

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)  
Overview Session (Present and Near-Term Human Space Flight Programs) (1)

Author: Dr. Julie A. Robinson  
National Aeronautics and Space Administration (NASA), Johnson Space Center, United States

Ms. Tracy Thumm  
Barrios Technology, Inc., United States  
Dr. Perry Johnson-Green  
Canadian Space Agency, Canada  
Dr. George Karabadzhak  
TSNIIMASH, Russian Federation  
Dr. Tai Nakamura  
Japan Aerospace Exploration Agency (JAXA), Japan  
Dr. Igor V. Sorokin  
S.P. Korolev Rocket and Space Corporation Energia, Russian Federation  
Dr. Martin Zell  
European Space Agency (ESA), The Netherlands  
Mr. Sabbagh Jean  
Italian Space Agency (ASI), Italy

THE ERA OF INTERNATIONAL SPACE STATION UTILIZATION BEGINS: RESEARCH  
STRATEGY, INTERNATIONAL COLLABORATION, AND REALIZED POTENTIAL

**Abstract**

With the assembly of the International Space Station (ISS) nearing completion and the support of a full-time crew of six, a new era of utilization for research is beginning. For more than 15 years, the ISS international partnership has weathered financial, technical and political challenges proving that nations can work together to complete assembly of the largest space vehicle in history. And while the ISS partners can be proud of having completed one of the most ambitious engineering projects ever conceived, the challenge of successfully using the platform remains. During the ISS assembly phase, the potential benefits of space-based research and development were demonstrated; including the advancement of scientific knowledge based on experiments conducted in space, development and testing of new technologies, and derivation of Earth applications from new understanding. The configurability and human-tended capabilities of the ISS provide a unique platform. The international utilization strategy is based on research ranging from physical sciences, biology, medicine, psychology, to Earth observation, Human Exploration preparation and technology demonstration. The ability to complete follow-on investigations in a period of months allows researchers to make rapid advances based on new knowledge gained from ISS activities. During the utilization phase, the ISS partners are working together to track the objectives, accomplishments, and the applications of the new knowledge gained. This presentation will summarize the consolidated international results of these tracking activities and approaches. Areas of current research on ISS with strong international cooperation will be highlighted including cardiovascular studies, cell and plant biology studies, radiation, physics of matter, advanced alloys. Scientific knowledge and new technologies derived from research on the ISS will be realized through improving quality of life on Earth and future spaceflight endeavors. Extension of the ISS through 2020 and beyond will insure that the benefits of research will be achievable for the International Partnership.