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Mission to Mars: A Debate

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ABSTRACT

This short report explains and details the Mars Direct plan. Why should we explore Mars? In debating an answer to this question, the space community has revealed a deep divide: one that extends beyond policy to touch at the basic meaning of exploration and other side a scientific vision of Mars, with a focus on tele-robotic exploration, may not excite the public to the same extent as human missions. Our present-day understanding of Mars, which drives the human scientific goals and objectives, is summarized.

Key words: Human mission, Mars

WHY MISSION TO MARS

Mars is not just a scientific interest; it is a new globe with a surface area equal to all the continents of Earth combined, possessing all the elements that are needed to support not only life, but technological civilization. Also, it may seem, the only thing standing between Mars and habitability is the need to develop a certain amount of Red Planet know-how. This can and will be done by those who go there first to explore.Mars is the New World. Someday millions of people will live there. What language will they speak? What values and traditions will they cherish, to spread from there as humanity continues to move out into the solar system and beyond? When they look back on our time, will any of our other actions compare in value to what we do today to bring their society into being?.

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Save Human Race.....On Mars

DEBATE ON MISSION TO MARS

These different visions of Mars - as science laboratory and human frontier - seem complementary. On the science side, mission planners have long defended robotic expeditions for their value in paving the way for human exploration while Mariner, Viking, and Pathfinder all found justification as the trailblazers of human missions. Advocates of human spaceflight also defend the compatibility of human exploration and science, often by arguing that humans are more effective in doing science than remotely operated probes. As Mars Society president Robert Zubrin states, Martian science "is a job for humans" .In despite this apparent compatibility of visions of Mars, plans to sent astronauts to Mars have repeatedly failed. The key problem exists within the space community itself: a basic disagreement over the meaning and purpose of Mars exploration and lack of proper guidelines. While JPL engineers can design probes to answer specific questions about Martian geological history, questions about human destiny, inspiration, and survival cannot be answered directly. As a result, advocates of human spaceflight often use

comparative or analogous forms of reasoning to make their case. While a scientific vision of Mars, with a focus on tele-robotic exploration, which may not stimulate the public. Moreover, the value of such tele-robotic missions can be measured by the amount and significance of data gathered. By contrast, human missions to Mars will be exceptionally expensive and will rely upon long-term, intangible, and visionary arguments that are much more difficult to assess.

WHY HUMAN MISSION

Humans have exceptional potentials for doing scientific measurements, observations and sample collecting. Human attributes to exploration include: intelligence, adaptability, agility, dexterity, cognition, patience, problem solving in real-time, in situ analyses - more science in less time as compared to robotic . Also , Humans have the abilities to adapt to new and unexpected situations in new and strange environments, they can make real-time decisions, have strong recognition abilities and are intelligent. Humans could perform detailed and precise measurements of the surface, subsurface and atmosphere while on the surface of Mars with state-of-the-art scientific equipment and instrumentation brought from Earth. The increased laboratory ability on Mars that humans offer, would allow for dramatically more scientific return within the established sample return limits.

ADVERSE MEDICAL EFFECTS

The mission to Mars will have enormous effects on astronaut physiology due to the periods they must endure in the absence of gravity, which is known as 'microgravity'. Gravity has considerable influences on biophysical and physiological processes of living organisms. Hence, a Mars expedition will challenge the human body through the exposure of long-term microgravity environments and may have an impact on astronaut overall health. Life settings in a spacecraft will differ totally and astronauts will adapt physiologically at the systemic and cellular level to microgravity. This is mainly due to the accelerated deterioration and degeneration of human systems and functions in microgravity conditions. Utilization of current biomedical technologies will offer support into how medical responses are conducted. However of greater significance is that the basis for the observed effects of microgravity on astronaut health remains largely unknown and further investigation is warranted.

Low orbit studies, using piloted space flights, have demonstrated that microgravity does have a negative effect on the human physical condition. The adaptation that the human body is faced with during the commencement, proceeding and return of the mission will also differ to some extent. At the beginning of the journey, the different body systems adapt to the micro-gravitational forces through their de-conditioning of functions. For example, lowering of functional capabilities and performances will be experienced as energy utilization by the human body is diminished in microgravity. During the mission an astronaut's body will be faced with different physiological challenges to each individual body system, and some form of countermeasures are required.

Some of the effects that microgravity has on particular physiological human systems are: (1) Accelerated bone loss, (2) cardiac and vascular alterations, (3), diminished neural control, (4) dysfunctional immune responses, (5) renal stone formation, (6) impaired human performance, and (7) muscle tissue degeneration.

ADVERSE EFFECTS ON ORAL CAVITY

Our Previous studies results suggest that reversible effect of microgravity is oedema of face, change in taste, abnormal expression of face, teeth pain and xerostomia. The non reversible effects of microgravity such as periodontal disease, dental caries but in different pattern than normal, stone formation in salivary duct, pre cancer or cancer, fracture

of maxillary and mandibular bone and xerostomia are more prevalent in astronauts as compared to normal persons. Further study will be required on large scale on long term effects of microgavity on oral cavity to prevent the adverse effects.

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