

## The development of a radio wave receiver for next Mars Lander deployment

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The radio wave propagation in the Martian atmosphere and ionosphere has been studied. Since the radio waves have not been observed by the Lander, however, the radio wave environment on Mars ground surface is still unknown. Dust storm is one of the characteristic phenomena in the Martian atmosphere, which cause an electric discharge by the friction of dust particles. If we could observe radio waves emitted by the electric discharge, we can clarify the development process and outbreak frequency of dust storms. Since the radio wave observation on Mars ground surface is necessary to investigate Martian meteor, we put a receiver on a Mars Lander to make observation at the Mars surface.

In this study, we develop the receiver with loop antennas on board a Mars Lander, to measure three direction ingredients of the radio waves and estimate the outbreak position of the dust storm. It is expected that broadband radio waves are emitted by the electric discharge caused dust storms, therefore, we have to develop a new broadband receiver.

By this report, I will present about the specifications of the receiver for future missions.

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