

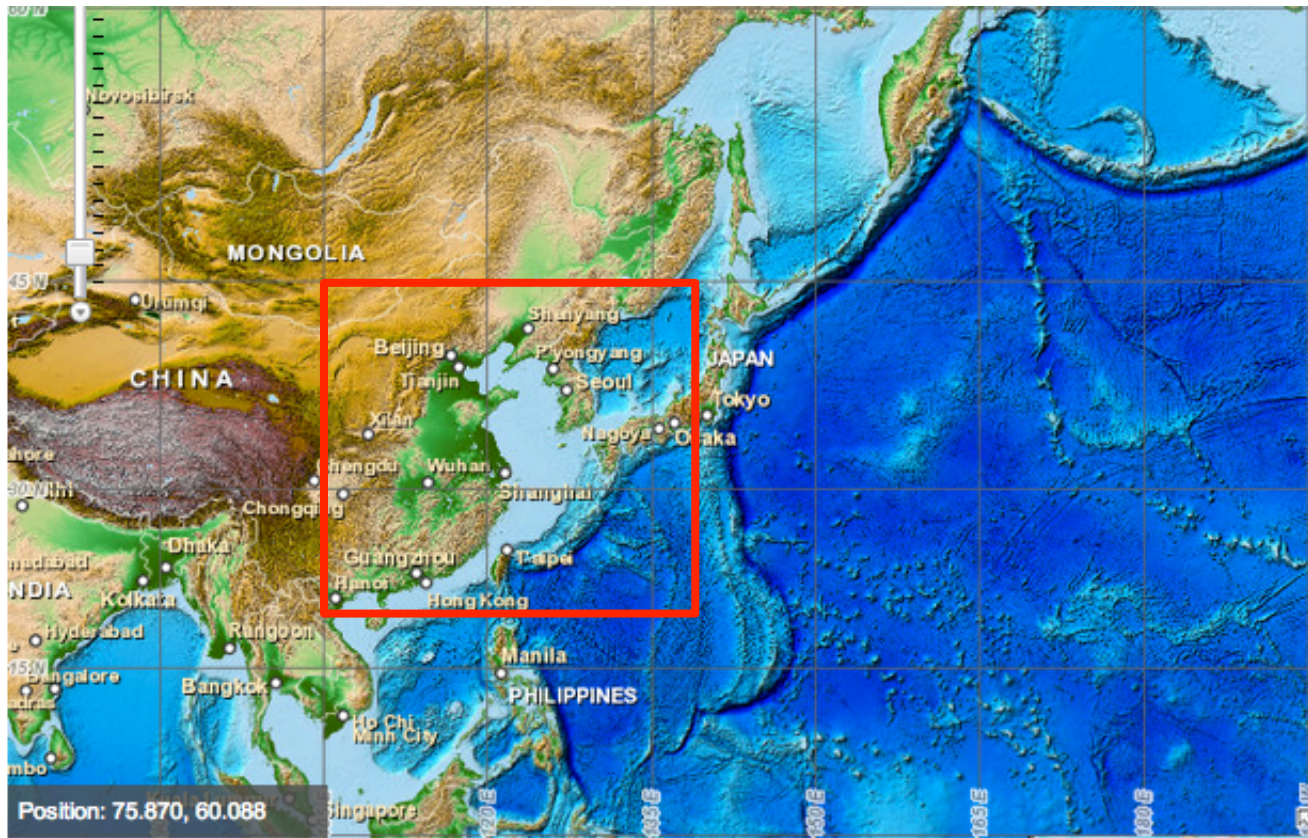
Future Changes in East Asian Summer Monsoon (EASM) Precipitation

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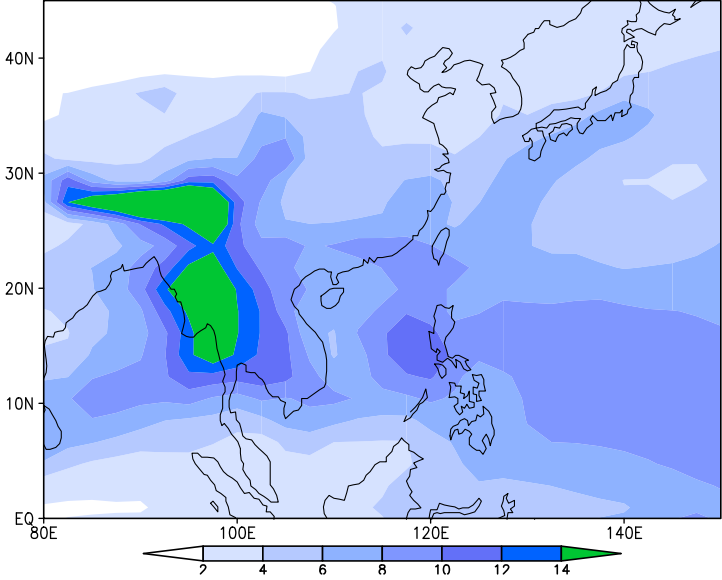
EASM region --- (22.5-45 °N, 105-140 °E)



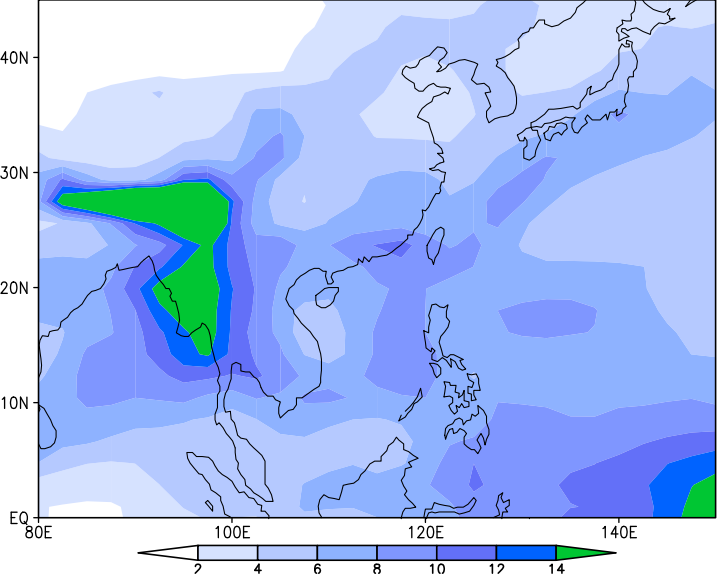
<http://www.ngdc.noaa.gov/dem/squareCellGrid/map?theme=DDP>

MJJA mean precipitation rate (mm/day)

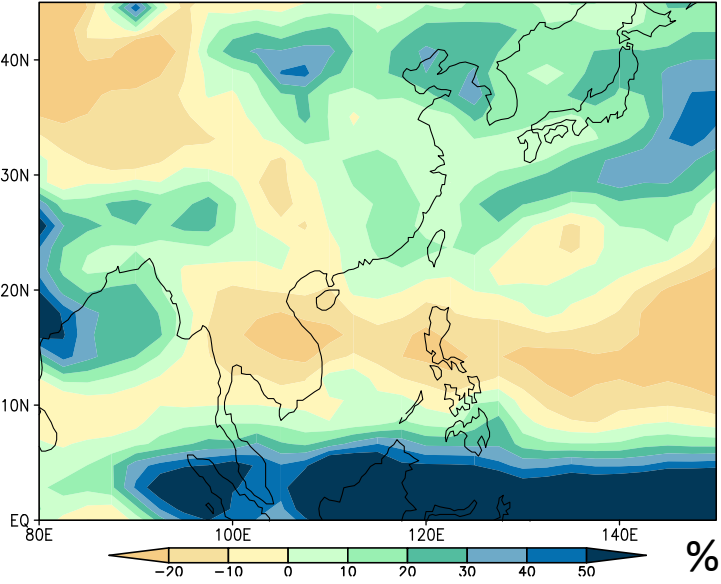
Control run



4xCO² run

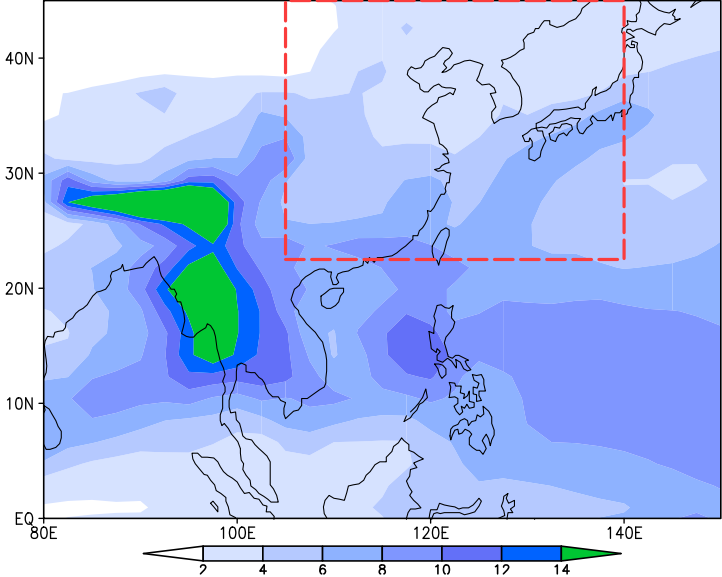


4xCO² - Control

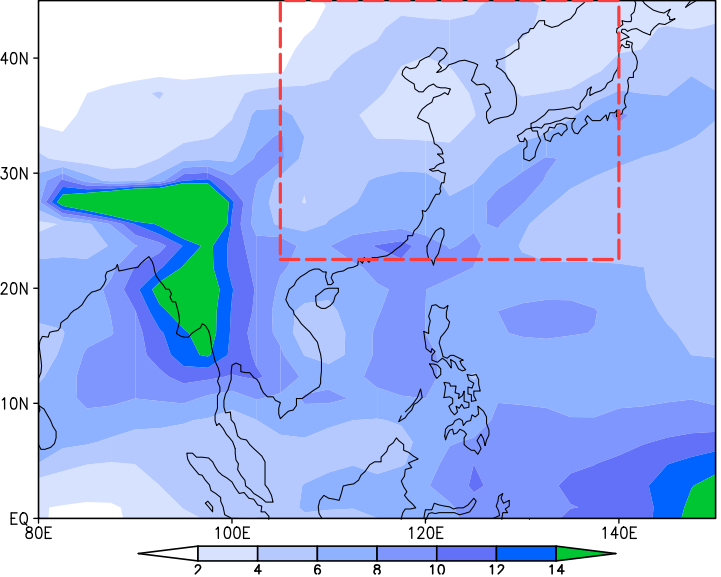


MJJA mean precipitation rate (mm/day)

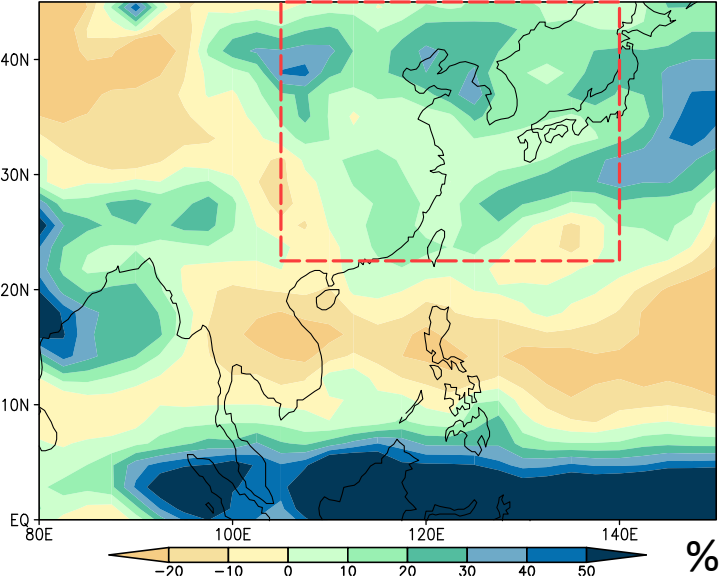
Control run



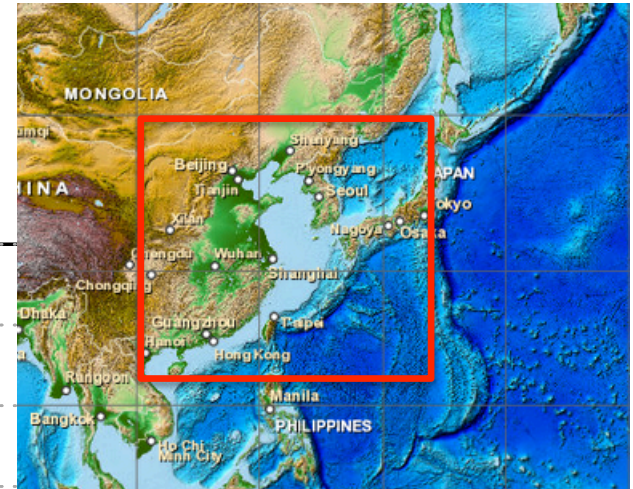
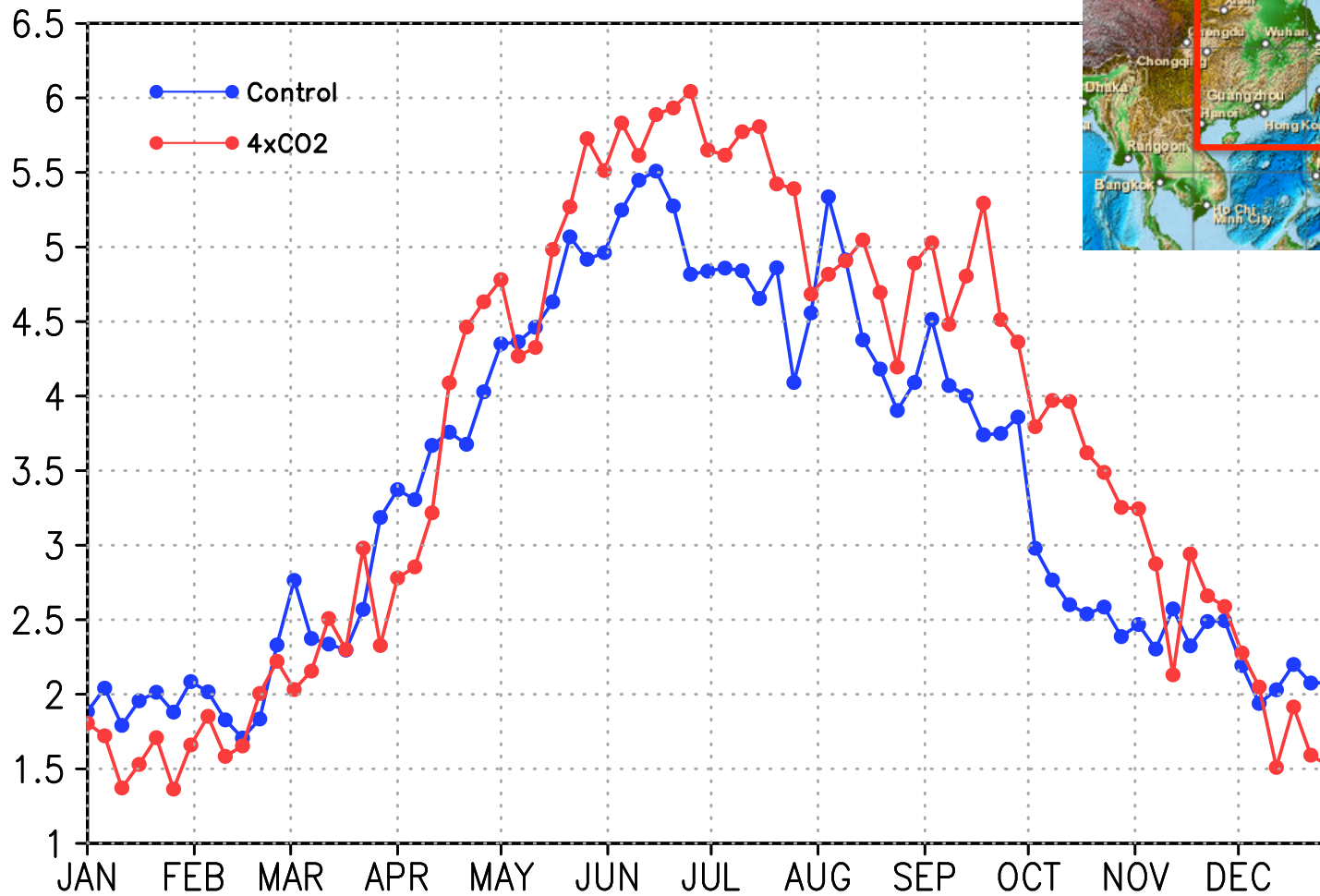
4xCO² run



4xCO² - Control

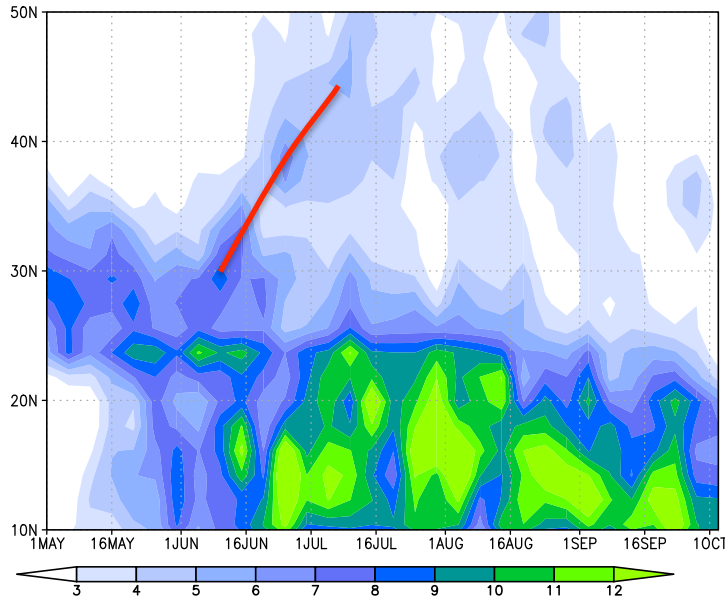


Annual cycle of precipitation over EASM region (mm/day)

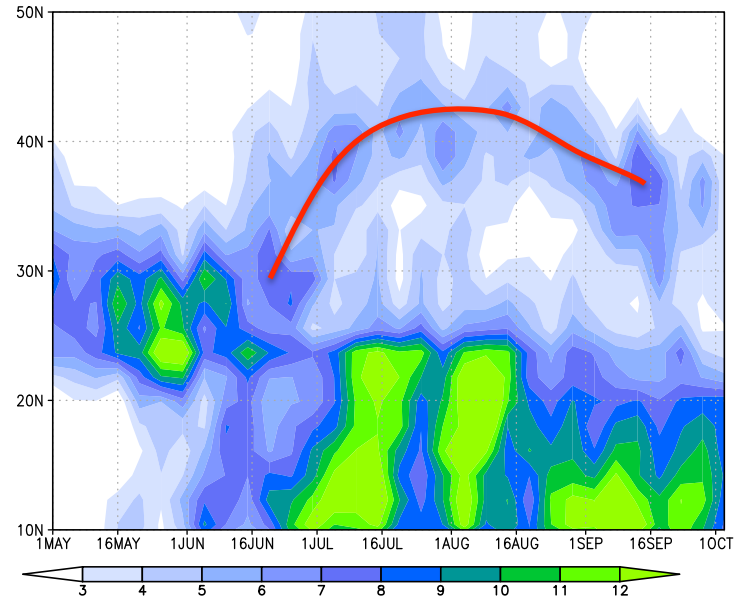


Annual cycle of precipitation between 110-120 °E (mm/day)

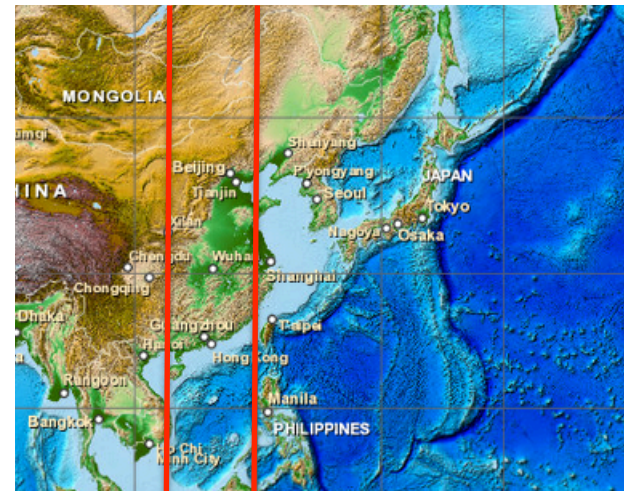
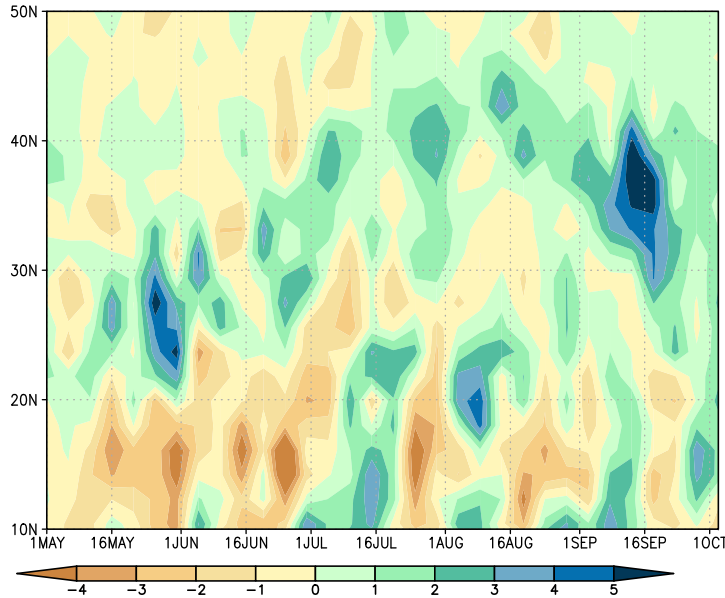
Control run



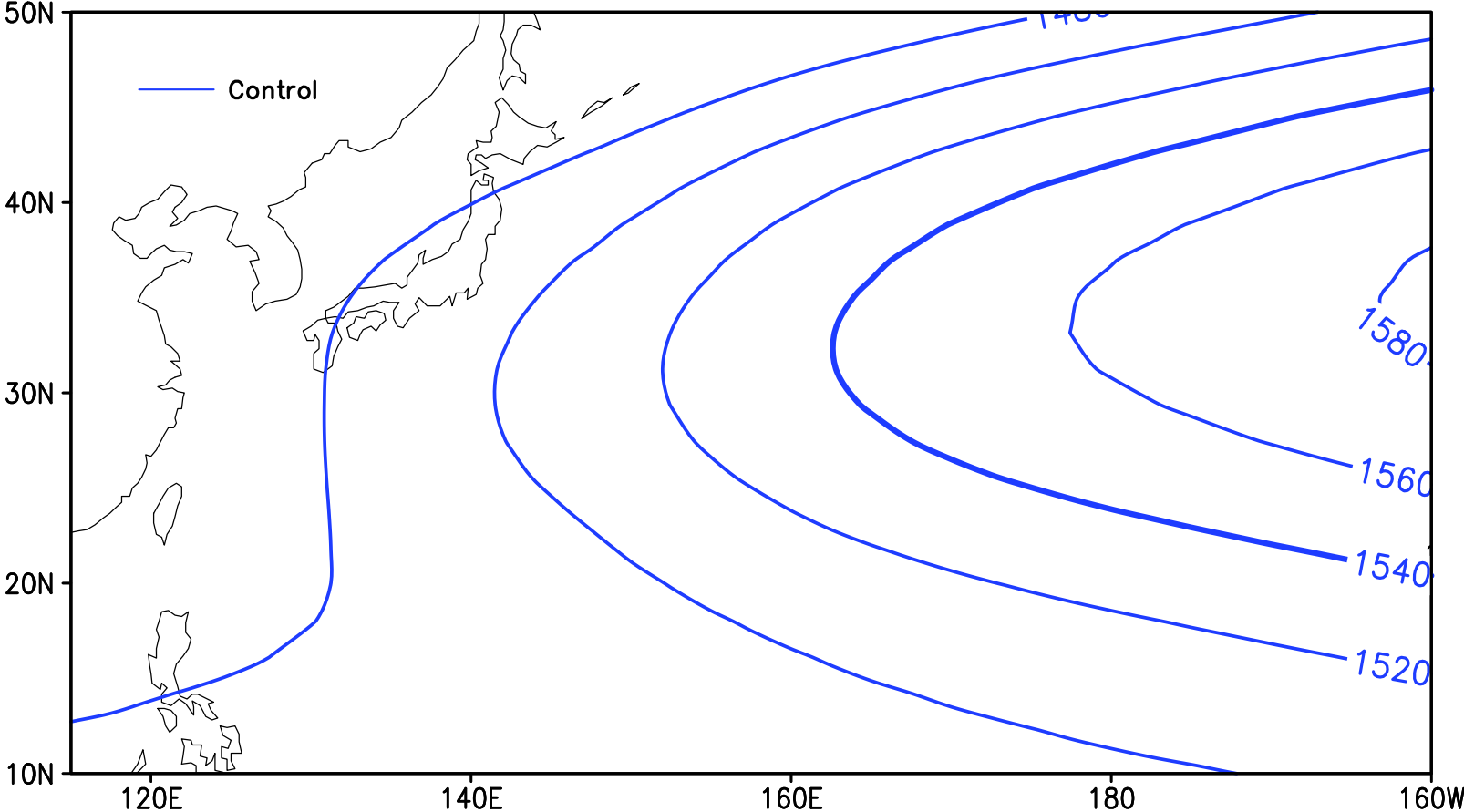
4xCO² run



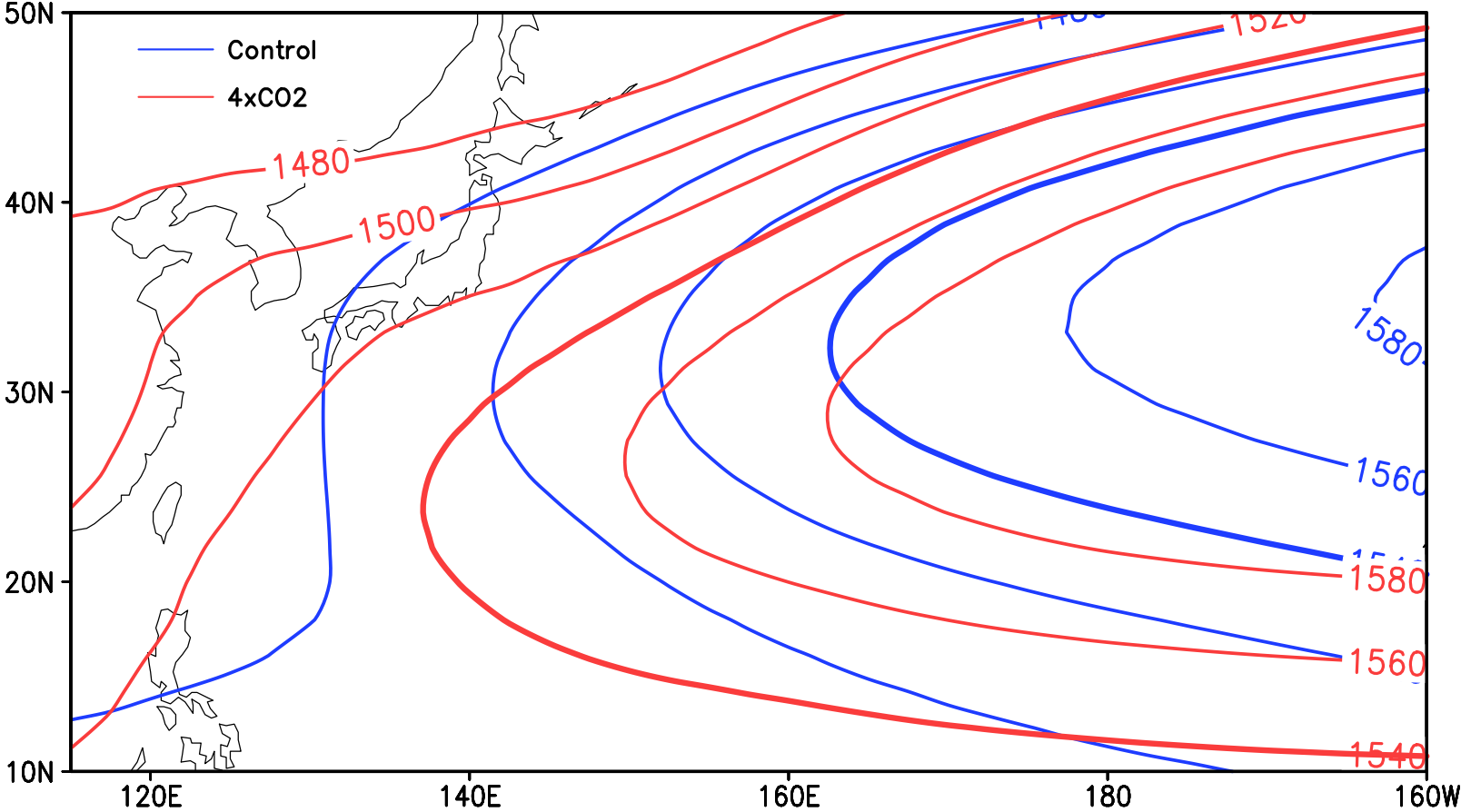
4xCO² - Control



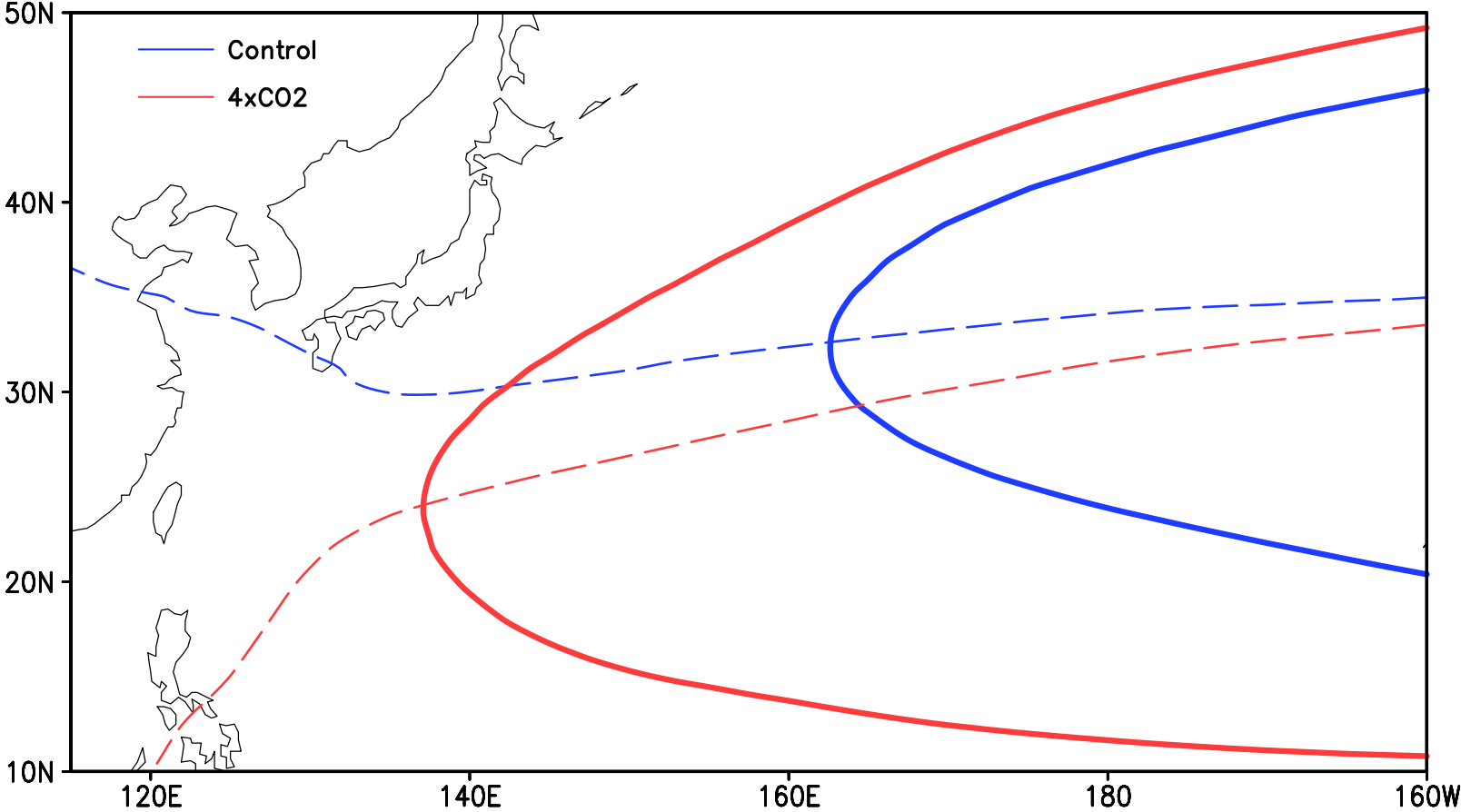
MJJA mean 850hPa geopotential height (gpm)



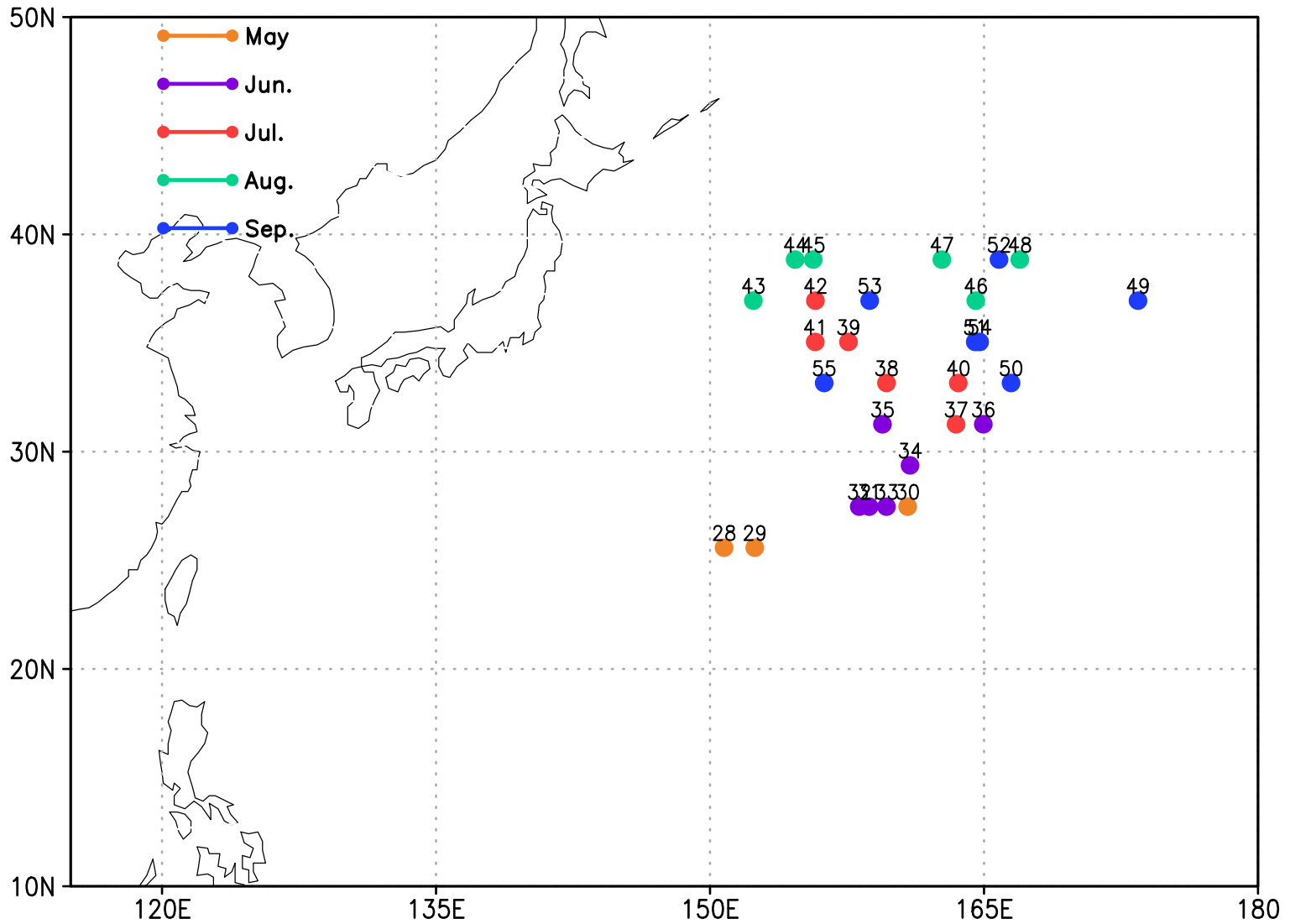
MJJA mean 850hPa geopotential height (m)



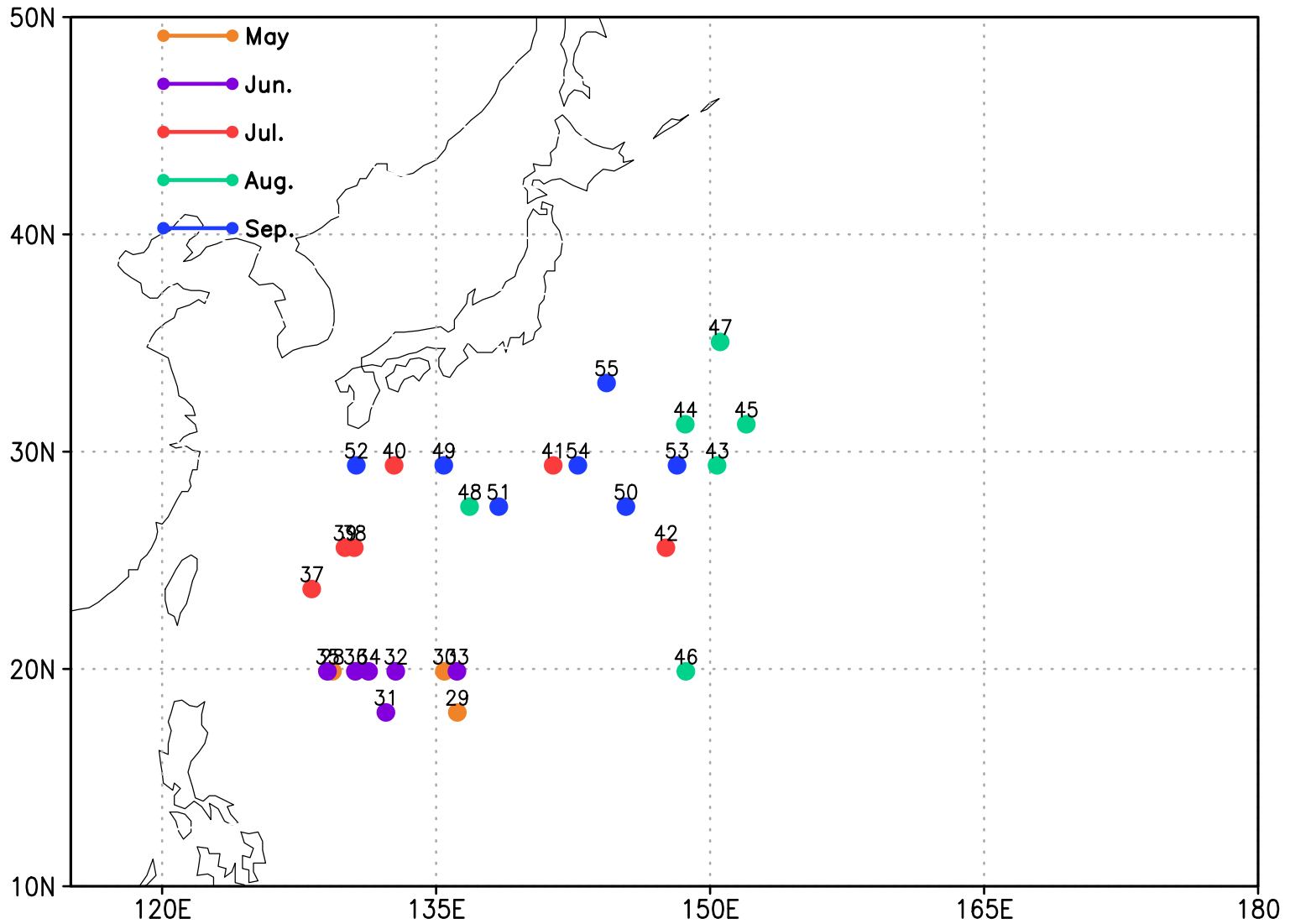
MJJA mean 1540 m isoline and ridge line



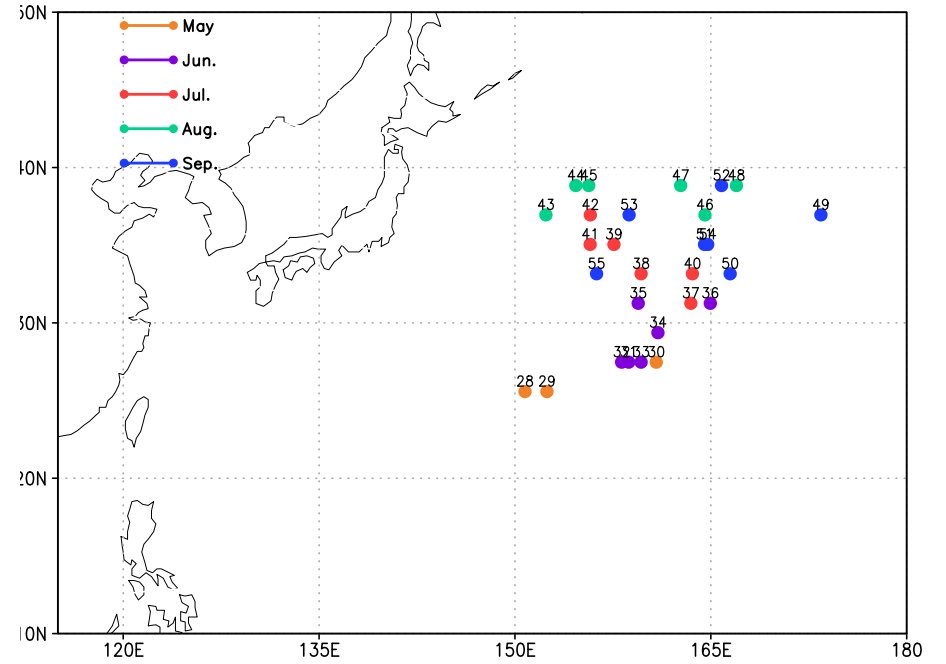
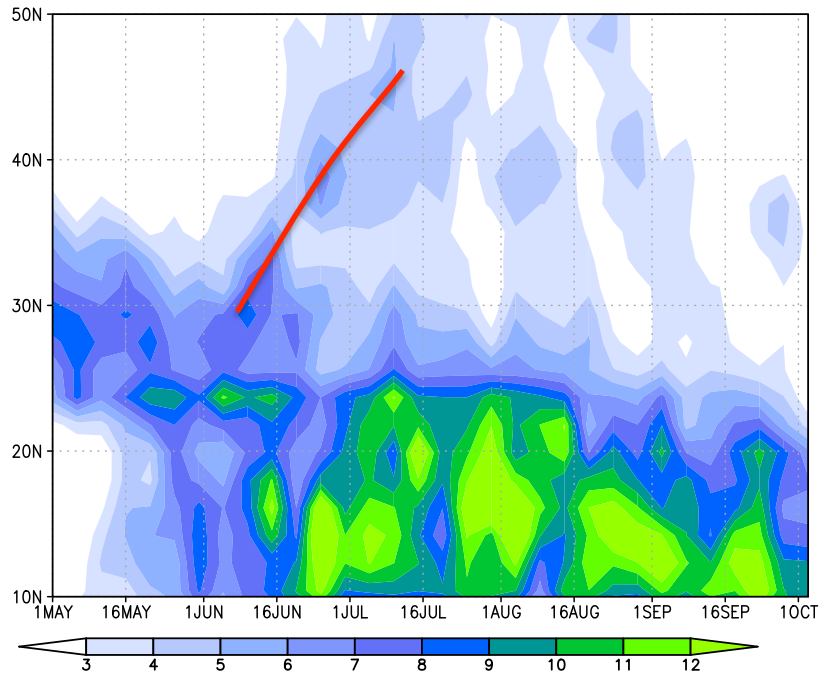
The positions of Intersection point of WNPSH ridge line and 1540 m isoline --- Control run



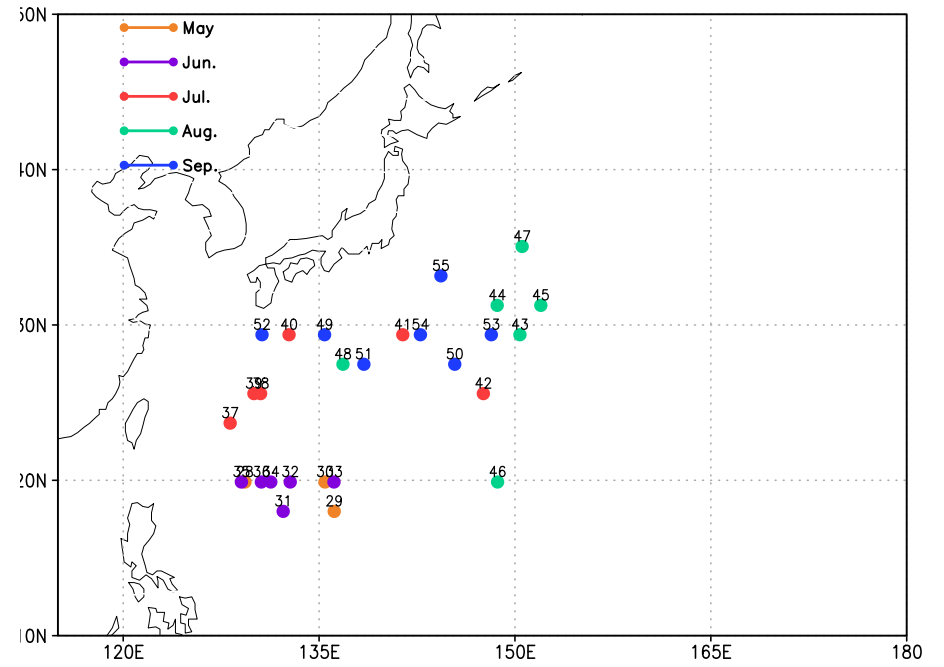
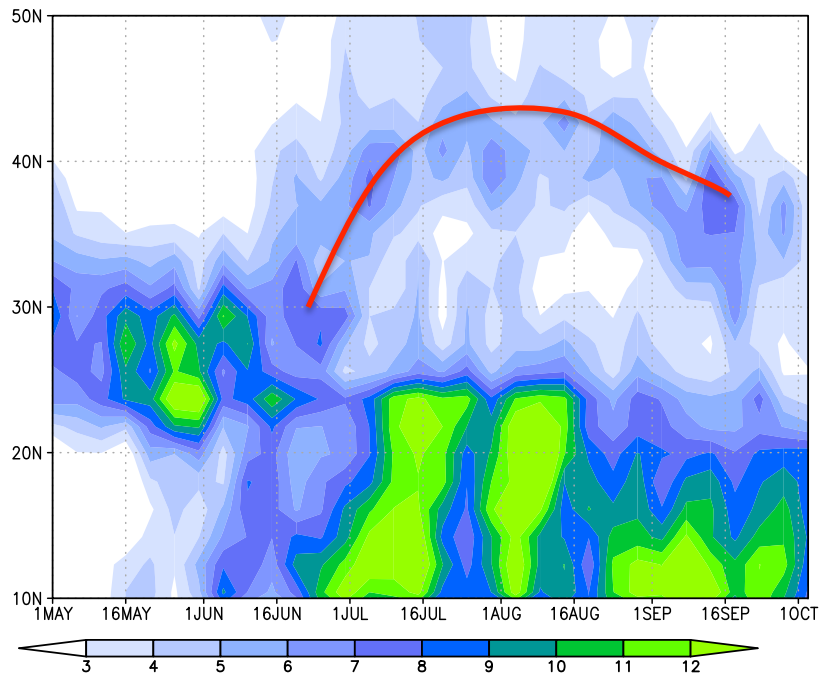
The positions of Intersection point of WNPSH ridge line and 1540 m isoline
--- 4xCO² run



Control run

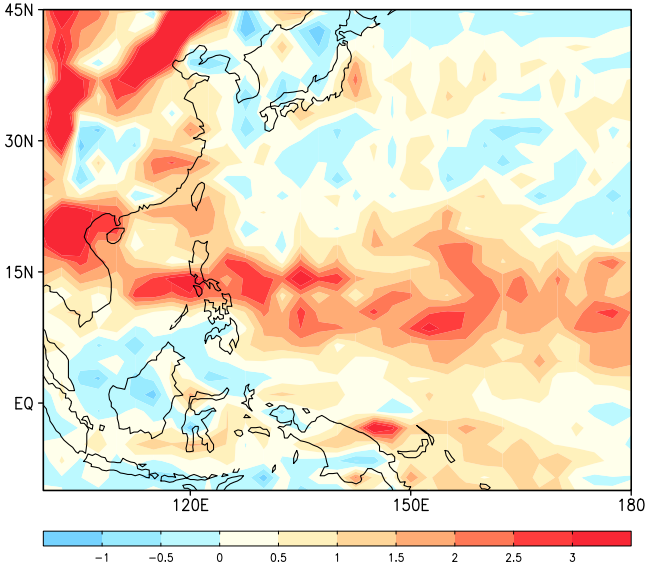


4xCO² run

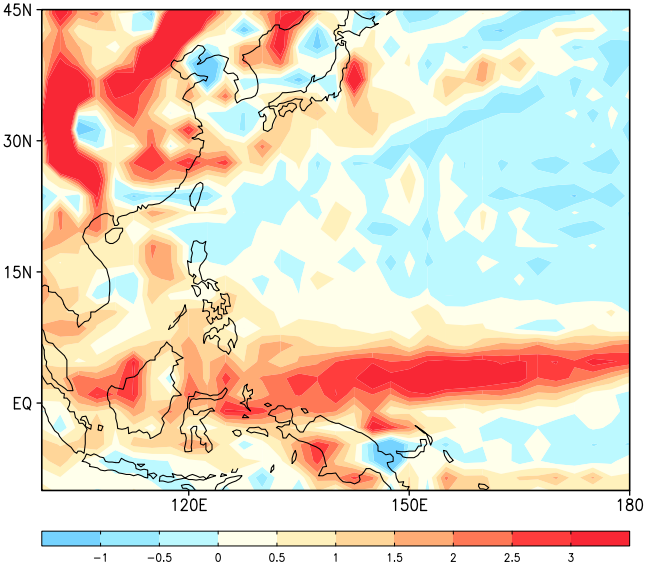


MJJA mean vertically integrated diabatic heating (K/day)

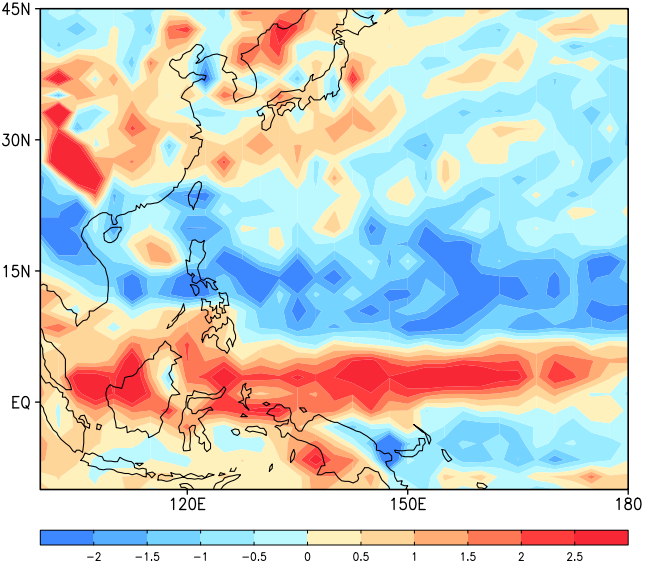
Control run



4xCO² run



4xCO² - Control



Following Nigam (1997)

Summary

In SP-CCSM4 4×CO² simulation,

- the MJJA mean EASM precipitation is increased
- the precipitation has longer duration
- later onset of Mei-yu season
- westward expansion of WNPSH, and its ridge line is located at the lower latitude
- source of moisture moves southward.