Japanese challenges to explore Martian biosphere

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It is critical to obtain samples returned from Martian biosphere for demonstrating the existence of extant life and life’ s signatures by high-sensitivity and high-resolution analytical procedures. Rovers named Mars2020 and ExoMars equipped with drilling devices and life-detection instruments will be launched this year. National Aeronautics and Space Administration (NASA) and European Space Agency (ESA) are planning to start Mars Sample Return Mission (MSR) from 2026. From the circumstances, the MSR Science Planning Group (MSPG) is internationalizing the planning for the Returned Sample Science component of MSR, whereas Committee on Space Research (COSPAR) is responsible for establishing analytical protocols with best available technology to determine whether returned materials are biohazard or not.

The presenters are currently serving as Planetary Protection Officer in Japan (JAXA Yamagishi) or as a sole non-US and non-EU member of COSPAR Sample Safety Assessment Protocol Working Group (SSAP WG) (Univ. Tokyo Suzuki) or participating MSPG Workshops (JAXA Usui). In this presentation, it is attempted to share information about the current status of MSR and planetary protection with Japanese scientific communities. More importantly, Japanese enthusiasm and scientific and technological advantages towards future involvement in MSR will be presented.

