

Future Needs for Communication System in the Mars Human Community

Takashi Iida[†]

Japan Aerospace Exploration Agency

and

Yoshiaki Suzuki[‡]

National Institute of Information and Communications Technology

[Abstract] The purpose of this paper is to discuss the future needs for the communications system in the Mars human community in conjunction with the recent Internet technology development, especially a new movement to the Web 2.0. First, the Web 2.0 is introduced briefly, which is said to equal to the Industrial Revolution. Second, the paper discusses what communication system we should consider if we construct a human community on the Moon or the Mars in the future, where there are about ten thousands residents. If the human community locates on the Moon, we might construct information system by connecting the Internet system on the Earth, because we can endure about 3.4 sec latency (both way propagation delay). However, in the human community on the Mars, we are unable to endure the latency to connect to the Earth, because the both way propagation delay between Earth and Mars is about 9 minutes to three quarters hour. Even in such a situation, the Internet search action would be still fundamental in the Web 2.0 and beyond era. Therefore, at least a mirror database of the Internet search engine on the Earth need to be located on the Mars. The paper discusses the communication needs for the construction and operation of the Internet database on the Mars and shows the size, weight, consumption power of the computers need to decrease to one-thousandth (1/1,000) times as much as the present one and the communication capacity need a few hundreds to a few thousands times capacity as much as the present planned communication capacity. Finally, the paper describes Quantum communications technology, Nano technology and Bioscience technology as technologies to be developed in the future briefly.

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