

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Mars Exploration – missions current and future (3A)

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EXOMARS ROVER AND SURFACE PLATFORM MISSION: APPROACHING THE READINESS FOR
FLYING TO MARS

Abstract

The ExoMars Rover Surface Platform (RSP) mission, in combination with the ExoMars 2016 – Schiaparelli mission which launched on March 14th, 2016 from the Baikonur Launch site, constitutes the whole ExoMars Program developed in a broad ESA and Roscosmos co-operation, with a contribution from NASA in the Mars proximity Communications, as the first step of the European Space Agency's Aurora Exploration Programme.

The ExoMars Rover Surface RSP mission has its main scientific objective in trying to find a reply to the question of whether life ever existed on Mars. In addition, it intends to demonstrate key technologies for entry, descent, landing, roving, drilling and sample preparation on the Martian surface.

To achieve those objectives, the RSP Spacecraft Composite (SCC) is composed of a Carrier Module (CM) and a Descent Module (DM), whose Landing Platform (LP) carries 12 scientific instruments and a Rover Module (RM), which in turn carries 9 science instruments that constitute the Pasteur Payload.

The RSP SCC has completed its environmental qualification tests in TASF Cannes facilities and it is completing the System Functional verification in TASI Torino premises to be ready for the flight to Mars scheduled in the Launch window ranging from September 21st to October 2nd 2021 from Baikonur Cosmodrome with a Proton-M/Breeze-M rocket.

This paper intends to present the RSP SCC system focusing on the complex, multi-national Functional/Environmental campaign, with attention to the qualification of key technologies like Rover, Parachute System, Landing Platform Braking Engine.