International Space Station Utilization Statistics Expeditions 0-36

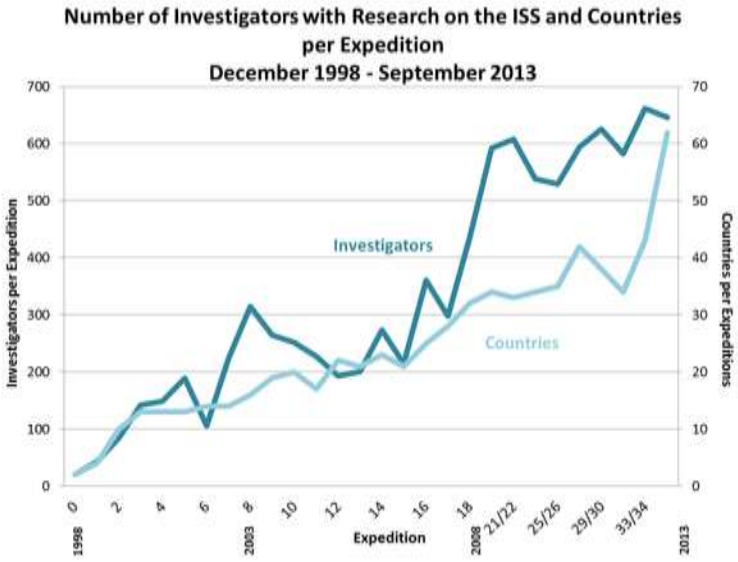
December 1998 – September 2013

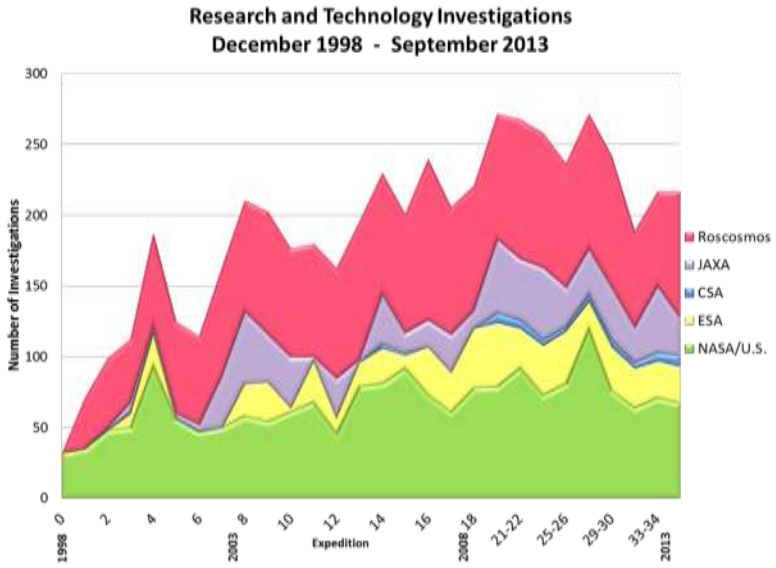
22 April 2014

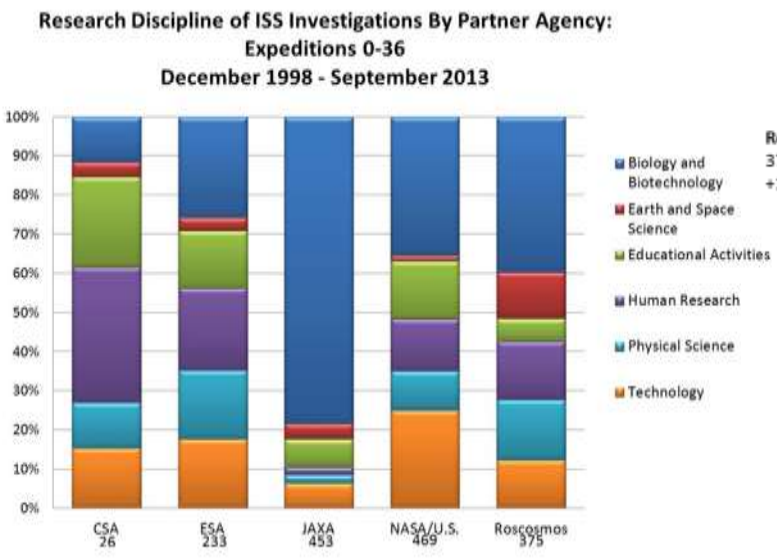
Number of Investigations Performed on the International Space Station

The information below provides an overview of ISS utilization up to the end of **September 2013**. An expedition refers to the nominal 6-month period that a single crew is on ISS. 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.

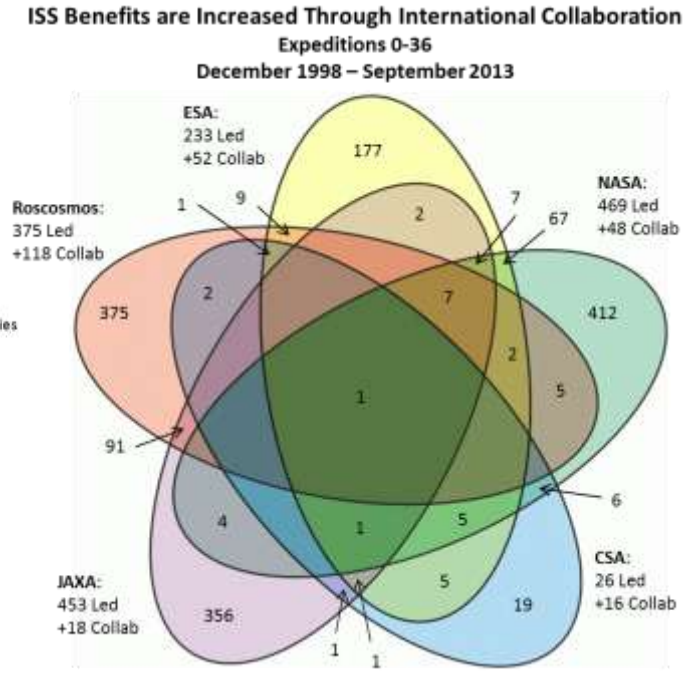
	ISS Expeditions 33/34 Sept. 2012 – Mar. 2013	ISS Expeditions 35/36 Mar. 2013 – Sept. 2013	ISS Expeditions 0-36 Dec. 1998 – Sept. 2013
Number of Investigations	217	217	1556
New Investigations	51	41	-
Completed/Permanent Investigations	39	30	1096
Number of Investigators with Research on the ISS	662	646	1824
Countries/Areas with ISS Investigations	46	61	82



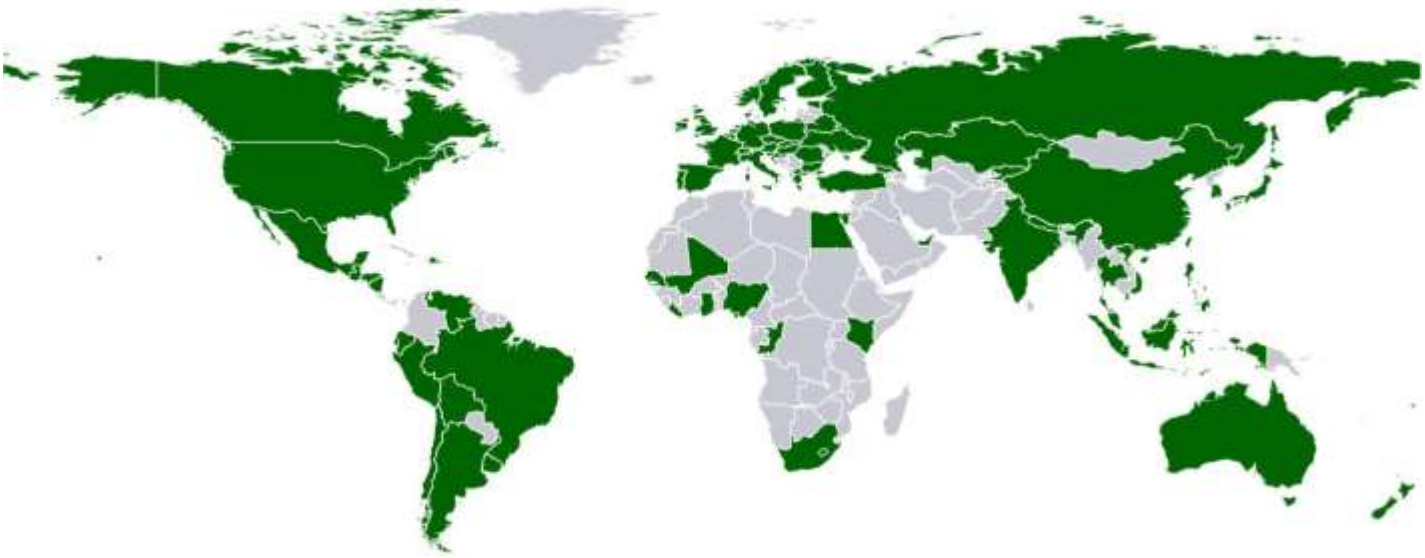




NASA utilization includes investigations by the Italian Space Agency (ASI), an ISS Participant Agency.



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.



82 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).

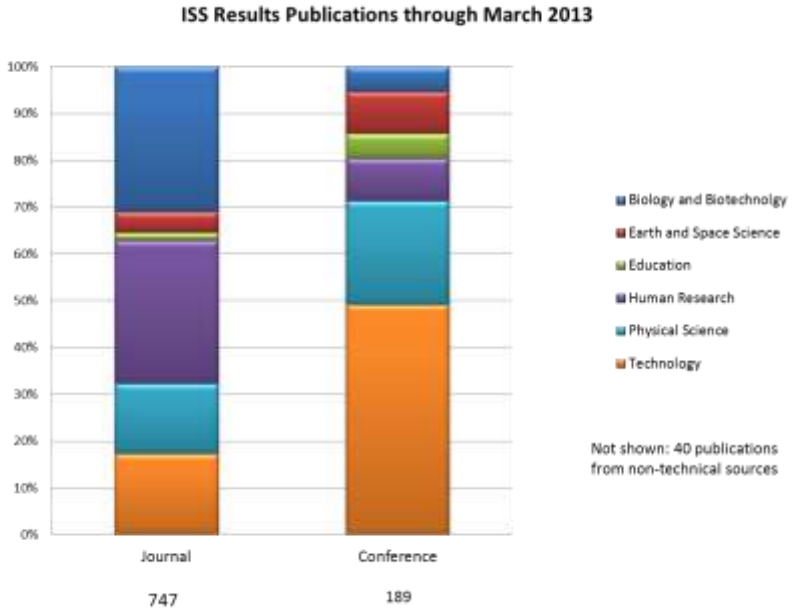
Research Resources	ISS Expeditions 33/34 Sept. 2012 – Mar. 2013	ISS Expeditions 35/36 Mar. 2013 – Sept. 2013	ISS Expeditions 0-36 Dec. 1998 – Sept. 2013
Upmass	805.5 kg	1026.5 kg	49861.8 kg
Downmass	399.1 kg	623.3 kg	11943.3 kg
Crew time	1614.2 hrs	1533.6 hrs	21156.8 hrs

Number of Current and Future Investigations on the International Space Station

The investigations statistics represented below reflect research planned for Expeditions 37/38 and 39/40. The numbers of investigations actually performed can only be reported after completion of the expeditions.

	ISS Expeditions 37/38 Sept. 2013 – Mar. 2014	ISS Expeditions 39/40 Mar. 2014 – Sept. 2014	ISS Expeditions 37-40 Sept. 2013 – Sept. 2014
Total Investigations	228	178	310
New Investigations	71	82	153
Number of Investigators with Research on the ISS	696	771	925
Countries/Areas with ISS Investigations	24	27	27

Top 20 Journals with ISS Results*
1. Nature
2. Proceedings of the National Academy of Sciences of the United States of America
3. Science
4. Physical Review Letters
5. PLOS ONE
6. Journal of Biological Chemistry
7. Journal of Neuroscience
8. Journal of Geophysical Research
9. Advanced Materials+
10. Geophysical Research Letters
11. Journal of Chemical Physics+
12. Langmuir
13. Physical Review E
14. Journal of Physical Chemistry B
15. NeuroImage
16. Oncogene+
17. Biochemical and Biophysical Research Communications
18. PLOS Biology
19. New Journal of Physics
20. Journal of Clinical Endocrinology and Metabolism+
*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 March 2013



Eleven Recent findings from International Space Station Research:

- A comprehensive review in *Nature* Magazine in 2013 highlighted the importance of ISS as a platform for cancer research.
- Ground-breaking studies on ISS indicate that adequate energy intake, vitamin D and high load resistive exercise can mitigate loss of bone mass density.
- ISS Research has provided new insight into understanding the mechanisms of osteoporosis, and developing new drugs to treat it, including one drug now on the market in clinical trials.
- Hyperspectral images show that remote sensing data from ISS can be used to support waterway monitoring in coastal regions.
- Colloids have been shown to self-assemble by using electrical fields.
- New processes of "Cool flame "combustion have been studied which, for internal combustion engines, could lead to better gas mileage and pollution reduction.
- Space station utilization has involved over 43 million students globally.
- AMS has collected over 25 billion observations of galactic cosmic rays and published its first paper in the prestigious *Physical Review Letters*. AMS detected positrons, proving with unprecedented accuracy that there are more positrons in the universe than would be expected from known causes, and hint at the possibility of dark matter as the source.
- Robotic technologies developed for the ISS have been used to provide in Robotic assistance for brain surgeries, saving hundreds of lives.
- New targeted methods of drug delivery have been developed. These methods are now being used in clinical breast cancer trials now in development.
- Recently, a long duration Gamma Ray Burst (GRB), the most energetic form of light explosion in the universe, was observed by the MAXI instrument (Monitor of All Sky X-Ray), by studying the X-ray emission from this GRB. The results were published in *Science*.

This is a product of the ISS Program Science Forum comprised of representatives from the 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).

Additional Resources:
ISS Research and Technology on the Web:
http://www.nasa.gov/iss-science/
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