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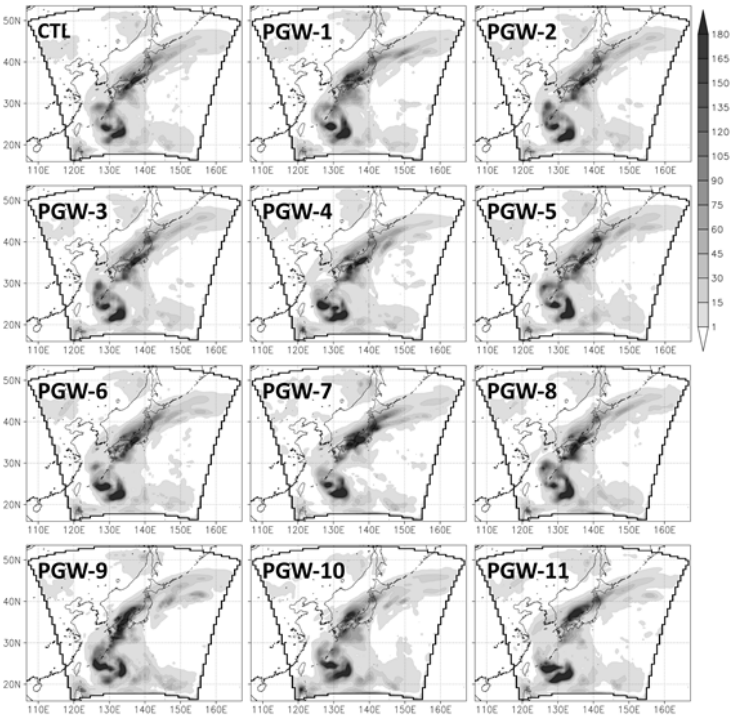
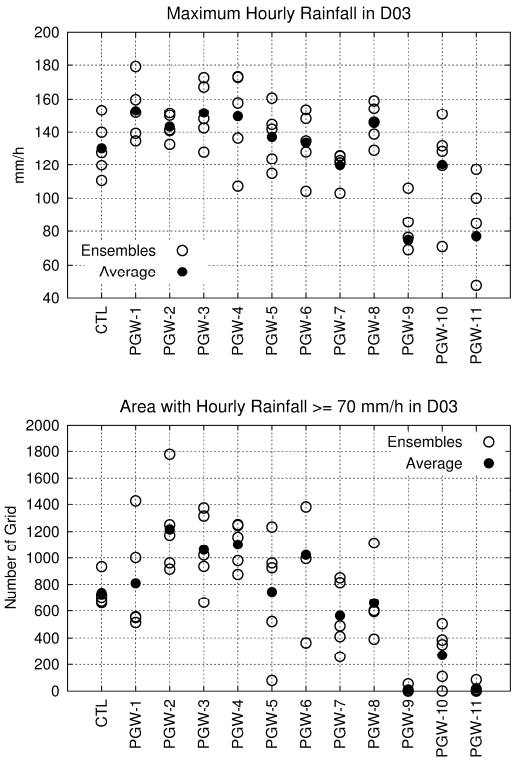


↑Figure 1. Spatial distributions of total precipitation from 21 JST 10 September through 21 JST 12 September 2000 for an ensemble member of CTL and eleven PGW runs. Units are millimeter.



↑Figure 2. Upper panel: maximum hourly rainfall in the finest domain. Lower panel: number of grids with maximum rainfall > 70 mm h^{-1}. Results are shown for all ensemble members and their average in CTL and PGW runs.

- A record heavy rainfall event in the Tokai region on 11 September (the Tokai Heavy Rain) was simulated, and variations of the event in future climate were investigated using numerical simulations with pseudo global warming (PGW) conditions by 11 different climate projections in CMIP3. Ensemble member were prepared for the control run (CTL) and each PGW run to examine whether the variations were caused by chaotic behaviors or global warming.
- Spatial distributions of total precipitation in most of PGW runs are similar to that of CTL. However, no significant rainfall around the Tokai region was found in some PGW runs (Fig.1). Spatial patterns of total precipitation were similar among ensemble members for each PGW run. Thus differences in precipitation between CTL and PGW run were not caused by chaotic behavior but global warming.
- There was a wide variety in the maximum hourly precipitation among five ensemble members in CTL and PGW runs. However, the maximum hourly precipitation rate tended to increase in the future, and heavy rainfall over short periods may occur in wider area in future (Fig. 2).