

SPACE EXPLORATION SYMPOSIUM (A3)  
Space Exploration Overview (1)

Author: Dr. Christian Lange  
Canadian Space Agency, Canada

Mr. Alessandro Bergamasco  
European Space Agency (ESA), The Netherlands  
Dr. Juergen Hill  
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany  
Ms. Stephanie Stilson  
NASA, United States  
Mr. Hiroshi Ueno  
JAXA, Japan  
Mr. Scott Vangen  
NASA John F. Kennedy Space Center, United States

COORDINATED ANALYSIS OF TECHNOLOGY DEVELOPMENT INTERESTS FOR THE GLOBAL  
EXPLORATION ROADMAP: THE GER TECHNOLOGY DEVELOPMENT MAP**Abstract**

The International Space Exploration Coordination Group (ISECG) is continuing its dialogue and coordination on global human and robotic exploration activities, articulated in the Global Exploration Roadmap (GER). The international dialogue has intensified since the GER's initial release in 2011. A second iteration highlighting further details and progress on the international effort is planned in 2013.

One major aspect of near term coordination is the collection and analysis of technology development efforts supporting the implementation of the GER in order to leverage investments of individual ISECG agencies. Over the course of the last year, the Technology Assessment Team (TAT) has shared information on agency technology development interests and priorities as well as respective investment plans related to exploration. The inputs of the participating ISECG space agencies are integrated in a data repository, whereby the individual technology development activities are categorized using the NASA technology area breakdown structure and mapped to the elements and capabilities identified in the GER mission scenarios. The resulting product — the GER Technology Development Map (GTDM) — is unique in providing such a detailed picture of technology developments across the space exploration community. It combines in a systematic fashion technology development entries of several participating ISECG space agencies. The GTDM allows the analysis of this data set from many different angles, providing valuable insights into overlapping areas and investment gaps for both Individual agencies and the global ISECG teams. This allows identifying potential stumbling blocks for the GER implementation as well as innovative competition or new collaboration opportunities. The TAT analysis thus yields a more robust architecture, and enables a more coordinated approach to its implementation.

This paper will highlight the progress made since the first iteration of the GER, provide insights into the data repository and outline the TAT's contribution to the next iteration of the GER. A global analysis of the data, based on evolving detailed inputs to the GTDM, will be presented as well as findings from each participating agency's perspective.