

JMA NWP Strategic Plan Toward 2030

Main Development Issues

2020

Around 2025

2030

Heavy rain disaster prevention

- Implementation of the Mesoscale Ensemble Prediction System (MEPS)
- Upgrade of a data assimilation system for the Local Forecast Model (LFM)

- LFM horizontal resolution enhancement to finer than 1 km; improvement of processes related to cumulus convection
- Development of the ensemble prediction system for the LFM
- Use of observation big data for the LFM

Early warning and evacuation; e.g., daytime evacuation before the onset of torrential rain

Typhoon disaster prevention

- Global Spectral Model (GSM) resolution enhancement and physical process improvement
- Meso-Scale Model (MSM) physical process improvement
- Development of all-sky satellite data assimilation for the GSM and MSM
- Upgrade of data assimilation methods for the GSM and MSM

- Development of an optimal hierarchical system for various models
- GSM resolution enhancement to finer than 10 km and development of new physical processes
- Enhanced use of observation big data for the GSM and MSM
- Model development utilizing AI technology

Improvement of accuracy in predictions with a several-day lead time to support wide-area evacuation and preparations for large-scale disaster conditions

Contribution to social and economic activities

- Resolution enhancement and physical process improvement for an atmosphere-ocean coupled model and ocean model
- Upgrade of chemical transportation models

- Development of hierarchical earth system models and a high-resolution ocean model
- Enhancement of data assimilation system for earth system models to allow incorporation of observation data on more variables such as land surface, ocean, sea ice and aerosols

High-accuracy weather and climate prediction to contribute to socioeconomic activities, including optimization of production and product distribution plans

Adaptation to global warming

- Development of a new earth system model to project global warming
- Development of a high-resolution regional climate model

- Upgrade of the earth system model and the regional climate model based on cutting-edge scientific expertise

Contribution to global warming adaptation planning by Japan's central/local governments and other parties based on municipal-level future projection