# Introduction of the highest resolution image to the Mars Web-GIS "RedAce" to study the local and detailed surface environment

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Water is thought to be an important element in terraforming. There is certain evidence of water on Mars. Therefore, many probes have been launched to Mars. A lot of observation data have been accumulated about Mars. To understand the surface environment of Mars consistently, it is essential to examine these diverse and large amounts of observational data. In such a situation, Geographic Information System (GIS) is very useful. GIS is good at visualizing, integrating and analyzing multiple kinds of information. Web-GIS is a tool which can handle a wide variety of observational data on the web. Among the various kinds of Mars observation data, spectral data are important to identify the types and distributions of hydrous minerals on Mars. Hydrous minerals are important keys to understand the water on Mars.

We have developed a Web-GIS "Red Ace" [1] focusing on the visualization of spectral data from multiple instruments: THEMIS data and CRISM data.

The Web-GIS "RedAce" shows some kinds of image data, too: DEM data from MOLA, band ratio images from THEMIS data, and thumbnail images of CRISM. Those image data are all installed in the system and displayed to the users. However, these images are viewed from a wide angle and it is difficult to perform local analysis.

In this study, we introduce high quality image to the Web-GIS "Red Ace". The objective is to extend the system so that user can visually and intuitively grasp the features of the Mars surface topography in detail and conduct integrated analysis combining image data and spectral data.
Image data of Mars have been collected from many cameras. We select HiRISE to install in the system. HiRISE is one of the six devices in the Mars Reconnaissance Orbiter (MRO) that can capture the highest quality images (up to 25cm/pix). About 1.8 million pieces of data exist. There are mainly Experimental Data Record (EDR), Reduced Data Record (RDR), and Digital Terrain Model (DTM) types of data. RDR is processed from the EDR and is provided and published in the format of JP 2000. We use RDR data which are calibrated image data. Currently, image data installed in Web-GIS "RedAce" are formatted as CUB data.

[1] Matsubara, Y. et al., A Mars Web-GIS "Red Ace" for viewing reflectance spectral data, American Geophys. Union, Fall Meeting 2018, abst. #IN33E-0896.

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