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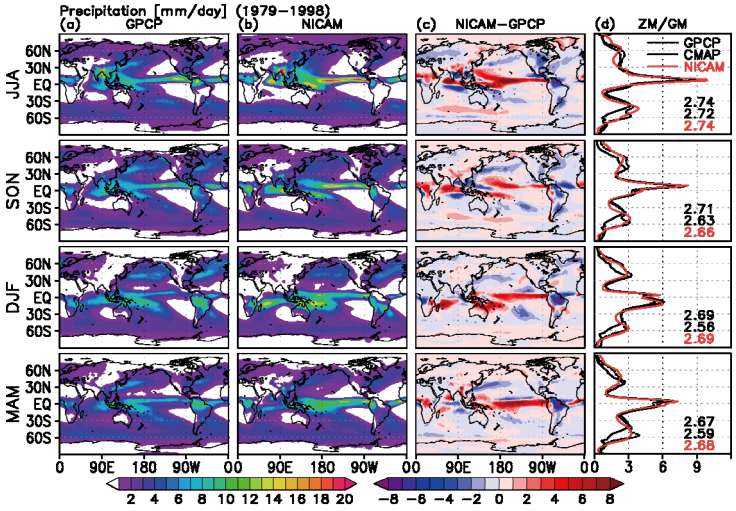


Figure 1. Seasonal mean climatological precipitation rate for GPCP (a), NICAM (b), and NICAM minus GPCP (c). Zonal and global mean values are shown in (d).

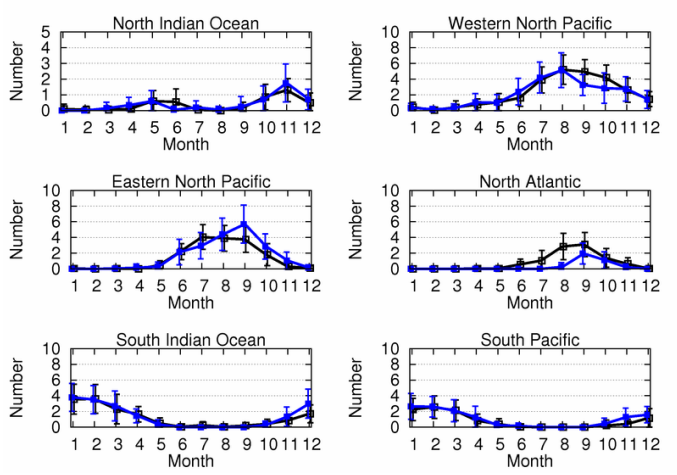


Figure 11. Monthly mean climatological number of TC genesis and its standard deviation in each ocean basin. IBTrACS and NICAM results are shown in black and blue, respectively.

- A 20-year integration by 14-km mesh Non-hydrostatic Icosahedral Atmospheric Model (NICAM) was conducted for the first time to obtain a climatological mean and diurnal-to-interannual variability of a simulated atmosphere under the Atmospheric Model Intercomparison Project (AMIP)-type conditions.
- NICAM simulates many aspects of atmospheric climatological mean state and diurnal-to-interannual variability of precipitation, clouds, radiation, and zonal mean field.
- Tropical cyclones (TCs) are detected without setting artificial thresholds of wind speed, and the number of TCs is close to that of the observed. Seasonal march of TC genesis for each ocean basin is well simulated. Statistical property of the Madden-Julian oscillation and tropical waves is well reproduced in the space-time power spectra. Asian monsoon, Baiu front, and stratospheric variability were also analyzed. Some significant model biases still exist, which indicates a need for further model improvements.
- The results of this study indicate that a high-resolution global non-hydrostatic model has the potential to reveal multi-scale phenomena in the climate system.