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Development of fog detection technique using COMS and GIS information in the Korean Peninsula

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In this study, we developed a fog detection algorithm based on the radiometric and textural properties of fog using Communication, Ocean, and Meteorological Satellite (COMS) data provided by National Meteorological Satellite Centre (NMSC) in Republic of Korea. As in many studies, we used the emissivity difference (DCD: Dual Channel Difference) between 3.9 ㎛ and 11 ㎛ channels for night time.

And high reflectance of visible channel is also used for the detection of fog during day time. In addition to that, smoothness of fog surface is used for the separation of fog form low stratus. In this study, we used the normalized LSD (localized standard deviation) of visible channel to minimize the effect of solar zenith angle along with the LSD of brightness temperature. The thresholds values used in this algorithm are derived empirically from COMS satellite data. The preliminary results of fog detection for the thick sea fog cases (e.g., April 14, 2012) and scattered land/sea fog case (e.g., February 11, 2015) will be presented.