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THE SEARCH FOR LIFE ON MARS AND IN THE SOLAR SYSTEM – STRATEGIES, LOGISTICS
AND INFRASTRUCTURES**Abstract**

The question "Are we alone?" is perhaps the most fundamental that affects mankind (after that of

the origin of the Universe). How can we address the search for life in our Solar System? Mars, Enceladus and Europa are the focus of the search for life outside the terrestrial biosphere. While it is more likely to find remnants of life (fossils of extinct life) on Mars because of its past short time window of the surface habitability, it is probably more likely to find traces of extant life on the icy moons and ocean worlds of Jupiter and Saturn. Nevertheless, even on Mars there could still be a chance to find extant life in niches near to the surface. Different approaches for the detection of traces of life in the form of biosignatures including pre-biotic molecules will be presented. We will show which infrastructure is needed for this enterprise and give examples of future mission concepts to investigate the presence of life on other planets and moons. Finally we will provide suggestions on methods, techniques, operations and strategies for preparation and realization of future life detection missions.