[JJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-GI General Geosciences, Information Geosciences & Simulations

[M-GI26]Earth and planetary informatics with huge data management

convener:Ken T. Murata(National Institute of Information and Communications Technology), Takeshi Horinouchi(Faculty of Environmental Earth Science, Hokkaido University), Rie Honda(高知大学自然科学系理工学部門, 共同), Susumu Nonogaki(Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology)

Mon. May 21, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

Increasingly large and complex data are produced by observations and numerical simulations in earth and planetary sciences. The target of this session is to discuss a broad range of practices and new knowledge of informatics, international standard and modelling, including techniques for large-scale data processing and numerical simulation, data preservation and publication, data transfer and collection and other data technologies with a vision to advance an emerging data-intensive science, namely "geoplanetary informatics".

[MGI26-P01]International Deployment of real-time web of Himawari (meteorological satellite) data

*Praphan Pavarangkoon[1], Ken T. Murata[1], Kazunori Yamamoto[1], Kazuya Muranaga[2], Atsushi Higuchi[3], Yoshiaki Nagaya[4], Eizen Kimura[5], Takamichi Mizuhara[6], Yuya Kagebayashi[6], Chalermpol Charnsripinyo[7], Natawut Nupairoj[8], Takatoshi Ikeda[9], Jin Tanaka[9] (1.National Institute of Information and Communications Technology, 2.Systems Engineering Consultants Co., LTD., 3.University of Chiba, 4.Ministry of Internal Affairs and Communications, 5.Department of Medical Informatics Ehime Univ., 6.CLEALINKTECHNOLOGY Co.,Ltd., 7.National Electronics and Computer Technology Center, 8.Chulalongkorn University, 9.KDDI Corporation)

The third-generation meteorological satellites equipped with highly-improved imagers provide a large amount of Earth observation data. The Himawari-8 satellite is the first unit of the Japan Meteorological Agency's third-generation meteorological satellite. After its starting operation in 2015, there are many websites that provide remotely sensed images in real time. In general, the real-time and full-resolution websites are hard to be developed due to the large amount of data to be transferred. The Himawari-8 real-time web provided by the National Institute of Information and Communications Technology (NICT) is only a website that provides remotely sensed images with full resolution in real time. However, to reduce network traffic and increase the access speed of it from other countries out of Japan, mirror websites of each country are needed. This paper presents a mirroring system of the Himawari-8 real-time web. We propose a model for mirroring to avoid the CPU power consumption problem of big data processing in the mirror websites. In addition, we also introduce a file copy tool based on high-performance and flexible protocol (HpFP) to transfer meteorological satellite data between the Himawari-8 real-time web and the mirror websites. The contribution of this paper is to provide a cost-effective solution for the mirror websites. Our first target is an institution in Thailand connected via an international network, called the Asia Pacific Advanced Network (APAN). The results show that the proposed mirroring system is able to overcome the big data issue by eliminating the CPU power consumption in the mirror websites and transferring data files at high speed over the international network even under packet loss conditions. This suggests that our mirroring system has a potential for deployment in other Asian countries.