Exploration of the earth environment using meteorological satellite "Himawari"

*ryuta ando[1], Shigeto Watanabe[1], Ken T. Murata[2]

1. Hokkaido Information University, 2. National Institute of Information and Communications Technology

We investigated the earth environment using the meteorological satellite "Himawari 8" and artificial intelligence (AI). Generally, AI needs images more than tens of thousands for the recognition of image. However, we used spectral data extracted for each pixel of spectral image at 16 wavelengths (visible to infrared) from "Himawari 8" for AI learning in this research. By characterizing the spectral data and the earth environment, we developed an AI system to recognize the earth environment and the environmental changes. This study is the first time to learn the spectral data of 16 wavelengths for each pixel in AI and to investigate the earth environment. Moreover, this AI model uses only hundreds of data sets of 16 wavelength for learning the earth environment in all space and time such as latitude / longitude, day / night, season. Our developed AI using spectral data of the meteorological satellite "Himawari" is useful for predicting typhoons and drift ice, etc. The AI is also useful to investigate planetary environment as well as the earth environment.

Keywords: Meteorological Satellite Himawari-8, Spectral Data, 16 wavelengths, Artificial intelligence