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Mars Exploration – missions current and future (3A)

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MARS SAMPLE RETURN CAMPAIGN - STATUS OF THE ESA PROVIDED ELEMENTS

Abstract

The analysis in Earth laboratories of samples that could be returned from Mars is of extremely high interest to the international Mars exploration community. The NASA Mars 2020 sample-caching rover mission is the first component of a potential Mars Sample Return (MSR) campaign, so its existence constitutes a critical opportunity. In November 2019, at the ESA Ministerial Council Meeting Space19+, ESA Member States approved the European contributions to a joint MSR Programme with NASA. This paper describes the current reference engineering architecture of the MSR campaign elements provided by ESA.

The paper will focus on the design, operations concept and development status of the Earth Return Orbiter (ERO), the Sample Fetch Rover (SFR) and the Sample Transfer Arm (STA), as well as the links between these elements and the rest of the MSR campaign.

The information presented about NASA's role in a potential MSR campaign is pre-decisional and is provided for planning and discussion purposes only.