

International Space Station Utilization Statistics Expeditions 0-42 December 1998 – March 2015

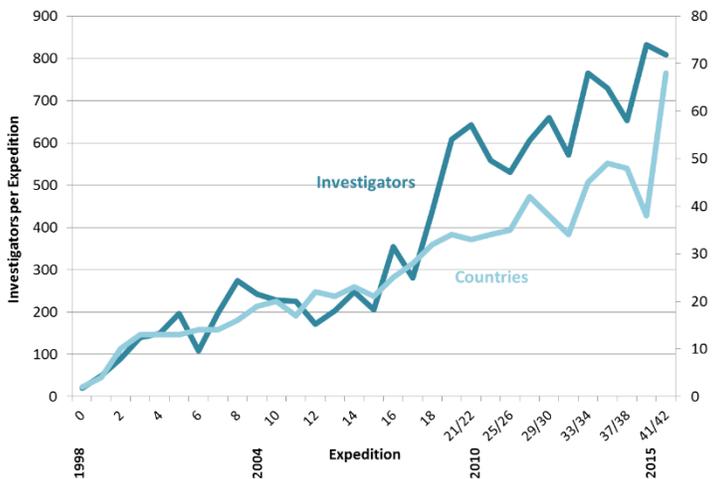


Number of Investigations Performed on the International Space Station

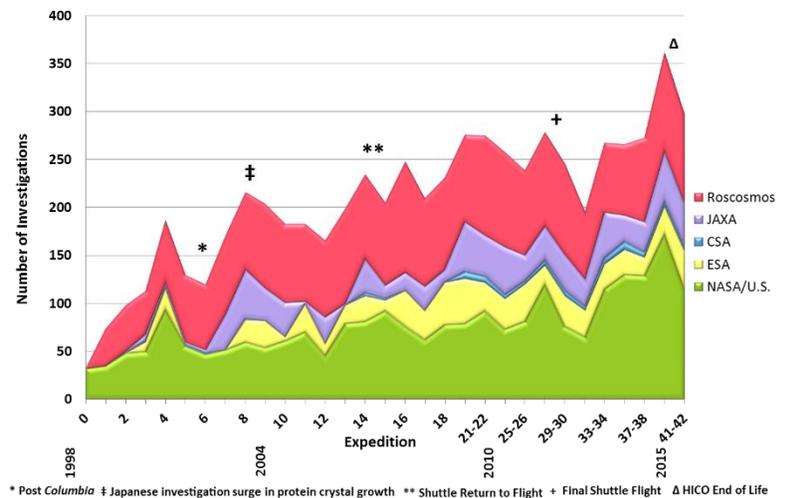
The information below provides an overview of ISS utilization up to the end of **March 2015**. An Expedition pair reflects the 6-month period used by the ISS Program for planning and execution of its activities. The utilization reflects activities of all of the ISS International Partners: CSA, ESA, JAXA, 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 39/40 Mar. 2014 – Sept. 2014 | ISS Expeditions 41/42 Sept. 2014 – Mar. 2015 | ISS Expeditions 0-42 Dec. 1998 – Mar. 2015 |
|---|---|---|---|
| Number of Investigations | 362 | 297 | 1922 |
| New Investigations | 111 | 90 | - |
| Completed/Permanent Investigations | 121 | 36 | 1384 |
| Number of Investigators with Research on the ISS | 832 | 809 | 2738 |
| Countries/Areas with ISS Investigations | 38 | 68 | 95 |

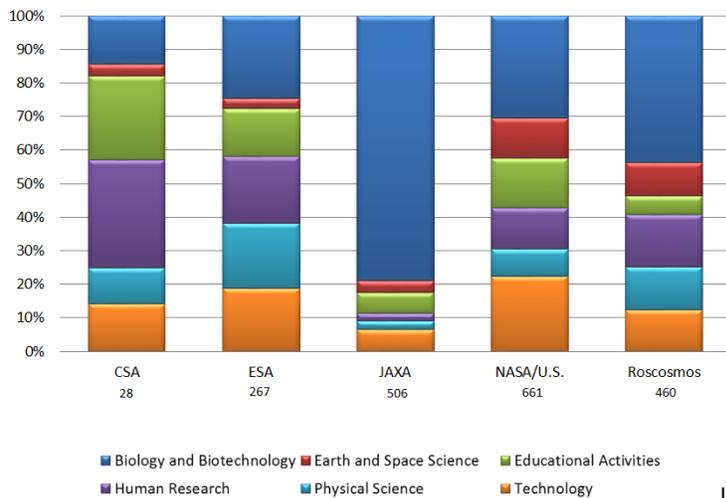
Number of Investigators with Research on the ISS and Countries per Expedition
December 1998 - March 2015



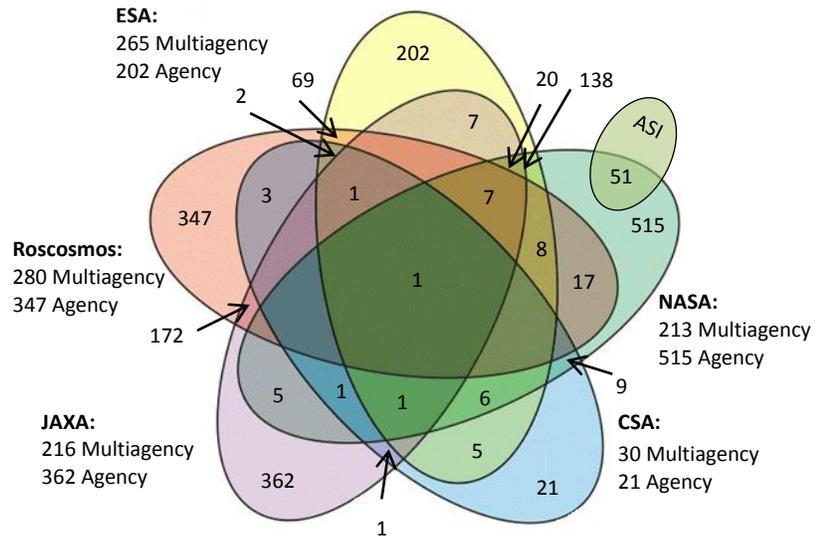
Research and Technology Investigations per Expedition
December 1998 - March 2015



Research Discipline of ISS Investigations By Partner Agency:
Expeditions 0-42
December 1998 - March 2015

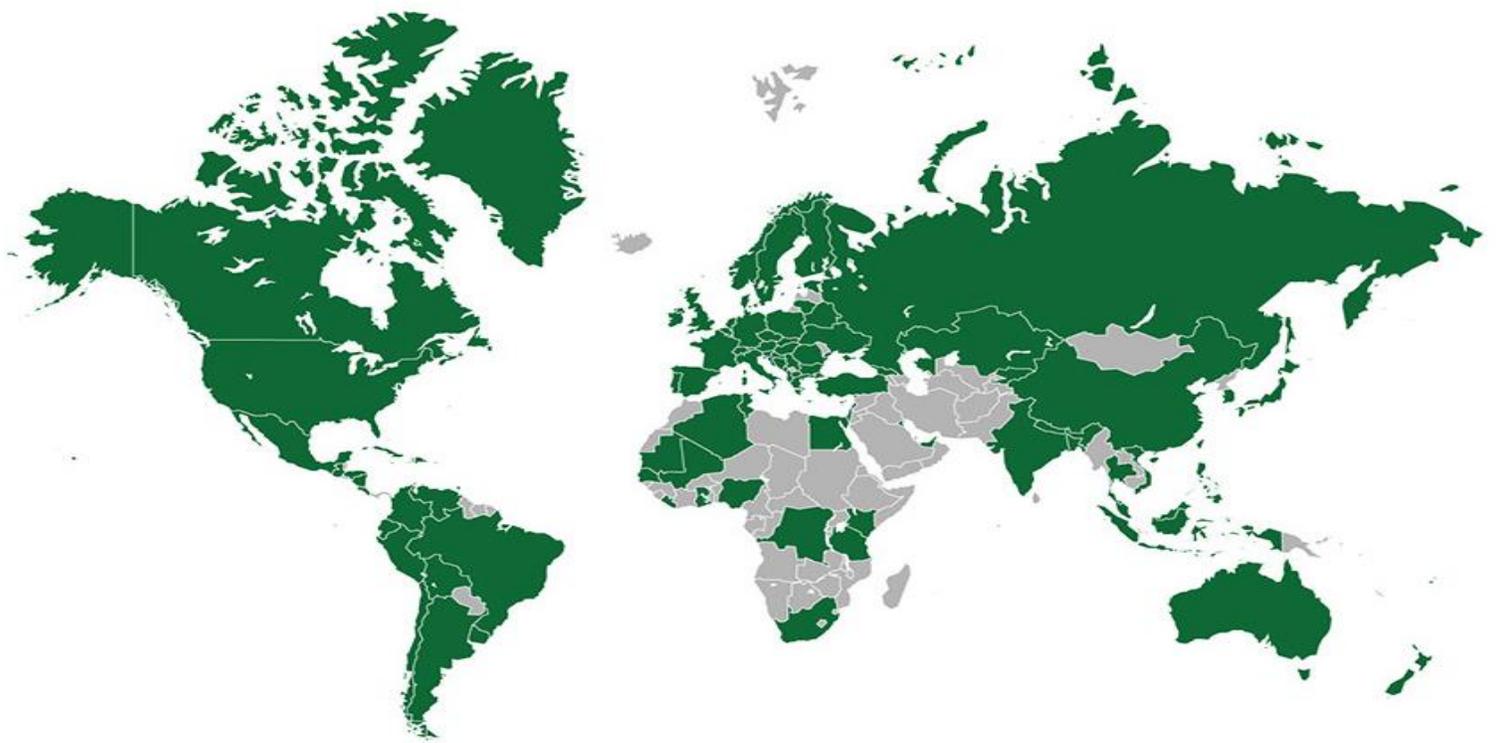


ISS Benefits Increased Through International Collaboration
Expeditions 0-42
December 1998 – March 2015



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. Multiagency: Investigations that have scientists located in multiple countries associated with Partner agencies. Agency: Investigations that only have scientists from the sponsoring Agency's country/countries.



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

Research Resources

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).

| Research Resources | ISS Expeditions 39/40 Mar. 2014 – Sept. 2014 | ISS Expeditions 41/42 Sept. 2014 – Mar. 2015 | ISS Expeditions 0-42 Dec. 1998 – Mar. 2015 |
|--------------------|---|---|---|
| Upmass | 2141 kg | 2202 kg | 54,945 kg |
| Downmass | 763 kg | 1593 kg | 14,336 kg |
| Crew time | 1898 hrs | 1919 hrs | 26,684 hrs |

Number of Current and Future Investigations on the International Space Station

The investigations statistics represented below reflect research planned for Expeditions 43/44 and 45/46. The numbers of investigations actually performed can only be reported after completion of the expeditions.

| | ISS Expeditions 43/44*‡ Mar. 2015 – Sept. 2015 | ISS Expeditions 45/46** Mar. 2015 – Sept. 2015 | ISS Expeditions 43-46** Sept. 2014 – Sept. 2015 |
|---|---|---|--|
| Total Investigations | 357 | 278 | 420 |
| New Investigations | 119 | 71 | 190 |
| Number of Investigators with Research on the ISS | 877 | 712 | 948 |
| Countries/Areas with ISS Investigations | 28 | 26 | 29 |

*Data reflects NASA only adjustments for loss of SpX-7 vehicle

‡ Data does not reflect loss of 59P vehicle

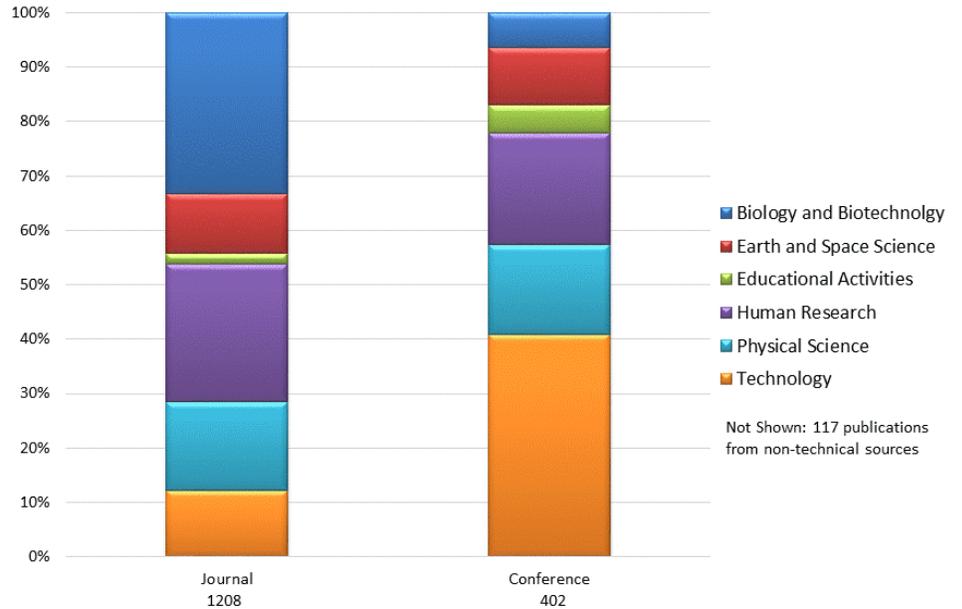
**Roscosmos data is preliminary

ISS Results Publications through July 2015

| Top 20 Journals with ISS Results* (number of publications) |
|--|
| 1. PLOS One (31) |
| 2. Nature (1) |
| 3. Proceedings of the National Academy of Sciences of the United States of America (3) |
| 4. Science (3) |
| 5. Physical Review Letters (21) |
| 6. Journal of Biological Chemistry (2) |
| 7. Journal of Neuroscience (1) |
| 8. Chemical Communications (1) |
| 9. Journal of Geophysical Research(5) |
| 10. Advanced Materials (1) |
| 11. Physical Review D (1) |
| 12. Chemistry – A European Journal(1) |
| 13. Geophysical Research Letters (1) |
| 14. Langmuir (2) |
| 15. Journal of Chemical Physics (3) |
| 16. NeuroImage (1) |
| 17. The Astrophysical Journal (1) |
| 18. Physical Review E (10) |
| 19. Journal of Physical Chemistry B (3) |
| 20. 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.

+Denotes new Journal to top 20 List since the Expeditions 0-40 report.



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.
- Cosmonaut Gennady Padalka has broken a 10-year-old record for the number of cumulative days in space in June. After five missions, he has more than two years of cumulative time off the Earth.
- Astronaut Samantha Cristoforetti achieved three important milestones during her 200 day stay on the ISS. She set a new duration record for a single mission as both an ESA astronaut and Italian astronaut. Cristoforetti is now the record holder for the most days in space by a woman during a single mission.
- Astronaut Scott Kelly will become the record holder for the single-longest spaceflight by an American on 16 October 2015.
- 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.

Benefits for Humanity 2015:

In July, the second edition of the [Benefits for Humanity](#)* was released. This international effort highlights ISS research that directly benefits humankind in the following areas:

- **Human Health** – ISS is a unique laboratory for performing investigations to understand human health both in space and on Earth. During its time in orbit, the space station has enabled research that is providing a better understanding of many aspects of human health including aging, trauma, disease and environmental impacts.
- **Earth Observation and Disaster Response** – The ISS is a “global observation and diagnosis station.” It promotes international Earth observations aimed at understanding and resolving the environmental issues of our home planet.
- **Innovative Technology** – Technical innovations designed for space systems are tested on the ISS before use in other spacecraft systems. While investigating how new technologies operate in space, unexpected discoveries are possible. Simplified physical systems can also be directly used to improve models of physical processes leading to new industrial techniques and materials.
- **Global Education** – The presence of humans aboard the station provides a foundation for numerous educational activities aimed at capturing interest and motivating children towards the study of science, technology, engineering and mathematics (STEM).
- **Economic Development of Space** – While the ISS has proven its value as a platform for a broad waterfront of research disciplines as well as technology development, it also provides an ideal opportunity to test new business relationships. This allows an opportunity to shift from a paradigm of government-funded, contractor-provided goods and services to a commercially provided, government-as-a-customer approach.

* www.nasa.gov/stationbenefits

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/>

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