



## **Development of a nonhydrostatic model at the Japan Meteorological Agency**

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A nonhydrostatic model has been developed at the Japan Meteorological Agency (JMA). The model (JMANHM) is designed for both operational and research purposes. Owing to the model development, JMA started operational run of JMANHM in September 2004. The model is integrated up to 18 hours four times a day with horizontal resolution 10 km to support information for disaster prevention. After many developments on both dynamic (time splitting, horizontally explicit, vertically implicit scheme (HE-VI) and advection correlation scheme etc.) and physical processes (the Kain Fritsch cumulus parameterization scheme and the 3-ice cloud microphysics scheme etc.) were accomplished, the overall performance, including quantitative precipitation forecast, of JMANHM exceeded that of the former operational mesoscale model.

Aiming to enhance the model performance further, implementation and development of radiation schemes, cumulus parameterization schemes, surface schemes, and others are planned. These are expected to reduce model biases. The mesoscale prediction system will be enhanced in the horizontal resolution and the update frequency in 2006 with inclusion of these improved physical schemes.

The model development is further continued in collaboration with Advanced Earth Science and Technology Organization (AESTO) under the framework of the Project for Sustainable Coexistence of Humans, Nature and the Earth, funded by Ministry of Education, Culture, Sports, Science and Technology (MEXT).

We will present an overview of the new physical schemes and the results of preliminary experiments with them.