



Introduction on Application of NWP for KMA Digital Forecast

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Korean Meteorological Administration (KMA) has serviced digital forecast to meet specific forecast demands from various users since October 2008. The digital forecast is based on the MOS (Model Output Statistics) technique to remove biases in NWP model and transfer NWP product to the 12 digital forecast elements such as daily maximum/minimum temperature, precipitation type, wind, probability of precipitation, sky cover and relative humidity. These elements are produced 3 hourly at every 5km resolution boxes over the Korean peninsula. The full suite of MOS was developed with the stable NWP outputs archived for at least 3 years without NWP changes. Multi-linear regression equations are derived at about 640 observation locations in Korea peninsula. The MOS equations are developed at the point (point equation), over the local area (regional area). A generalized operator equation (GOE) is applied also for the whole domain. Temperature, relative humidity, probability of precipitation and wind speed are derived in the form of point equation. Precipitations type is based on the regional equation and sky cover is generated by the GOE. Specially, various approaches has been tried to improve MOS accuracy in the digital forecast at KMA. First, decision tree is used to decide precipitation type. Second, percentile is used to adjust probability of precipitation to the frequency of observational precipitation. Third, MOS accuracy was improved by applying upper and lower boundary to the predictors such as precipitation, wind speed and so on. Finally, gridded MOS scheme based on point equation (PGMOS) was developed for area without observational data and PGMOS showed better results than the objective analysis with point equation.