Using the ISS to Prepare for Exploration (01)
Poster Session (P)

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IDEA OF USING ISS MODULES AS LUNAR ORBITER AND LUNAR SURFACE BASE

Abstract

This study combines the first two main topics as you have proposed within your conference: Using the ISS to Prepare for Exploration and return of Humans to the Moon within the next 2012-2020 horizont. The study takes into consideration the ISS interior and exterior modifications, ISS disintegration into three main segments by maximum utilization of robotic arms, using modified ATVs for transfer from Earth's orbit to Lunar orbit, usage of nowadays ESA research project of Lunar Landers which could be adapted for Moon's landing and finally, setting up the Lunar base for next decade. Adapted ATV will represent the main ship for all human transportation (ACTV). The cost of the Moon base will be reduced by using contemporary ISS habitable modules. That means less rocket launches would be needed. One type of Lunar module will be modified as the landing/return module. The Lunar rover is also part of the study. Many technologies necessary for the Mars and asteroids exploration programmes can be tested there.

After the end of this programme ISS material will be pasivated on the Moon, instead of burning in Earth's atmosphere.

The study deals with full international cooperation.

The Plan:

1. Separation Zvezda module for Opsek project on the Earth's orbit
2. Connection of the new Cross Truss segment as well as 4 ESA Lunar Landers and Lunar Rover with ISS Moon landing section
3. Interior and exterior modifications (including module rusts exchanges, P-5/6 solar arrays rearrangement, LSS system to Leonardo module, etc.)
4. Connection of ACTV and modified ATVs
5. Transfer to Moon orbit by using ATV train system
6. Disintegration ISS to Lunar Orbit Station section and Lunar Surface Base section (Node-2, Columbus, Kibo + Logistic + Arm, modified ACTV, P-5/6 Truss solar arrays, 4x ESA Lunar Lander, Lunar Rover)
7. Moon pole landing
8. Possible mining site explorations
9. Long term space habitation and technology testing