Operation and Verification of Weather Prediction System for Marine Vessels Using NOAA Polar Orbit Satellites

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Worldwide, from 1980 to 2018, the amount of damage caused by natural disasters amounted to about 40 trillion. Such climate-related disasters can be minimized if they are known in advance, but can cause great damage if they are not predictable. Therefore, even in places where internet service is not provided, a program that informs the time when the cloud reaches the current location is created by entering only the scale of the map, wind direction, and wind speed. In addition, we succeeded in collecting the satellite image data of the Korean by directly manufacturing the Double Cross Antenna and directly receiving the signal in the 137MHz frequency band of the NOAA orbiting satellite. Using this data, we developed a weather prediction system that informs the cloud arrival time in real time without the Internet in Python. After performing several observations, we were able to verify the accuracy of the developed weather forecasting system by comparing the predicted cloud arrival time with weather forecast data from the Korea Meteorological Administration and obtain a valid value with little error. If this system is used, it is expected to be very useful in industrial sites or at sea where Internet is not available.

Awards Won:
American Meteorological Society: Certificate of Honorable Mention