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SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
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SUCCESS - ENHANCEMENTS OF COMPETENCES, SOFTWARE AND TECHNOLOGIES FOR ARIANE 5 ME

Abstract

To maintain the competitiveness of Ariane 5 in the commercial market, Europe is preparing a more powerful and versatile version: Ariane 5 ME (Mid-life Evolution). This vehicle will respond to the need for heavier payloads and reignition capabilities for complex missions, such as planetary exploration, at lower ownership costs. This modernised version, basically equipped with a new upper stage, will replace both Ariane 5 ECA and Ariane 5 ES within this decade.

As in former launcher developments the prime role was conducted by CNES, for the current Ariane 5 ME development program this role has been taken over by EADS Astrium. This new role and more complex technological demands on the launcher, because of the cryogenic upper-stage reignition capabilities, requires a dedicated project paving the way to a successful upper-stage development. For that reason the projected SUCCESS has been created, running from 2009 until 2012, with partial financial support of the German Space Administration DLR by means of an allowance with support code FKZ 50 RL 0920.

The project SUCCESS is a key element to ensure the success of the Ariane 5 ME development, reducing development risks and contributing to the optimization of the upper stage and launcher. The objective of the project is to enhance competences, software tools, technologies and engineering processes for upper stages. The results flow directly into the Ariane 5 ME stage development activities.

Major critical disciplines identified and treated during this project are propulsion system, engine, attitude control, tank technologies, propellant behaviour, coupled analyses and construction/design tools. This paper presents the improvements in these disciplines.