CGMS-39 KMA-WP-09

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Current status of weather forecast support for nowcasting and very-short range forecast

This paper reports current status of weather forecast support for nowcasting and very short range forecast. KMA improved satellite image analysis technique through introduction of new advanced skill (NWCSAF) from EUMESAT.

1. Introduction

Korea Meteorological Administration (KMA) has introduced software package for weather forecast support of SAFNWC (Satellite Application Facilities Nowcasting and Very Short Range Forecasting) at the end of 2008 through MOU between KMA and EUMESAT. One (Automatic Satellite Image Interpretation: ASII) of the software package of the SAFNWC/MSG) has been modified into Korean type (K-ASIINWP) using COMS (Communication, Ocean, and Meteorological Satellite) and NWP model data. KMA continues to validate K-ASIINWP and improve the conceptual model to apply the weather phenomena around the Korea. On top of K-ASIINWP, we apply the rapid development thunderstorms (RDT) and convective rainfall rate (CRR) of SAFNWC.

2. The utilization of new advanced analysis skill (NWC/SAF) for weather forecasting

The first Korean meteorological geostationary satellite, COMS can help weather forecaster with better temporal resolution of 15 minutes. Also, improved temporal COMS images give better understanding on route, structure, eye location, and intensity of typhoon when it approaches to Korea. KMA is in the middle of creating the applications using COMS data with other ground observations like ground radar and automatic weather system (AWS) to detect the rapidly developed convective system during the summer like heavy rain, lightening, and very short range forecasting. K-ASII is still in testing step for fine tuning process to adjust Korean weather and climate environment.

Figure 1 is a case of K-ASIINWP image in 23 June 2011 and it is compared to cloud analysis image by satellite expert of NMSC. In both images, mesoscale convective systems (MCS) on Korean Changma front were very well expressed. Figure 2 describes the statistics of K-ASIINWP conceptual models. Probability of detection (POD) was computed for each conceptual model on 14 images for the period of 21~27 June 2011. The results show that front intensification by jet and mesoscale convective system were well detected on K-ASIINWP image in particular. In future, we are going to validate more K-ASIINWP images for longer period in summer and winter seasons.

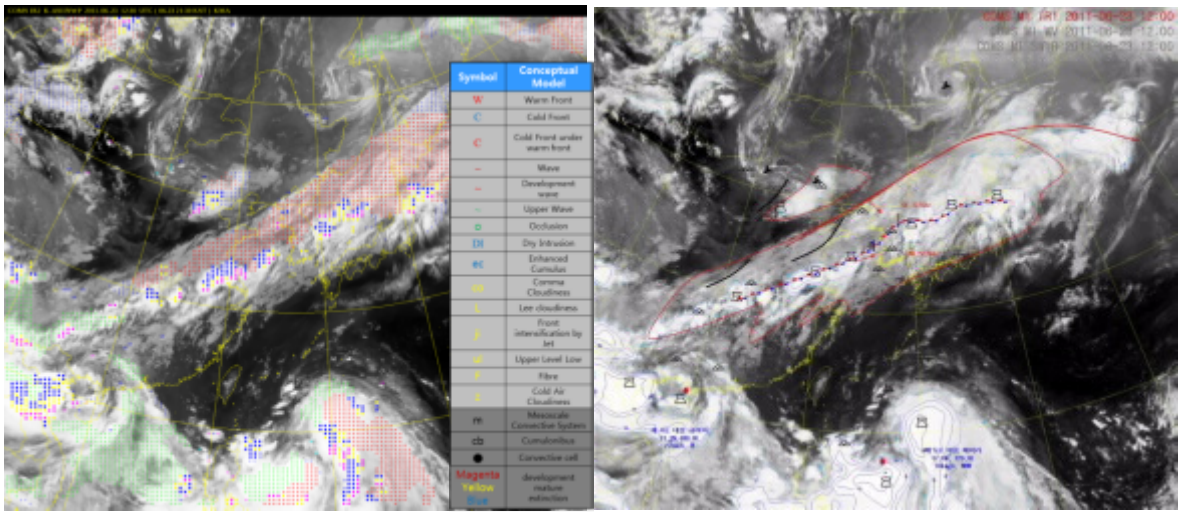

Figure 1. K-ASIINWP (left) and cloud analysis image by satellite expert (right) using COMS (23 June 2011).

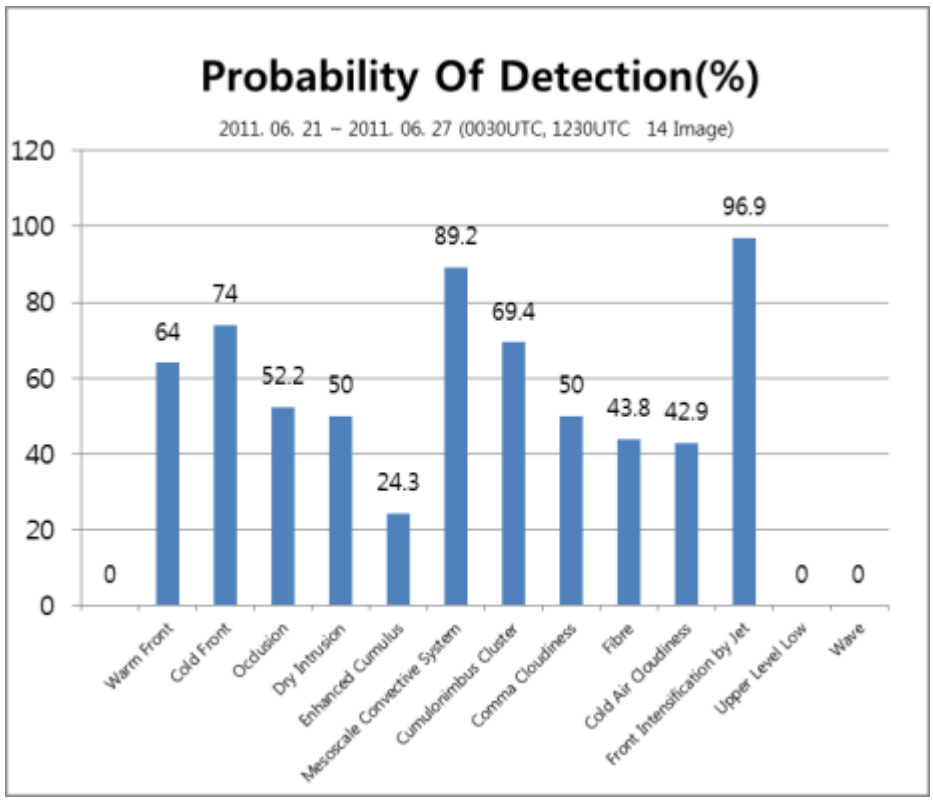

Figure 2. Probability of Detection (POD) of K-ASIINWP images.