



ISS international facilities and operations

The International Space Station (ISS) Program's greatest accomplishment is as much a human achievement as it is a technological one—how best to plan, coordinate, and monitor the varied activities of the Program's many organizations.

An international partnership of space agencies provides and operates the elements of the ISS. The principals are the space agencies of the United States, Russia, Europe, Japan, and Canada. The ISS has been the most politically complex space exploration program ever undertaken.

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The ISS Program brings together international flight crews; multiple launch vehicles; globally distributed launch, operations, training, engineering, and development facilities; communications networks; and the international scientific research community. Elements launched from different countries and continents are not mated together until they reach orbit, and some elements that have been launched later in the assembly sequence were not yet built when the first elements were placed in orbit.

Operating the ISS is even more complicated than other space flight endeavors because it is an international program. Each ISS partner has the primary responsibility to manage and run the hardware it provides. But the various elements provided by the ISS partners are not independent, and over time they must be operated as an integrated system.



National Aeronautics and Space Administration
United States



Canadian Space Agency



European Space Agency



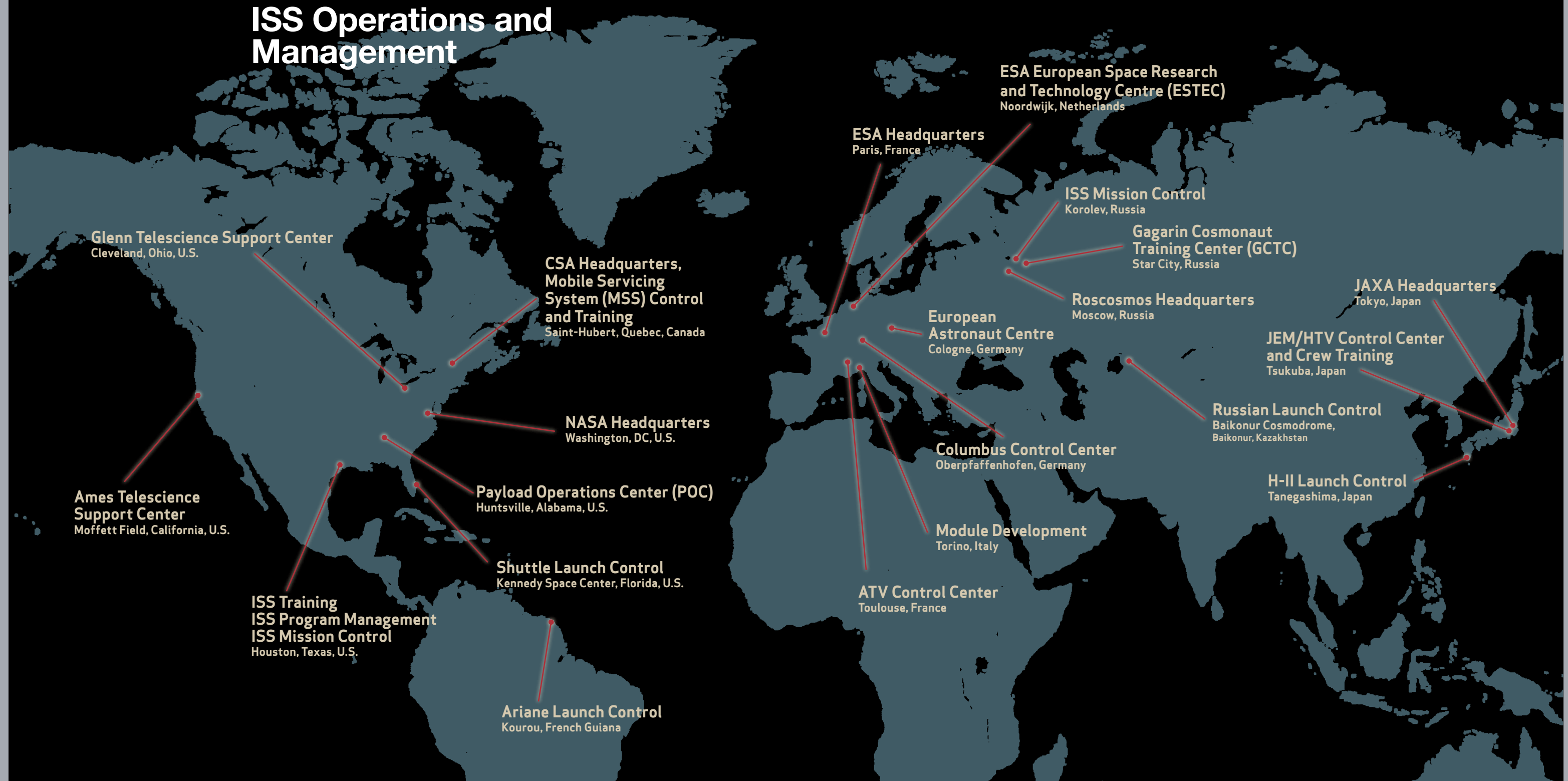
Japan Aerospace Exploration Agency



Russian Federal Space Agency



ISS Operations and Management



United States of America

National Aeronautics and Space Administration (NASA)



NASA HEADQUARTERS (HQ)

NASA Headquarters, in Washington, DC, exercises management over the NASA field Centers, establishes management policies, and analyzes all phases of the ISS Program.

JOHNSON SPACE CENTER (JSC)

Johnson Space Center, in Texas, directs the ISS Program. Mission Control manages activities aboard the U.S. segment of the ISS. JSC is the primary Center for spacecraft design, development, and mission integration. JSC is also the primary location for crew training.

KENNEDY SPACE CENTER (KSC)

Kennedy Space Center, in Florida, prepares the ISS modules and Space Shuttle orbiters for each mission, coordinates each countdown, and manages Space Shuttle launch and post-landing operations.

MARSHALL SPACE FLIGHT CENTER (MSFC)

Marshall Space Flight Center's Payload Operation Center (POC) is the ground control center for experiments and payloads being operated on the ISS. MSFC has also overseen development of most U.S. modules and the ISS ECLSS system.

TELESCIENCE SUPPORT CENTERS (TSCs)

Telescience Support Centers around the country are equipped to conduct science operations on board the ISS. These TSCs are located at Marshall Space Flight Center in Huntsville, Alabama; Ames Research Center (ARC) in Moffett Field, California; Glenn Research Center (GRC) in Cleveland, Ohio; and Johnson Space Center in Houston, Texas.

DESIGN, DEVELOPMENT, TESTING, EVALUATION, AND INTEGRATION (DDTE&I)

Boeing is NASA's prime ISS contractor. It oversees the development, testing, and preparation for launch of the ISS elements.

<http://www.nasa.gov>



Canada

Canadian Space Agency (CSA)



MOBILE SERVICING SYSTEM (MSS) OPERATIONS COMPLEX (MOC)

The MSS Operations Complex in Longueuil, Quebec, provides the resources, equipment, and expertise needed for the engineering and monitoring of the Mobile Servicing System as well as for crew training.

SPACE STATION REMOTE MANIPULATOR SYSTEM (SSRMS) DESIGN AND DEVELOPMENT

The SSRMS was designed and developed by MacDonald, Dettwiler and Associates, Ltd., in Brampton, Ontario.

<http://www.space.gc.ca>



Europe

European Space Agency (ESA)



EUROPEAN SPACE RESEARCH AND TECHNOLOGY CENTRE (ESTEC)

The European Space Research and Technology Centre, the largest site and the technical heart of the ESA, is in Noordwijk, in the Netherlands. Most ESA projects are developed here by more than 2,000 specialists.

COLUMBUS CONTROL CENTRE (COL-CC) AND AUTOMATED TRANSFER VEHICLE CONTROL CENTRE (ATV-CC)

Two ground control centers are responsible for controlling and operating the European contribution to the ISS program. These are the Columbus Control Centre and the Automated Transfer Vehicle Control Centre. The COL-CC, located at the German Aerospace Center (DLR), in Oberpfaffenhofen, near Munich, Germany, will control and operate the Columbus Research Laboratory and coordinate European experiments (payload) operations. The ATV-CC, located in Toulouse, France, on the premises of the French space agency Centre National d'Etudes Spatiales (CNES), will control and operate the ATVs.

GUIANA SPACE CENTRE (GSC)

Europe's Spaceport is situated in the northeast of South America in French Guiana. Initially created by CNES, it is jointly funded and used by both the French space agency and ESA as the launch site for the Ariane 5 vehicle.

EUROPEAN ASTRONAUT CENTRE (EAC)

The European Astronaut Centre of the European Space Agency is situated in Cologne, Germany. It was established in 1990 and is the home base of the 13 European astronauts who are members of the European Astronaut Corps.

USER CENTERS

User Support and Operation Centers (USOCs) are based in national centers distributed throughout Europe. These centers are responsible for the use and implementation of European payloads aboard the ISS.

<http://www.esa.int>



Japan

Japan Aerospace Exploration Agency (JAXA)



In addition to the JAXA headquarters in Tokyo and other field centers throughout the country, Tsukuba Space Center and Tanegashima Launch Facility are JAXA's primary ISS facilities.

TSUKUBA SPACE CENTER (TKSC)

JAXA's Tsukuba Space Center is located in Tsukuba Science City. As part of the International Space Station project, the Japanese Experiment Module (JEM) "Kibo" is developed and tested at TKSC. JAXA is preparing the Kibo Control Centre for support of the JEM once it is launched. Astronaut training for JEM will be conducted at JAXA.

TANEGASHIMA SPACE CENTER (TNSC)

The Tanegashima Space Center is the largest space-development facility in Japan and is located in the south of Kagoshima Prefecture, along the southeast coast of Tanegashima. The Osaki Range is onsite for J-I and H-IIA launch vehicles. There are also related developmental facilities for test firings of liquid- and solid-fuel rocket engines.

http://www.jaxa.jp/index_e.html



Russia

Roscosmos, the Russian Federal Space Agency



Roscosmos oversees all Russian human space flight activities.

MOSCOW MISSION CONTROL (TSUP)

Moscow Mission Control is the primary Russian facility for the control of human space flight. It is located in Korolev, outside of Moscow.

GAGARIN COSMONAUT TRAINING CENTER (GCTC)

The Gagarin Cosmonaut Training Center, at Zvezdny Gorodok (Star City), provides full-size trainers and simulators of all Russian ISS modules, a water pool used for spacewalk training, centrifuges to simulate G-forces during liftoff, and a planetarium used for celestial navigation.

S.P. KOROLEV ROCKET AND SPACE CORPORATION ENERGIA (RSC ENERGIA)

RSC Energia, in Korolev, outside of Moscow, integrates spacecraft hardware and manages the ISS Program implementation for the Russian segment.

KHRUNICHEV STATE RESEARCH AND PRODUCTION SPACE CENTER (KHRUNICHEV)

Khrunichev, in Moscow, is the prime contractor for the Functional Cargo Block, Service Module, and Proton launch vehicles.

SCIENCE PRODUCTION ENTERPRISE ZVEZDA

Science Production Enterprise Zvezda, in Tomolino, near Moscow, is the primary developer of the Russian Orlan and Sokol spacesuits that are used for the ISS.

BAIKONUR COSMODROME

The Baikonur Cosmodrome, in Kazakhstan, is the chief launch center for both piloted and unpiloted space vehicles. It supports the Soyuz and Proton launch vehicles and plays an essential role in the deployment and operation of the International Space Station.

INSTITUTE FOR BIOMEDICAL PROBLEMS (IBMP)

The Institute for Biomedical Problems, outside Moscow, conducts scientific research and develops hardware for the protection of crew health.

<http://www.roscosmos.ru>

