

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

Author: Dr. Jennifer Rhatigan
National Aeronautics and Space Administration (NASA), Johnson Space Center, United States,
jennifer.l.rhatigan@nasa.gov

Mr. Kohtaro Matsumoto
Japan Aerospace Exploration Agency (JAXA), Japan, matumoto@chofu.jaxa.jp

Dr. William Carey
European Space Agency (ESA), The Netherlands, william.carey@esa.int

Dr. Victoria Hipkin
Canadian Space Agency, Canada, Victoria.Hipkin@asc-csa.gc.ca

Dr. Hae-Dong Kim
Korea Aerospace Research Institute (KARI), Korea, Republic of, haedkim@kari.re.kr

DEVELOPING A COMMON SET OF HUMAN LUNAR EXPLORATION GOALS AND OBJECTIVES

Abstract

Introduction: In 2007, international space agencies expressed their “increasing intent and determination to explore earth’s nearest companions, with the Moon as our nearest and first goal”. It was in this spirit that in July 2008 the members of the International Space Exploration Coordination Group (ISECG) agreed to explore ideas and plans for human exploration of the Moon and to jointly develop an international lunar reference architecture that could be used to inform subsequent decision milestones of individual agencies.

Methodology: In October 2008, the International Architecture Working Group (IAWG) initiated the development of a reference human lunar architecture. In March of 2009, the ISECG recognized that many space agencies had been or would be conducting national reviews to develop exploration themes and objectives useful for driving the architecture development. The International Objectives Working Group (IOWG) was formed from this discussion, and was tasked with collecting existing national space exploration objectives and assessing the degree to which commonality exists among these objectives. The IOWG was also tasked with assisting the IAWG in advising and assessing the lunar architecture development to determine the best architectural approaches for achieving these collective goals and objectives.

Discussion: Starting in mid-2009, Objectives Workshops, open to all ISECG members, have been held among interested agencies. The primary task of collecting and integrating an initial set of over 600 agency national objectives has been accomplished, recognizing many agencies are in the midst of objective development and will be for some time to come. The initial set is expected to grow and evolve as national objectives do, and as discussions on commonality proceed. This initial set provides insight into potential common themes, goals, and objectives. This set of objectives has been compared and mapped against themes developed in the Global Exploration Strategy. On the basis of these objectives, a set of 15 common lunar exploration goals has been adopted by ISECG, expressing the interests of the participants.

Results: This paper describes the processes whereby an international set of common human lunar exploration goals have taken shape, based on individual objectives drafted by each participating agency, and how these goals have driven a reference human lunar architecture. The set of 15 common goals are presented and discussed in the context of the resulting architecture, noting specifically how the international reference architecture is built to meet these goals.