
Toward a European Mars sample receiving facility.

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Abstract

To return samples from Mars is a major goal of the scientific community studying the origin of life, looking for extraterrestrial forms of life and studying the planets and their evolution. NASA and ESA are preparing such a mission which is currently categorized by COSPAR as restricted Earth return. This will strongly constrain the management of the returned samples until they are certified safe or sterilized using a not-yet-defined adequate method. This certification will be obtained after preliminary studies conducted in specialized and dedicated facilities ensuring the proper protection of the samples as the protection of the terrestrial biosphere. A set of analysis search for traces of actual, dormant or past life will be performed; these studies are collectively described as "Life detection". Other studies will search for any biological reproducible risk for the biosphere; these researches are collectively described as "Bioazard". These investigations which constitutes the quarantine, will be performed in facilities with the highest level of protection and confinement (Bio-Safety Level 4 – BSL4).

During this quarantine period and in these facilities the search for a Martian life or traces of a Martian life will be performed.

United States and Europe intend to cooperate in this Mars Sample Return (MSR) program, with NASA as a leading agency and ESA as an enabling partner. The samples will land in the Utah Test and Training Range (USA) NET 2031. The quarantine operations will begin immediately. For scientific, sanitary and political reasons these operations have to be shared between various facilities including a European Sample Receiving facility.

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