

From Earth Missions to Deep Space Exploration (05)
International Plans and Concepts (4)

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EUROPEAN CONTRIBUTIONS TO INTERNATIONAL SPACE EXPLORATION SCENARIOS

Abstract

ASTRIUM Space Transportation is currently conducting a study for the European Space Agency related to possible contributions to international space exploration scenarios. As part of this activity, a number of possible scenarios have been identified and their building block elements have been analysed. Within these scenarios the programmatic as well as technical aspects for items of special interest have been investigated.

A number of scenarios have been traded and these have been narrowed down for further study. The paper will present possible European contributions to international space exploration scenarios as outlined within the Global Exploration roadmap, i.e. the “Moon first” and “Near Earth Objects first” scenarios.

Europe has created in the past 3 main assets with its technologies, the Ariane5 launcher, the Columbus Module and the Automated Transfer Vehicle (ATV) as core elements for future exploration scenarios. Based on these elements and its technologies further exploration elements could be developed like an Earth Departure Stage based on an Ariane 5 upper stage, a Deep Space Habitat based on Columbus or a Space Tug based on ATV.

These elements, useful for several exploration missions, could be developed either by Europe alone or in cooperation with other agencies also using already existing technologies from them.

An important outcome of the discussion of different international space exploration scenarios should be of course an international technology roadmap, which is the base to start future exploration missions.

Important European contributions and building block elements will be presented in this paper as well as a critical assessment of the ISECG mission scenarios and included Design Reference Missions.