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**Satellite Radiance Data Assimilation at Korea Meteorological
Administration**

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Satellite Radiance contains information on the vertical temperature and humidity of the atmosphere, and the Korean Integrated Model (KIM) uses radiation data from microwave sensors, infrared hyperspectral sensors, and infrared geostationary satellite sensors as main observation data. In this study, we analyzed how much radiation data contributes to improving the analysis and prediction fields of KIM by dividing them into microwaves and infrared waves. Microwaves greatly improved the analysis field, improving global 500 hPa temperature by 20% and 10%, respectively. Improvements continued into the 5-day forecast, with global 500 hPa temperature improved by 6% and 3%, respectively. However, the performance of the analysis field and 5-day forecast field for tropical 250 hPa temperature was degraded by -20% and -10%, respectively. Infrared waves showed a small performance improvement compared to microwaves, and the analysis site showed improvements of about 4% and 1.5% in 500 hPa temperature, respectively. For the 5-day forecast, the global 500 hPa temperature showed an improvement of about 0.5%, which is a neutral level. The tropical 250 hPa temperature, which showed performance deterioration in microwaves, showed a performance deterioration of about -3% in the analysis site through the use of infrared observation, but the 5-day forecast showed an improvement in performance by about 2%, compensating for the negative effects of microwaves. Satellite radiation observations are contributing to the overall performance improvement of the analysis field and forecast

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field in the Korean Numerical Forecast Model, but additional analysis is being conducted on performance degradation in some areas.