A world without gravity – research on ISS for the benefit of life on Earth

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ISS Symposium

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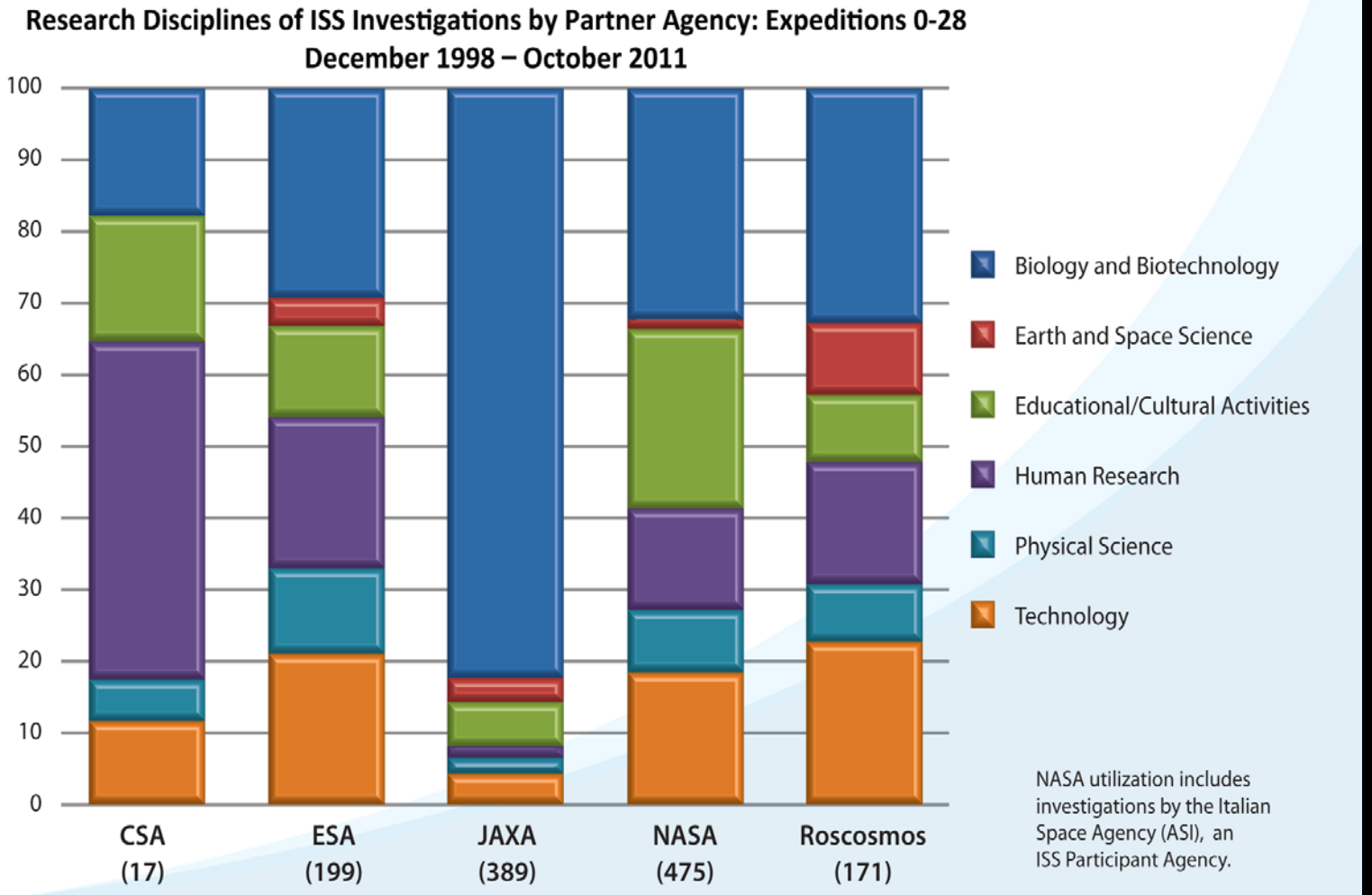
ISS for Global Peaceful Cooperation
Improving Life on Earth

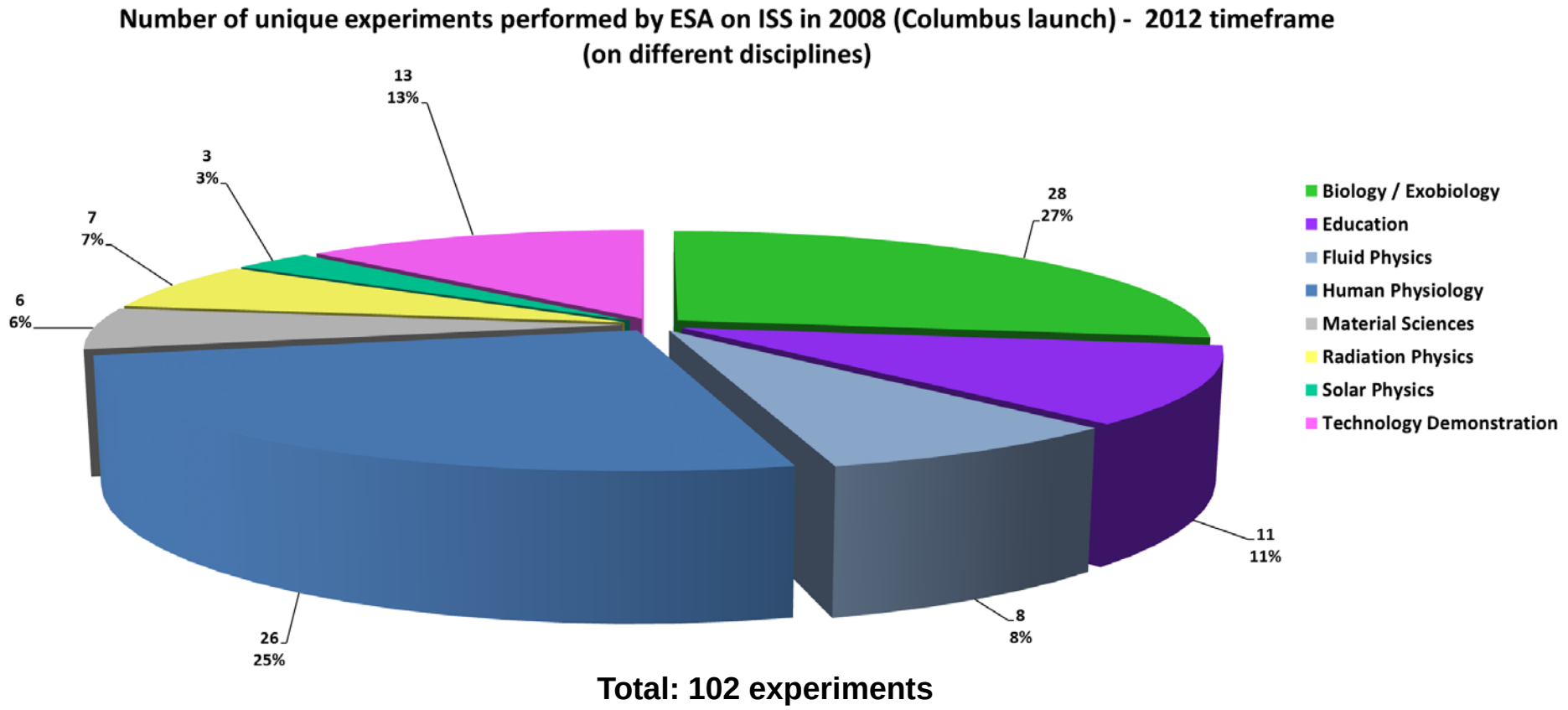
The greatest international
space project of all time

ISS Utilisation achievements (1/3)



Source: NASA Program Science Office (http://iss-science.jsc.nasa.gov/ISS_Utilization_Statistics_Final.pdf)

ISS Utilisation achievements (3/3)



Total: 102 experiments

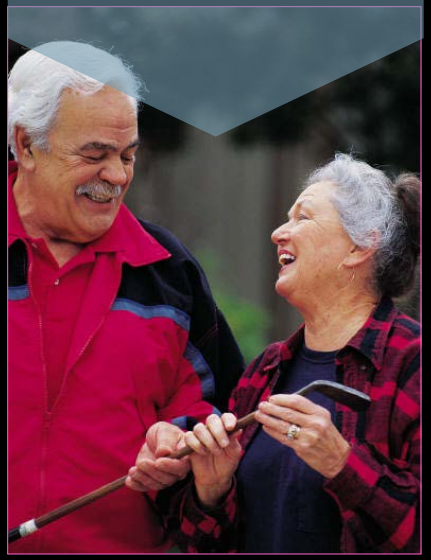
ISS for Life
Research to Benefit Health

Space environment offers unique possibilities to study health problems related to various diseases, ageing and immobility

Understanding osteoporosis, early detection of osteoporosis on Earth and researching new counter measurements

Fighting muscle atrophy due to weightlessness

Physiological changes observed in microgravity provide important clues for ageing process on Earth



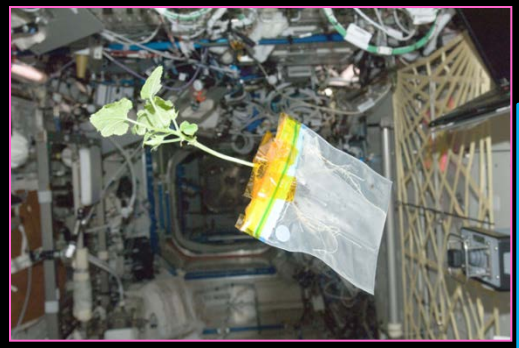
ISS plays a role in helping people with asthma condition

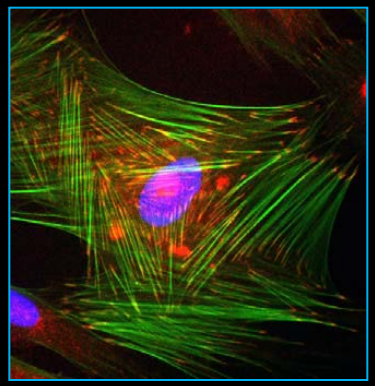
ISS for Life:
Biology and Astrobiology Research

- Aims at understanding the effect of microgravity and space environment on micro-organisms, cell cultures, plants and small animals.
- Provides fundamental knowledge on biological processes,
- Potential applications to biotechnology, medicine, agriculture and, in the long term, space exploration

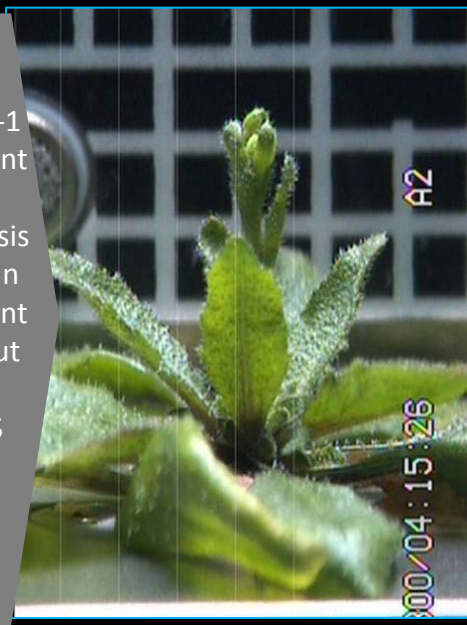
KUBIK Cell, Microbiology and Plant Experiments

EXPOSE Astrobiology Experiments





Multigen-1 Experiment with Arabidopsis Thaliana in experiment carried out in the EMCS Facility

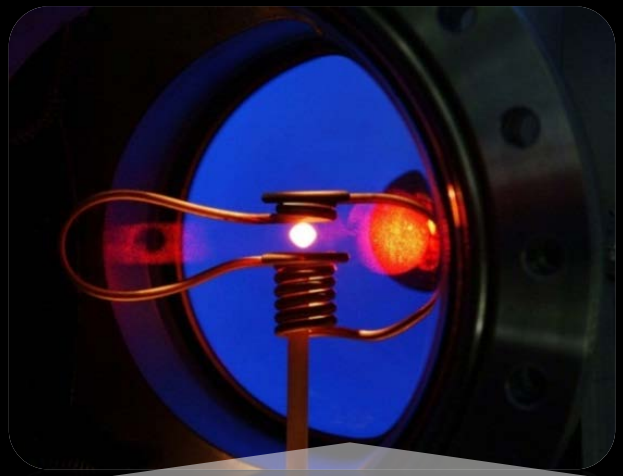


ISS for Science, Technology and Innovation

PK-3 Plus: detailed investigation of complex plasmas under microgravity

Developing ways to kill bacteria and viruses that can cause infections in hospitals

Positive results to help improve casting processes for producing new lighter weight materials for use in, for example, airplane engines

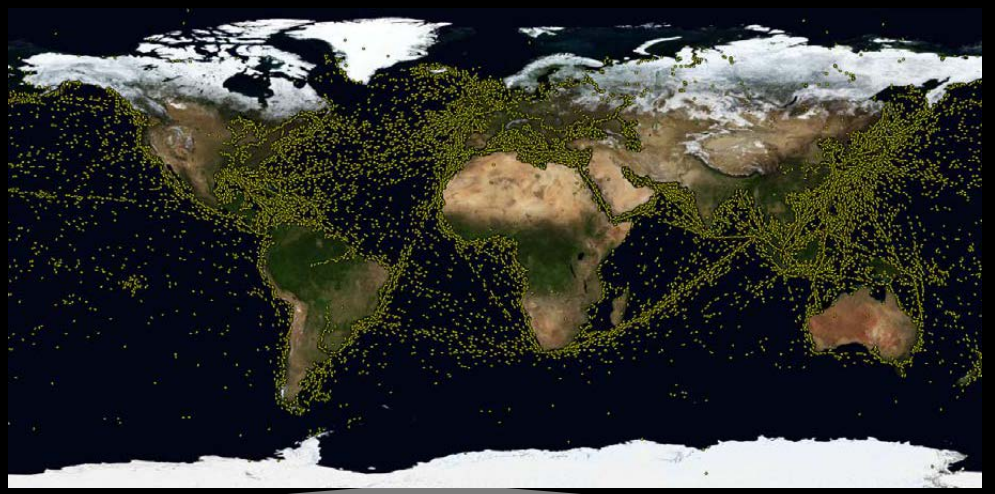


Electromagnetic levitation using the TEMPUS facility

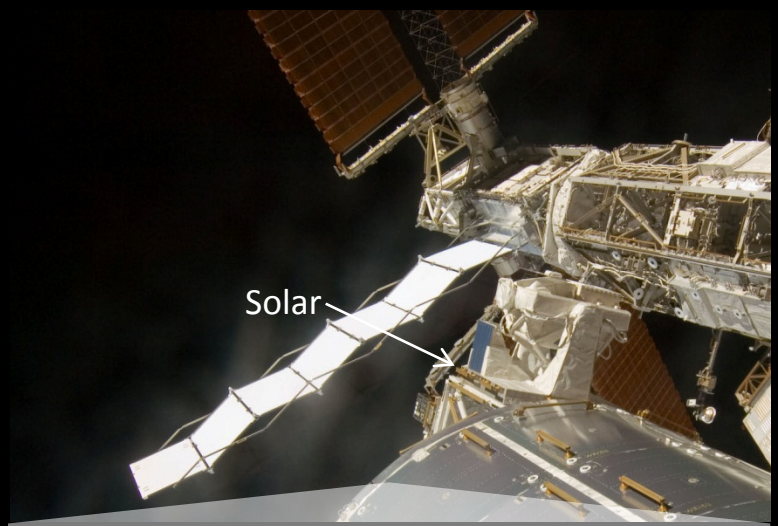
ISS for Earth

Research for Climate Change understanding and Earth's Monitoring

ISS is a global observation and diagnosis platform



NORAIS: Vessel detection



The Solar Monitoring Observatory uses three science instruments(SOVIM, SOLSPEC, and SOL-ACES) to provide detailed measurements of the Sun's spectral irradiance

Our fragile planet

ISS for Education
Inspiring and Motivating New Generations

Passion and Enthusiasm for
Science and Technology

Young generations learn to appreciate and understand the benefits, challenges, and importance of space research

ISS Utilisation Exhibition (*Salon Corinth*)

STATE-OF-THE-ART PRODUCTS AND TECHNOLOGIES RESULTING FROM RESEARCH ON THE ISS

5 MAIN THEMES

- **A** · Non-invasive medical diagnostics
- **B** · Biomedicine
- **C** · Biology / Biotechnology
- **D** · Astrobiology & Space Environment
- **E** · Physical Sciences