

Ultra-high Precision Mesoscale Weather Prediction in SPIRE Field 3

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Accuracy of numerical weather prediction (NWP) has been remarkably improved in recent years, but precise prediction of severe meteorological phenomena such as torrential rains and local heavy rainfalls is still a difficult and challenging. Data assimilation and the ensemble forecast with the cloud-resolving resolution are required, and the computational resource is a key to reduce the compromise of the resolutions and the number of ensemble members.

A research on super high-resolution mesoscale numerical weather prediction with the K-computer is underway. This research project is one of the five fields of the MEXT-funded national research project in Japan, the HPCI Strategic Programs for Innovative Research (SPIRE). Following three subjects are conducted to show the feasibility of precise prediction of local high impact weather phenomena: 1) Development of cloud resolving 4-dimensional data assimilation systems, 2) Development and validation of a cloud resolving ensemble analysis and forecast system, and 3) Basic research with very high resolution atmospheric models.

In the presentation, the background and achievement of the project at present is reviewed, and expectations to the next generation high performance computing is discussed.

References:

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Keywords: mesoscale NWP, K-computer, data assimilation, ensemble prediction, cloud resolving model, High performance Computing