet in preparation for next week's spacewalk.
226	ISS Expedition ISS-61 EVA-8 (from the Quest module) USA – No.: 63	Christina Koch Jessica Meir	11 h 33 min — 18 h 33 min January 20, 2020	6 h 58 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The fifth and the final of the EVAs planned for replacing the station batteries.
227	ISS Expedition ISS-61 EVA-9 (from the Quest module) USA – No.: 64	Luka Parmitano Andrew Morgan	12 h 03 min — 18 h 15 min January 5, 2020	6 h 12 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Leak check of the pipeline connections of UTTPS unit (Upgraded Tracker Thermal Pump System) of the Alpha Magnetic Spectrometer (AMS). Installation of a protective MLI tent on the UTTPS pump system with pipelines. Removal of the protective cap from the radiator of the AMS temperature control system radiator. Removal of light filters from groups of external TV cameras CP8, CP9 on truss P1.
228	ISS Expedition ISS-63 EVA-1 (from the Quest module) USA – No.: 65	Chris Cassidy Robert Behnken	11 h 32 min — 17 h 39 min June 26, 2020	6 h 7 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The two astronauts completed all the work planned for this first of four spacewalks to replace batteries that provide power for the station's solar arrays on the starboard truss of the complex as well as initial tasks originally planned for the second scheduled spacewalk on July 01, 2020
229	ISS Expedition ISS-63 EVA-2 (from the Quest module) USA – No.: 66	Chris Cassidy Robert Behnken	10 h 13 min — 16 h 14 min July 01, 2020	6 h 1 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	Cassidy and Behnken installed the third and final new lithium-ion battery with its corresponding adapter plate and removed the last remaining older nickel-hydrogen battery from the 1B power channel. The spacewalkers also loosened the bolts on the 3B channel's set of nickel-hydrogen batteries, setting up for their replacement during a pair of spacewalks planned for later this month. Cassidy and Behnken also routed power and ethernet cables to prepare for the installation of a wireless communications system.

230	ISS Expedition ISS-63 EVA-3 (from the Quest module) USA – No.: 67	Chris Cassidy Robert Behnken	11 h 10 min — 17 h 10 min July 16, 2020	6 h 0 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The spacewalkers removed six aging nickel-hydrogen batteries for the starboard 6 (S6) truss, installed three new lithium-ion batteries, and installed the three associated adapter plates that are used to complete the power circuit to the new batteries.
231	ISS Expedition ISS-63 EVA-4 (from the Quest module) USA – No.: 68	Chris Cassidy Robert Behnken	11 h 12 min — 16 h 41 min July 21, 2020	5 h 29 min (from switching the spacesuits to stand-alone power supply to the start of airlock re-pressurization)	The two astronauts completed a number of tasks designed to upgrade ISS systems. [The excursion marked the tenth extravehicular activity, or EVA, by both crewmates, tying the record for the most spacewalks conducted by an American, as was also achieved by two other astronauts. (Michael Lopez-Alegria and Peggy Whitson)] [NASA identified the event as the 300th spacewalk conducted by American astronauts since Ed White exited his Gemini 4 spacecraft in 1965].
232	ISS Expedition ISS-6 4 EVA-1 (from the Poisk module) RUS – No.: VKD-55	Sergey Ryzhikov Sergey Kud-Sverchkov	15 h 12 min — 22 h 01 min November 18, 2020	6 h 47 min (from the opening to the closure of the exit hatch)	Checking egress hatch on Poisk module for leakage. Cleaning outer surfaces of a window on the SM Zvezda. Switching the telemetry system antenna Transit-B from Pirs module to Poisk module. Changing locations of sensors of the pressure and residue monitoring unit on the Poisk module. Dismantling sample case No.1 of space experiment Impact and replacing it with sample case No.2 on the SM Zvezda [This will be the first spacewalk to be staged from the space station's Poisk module (MRM-2). Previous Russian spacewalks began inside the Pirs docking module. The spacewalk began with the first opening of Poisk's airlock hatch. The spacesuited cosmonauts, still inside the module, then closed the hatch and partially repressurized Poisk to verify that the seals on the never-before-used doorway were airtight]

As of December,31 2020, there have been 232 spacewalks devoted
to assembly and maintenance of the ISS totaling :
1458 hours and 32 minutes

"Station Steelworkers" celebrates all those who were involved in making the ISS spacewalks a success. The design was created by Tim Gagnon and Jorge Cartes.

NASA : 20 years International Space Station – 2000-2020

International Space Station

History of Flights
and
Chronology of Extravehicular Aktivity

Construction Phase **1998 to 2011**

20 years of research by humans in space **2000 to 2020**

Werner Ackermann

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