

SPACE EXPLORATION SYMPOSIUM (A3)  
Mars Exploration - Part 2 (3B)

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ENTRY & DESCENT SYSTEM FOR THE EXOMARS MISSION

**Abstract**

In the frame of the Aurora Exploration Program, ESA initiated the design phase of the development for the ExoMars mission. Thalès Alenia Space-France led consortium was awarded the contract for design, development and manufacturing of the Entry and Descent System under Thalès Alenia Space-Italy mission prime. First mission of the Aurora Exploration Program, ExoMars is scheduled for a 2016 launch. It has the technical objective to demonstrate critical technologies linked to Mars mission, including the critical Entry Descent and Landing phases and the scientific objective at establishing whether life ever existed or is still present on Mars. The EDS functions are to ensure the Entry and Descent phases of the Descent Module. This Descent Module is housing a Rover carrying an exobiology payload and ensures its safe delivery on the Mars surface.

The Entry and Descent phases of this planetary mission consists of a precise sequence of events : atmospheric entry, parachutes deployment and braking, frontshield separation, propulsive manoeuvre... The presentation focuses on the main functions of the Entry and Descent System (EDS) in the various phases. The major trades and optimization performed are outlined to provide a better insight of the EDS design approach and the challenge of designing a robust and flexible EDS. The design solutions and development carried out in the framework of ExoMars are described with specific emphasis on the Parachute system development.