

## Month-long forecasts using a global non-hydrostatic model in boreal summer season

\*Tomoe Nasuno<sup>1</sup>, Masuo Nakano<sup>1</sup>, Masahiro Sawada<sup>2</sup>

1.Japan Agency for Marine-Earth Science and Technology, 2.Meteorological Research Institute

Month-long forecasts using a global non-hydrostatic model (Nonhydrostatic Icosahedral Atmospheric Model, NICAM) have been routinely run (once a week) during boreal summer season in 2014 and 2015. The model was initialized using NCEP final analysis and free run was conducted with prescribed sea surface temperature. Horizontal mesh size of 14-km was globally used with explicit representation of moist convection. In both years, El Nino was developing and successive formation of tropical cyclones took place in the western North Pacific during the active periods of intraseasonal oscillation (ISO). The model generally captured the large-scale variability associated with the ISO, such as the eastward and northward extension of lower tropospheric equatorial westerlies and convective activity at the lead time of approximately two weeks. These results support the arguments of previous studies based on NICAM ensemble simulations using the K-computer. Some common biases were noted, such as northward displacement of monsoonal circulation and earlier growth of convectively coupled vorticity disturbances. By fixing these biases, extension of predictability is highly expected. The simulation results also suggest that better prediction of major convective systems, such as tropical cyclones, leads to better forecast skills in large-scale fields.

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