

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
How Can We Best Apply Our Experience to Future Human Missions? (2)

Author: Ms. Gisela Detrell Domingo
Technical University of Catalonia (UPC), Spain, gisela.detrell@upc.edu

Mr. Robert Ta
International Space University (ISU), Canada, Robert.Ta@community.isunet.edu
Mrs. Shelly Baker
International Space University (ISU), United States, shelly.baker@boeing.com
Ms. Kate Arkless Gray
International Space University (ISU), United Kingdom, SpaceKate@community.isunet.edu
Mr. Eric Dawson
International Space University (ISU), United States, edawson@law.fordham.edu
Mr. Boris Domanovic
International Space University (ISU), Slovenia, Boris.Domanovic@community.isunet.edu
Mr. Adam Vigneron
Faculty of Engineering, Carleton University, Canada, adam.vigneron@spacegeneration.org
Mr. Christian Lüthen
Erasmus MC - University Medical Center Rotterdam, The Netherlands, c.luthen@erasmusmc.nl
Dr. Reinhold Ewald
European Space Agency (ESA), Germany, reinhold.ewald@esa.int
Ms. Katarina Eriksson
International Space University (ISU), Sweden, katarina@markadesign.se
Mr. David Haslam
United Kingdom, dave.t.haslam@gmail.com

A NEXT GENERATION SPACE STATION

Abstract

This paper will present the conclusions of the Team Project “A Next Generation Space Station” (NGSS) of the International Space University’s (ISU) 2012 Space Studies Program, held at the campus of the Florida Institute of Technology in Melbourne, FL, USA.

The three main objectives of the team project are, (1), to look into the deficiencies and short-comings, and the successes, of MIR and the International Space Station (ISS), to identify the current and envisioned use of the ISS and a potential future space station, (2), to identify and describe the design drivers for an NGSS assuming a development period from 2015 until 2025, and (3), to describe the sequence of events during the transition phase from ISS to the NGSS. A main focus for the design drivers is on providing access to emerging space nations that have so far not had access to ISS.

In addition they are asked to come up with a prognosis of the development of cheaper transport into space, for self-sustained solutions in orbit, and anticipate the general development for key enabling technologies which should lead to a feasible and well supported NGSS model.

The partners of the International Space Station have committed to operate ISS until 2020. When the Shuttle program ended in 2011 and no new adequate follow-on program was in place, this received a lot of negative publicity. To avoid this situation at the end of ISS operations, and given the typical

development time of space projects, plans for a next generation space station should be ready by 2015, and development activities should start as soon as possible after that.

The reasons to continue operating a manned space station in Earth orbit are manifold. The ever-growing use of space-based assets in all parts of daily life brings with it a need for in-orbit testing and development. An NGSS must be an integral part of human space exploration plans as budget constraints will be a main factor of future ambitions. Space tourism is on the brink of starting serious business and would eventually look to longer stays in space. Last but not least it will be a matter of cultural pride to support a next generation space station.

As is ISU's credo, the 3I's approach (intercultural, international, and interdisciplinary) promises to come to surprising and fresh ideas for a continuation of the human presence in space by means of a NGSS.