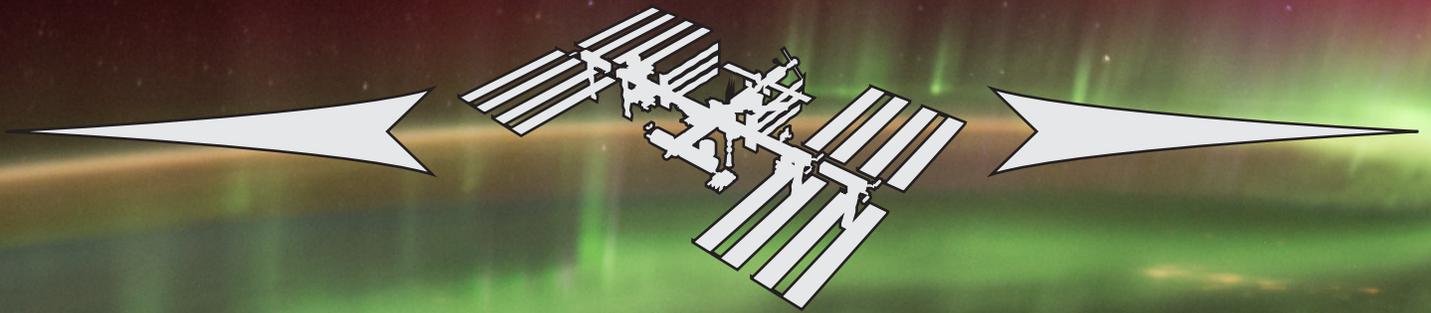


International Space Station

Utilization Statistics

Expeditions 0 – 44

December 1998 – September 2015



NUMBER OF INVESTIGATIONS PERFORMED ON THE INTERNATIONAL SPACE STATION

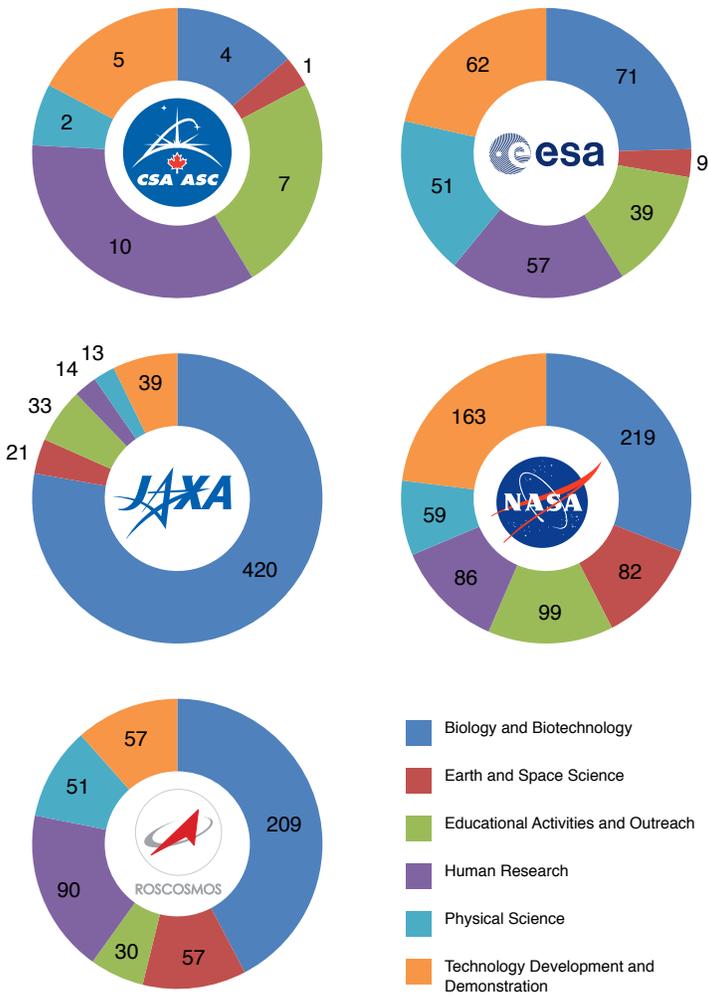
The information below provides an overview of ISS utilization up to the end of September 2015. An Expedition pair reflects the 6-month period used by the ISS Program for planning and execution of its activities. The utilization reflects activities of all of the ISS International Partners: CSA, ESA, JAXA, NASA, and Roscosmos. An investigation is defined as a set of activities and measurements (observations) designed to test a scientific hypothesis, related set of hypotheses, or set of technology validation objectives. Investigators include the principle investigator(s) and co-investigator(s) that are working to achieve the objective of the investigation.

	ISS Expeditions 41/42 Sep 2014 – March 2015	ISS Expeditions 43/44 March 2015 – Sep 2015	ISS Expeditions 0-44 Dec 1998 – Sep 2015
Total Investigations	295	356	2060
New Investigations	104	134	-
Completed/Permanent Investigations	50	61	1466
Number of Investigators with Research on the ISS	806	974	2917
Countries/Areas with ISS Investigations	68	31*	95

*No EarthKAM sessions were conducted

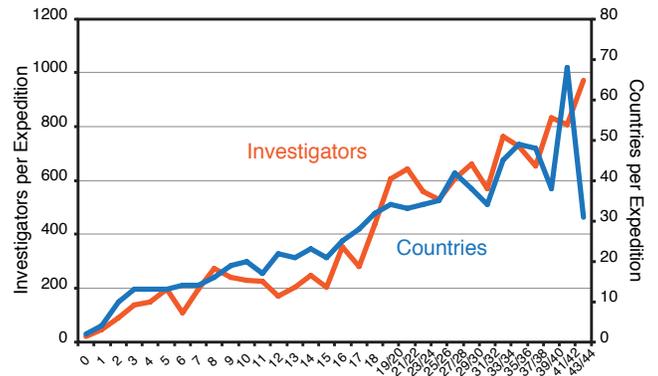
Expeditions 0 – 44 December 1998 – September 2015

Research Disciplines of International Space Station Investigations by Partner Agencies



NASA utilization includes investigations by the Italian Space Agency (ASI), an ISS Participant Agency.

Number of Investigators and Countries with Research on the ISS per Expedition



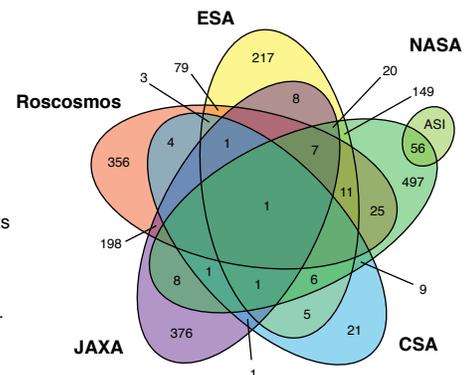
ISS Benefits Increased Through International Collaboration

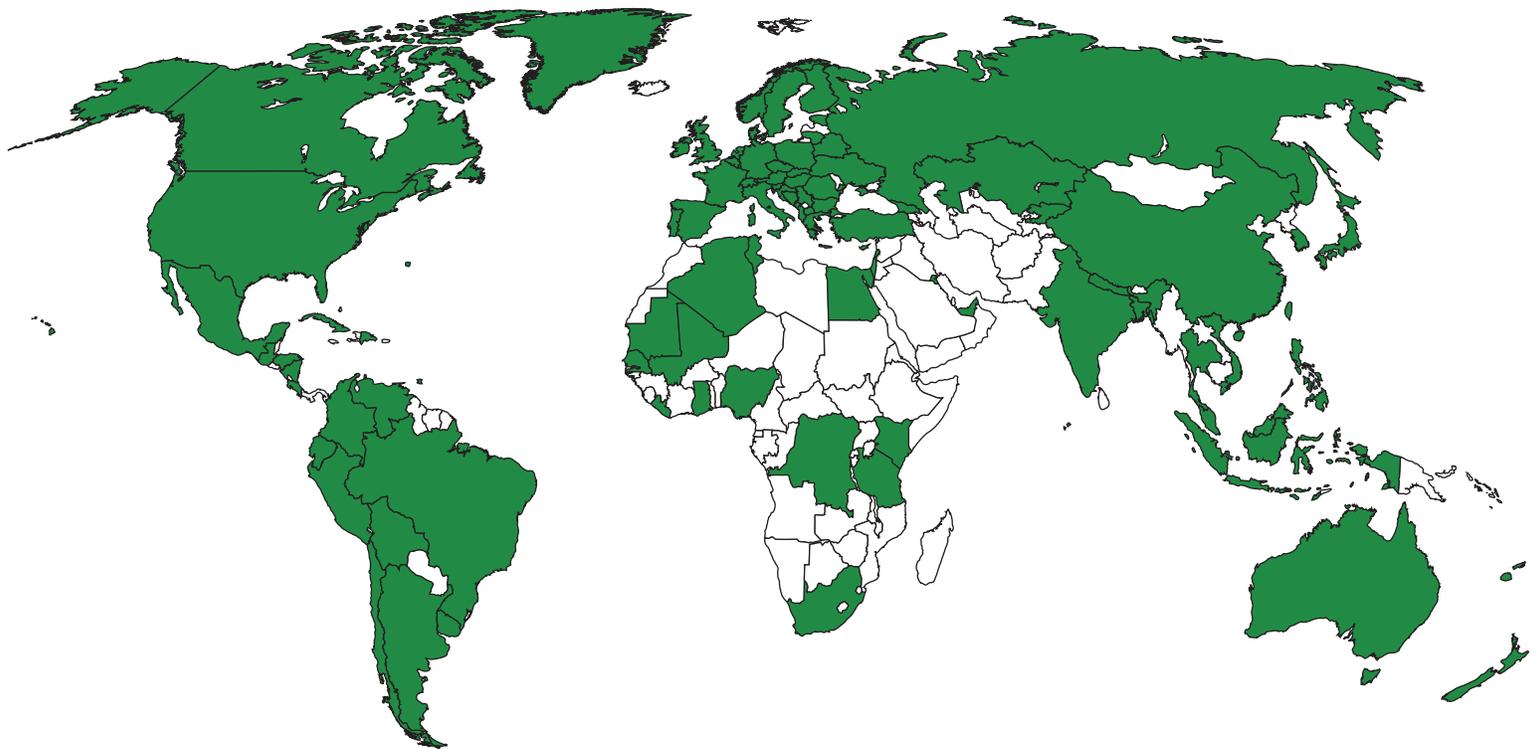
	Agency Only	Collaboration (Hosting)	Investigations Implemented	Collaboration (Participating)	Total Agency Impact
CSA	21	8	29	24	53
ESA	217	72	289	219	508
JAXA	376	164	540	82	622
NASA*	553	155	708	83	791
Roscosmos	356	138	494	191	685
			2060		

*NASA utilization includes investigations by the Italian Space Agency (ASI), an ISS Participant Agency

International collaboration investigations are sponsored by one of the ISS Partners and include scientists from other countries.

Ellipses show the intersection of Partner collaborations and counts show the increased number of investigations through international collaboration from the point of view of each Partner.





95 highlighted countries and areas have participated in ISS Research and Education Activities

Resources for the ISS are often described as upmass (mass of material brought to the ISS), downmass (mass of material returned from ISS) and crewtime (amount of time crew dedicates to an activity).

<i>Research Resources</i>	ISS Expeditions 41/42 Sep 2014 – March 2015	ISS Expeditions 43/44 March 2015 – Sep 2015	ISS Expeditions 0-44 Dec 1998 – Sep 2015
Upmass	2202 kg	960 kg	55,905 kg
Downmass	1593 kg	605 kg	14,942 kg
Crew Time	1919 hrs	1933 hrs	58,616 hrs

The investigations statistics represented below reflect research planned for Expeditions 45/46 and 47/48. The numbers of investigations actually performed can only be reported after completion of the expeditions.

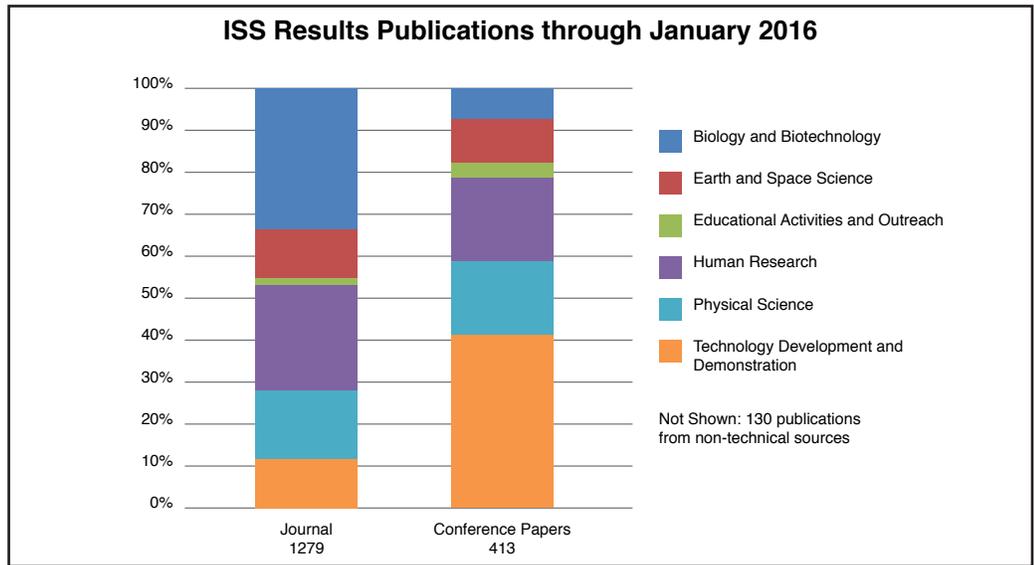
<i>Number of Current and Future Investigations on the International Space Station</i>	ISS Expeditions 45/46* Sep 2015 – March 2016	ISS Expeditions 47/48* March 2016 – Sep 2017	ISS Expeditions 45-48 Sep 2015 – Sep 2017
Total Investigations	323	269	395
New Investigations	79	55	134
Number of Investigators with Research on the ISS	797	712	923
Countries/Areas with ISS Investigations	26	27	27

*Roscosmos data is preliminary

International Space Station Publications Data

Top 20 Journals with ISS Results* (Number of Publications)
PLOS ONE (34)
Nature (1)
Proceedings of the National Academy of Sciences of the United States of America (4)
Science (4)
Physical Review Letters (21)
Journal of Biological Chemistry (2)
Journal of Neuroscience (1)
Chemical Communications (1)
Journal of Geophysical Research (5)
Advanced Materials (1)
Physical Review D (1)
Chemistry -- A European Journal (1)
Geophysical Research Letters (1)
Langmuir (2)
Journal of Chemical Physics (4)
NeuroImage (1)
The Astrophysical Journal (1)
Physical Review E (10)
Journal of Physical Chemistry B (3)
Journal of Clinical Endocrinology and Metabolism (1)

*Journals are listed in Eigenfactor® order. Eigenfactor® is an estimate of the percentage of time users spend with a journal, with citations from influential journals ranked higher.



International Space Station News

Important Milestones for 2015:

- Astronaut Scott Kelly and Cosmonaut Mikhail Kornienko began their one year journey aboard the ISS in March. Both are participating in studies that examine the effects of long-duration spaceflight on the human body as a stepping stone for future exploration missions.
- November 2015 marks 15 years of continuous human occupancy aboard the ISS. Since Expedition 1 arrival on November 2, 2000, there has been never been a period when humans were not working and living in space.

Research News:

- For the first time, lettuce (red romaine) was grown in the Veggie plant growth system and consumed by crewmembers.
- Clinical trials of a new drug for treating Duchenne Muscular Dystrophy are underway. This drug was developed based on the structure of proteins that were crystallized on the ISS. The research team estimates that the drug may be able to slow the progression of DMD, an incurable genetic disorder that affects the muscles primarily in young males, by half.
- Change in vision has become one of the top medical concerns of long-duration spaceflight, with increased pressure in the head due to fluid shifting in the body as a top suspect cause. In 2015, scientists identified a specific genotype that is correlated with the astronauts who experience vision impacts in space, helping to better inform why not all astronauts experience the vision impact and intracranial pressure syndrome.
- The ISS-RapidScat, the first near-global scientific Earth-observing climate instrument specifically designed and developed to operate from the exterior of the space station, was installed during 2015. During its short time on orbit, its weather observations have already made a difference in reducing risks for humans back on Earth. In 2015, ISS-RapidScat data improved tracking of hurricane strength prior to and during landfall, and enabled better storm warnings to reduce risk to shipping and coastal populations.
- The Constrained Vapor Bubble experiment used the ISS as a microgravity platform to study fundamental interfacial phenomena occurring within a classic, passive, heat transfer device; a heat pipe.

This is a product of the ISS Program Science Forum comprised of representatives from the ISS Partner Agencies: Canadian Space Agency (CSA), European Space Agency (ESA), Japan Aerospace Exploration Agency (JAXA), National Aeronautics and Space Administration (NASA) and the Federal Russian Space Agency (Roscosmos) and the ISS Participant Agency: Italian Space Agency (ASI).

Additional Resources:
 ISS Research and Technology on the Web:
<http://www.nasa.gov/iss-science/>
 Follow us on Twitter: @ISS_Research