

# The International Space Station



The collapse of Communism in the Soviet Union at the end of 1991 permitted rapprochement with the West and plans from President Bill Clinton to involve the Russians in a new station project were tabled, mainly to stop them selling their missile technology to hostile states. The term "International Space Station" (and sometimes "Space Station Alpha") now replaced President Regan's putative "Space Station Freedom" - named with political innuendo, as it was to be built by "free" countries—on all the plans. American astronauts now began to visit Russia's third generation Mir space station (Mir is Russian for "Peace" or "World") being launched in the Russian ferry craft—the Soyuz—and returning on a Shuttle.

The first American shuttle to rendezvous with Mir was STS-63 (NASA's Space Transportation System, flight #63) in February 1995, significantly with a Russian cosmonaut on board. Col. Vladimir G. Titov of the Russian Air Force.



Thereafter there was a series of visits including long term stays on Mir by Americans and this new international partnership was inevitably reflected in stamp issues: e.g. Russia 1992 SG 6358/9 and 1995 SG 6539/40.



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## Cosmonaut Training

Because the ISS was fourth generation and most of the associated systems had been well tried and tested on earlier space station missions no stamps were issued showing training peculiar to it but earlier issues showed the kind of extremely arduous physical and medical tests all cosmonauts on flights to space stations were subject to.



The above issues are associated with the Intercosmos Programme which took guest astronauts from Soviet satellite states to the Salyut space station for flights lasting a week or so in the 1980's. They depict various training exercises: from left an 1987 issue for the joint Soviet-Syrian flight showing cosmonaut candidates undergoing various balance tests; an issue for the joint Rumanian flight shows a cosmonaut in a G-force flight simulation centrifuge; the joint Hungarian mission stamp shows various medical tests whilst in the background of the joint Cuban stamp we see the full scale Salyut station simulator in the Gagarin Cosmonaut Training Centre in a Moscow suburb.

The 1980 set from the Soviet Union marking the 20th anniversary of that Centre shows from left cosmonauts experiencing Theoretical training, Practical exercises and Physical endurance tests.



The 1994 Russian Cosmonautics Day set below also celebrates the work of the Training Centre but this time showing cosmonauts working on simulators for the third generation space station Mir, from left—in the TsF-18 Centrifuge, a full scale dry Mir simulator and an underwater Mir simulator where cosmonauts can practise "space walking"



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## The Soyuz Ferry and the Space Shuttle

Throughout this exhibit references are made to the two craft used to transport cosmonauts and astronauts to the ISS.

Since 1967 the Soyuz ferry has been the only means for The Soviet Union/Russia to put cosmonauts into space and well over a hundred have now flown.

Stamps across the decades show that superficially it has hardly changed at all:



1968 an issue for Soyuz 3;

1978 an issue for the Intercosmos joint flight with East Germany showing Soyuz pre-launch;



1987 the mini-sheet issued in connection with the joint-Syrian flight, showing a Soyuz ferry docked to Mir;



1995—a quartet showing a Soyuz ferry docked to Mir and to the same scale emphasising the difference in size, the America shuttle about to dock to the space station and below that the Soyuz craft used in the 1975 Soyuz-Apollo Test project—the first co-operation between the former Space Race rivals



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## The Soyuz Ferry and the Space Shuttle

2012 : an issue from Madagascar showing the newest Soyuz variant—Soyuz TMA.

Whilst the exterior appearance has not changed much, inside there have been many changes, the most radical being in the Transport Modification Anthropometric—or TMA version (2002 to date) which provides each cosmonaut with a bespoke chair for comfort. Previous versions of Soyuz—“T” (1979-86) and “TM” (1986-2002) provided fewer such “home comforts”.



The American shuttle first launched in 1981, was flown 135 times—the last flight occurring in July 2011—and was much modified internally after the Challenger and Columbia disasters in 1986 and 2003 respectively, but like the Soyuz ferry it looked the same superficially throughout its lifetime as these issues demonstrate : from left 1981, 1995 and 1998.



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Previous space stations (the American Skylab and the two variants of the Soviet Salyut) had been mostly “one room” craft, providing about as much space as the lounge in a typical house for experimentation, exercise, living quarters etc. Mir was a big improvement on that in that it had a small number of add-on modules which extended its capacities. The ISS when completed in 2011 was to have over a dozen add-on “rooms”, modules or nodes and was built incrementally with many major additional facilities arriving via the cargo bay of the American shuttle. Some, however, were sent up on Russian rockets, commencing with...

Zarya (launched 20.11.98)

The first of the components to be launched, via a Proton rocket, FGB *Zarya* (“Dawn” or “Sunrise” - indicative of a new beginning) provided electrical power, storage, propulsion, and guidance during initial assembly. The module—shown here on a 1999 *Cosmonautics Day* issue from *Kazakhstan*—now serves as a storage facility.



STS-88 (launched 4.12.98 and shown here on a cover bearing the mission patch as indicia with launch and landing day cancels from Kennedy Space Centre, Florida)

was ISS assembly flight 2A, whose remit was mating the US Node 1 “Unity” docking node to Zarya. Unity had six docking ports and was designed as the early hub of the space station, providing berthing locations for follow-on components.



Palau 1999 SG 1454b

The text at the bottom of the mini-sheet reads,

“Commander Bob Cabana and Russian Cosmonaut Sergei Krikalyev opened the hatch in the U.S. built Unity connecting module at 1.54 p.m. Central time Thursday December 10th 1998 and floated into the new station together”.

The ISS comprising two modules is shown at the top of the stamp.



Commander Bob Cabana and Russian Cosmonaut Sergei Krikalyev opened the hatch to the U.S. built Unity connecting module at 1.54 p.m. Central time Thursday, December 10th 1998 and floated into the new station together.

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Zvezda (launched July 2000)

After an extended delay, during which ISS (Unity/Zarya) - effectively what Mir-2 might have been—orbited unused for almost a year because of a series of postponements in launching the Zvezda (“Star”) module, the Russian Service module finally docked with the space station on 26.7.2000, providing flight control and orbit maintenance functions along with quarters for the first crews.

STS-106 (launched 8.9.2000)

This shuttle docked to Unity on 10th September and remained there for 189 hours with hatches open for two thirds of that time. During an EVA (Extra Vehicular Activity aka spacewalk) astronauts Lu and Malenchenko connected power and data communications cables between Zvezda and Zarya, which can be identified on the mission patch of the Kennedy Space Centre (KSC) launch and landing cancelled cover with Unity above “Morukov” which also shows Zarya, Zvezda and a Progress craft lined up beyond it.



However compare the configuration of the ISS in the STS 106 mission patch with Russia SG 6913 of 2000 showing what it ought to have looked like by the date of the stamp issue : 9.8.00. Further delays meant it would be several years before the complex looked like this.

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Soyuz TM 31 (launched 31.10.2000)

This was the pioneering mission that began the permanent occupation of the ISS, which foresaw crews rotating every four to six months. The objectives of the crew (Yuri Gidzenko, Sergei Krikalev and William Shepherd, the first ISS Commander) were to debug the complex and make it habitable. Most of their work involved setting up the station and evaluating procedures before the real science work could commence with the arrival of the US Destiny lab.

There are four distinct postmarks on the launch day cover all dated on October 31, 2000 with the imprimatur of "Mail of Russia" at the top and "Kazakhstan, Baikonur" spelled two ways in each hub. The canceling the Kazakhstan 30 tenge definitive depicts the Soyuz rocket while the other to the left of the stamp has the spacecraft in orbit above the planet. A rubber stamp Registered Mail imprint appears in the top left corner, with Baikonur's postcode "468320" and text, "Cosmodrome / Baikonur" plus artwork of the Soyuz rocket. The "3" character (a Cyrillic 'Z') in the corner hand-stamp is the first letter of the Russian word Zakaznoe (Registered) and is used for Registered Mail going to an address inside Russia.

The red rubber stamp depicts the Soyuz docking with the fledgling ISS with the text "First expedition on ISS / Russia - 2000 - USA"

This cover has been numbered "300" out of an unknown quantity.



Flight 2R: First Crew On The International Space Station



Above Palau 1999 SG 1454c

The text at the bottom of the mini-sheet begins— inaccurately as it turned out... "In July 1999 a crew of three will begin living aboard the ISS...." The crew who however were correctly identified were host to two visiting shuttle crews.

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STS-97 (launched 30.11.00)



Assembly flight 4A carrying P6 solar arrays produced a very noticeable change in the appearance of the complex, as suggested in the mission patch on this launch cover and in the photo showing the new solar panels (top of photo) taken by the departing STS-97 shuttle in December showing the work they completed producing remarkable transformation made to the station.

Below an all-signed launch cover which some astrophilatelists avidly seek for each flight. With the shuttle now a piece of history such covers are appreciating in value annually.

Were FIP Astrophilately rules applied to this presentation only launch covers bearing the date of launch and cancelled at the nearest post office to the launch (i.e. at the Kennedy Space Centre or Baikonur [Tyuratam]) would be accepted as appropriate material. No referencing postage stamps, even if issued only a day later than the event—and therefore no anniversary issues—would be allowed. In effect almost no postage stamps exist that can be used. Clearly this reduces immensely the material in any astrophilatelists' collection which can be considered for such a competitive display.



In order to fly on the shuttle, all astronauts have to be American citizens, excepting guests via invite to a foreign government's space agency. Hence three British born NASA astronauts e.g. Michael Foale are American citizens. However countries with an ancestral connection to an American astronaut like to publicise the fact, as with this 2000 issue (SG 2066) from Peru for one of the STS-97 crew Lt-Col Carlos Noriega, born in Lima, Peru, but who moved to Santa Clara, California as a child. The caption on the stamp claims him as Peruvian and his signature is the lowest one of the cover where he has identified himself as "MS3" - Mission Specialist #3.



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Soyuz TM 32 (launched 28.4.01) - First "Space Tourist" Dennis Tito

NASA was not happy about less than fully trained crew members flying to the ISS but as the Russians were ferrying as a passenger American businessman Dennis Tito, whose planned visit to Mir had been postponed and who had reportedly paid around US \$20M for the privilege, NASA had no veto. They did try to restrict his access to the Russian elements of the station, yet Tito paid visits to the American parts as well. The resident Americans were advised by NASA to have only formal relations with the "tourist". Tito took photographs, helped prepare meals and did not hinder any of the regular work but it was decided that futurist tourists would have to have a stronger science programme to occupy them.

The launch cover below bears one 30 tenge Kazakh definitive. There are five postmarks, two pictorials similar to those on the Soyuz TM 31 page earlier in this sequence and three which look similar but which have different text at the centre bottom of each—one with a "Soyuz" imprint, another with an "ISS" (MCK in Russian) imprint, while the third has \*C\*(S) for (СТАР—launch or take-off). Top left is the Zakaznoe (Registered) hand stamp.



The crew of TM 32— Musabayev, Baturin and Tito (shown left of trio)—were featured in a 2002 Cosmonautics Day issue from Kazakhstan: SG 355.

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Soyuz TM 33 (launched 21.10.2001)



The second Soyuz taxi mission (3S) carried a veteran Russian commander in Viktor Afanasyev, a rookie flight engineer in Konstantin Kozeev and French "spationaute" Claudie Haigneré making her second flight—her first having been to Mir, five years before—following her marriage to a fellow French spacefarer. Haigneré's week long



CNES sponsored mission was dubbed "Andromède" (see mission symbol in launch cover) and included two experiments devoted to the observation of earth and the study of the ionosphere, three life science studies and two physics experiments. This crew left for Earth in the TM 31 craft on 31 October.

The Somalia issues are produced by French astrophilately specialist dealer Lollini for the philatelic market and would not have been anywhere near that territory's post offices, as you might guess. This is probably also true of the Mali issue, which refers to the French woman by her double-barrelled maiden name. As for many themes, issues are produced by a large number of sovereign states (and many former Soviet Republics) with no connection to that topic. Collectors usually adopt a caveat emptor attitude to these issues, but on occasion they are useful as they reference astronauts who would not be referenced anywhere else.

In addition to the postmarks explained on previous pages for TM31 and TM32 this launch cover carries a blacker double-ringed postmark with the top text translating as Rosaviakosmos, the Russian Aviation and Space Agency; followed by ЭП-2 на МСК (EP-2 to MCK): the EP-2 refers to Expedition 2 and MCK is the Russian acronym for the International Space Station. EKA is Russian for ESA, the European Space Agency, and KHEC is the Russian translation of CNES, the French space agency, Centre National d'Etudes Spatiales, who sponsored Haigneré's flight.



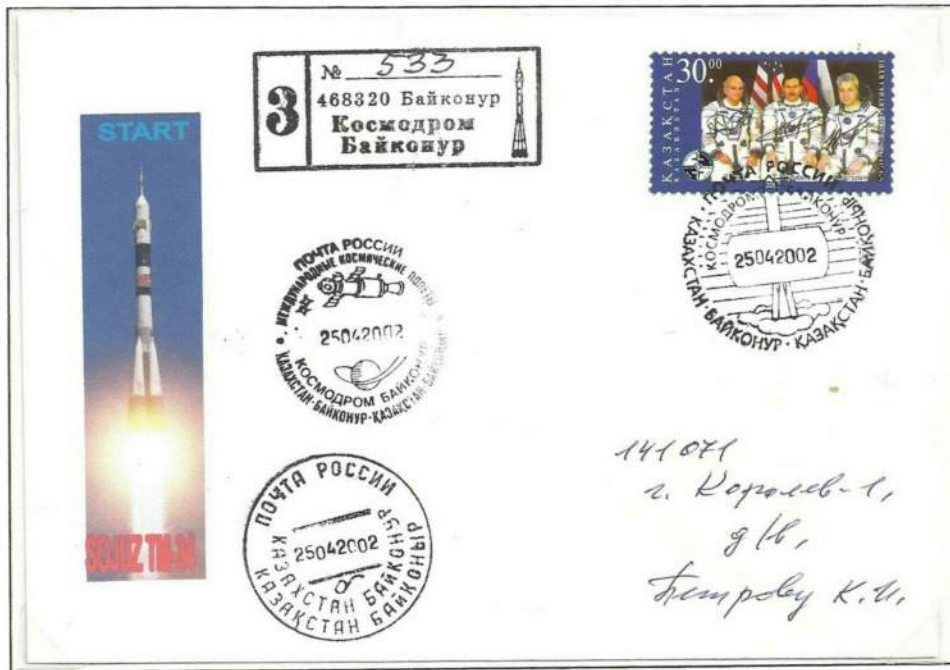
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## Soyuz TM 34 (launched 25.04.2002) - Second Space Tourist Mark Shuttleworth

This "taxi" mission exchanged Soyuz ferries, allowed Italian Roberto Vittori to complete a Science programme (called *Marco Polo*) for the Italian Space Agency and carried the second fare-paying passenger to the ISS in the shape of Mark Shuttleworth, the first African to fly in space. Stamps were produced to mark these flights, by South Africa on 17.12.2003 and a Lollini sponsored issue of four from Somalia issued on launch day.

Shuttleworth was determined to improve on the image of the "space tourist" created following Denis Tito's first flight and he developed a programme of life science experiments using on board equipment and bringing up four South African university developed ones.

TM 34 was the last in the series of that version of Soyuz (which had begun in May 1986) with a new type capable of more comfortably carrying astronauts of varying sizes, about to come into service.



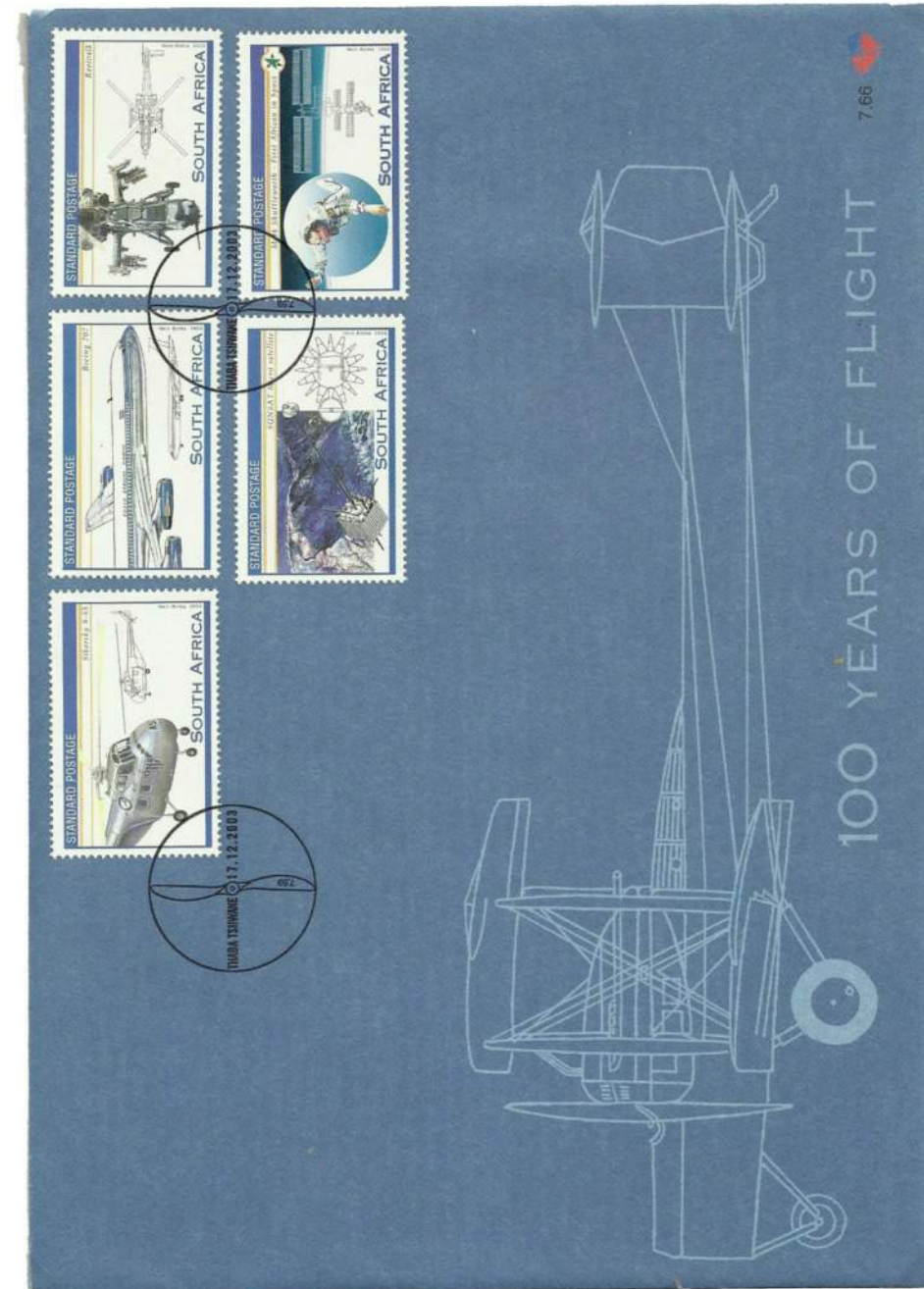
Roberto Vittori is shown in various ESA uniforms in these Lollini sponsored Somalia issues



See next page for a more genuine issue marking Mark Shuttleworth's flight

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## Soyuz TM 34 carried First African into Space



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Soyuz TMA 1 (launched 30.10.2002)

Within two weeks of the department of *Atlantis*, the first of the new style Soyuz ferries arrived, manned by two Russians (Sergei Zaletin and Yuri Lonchakov and a Belgian, Frank DeWinne). This flight ought to have carried the third space flight participant (aka tourist) in the shape of N. Synch pop singer Lance Bass but the millionaire failed to pay his fare and was replaced by the back-up commander. "TMA" signified Transport, Modification, Anthropometric and allowed many American astronauts to fly who had been too large to fit in the Soyuz ferry's previous versions : a very fortuitous development given the dramatic space events which were to occur within a few months. This was the first Soyuz variant to fly without first being "road-tested" unmanned.

The oval hand stamp bottom left on the launch cover below is flanked by a Russian flag and European Union banner, and references only two of the cosmonauts, Zaletin and DeWinne, reflecting Lonchakov's late entry onboard, as Lance Bass' empty seat was originally slated for cargo. The Russian Post cancel is struck over a 2002 Kazakh Cosmonautics Day issue showing the TM 32 crew



## Columbia Tragedy Throws Routines into Confusion

Although no one could possibly have predicted it at the time STS-113 (launched 23.11.2002) would be the last time for thirty months that a shuttle would dock at the station.

The sixth resident crew had expected to return by shuttle at the end of their stay on the station but the loss of *Columbia* on 1st February 2003 (in a mission that had not visited the ISS) resulted in the fleet being grounded and the crew having to use the TMA-1 spacecraft for landing and they were replaced by the TMA-2 "caretaker" crew.

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Soyuz no longer just a taxi but the only lifeboat !

Soyuz TMA 3 (launched 18.10.2003) EO-8

The second caretaker crew arrived in mid-October carrying Spanish ESA astronaut Pedro Duque, with his own "Cervantes" programme of experiments to pursue, British born ISS commander Michael Foale making his sixth flight and Russian Alexander Kaleri, the whole crew being curiously celebrated by an issue from Tchad in 2004.

This launch cover sports two new postmarks in addition to the familiar Soyuz pictorial over the 2003 Kazakh Cosmonautics Day issue and the Soyuz/Baikonur cancel. Dead centre, the Soyuz rocket with an orbital flight above Earth pictorial notes the "International Flight to Space" with "Russia-USA-Europe" participants. The Russian Post cancel has Baikonur's postcode "468320" above the date and an "x" prefix below, with "Baikonur" in two variations.



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Soyuz TMA 4 (launched 19.4.2004) EO-9



The new resident crew comprising Gennady Padalka, Ed Fincke and Dutch ESA astronaut André Kuipers arrived in mid-April and they are shown on this Lollini sponsored issue from Somalia in 2004 with Kuipers appearing on his own in the top two stamps with Fincke and Padalka (left) and Kaleri and Foale in the bottom pairing.



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Soyuz TMA 5 (launched 14.10.2004) EO-10



The two members of the new resident crew arrived at the ISS in mid-October, the Commander Leroy Chiao, and Salizhan Sharipov accompanied by Russian Yuri Shargin, who would stay only for the week or so. Russian businessman Sergei Polonsky had been scheduled to become the third paying space flight participant but failed a late medical test and so was replaced by a Russian Spaces Forces cosmonaut, the first of that group to be selected for cosmonaut training eight years earlier. He carried out his own programme of scientific study, the Russians stressing that none of his activity was military, as such practice is banned from the ISS. Sharipov was celebrated by a minisheet from his Kyrgyz homeland in 2005 showing the space station nearing completion in the background.

