

## Achievements and future subjects of the 'Ultra-high Precision Mesoscale Weather Prediction' in SPIRE Field 3

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A research project on super high-resolution mesoscale numerical weather prediction with the High Performance Computing using the K-computer was conducted from FY 2011 to FY 2015 (March 2016). This research was 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 were performed to show the feasibility of precise prediction of local high impact weather phenomena using the K-computer: 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, achievements in the five year projects including development of advanced data assimilation methods, high-resolution data assimilation/ensemble experiments and super high resolution experiments for mesoscale high impact weathers (torrential rains, tropical cyclones, and tornados) are presented, and remaining subjects are addressed.

Keywords: High Performance Computing, K-computer, Mesoscale Numerical Weather Prediction