



Panorama of International Moon-Mars Exploration

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We discuss the rationale and roadmap of ongoing Moon and Mars missions. This starts with areas of scientific investigations: clues on the formation and evolution of rocky planets, accretion and bombardment in the inner solar system, comparative planetology processes (tectonic, volcanic, impact cratering, volatile delivery), records astrobiology, survival of organics; past, present and future life.

The rationale includes also the advancement of instrumentation: Remote sensing miniaturised instruments; Surface geophysical and geochemistry package; Instrument deployment and robotic arm, nano-rover, sampling, drilling; Sample finder and collector.

There are technologies in robotic and human exploration that are a drive for the creativity and economical competitiveness of our industries: Mecha-electronics-sensors; Tele control, telepresence, virtual reality; Regional mobility rover; Autonomy and Navigation; Artificially intelligent robots, Complex systems, Man-Machine interface and performances.

Moon-Mars Exploration can inspire solutions to global Earth sustained development: In-Situ Utilisation of resources; Establishment of permanent robotic infrastructures, Environmental protection aspects; Life sciences laboratories; Support to human exploration.