



International lunar missions: results and implications for astrobiology

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Results from recent lunar missions have changed our view of the Moon. ESA SMART1 was launched in 2003 and is currently orbiting the Moon until impact in August 2006. Lunar orbiters are readying for launch in 2007 (Japanese SELENE, Indian Chandrayaan-1 orbiter and the Chinese Chang'E1), as well as US Lunar Reconnaissance Orbiter in 2008. From 2010 a series of soft lander missions to the Moon could emplace a global robotic presence with precursor life science experiments. The results of these missions will continue to answer open questions about the origin of the Earth–Moon system, the early evolution of life, the planetary environment and habitability. Lunar geoscience studies help to understand the origin and evolution of our unique Earth–Moon system and other rocky planets. Lunar or cislunar telescopes on the Moon can detect and characterize if life exists elsewhere in the universe. We can search for samples of the early Earth on the Moon. We can use in-situ resources necessary to support future life and human presence (e.g. water, oxygen). The Moon will be used for life sciences, astrobiology laboratories, human bases and biospheres that will play a key role in the future of life beyond Earth.