Paper ID: 11113
oral

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Future Space Transportation Systems (4)

Author: Dr. Sylvain Guédron
ESA - APT, France

Mrs. Véronique Palatin
Centre National d'Etudes Spatiales (CNES), France

ARIANE 6 MATURATION ACTIVITIES FOR A FUTURE LAUNCHER

Abstract

The independent access to Space remains a priority for European member States in order to satisfy their needs in tem of institutional missions. Today this access to Space is guaranteed using ARIANE 5 Launcher, and very soon a launcher family with SOYOUZ and VEGA.

Europe has a small number of institutional payloads. That led to invent the dual launch capability as an original operational scheme in order to satisfy institutional needs and offer commercial payload capability.

For the long term, in order to prevent risks for independent access to Space, the analysis of a new generation launcher has been decided. The studies for the New Generation Launcher (NGL) are currently ongoing in the frame of ESA programme FLPP in which France is participating. Once decided, the NGL will be developed in the frame of an ESA programme. Analysis are also on going at national level where, after the conclusions of the Prime Minister working group in 2009 recognising the need to prepare this new generation launcher, a "preparatory programme" has been decided in the frame of the French Investment Plan for Future. This preparatory programme is called ARIANE 6 and is led by CNES.

The aim and priority are to identify the most promising solutions that satisfy the institutional needs and minimise the overall exploitation cost for member States, keeping a very high level of reliability. ARIANE 6 is a preparatory programme mainly devoted to technology demonstrations during the period 2010-2015 for the next generation launcher. It is complementary to the NGL studies. Beside the technology demonstrations, some preliminary concept analyses are performed in house at CNES. Typical high level requirements for this new launcher are: -Performance need is 2T to 8T equivalent GTO, and 4T SSO -Performance need is 4T SSO -Single payload launch -Recurring cost reduced by 30 to 40

Among the preferred concepts are: The so-called PPH (Solid / Solid / Cryogenic stages) using different number of strap on boosters The so-called HH (Cryogenic / Cryogenic stages) using different number of strap on boosters The technological demonstrations are defined through 3 main pillars: -Solid propulsion -Liquid propulsion focusing mainly on Cryogenic purposes -Avionics

The ARIANE 6 project has just started. This paper will focus on the preferred concepts presentation and main technological demonstration envisioned in the coming five years.