



TIROS SPACE INFORMATION
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HOPE

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The *Tiros Space Information (TSI) - News Bulletin* is published to promote the scientific exploration and commercial application of space through the dissemination of current news and historical facts. In doing so, Tiros Space Information continues the traditions of the Western Australian Branch of the Astronautical Society of Australia (1973-1975) and the Astronautical Society of Western Australia (ASWA) (1975-2006).

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Calling card...

It has been 19987 days since the historic 1 hour, 48 minutes flight by Yuri Gagarin on 12 April 1961 and the end of 2015 when a crew of six were in orbit on the International Space Station. Over that period astronauts, cosmonauts and space operators, have clocked up over 47320 days in space, or 129 years and some months.

In this issue of the News Bulletin we provide an update to the list of astronauts etc. since 2006. This is an addition to previous lists, the last one being published in May 2006. Any reader who desires a complete list can request this by sending an e-mail to us.

Jos Heyman

Cancelled Projects: HOPE and HOPE-X

By Jos Heyman

In 1986 Japan began the development of the H2 Orbiting Plane (HOPE), a re-usable space plane that would carry up to four astronauts to the Freedom space station in which Japan had agreed to take part. It was one of Japan's two contributions to the Freedom Space Station operations, the other one being the Japanese Experiment Module (JEM) which eventually evolved into the Kibo module of the International Space Station (ISS).



HOPE

HOPE was to be used ferry astronauts and supplies to the space station and was to be developed in piloted and automatic versions. It was to have a span of 12.00 m and a length of 16.50 m and would have been able to carry a 2000 kg payload.. Operations were envisaged to begin in 2000. The space plane was to be launched by the H 2 launch vehicle that was still being developed. The returning space plane was to land on the Aeon air field on Christmas Island (Pacific Ocean).

As a first step in the development it was intended to build a sub-scale prototype identified as H-2 Orbiting Plane, Experimental (HOPE-X) which was to be used for flight testing and systems validation before the building of the larger HOPE space plane.



HOPE-X

The HOPE-X was to have a span of 9.75 m and a length of 15.24 m and, like HOPE it was to be launched by the H 2.

As part of the development of the HOPE-X Japan's space agency undertook several sub-projects as tests

The experimental Orbital Re-Entry EXperiment (OREX) ballistic re-entry vehicle, also known as Ryusei, tested various communications systems, heating profiles and heat shielding components. It had a mass of 870 kg and was launched on 3 February 1994 with the first H 2 launch vehicle and was placed in an orbit of about 6830 km. After one orbit it re-entered and collected data during the re-entry that was transmitted before the spacecraft splashed down in the Central Pacific ocean.



OREX



Hyflex

The second test vehicle was the Hypersonic Flight Experiment (Hyflex) which was placed into a sub-orbital trajectory with a J-1 launch vehicle on 12 February 1996. The 1050 kg lifting body vehicle tested the re-entry technology for the proposed Hope spaceplane that was eventually cancelled. As was intended, it reached an altitude of 110 km from where it made a glide back into the atmosphere. The craft's parachutes deployed successfully but the craft broke away from its retaining harness and dropped into the sea app. 250 km north east of Ogosawana Island.

The Automatic Landing Flight Experiment (Alflex) tests demonstrated the low-speed aerodynamic and landing systems. The vehicle, with a span of 3.78 m and a length of 6.10 m, was dropped from a helicopter flying at high altitude. Thirteen flights were conducted at Woomera, Australia, from 6 July to 15 August 1996 and each test ended successfully.

By 1997 HOPE-X had developed into an unscrewed cargo spacecraft with an automatic approach and landing system. It was to deliver 3000 kg of cargo to, what by then was, the International Space Station (ISS). It would have made the operations of the ISS independent of the Russian Progress cargo transfer spacecraft and the first flight was envisaged in 2004.

But by 1999 the H 2 launch vehicle, after encountering many difficulties was cancelled. After its first flight on 3 February 1994, with Orex, another six flights were made, with the last one (the seventh) failing on 15 November 1999. After this the development concentrated on the simplified and lighter H 2A.

As a consequence HOPE-X was cancelled in 2000. It had never flown.



Alflex

Development of the HOPE space plane continued and by 2003 consideration was given to air-launching it with an aircraft. But Japan's economic conditions as well as the urgency given to establishing a series of observation satellites to track the North Korean nuclear efforts, led to the cancellation of HOPE in 2003.

Before then then the High Speed Flight Demonstration (HSFD) had commenced. It consisted of two flight experiment campaigns to demonstrate various components of the HOPE flight profile.

Phase I involved a vehicle with a wing span of 3 m and a length of 3.8 m. Its objective was to conduct a series of subsonic flight experiments aimed at validating the approach and landing system for the final phase of the return flight of a winged re-entry vehicle that lands horizontally, and at demonstrating fully autonomous flight technology.

The vehicle was fitted with a jet engine allowing it to take off from a runway and land there automatically at the end of the test flight.

Phase I consisted of three flight tests which were conducted on 18 October 2002, 2 November 2002 and 3 November 2002. The Aeon air field on Christmas Island in the Pacific Ocean was used for these tests

In Phase II the transonic aerodynamic characteristics of a winged re-entry vehicle configuration was tested. In addition the guidance & control system design technology for the transonic speed region.

In these tests the vehicle, which had a wing span of 2.42 m and a length 3.81 m, was to be lifted to an altitude of 20 to 30 km by means of a stratospheric balloon. It was then to be released in a free fall reaching Mach 0.8, 1.05 and 1.2.



HSDF

The tests were performed in collaboration with the French space agency Centre National d'Etudes Spatiales (CNES) and were performed at the Esrange in Kiruna, Sweden.

The first Phase II flight took place on 1 July 2003 had a target speed of Mach 0.8. The vehicle was released at an altitude of 21.3 km but the recovery system did not work as well as was expected and the vehicle was damaged on touchdown. As a result, the flight programme was interrupted and then cancelled and the flights at the Mach 1.05 and Mach 1.2 speed never took place.

Astronaut Log (2006-2015)

Name	Country	Function	Mission	Launch	Re-entry	Days	Hours	Minutes
ACABA, Joseph	USA	MS	STS-119	15-Mar-2009	28-Feb-2009	12	19	33
ACABA, Joseph	USA	FE	Soyuz TMA-04M	15-May-2012	12-Sep-2012	124	23	52
AIMBETOV, Aldyn A	Kazhak	FE	Soyuz TMA-18M(*)	2-Sep-2015	12-Sep-2015	9	20	14
ALTMAN, Scott	USA	Cmdr	STS-125	11-May-2009	23-May-2009	12	21	37
ANDERSON, Clayton C	USA	MS	STS-117(*)	8-Jun-2007	7-Nov-2007	151	18	23
ANDERSON, Clayton C	USA	MS	STS-131	5-Apr-2010	20-Apr-2010	15	26	48
ANSARI, A	USA	Pass	Soyuz TMA-9	18-Sep-2006	29-Sep-2006	10	20	56
ANTONELLI, D Tony	USA	Pilot	STS-119	15-Mar-2009	28-Feb-2009	12	19	33
ANTONELLI, D Tony	USA	Pilot	STS-132	14-May-2010	26-May-2010	11	18	28
ARCHAMBAULT, Lee J	USA	Pilot	STS-117	8-Jun-2007	22-Jun-2007	13	20	11
ARCHAMBAULT, Lee J	USA	Cmdr	STS-119	15-Mar-2009	28-Feb-2009	12	19	33
ARNOLD, Richard	USA	MS	STS-119	15-Mar-2009	28-Feb-2009	12	19	33
ARTEMYEV, Oleg G	Russia	FE	Soyuz TMA-12M	25-Mar-2014	11-Sep-2014	198	5	6
BARRATT, Michael	USA	FE	Soyuz TMA-14	26-Feb-2009	11-Oct-2009	199	16	21
BARRATT, Michael	USA	MS	STS-133	24-Feb-2011	9-Mar-2011	12	19	5
BEHNKEN, Robert	USA	MS	STS-123	11-Mar-2008	27-Mar-2008	15	18	11
BEHNKEN, Robert	USA	MS	STS-130	8-Feb-2010	22-Feb-2010	13	18	6
BOE, Eric	USA	Pilot	STS-126	15-Nov-2008	30-Nov-2008	15	20	29
BOE, Eric	USA	Pilot	STS-133	24-Feb-2011	9-Mar-2011	12	19	5
BOMING, Liu	China	Operator	Shenzhou-7	25-Sep-2008	28-Sep-2008	3	8	27
BORISENKO, Andrey I	Russia	FE	Soyuz TMA-21	4-Apr-2011	16-Sep-2011	164	5	42
BOWEN, Stephen	USA	MS	STS-126	15-Nov-2008	30-Nov-2008	15	20	29
BOWEN, Stephen	USA	MS	STS-132	14-May-2010	26-May-2010	11	18	28
BOWEN, Stephen	USA	MS	STS-133	24-Feb-2011	9-Mar-2011	12	19	5
BRESNIK, Randolph	USA	MS	STS-129	16-Nov-2009	27-Nov-2009	10	19	16
BURBANK, Daniel C	USA	MS	STS-115	9-Sep-2006	21-Sep-2006	11	9	6
BURBANK, Daniel C	USA	FE	Soyuz TMA-22	14-Nov-2011	27-Apr-2012	165	7	31
CALDWELL, Tracy E	USA	MS	STS-118	8-Aug-2007	21-Aug-2007	12	17	55
CALDWELL, Tracy E	USA	MS	Soyuz TMA-18	2-Apr-2010	5-Sep-2019	197	1	19
CASSIDY, Christopher	USA	MS	STS-127	15-Jul-2009	31-Jul-2009	15	16	44
CASSIDY, Christopher	USA	FE	Soyuz TMA-08M	28-Mar-2013	11-Sep-2013	165	6	15
CHAMITOFF, Gregory E	USA	MS	STS-124(*)	31-May-2008	30-Nov-2008	182	22	23
CHAMITOFF, Gregory E	USA	MS	STS-134	16-May-2011	1-Jun-2011	15	17	38
COLEMAN, Catherine G	USA	MS	Soyuz TMA-20	15-Dec-2010	24-May-2011	159	15	18
CREAMER, Timothy J	USA	FE	Soyuz TMA-17	20-Dec-2009	2-Jun-2010	162	5	33
CRISTOFORETTI, Samantha	Italy	FE	Soyuz TMA-15M	23-Nov-2014	11-Jun-2015	198	17	42
CURBEAM, Robert	USA	MS	STS-116	10-Dec-2006	22-Dec-2006	12	20	44
DE WINNE, Frank	Belgium	FE	Soyuz TMA-15	27-May-2009	1-Dec-2009	186	20	43
DOI, Takao	Japan	MS	STS-123	11-Mar-2008	27-Mar-2008	15	18	11
DREW, B. Alvin	USA	MS	STS-118	8-Aug-2007	21-Aug-2007	12	17	55
DREW, B. Alvin	USA	MS	STS-133	24-Feb-2011	9-Mar-2011	12	19	5
DUTTON, James	USA	Pilot	STS-131	5-Apr-2010	20-Apr-2010	15	26	48
EYHARTS, Leopold	France	MS	STS-122(*)	7-Feb-2008	27-Mar-2008	48	4	54
FERGUSON, Christopher J	USA	Pilot	STS-115	9-Sep-2006	21-Sep-2006	11	9	6
FERGUSON, Christopher J	USA	Cmdr	STS-126	15-Nov-2008	30-Nov-2008	15	20	29
FERGUSON, Christopher J	USA	Cmdr	STS-135	8-Jul-2011	21-Jul-2011	12	18	28
FEUSTEL, Andrew	USA	MS	STS-125	11-May-2009	23-May-2009	12	21	37
FEUSTEL, Andrew	USA	MS	STS-134	16-May-2011	1-Jun-2011	15	17	38
FINCKE, Edward M	USA	FE	Soyuz TMA-13	12-Oct-2008	8-Apr-2009	181	0	15
FINCKE, Edward M	USA	MS	STS-134	16-May-2011	1-Jun-2011	15	17	38
FORD, Kevin	USA	Pilot	STS-128	29-Aug-2009	12-Sep-2009	13	20	53

FORD, Kevin	USA	FE	Soyuz TMA-06M	23-Oct-2012	16-Mar-2013	143	16	51
FOREMAN, Michael J	USA	MS	STS-123	11-Mar-2008	27-Mar-2008	15	18	11
FOREMAN, Michael J	USA	MS	STS-129	16-Nov-2009	27-Nov-2009	10	19	16
FORRESTER, Patrick G	USA	MS	STS-117	8-Jun-2007	22-Jun-2007	13	20	11
FORRESTER, Patrick G	USA	MS	STS-128	29-Aug-2009	12-Sep-2009	13	20	53
FOSSUM, Michael E	USA	MS	STS-121	4-Jul-2006	17-Jul-2006	12	18	37
FOSSUM, Michael E	USA	MS	STS-124	31-May-2008	14-Jun-2008	13	18	14
FOSSUM, Michael E	USA	FE	Soyuz TMA-02M	7-Jun-2011	22-Nov-2011	167	6	13
FRICK, Stephen N	USA	Cmdr	STS-122	7-Feb-2008	20-Feb-2008	12	18	21
FUGLESANG, Christer	Sweden	MS	STS-116	10-Dec-2006	22-Dec-2006	12	20	44
FUGLESANG, Christer	Sweden	MS	STS-128	29-Aug-2009	12-Sep-2009	13	20	53
FURUKAWA, S	Japan	FE	Soyuz TMA-02M	7-Jun-2011	22-Nov-2011	167	6	13
GARAN, Ronald	USA	MS	STS-124	31-May-2008	14-Jun-2008	13	18	14
GARAN, Ronald	USA	FE	Soyuz TMA-21	4-Apr-2011	16-Sep-2011	164	5	42
GARRIOTT, Richard	USA	Partc.	Soyuz TMA-13(*)	12-Oct-2008	24-Oct-2008	11	20	36
GERTS, Alexander	Germany	FE	Soyuz TMA-13M	28-May-2014	10-Nov-2014	164	4	1
GOOD, Michael	USA	MS	STS-125	11-May-2009	23-May-2009	12	21	37
GOOD, Michael	USA	MS	STS-132	14-May-2010	26-May-2010	11	18	28
GORIE, Dominic	USA	Cmdr	STS-123	11-Mar-2008	27-Mar-2008	15	18	11
GRUNSFELD, John M	USA	MS	STS-125	11-May-2009	23-May-2009	12	21	37
HADFIELD, Chris A	Can.	FE	Soyuz TMA-07M	19-Dec-2012	14-May-2013	144	21	19
HAIPENG, Jing	China	Operator	Shenzhou-7	25-Sep-2008	28-Sep-2008	3	8	27
HAIPENG, Jing	China	Cmdr	Shenzhou-9	16-Jun-2012	29-Jun-2012	12	15	25
HAM, Kenneth T	USA	Pilot	STS-124	31-May-2008	14-Jun-2008	13	18	14
HAM, Kenneth T	USA	Cmdr	STS-132	14-May-2010	26-May-2010	11	18	28
HERNANDEZ, Jose	USA	MS	STS-128	29-Aug-2009	12-Sep-2009	13	20	53
HIGGINBOTHAM, Joan E	USA	MS	STS-116	10-Dec-2006	22-Dec-2006	12	20	44
HIRE, Kathryn	USA	MS	STS-130	8-Feb-2010	22-Feb-2010	13	18	6
HOBBAUGH, Charles O	USA	Pilot	STS-118	8-Aug-2007	21-Aug-2007	12	17	55
HOBBAUGH, Charles O	USA	Cmdr	STS-129	16-Nov-2009	27-Nov-2009	10	19	16
HOPKINS, Michael S	USA	FE	Soyuz TMA-10M	25-Sep-2013	11-Mar-2014	165	6	28
HOSHIDE, Akihiko	Japan	MS	STS-124	31-May-2008	14-Jun-2008	13	18	14
HOSHIDE, Akihiko	Japan	FE	Soyuz TMA-05M	15-Jul-2012	19-Nov-2012	126	23	16
HURLEY, Douglas	USA	Pilot	STS-127	15-Jul-2009	31-Jul-2009	15	16	44
HURLEY, Douglas	USA	Pilot	STS-135	8-Jul-2011	21-Jul-2011	12	18	28
IVANISHIN, Anatoliy A	Russia	FE	Soyuz TMA-22	14-Nov-2011	27-Apr-2012	165	7	31
JETT, Brent W	USA	Cmdr	STS-115	9-Sep-2006	21-Sep-2006	11	9	6
JOHNSON, Gregory C	USA	Pilot	STS-123	11-Mar-2008	27-Mar-2008	15	18	11
JOHNSON, Gregory C	USA	Pilot	STS-125	11-May-2009	23-May-2009	12	21	37
JOHNSON, Gregory C	USA	Pilot	STS-134	16-May-2011	1-Jun-2011	15	17	38
KALERI, Alexander Y	USSR	FE	Soyuz TMA-01M	7-Oct-2010	16-Mar-2011	158	20	44
KELLY, Mark E	USA	Pilot	STS-121	4-Jul-2006	17-Jul-2006	12	18	37
KELLY, Mark E	USA	Cmdr	STS-124	31-May-2008	14-Jun-2008	13	18	14
KELLY, Mark E	USA	Cmdr	STS-134	16-May-2011	1-Jun-2011	15	17	38
KELLY, Scott J	USA	Cmdr	STS-118	8-Aug-2007	21-Aug-2007	12	17	55
KELLY, Scott J	USA	FE	Soyuz TMA-01M	7-Oct-2010	16-Mar-2011	158	20	44
KELLY, Scott J	USA	FE	Soyuz TMA-16M(*)	27-Mar-2015	in orbit			
KIMBROUGH, R. Shane	USA	MS	STS-126	15-Nov-2008	30-Nov-2008	15	20	29
KONDRATYEV, Dmitriy Y	Russia	Cmdr	Soyuz TMA-20	15-Dec-2010	24-May-2011	159	15	18
KONONENKO, Oleg D	Russia	FE	Soyuz TMA-12	8-Apr-2008	24-Oct-2008	197	16	21
KONONENKO, Oleg D	Russia	Cmdr	Soyuz TMA-03M	21-Dec-2011	1-Jul-2012	192	18	58
KONONENKO, Oleg D	Russia	Cmdr	Soyuz TMA-17M	22-Jul-2015	11-Dec-2015	141	10	9

KOPRA, Timothy	USA	MS	STS-127 (*)	15-Jul-2009	12-Sep-2009	59	2	50
KOPRA, Timothy	USA	FE	Soyuz TMA-19M	15-Dec-2015	in orbit			
KORNIYENKO, Mikhail B	Russia	FE	Soyuz TMA-18	2-Apr-2010	5-Sep-2019	197	1	19
KORNIYENKO, Mikhail B	Russia	FE	Soyuz TMA-16M(*)	27-Mar-2015	in orbit			
KOTOV, Oleg V	Russia	FE	Soyuz TMA-10	7-Apr-2007	21-Oct-2007	196	17	5
KOTOV, Oleg V	Russia	Cmdr	Soyuz TMA-17	20-Dec-2009	2-Jun-2010	162	5	33
KOTOV, Oleg V	Russia	Cmdr	Soyuz TMA-10M	25-Sep-2013	11-Mar-2014	165	6	28
KUIPERS, Andre	Netherl.	FE	Soyuz TMA-03M	21-Dec-2011	1-Jul-2012	192	18	58
LALIBERTE, Guy	Canada	Part.	Soyuz TMA-16 (*)	30-Sep-2009	11-Oct-2009	11	11	46
LINDGREN, Kjell N	USA	FE	Soyuz TMA-17M	22-Jul-2015	11-Dec-2015	141	10	9
LINDSEY, Steven	USA	Cmdr	STS-121	4-Jul-2006	17-Jul-2006	12	18	37
LINDSEY, Steven	USA	Cmdr	STS-133	24-Feb-2011	9-Mar-2011	12	19	5
LINNEHAN, Richard M	USA	MS	STS-123	11-Mar-2008	27-Mar-2008	15	18	11
LONCHAKOV, Yuri V	Russia	Cmdr	Soyuz TMA-13	12-Oct-2008	8-Apr-2009	181	0	15
LOPEZ-ALEGRIA, Michael E	USA	FE	Soyuz TMA-9	18-Sep-2006	21-Apr-2007	215	8	22
LOVE, Stanley G	USA	MS	STS-122	7-Feb-2008	20-Feb-2008	12	18	21
MAGNUS, Sandra H	USA	MS	STS-126(*)	15-Nov-2008	28-Feb-2009	132	18	18
MAGNUS, Sandra H	USA	MS	STS-135	8-Jul-2011	21-Jul-2011	12	18	28
MALENCHENCKO, Yuri I	Russia	Cmdr	Soyuz TMA-11	10-Oct-2007	19-Apr-2008	191	19	17
MALENCHENCKO, Yuri I	Russia	Cmdr	Soyuz TMA-05M	15-Jul-2012	19-Nov-2012	126	23	16
MALENCHENCKO, Yuri I	Russia	Cmdr	Soyuz TMA-19M	15-Dec-2015	in orbit			
MARSHBURN, Thomas	USA	MS	STS-127	15-Jul-2009	31-Jul-2009	15	16	44
MARSHBURN, Thomas	USA	FE	Soyuz TMA-07M	19-Dec-2012	14-May-2013	144	21	19
MASSIMINO, Michael J	USA	MS	STS-125	11-May-2009	23-May-2009	12	21	37
MASTRACCHIO, Richard A	USA	MS	STS-118	8-Aug-2007	21-Aug-2007	12	17	55
MASTRACCHIO, Richard A	USA	MS	STS-131	5-Apr-2010	20-Apr-2010	15	26	48
MASTRACCHIO, Richard A	USA	FE	Soyuz TMA-11M	7-Nov-2013	13-May-2014	187	11	44
McARTHUR, K. Megan	USA	MS	STS-125	11-May-2009	23-May-2009	12	21	37
McARTHUR, William S	USA	FE	Soyuz TMA-7	1-Oct-2005	8-Apr-2006	189	18	51
McLEAN, Steven G	Can.	MS	STS-115	9-Sep-2006	21-Sep-2006	11	9	6
MELROY, Pamela	USA	Cmdr	STS-120	23-Oct-2007	7-Nov-2007	15	2	23
MELVIN, Leland D	USA	MS	STS-122	7-Feb-2008	20-Feb-2008	12	18	21
MELVIN, Leland D	USA	MS	STS-129	16-Nov-2009	27-Nov-2009	10	19	16
METCALF-LINDENBURGER, Dorothy	USA	MS-E	STS-131	5-Apr-2010	20-Apr-2010	15	26	48
MISURKIN, Alexander	Russia	FE	Soyuz TMA-08M	28-Mar-2013	11-Sep-2013	165	6	15
MOGENSEN, Andreas	Denmark	FE	Soyuz TMA-18M(*)	2-Sep-2015	12-Sep-2015	9	20	14
MORGAN, Barbara R	USA	Educator	STS-118	8-Aug-2007	21-Aug-2007	12	17	55
NESPOLI, Paulo	Italy	MS	STS-120	23-Oct-2007	7-Nov-2007	15	2	23
NESPOLI, Paulo	Italy	MS	Soyuz TMA-20	15-Dec-2010	24-May-2011	159	15	18
NIE, Haisheng	China	Cmdr	Shenzhou-10	11-Jun-2013	26-Jun-2013	14	14	29
NOGUCHI, Soichi	Japan	FE	Soyuz TMA-17	20-Dec-2009	2-Jun-2010	162	5	33
NOVITSKY, Oleg	Russia	Cmdr	Soyuz TMA-06M	23-Oct-2012	16-Mar-2013	143	16	51
NOWAK, Lisa M	USA	MS	STS-121	4-Jul-2006	17-Jul-2006	12	18	37
NYBERG, Karen	USA	MS	STS-124	31-May-2008	14-Jun-2008	13	18	14
NYBERG, Karen	USA	FE	Soyuz TMA-09M	28-May-2013	11-Nov-2013	166	5	18
OEFELIN, William A	USA	Pilot	STS-116	10-Dec-2006	22-Dec-2006	12	20	44
OLIVAS, John D	USA	MS	STS-117	8-Jun-2007	22-Jun-2007	13	20	11
OLIVAS, John D	USA	MS	STS-128	29-Aug-2009	12-Sep-2009	13	20	53
PADALKA, Gennady I	Russia	Cmdr	Soyuz TMA-14	26-Feb-2009	11-Oct-2009	199	16	21
PADALKA, Gennady I	Russia	Cmdr	Soyuz TMA-04M	15-May-2012	12-Sep-2012	124	23	52
PADALKA, Gennady I	Russia	Cmdr	Soyuz TMA-16M	27-Mar-2015	12-Sep-2015	168	5	8
PARAZYNSKY, Scott E	USA	MS	STS-120	23-Oct-2007	7-Nov-2007	15	2	23

PARMITANO, Luca	Italy	FE	Soyuz TMA-09M	28-May-2013	11-Nov-2013	166	5	18
PATRICK, Nicholas J M	USA	MS	STS-116	10-Dec-2006	22-Dec-2006	12	20	44
PATRICK, Nicholas J M	USA	MS	STS-130	8-Feb-2010	22-Feb-2010	13	18	6
PAYETTE, Julie	Canada	MS	STS-127	15-Jul-2009	31-Jul-2009	15	16	44
PEAKE, Timothy	UK	FE	Soyuz TMA-19M	15-Dec-2015	in orbit			
PETTIT, Donald R	USA	MS	STS-126	15-Nov-2008	30-Nov-2008	15	20	29
PETTIT, Donald R	USA	FE	Soyuz TMA-03M	21-Dec-2011	1-Jul-2012	192	18	58
PHILLIPS, John L	USA	MS	STS-119	15-Mar-2009	28-Feb-2009	12	19	33
POINDEXTER, Alan G	USA	Pilot	STS-122	7-Feb-2008	20-Feb-2008	12	18	21
POINDEXTER, Alan G	USA	Cmdr	STS-131	5-Apr-2010	20-Apr-2010	15	26	48
POLANSKY, Mark L	USA	Cmdr	STS-116	10-Dec-2006	22-Dec-2006	12	20	44
POLANSKY, Mark L	USA	Cmdr	STS-127	15-Jul-2009	31-Jul-2009	15	16	44
PONTES	Brazil		Soyuz TMA-8(*)	30-Mar-2006	8-Apr-2006	9	12	18
REILLY, James F	USA	MS	STS-117	8-Jun-2007	22-Jun-2007	13	20	11
REISMAN, Garrett E	USA	MS	STS-123(*)	11-Mar-2008	14-Jun-2008	95	8	47
REISMAN, Garrett E	USA	MS	STS-132	14-May-2010	26-May-2010	11	18	28
REITER, Thomas	German	MS	STS-121(*)	4-Jul-2006	22-Dec-2006	171	4	10
REVIN, Sergey N	Russia	FE	Soyuz TMA-04M	15-May-2012	12-Sep-2012	124	23	52
ROBINSON, Stephen	USA	MS	STS-130	8-Feb-2010	22-Feb-2010	13	18	6
ROMANENKO, Roman Y	Russia	Cmdr	Soyuz TMA-15	27-May-2009	1-Dec-2009	186	20	43
ROMANENKO, Roman Y	Russia	Cmdr	Soyuz TMA-07M	19-Dec-2012	14-May-2013	144	21	19
RYAZANSKIY, Sergey N	Russia	FE	Soyuz TMA-10M	25-Sep-2013	11-Mar-2014	165	6	28
SAMOKUTYAYEV, Aleksandr M	Russia	Cmdr	Soyuz TMA-21	4-Apr-2011	16-Sep-2011	164	5	42
SAMOKUTYAYEV, Aleksandr M	Russia	Cmdr	Soyuz TMA-14M	25-Sep-2014	12-Mar-2015	167	4	43
SATCHER, Robert	USA	MS	STS-129	16-Nov-2009	27-Nov-2009	10	19	16
SCHLEGAL, Hans W	Germ.	MS	STS-122	7-Feb-2008	20-Feb-2008	12	18	21
SELLERS, Piers J	USA	MS	STS-121	4-Jul-2006	17-Jul-2006	12	18	37
SELLERS, Piers J	USA	MS	STS-132	14-May-2010	26-May-2010	11	18	28
SEROVA, Yelena	Russia	FE	Soyuz TMA-14M	25-Sep-2014	12-Mar-2015	167	4	43
SHKAPLEROV, Anton N	Russia	Cmdr	Soyuz TMA-22	14-Nov-2011	27-Apr-2012	165	7	31
SHKAPLEROV, Anton N	Russia	Cmdr	Soyuz TMA-15M	23-Nov-2014	11-Jun-2015	198	17	42
SHUKOR, M	Malaysia	Partic.	Soyuz TMA-11(*)	10-Oct-2007	21-Oct-2007	10	21	13
SIMONYI, C	USA	Tourist	Soyuz TMA-10(*)	7-Apr-2007	21-Apr-2007	13	19	0
SIMONYI, C	USA	Tourist	Soyuz TMA-14 (*)	26-Feb-2009	8-Apr-2009	11	19	27
SKRIPPOCKHA, Oleg I	Russia	FE	Soyuz TMA-01M	7-Oct-2010	16-Mar-2011	158	20	44
SKVORTSOV, Alexander A (Jr)	Russia	Pilot	Soyuz TMA-18	2-Apr-2010	5-Sep-2019	197	1	19
SKVORTSOV, Alexander A (Jr)	Russia	Cmdr	Soyuz TMA-12M	25-Mar-2014	11-Sep-2014	198	5	6
SO YEON KI	Korea	Partic.	Soyuz TMA-12(*)	8-Apr-2008	19-Apr-2008	10	19	14
STEFANYSHYN-PIPER, Heidemarie M	USA	MS	STS-115	9-Sep-2006	21-Sep-2006	11	9	6
STEFANYSHYN-PIPER, Heidemarie M	USA	MS	STS-126	15-Nov-2008	30-Nov-2008	15	20	29
STOTT, Nicole	USA	MS	STS-128	29-Aug-2009	27-Nov-2009	90	14	45
STOTT, Nicole	USA	MS	STS-133	24-Feb-2011	9-Mar-2011	12	19	5
STURCKOW, Frederick	USA	Cmdr	STS-117	8-Jun-2007	22-Jun-2007	13	20	11
STURCKOW, Frederick	USA	Cmdr	STS-128	29-Aug-2009	12-Sep-2009	13	20	53
SURAYEV, Maksim V	Russia	Cmdr	Soyuz TMA-16	30-Sep-2009	18-Mar-2010	169	4	10
SURAYEV, Maksim V	Russia	Cmdr	Soyuz TMA-13M	28-May-2014	10-Nov-2014	164	4	1
SWANSON, Steven R	USA	MS	STS-117	8-Jun-2007	22-Jun-2007	13	20	11
SWANSON, Steven R	USA	MS	STS-119	15-Mar-2009	28-Feb-2009	12	19	33
SWANSON, Steven R	USA	FE	Soyuz TMA-12M	25-Mar-2014	11-Sep-2014	198	5	6
TANI, Daniel M	USA	MS	STS-120(*)	23-Oct-2007	20-Feb-2008	119	22	29
TANNER, Joseph R	USA	MS	STS-115	9-Sep-2006	21-Sep-2006	11	9	6
TARELKIN, Evgeniy I	Russia	FE	Soyuz TMA-06M	23-Oct-2012	16-Mar-2013	143	16	51

THIRSK, Robert B	Canada	FE	Soyuz TMA-15	27-May-2009	1-Dec-2009	186	20	43
TOKAREV, Valeri I	Russia	Cmdr	Soyuz TMA-7	1-Oct-2005	8-Apr-2006	189	18	51
TYURIN, Michael V	Russia	Cmr	Soyuz TMA-9	18-Sep-2006	21-Apr-2007	215	8	22
TYURIN, Michael V	Russia	Cmdr	Soyuz TMA-11M	7-Nov-2013	13-May-2014	187	11	44
VINOGRADOV, Pavel	Russia	Cmdr	Soyuz TMA-8	30-Mar-2006	29-Sep-2006	182	22	44
VINOGRADOV, Pavel	Russia	Cmdr	Soyuz TMA-08M	28-Mar-2013	11-Sep-2013	165	6	15
VIRTS, Terry	USA	Pilot	STS-130	8-Feb-2010	22-Feb-2010	13	18	6
VIRTS, Terry	USA	FE	Soyuz TMA-15M	23-Nov-2014	11-Jun-2015	198	17	42
VITTORI, Roberto	Italy	MS	STS-134	16-May-2011	1-Jun-2011	15	17	38
VOLKOV, Sergey A	Russia	Cmdr	Soyuz TMA-12	8-Apr-2008	24-Oct-2008	197	16	21
VOLKOV, Sergey A	Russia	Cmdr	Soyuz TMA-02M	7-Jun-2011	22-Nov-2011	167	6	13
VOLKOV, Sergey A	Russia	Cmdr	Soyuz TMA-18M	2-Sep-2015	in orbit			
WAKATA, Koichi	Japan	MS	STS-119 (*)	15-Mar-2009	31-Jul-2009	137	11	5
WAKATA, Koichi	Japan	FE	Soyuz TMA-11M	7-Nov-2013	13-May-2014	187	11	44
WALHEIM, Rex J	USA	MS	STS-122	7-Feb-2008	20-Feb-2008	12	18	21
WALHEIM, Rex J	USA	MS	STS-135	8-Jul-2011	21-Jul-2011	12	18	28
WALKER, Shannon	USA	MS	Soyuz TMA-19	15-Jun-2010	25-Nov-2010	163	6	11
WANG, Lui	China	Op.	Shenzhou-9	16-Jun-2012	29-Jun-2012	12	15	25
WANG, Yaping	China	Op.	Shenzhou-10	11-Jun-2013	26-Jun-2013	14	14	29
WHEELOCK, Douglas H	USA	MS	STS-120	23-Oct-2007	7-Nov-2007	15	2	23
WHEELOCK, Douglas H	USA	MS	Soyuz TMA-19	15-Jun-2010	25-Nov-2010	163	6	11
WHITSON, Peggy A	USA	Fl. Eng.	Soyuz TMA-11	10-Oct-2007	19-Apr-2008	191	19	17
WHITSON, Peggy A	USA	MS	STS-133	24-Feb-2011	9-Mar-2011	12	19	5
WILLIAMS, David	Canada	MS	STS-118	8-Aug-2007	21-Aug-2007	12	17	55
WILLIAMS, Jeffrey N	USA	FE	Soyuz TMA-8	30-Mar-2006	29-Sep-2006	182	22	44
WILLIAMS, Jeffrey N	USA	FE	Soyuz TMA-16	30-Sep-2009	18-Mar-2010	169	4	10
WILLIAMS, Sunita L	USA	MS	STS-116(*)	10-Dec-2006	22-Jun-2007	194	18	2
WILLIAMS, Sunita L	USA	FE	Soyuz TMA-05M	15-Jul-2012	19-Nov-2012	126	23	16
WILMORE, Barry	USA	Pilot	STS-129	16-Nov-2009	27-Nov-2009	10	19	16
WILMORE, Barry	USA	FE	Soyuz TMA-14M	25-Sep-2014	12-Mar-2015	167	4	43
WILSON, Stephanie D	USA	MS	STS-121	4-Jul-2006	17-Jul-2006	12	18	37
WILSON, Stephanie D	USA	MS	STS-120	23-Oct-2007	7-Nov-2007	15	2	23
WILSON, Stephanie D	USA	MS	STS-131	5-Apr-2010	20-Apr-2010	15	26	48
WISEMAN, Gregory R	USA	FE	Soyuz TMA-13M	28-May-2014	10-Nov-2014	164	4	1
WOLF, David A	USA	MS	STS-127	15-Jul-2009	31-Jul-2009	15	16	44
YAMAZAKI, Naoko	Japan	LM	STS-131	5-Apr-2010	20-Apr-2010	15	26	48
YANG, Lui	China	Op.	Shenzhou-9	16-Jun-2012	29-Jun-2012	12	15	25
YUI, Kimiya	Japan	FE	Soyuz TMA-17M	22-Jul-2015	11-Dec-2015	141	10	9
YURCHIKHIN, Fyodor	Russia	Cmdr	Soyuz TMA-10	7-Apr-2007	21-Oct-2007	196	17	5
YURCHIKHIN, Fyodor	Russia	FE	Soyuz TMA-19	15-Jun-2010	25-Nov-2010	163	6	11
YURCHIKHIN, Fyodor	Russia	Cmdr	Soyuz TMA-09M	28-May-2013	11-Nov-2013	166	5	18
ZAMKA, George D	USA	Pilot	STS-120	23-Oct-2007	7-Nov-2007	15	2	23
ZAMKA, George D	USA	Cmdr	STS-130	8-Feb-2010	22-Feb-2010	13	18	6
ZHANG, Xiaoguang	China	Op.	Shenzhou-10	11-Jun-2013	26-Jun-2013	14	14	29
ZHIGANG, Zhai	China	Cmdr	Shenzhou-7	25-Sep-2008	28-Sep-2008	3	8	27