

Artificial alterations of solar system bodies: Scientific and engineering rationality vs. sociological perspective

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This talk first outlines the history of solar system exploration and future prospects emphasizing on operational strategies needed to directly contact to celestial bodies and their consequences. Such operations include not only hypervelocity impacts but also sample returns, internal structure exploration and surface-to-sub-surface investigations, all of which are subject to artificial alteration of the pristine environment of the visited bodies in different degrees. Physical alteration and space quarantine are both of such concerns.

Even before the Deep Impact mission, humankind have delivered artificial objects to surfaces of numerous planets, satellites and minor bodies. When we discuss ethical issues of environmental preservation of other celestial bodies, sociological perspectives of these human activities must be reexamined carefully from multi-disciplinary points of view.