

## A web-based real-time and full-resolution data visualization for Himawari-8 satellite sensed images

\*Ken T. Murata<sup>1</sup>, Praphan Pavarangkoon<sup>1</sup>, Atsushi Higuchi<sup>2</sup>, Kazunori Yamamoto<sup>1</sup>, Kazuya Muranaga<sup>3</sup>, Eizen Kimura<sup>4</sup>, Takamichi Mizuhara<sup>5</sup>, Rie Honda<sup>6</sup>

1. National Institute of Information and Communications Technology, 2. Chiba University, 3. Systems Engineering Consultants Co., Ltd., 4. Ehime University, 5. CLEALINKTECHNOLOGY Co., Ltd., 6. Kochi University

It has been almost four decades since the first launch of geostationary meteorological satellite by Japan Meteorological Agency (JMA). The specifications of geostationary meteorological satellites have shown tremendous progresses along with the generations, which is now entering its third generation. The third-generation GMSs not only yield basic data for weather monitoring, but also globally observe the Earth's environment. The development of multi-channel imagers with improved spatial resolution onboard the third-generation of geostationary meteorological satellites brings us meteorological data in larger size than those of the second-generation ones. Thus, new techniques for domestic and world-wide dissemination of the observational big data are needed. In this paper, we develop a web-based data visualization for Himawari-8 satellite sensed images in real time and with full resolution. This data visualization is supported by the ecosystems, which uses a tiled pyramid representation for terrain on an academic cloud system. We evaluate the performance of our techniques for domestic and international users on laboratory experiments. The results show that our data visualization is suitable for practical use on a temporal preview of observation image data for the domestic users with high-speed networks. Moreover, in the paper, we discuss a protocol handler for web acceleration developed based on our new network protocol, HpFP (High-performance and Flexible Protocol) [1].

K. T. Murata, P. Pavarangkoon, K. Yamamoto, Y. Nagaya, T. Mizuhara, A. Takaki, K. Muranaga, E. Kimura, T. Ikeda, K. Ikeda, and J. Tanaka, "A quality measurement tool for high-speed data transfer in long fat networks," in Proc. 24th Int. Conf. Software, Telecommunications and Computer Networks (SoftCOM), 2016. doi: 10.1109/SOFTCOM.2016.7772111

