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Development of a new Fundamental Cloud Product derived from Himawari-8/-9

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The Meteorological Satellite Center (MSC) of JMA has been operating the Fundamental Cloud Product (FCP) which consists of cloud mask and cloud properties (cloud type and cloud top height) derived from Himawari-8/-9 observation data, and FCP is used as base data for a variety of other satellite products produced by JMA.

MSC is currently developing a new FCP and plans to introduce two new algorithms to enhance FCP. One is the CLoud and Aerosol Unbiased Decision Intellectual Algorithm-3 (CLAUDIA3) developed by Ishida et al. to improve the accuracy of cloud mask. While current FCP has the limitation of cloud detection that depends on numerical weather prediction models, CLAUDIA3, based on the support vector machine techniques, enables to generate cloud mask using only satellite observation data. Therefore, it is expected to improve the accuracy of the cloud mask. The other is the Optimal Cloud Analysis (OCA) developed by EUMETSAT to derive popular cloud properties such as cloud optical depth. By exploiting the multi spectral observational characteristics of Himawari-8/-9, OCA can derive various cloud properties based on the variational principle.

This presentation will give an overview of the new FCP.