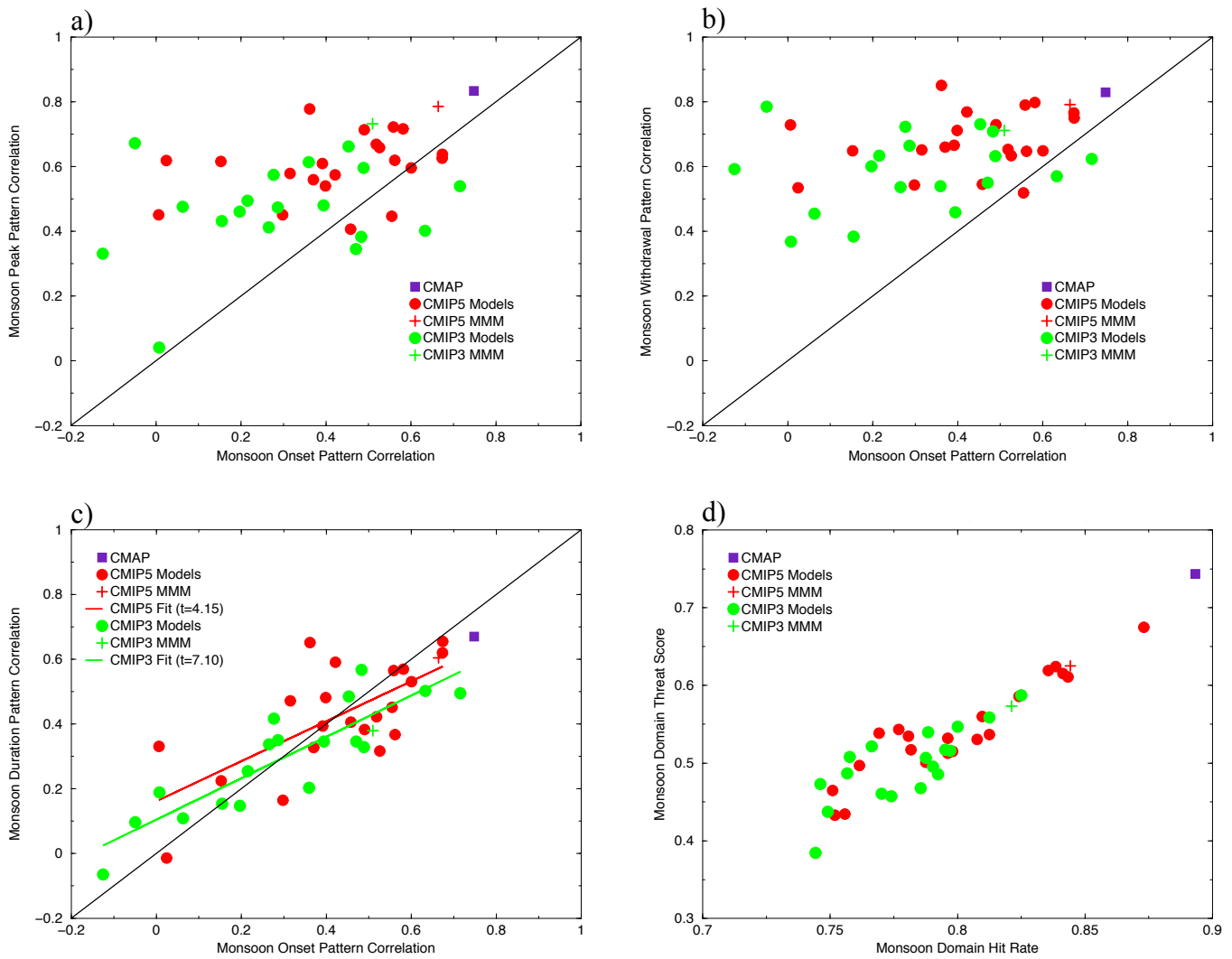
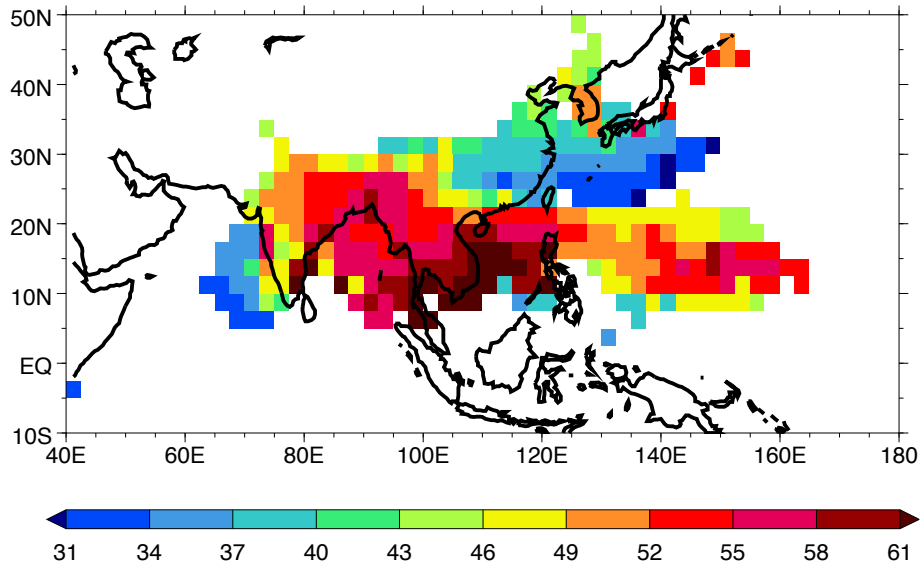


**Fig. 7** Monsoon withdrawal pentad **a** GPCP, **b** MIROC5, **c** echo-g, **d** CMIP5 MMM, and **e** CMIP3 MMM. Monsoon duration **f** GPCP, **g** CNRM-CM5, **h** inm cm3.0, **i** CMIP5 MMM, and **j** CMIP3 MMM. Also given in **a** and **f** is the pattern correlation of GPCP with CMAP, and in **b-e** and **g-j** are the model pattern correlations with GPCP over the region 50°E-180°E, 0°-50°N. For withdrawal the units are pentad (Pentad 1 = January 1-5). For duration the units are the number of pentads based on (withdrawal) *minus* (onset) pentad. GPCP and CMAP data are from 1979-2007 and the model data is from 1961-1999

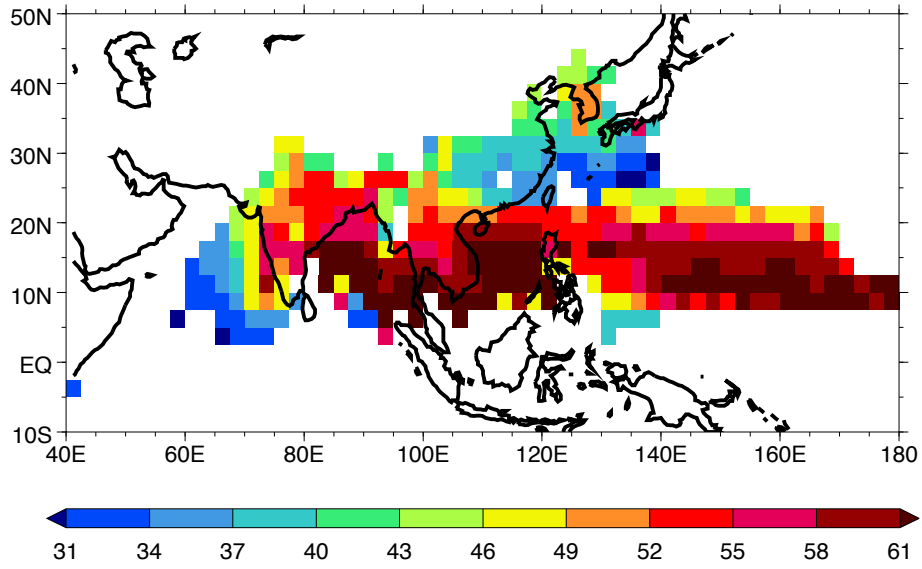


**Fig. 8** Scatterplot of the pattern correlation with observations of the simulated pentad of monsoon onset vs. **a** the pattern correlation with observations of the simulated pentad of monsoon peak, **b** the pattern correlation with observations of the simulated pentad of monsoon withdrawal, and **c** the pattern correlation with observations of the simulated number of pentads of monsoon duration. **d** Scatterplot of the Monsoon Domain Hit Rate vs. the Monsoon Domain Threat Score. In **a-d** the skill is with respect to GPCP for the region 50°E-180°E, 0°-50°N

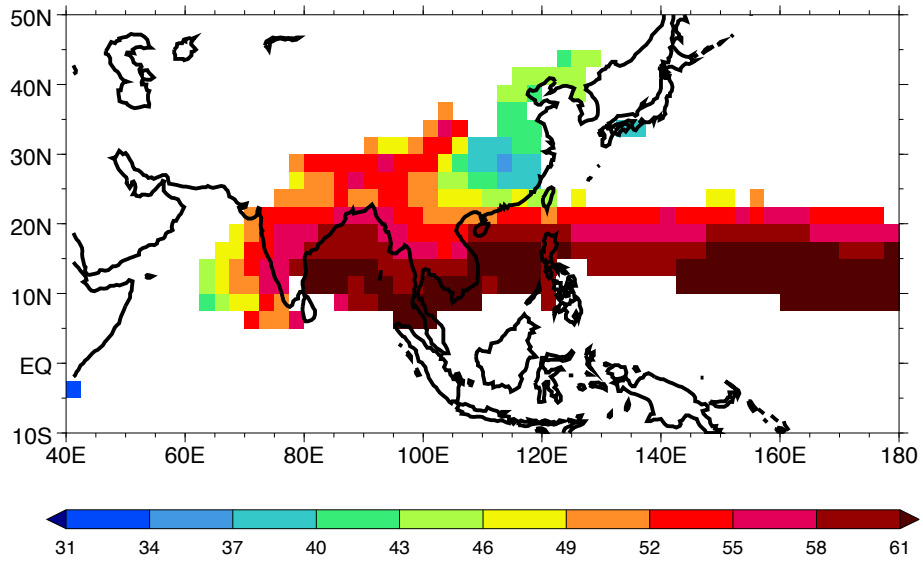
GPCP (1979-2007)



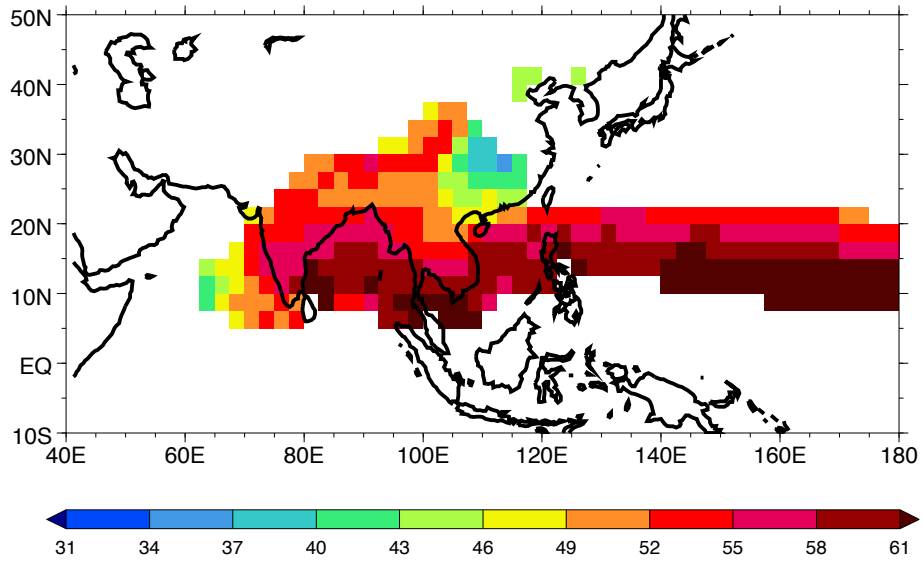
CMAP (1979-2007)



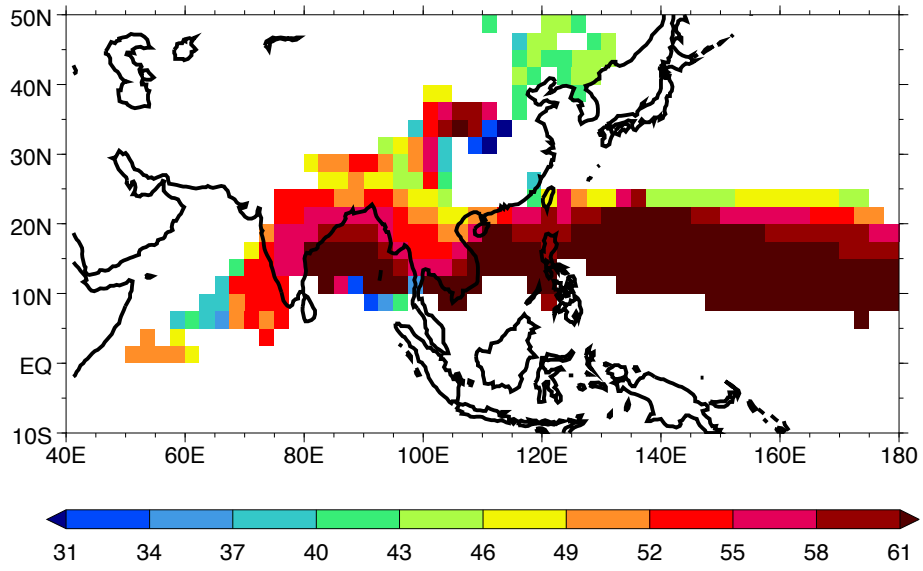
# CMIP5 MMM



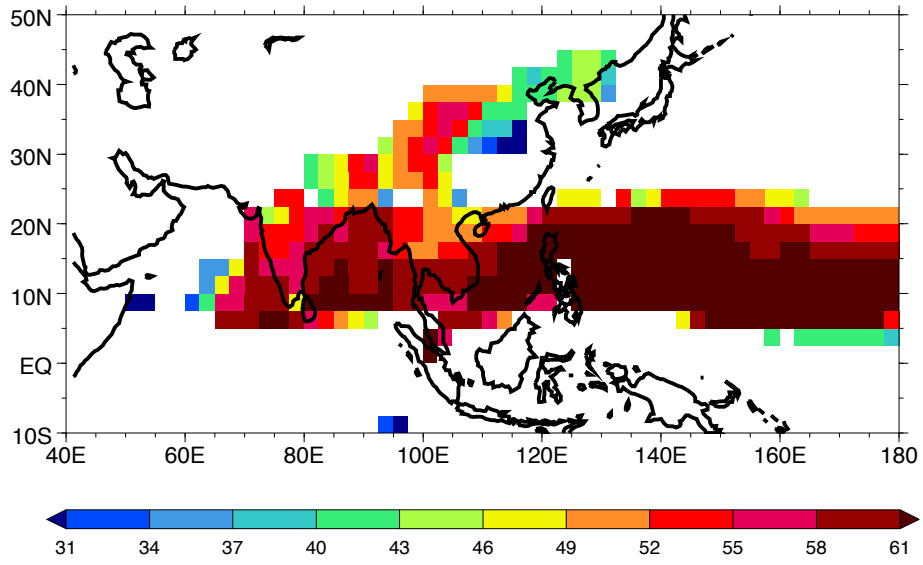
# CMIP3 MMM



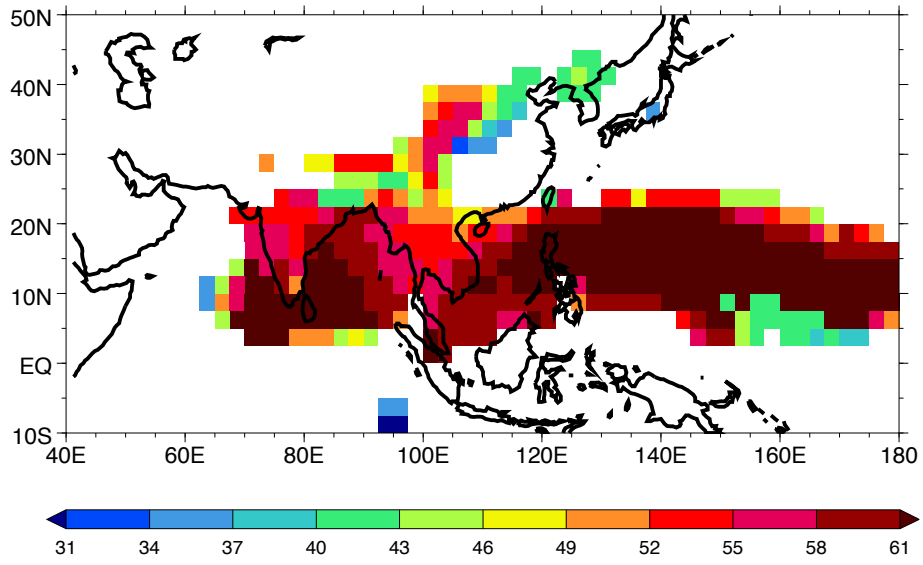
# CanESM2



cgcm3.1 (t47)

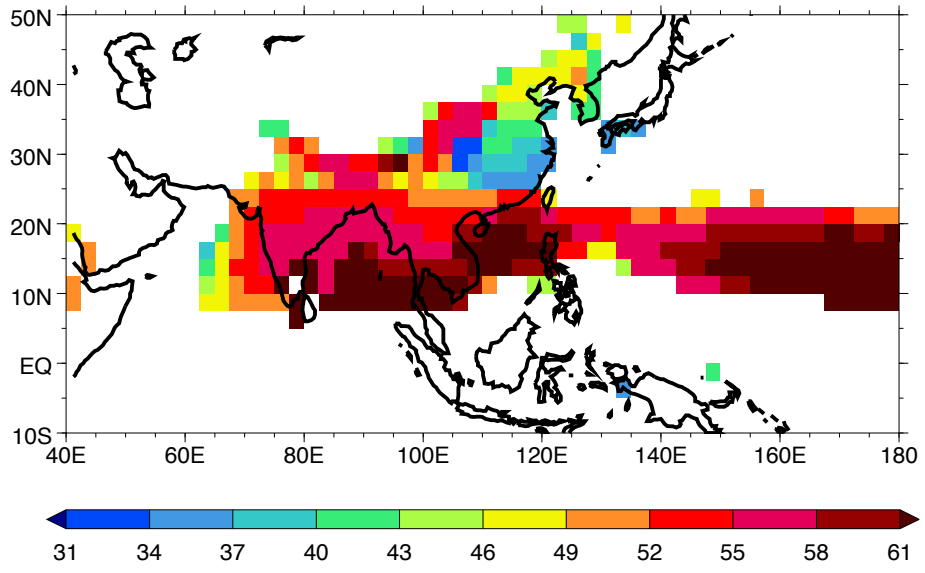


cgcm3.1 (t63)

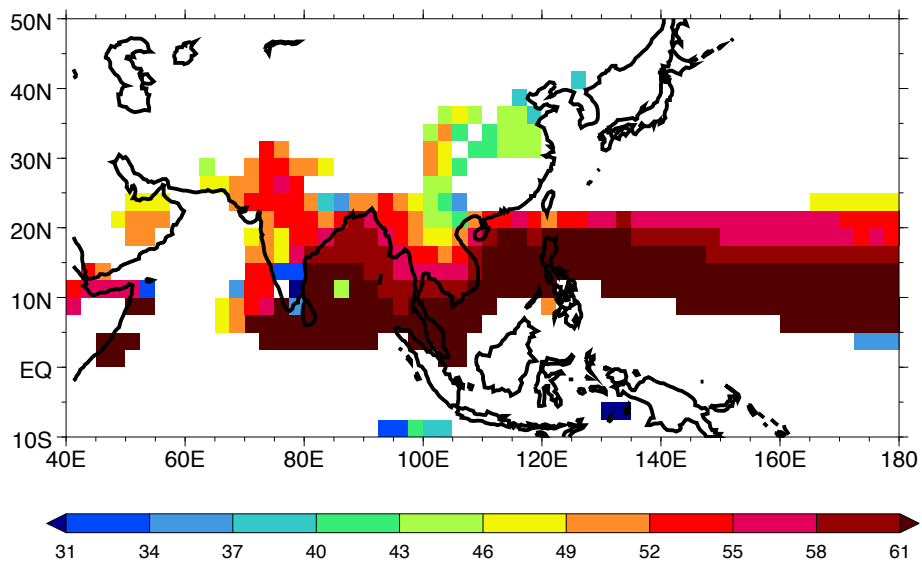




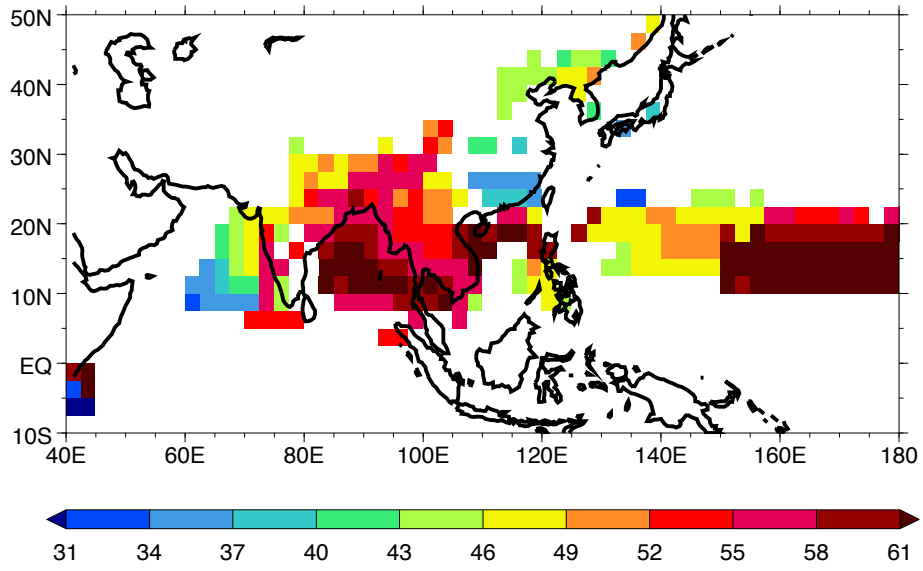
# CCSM4



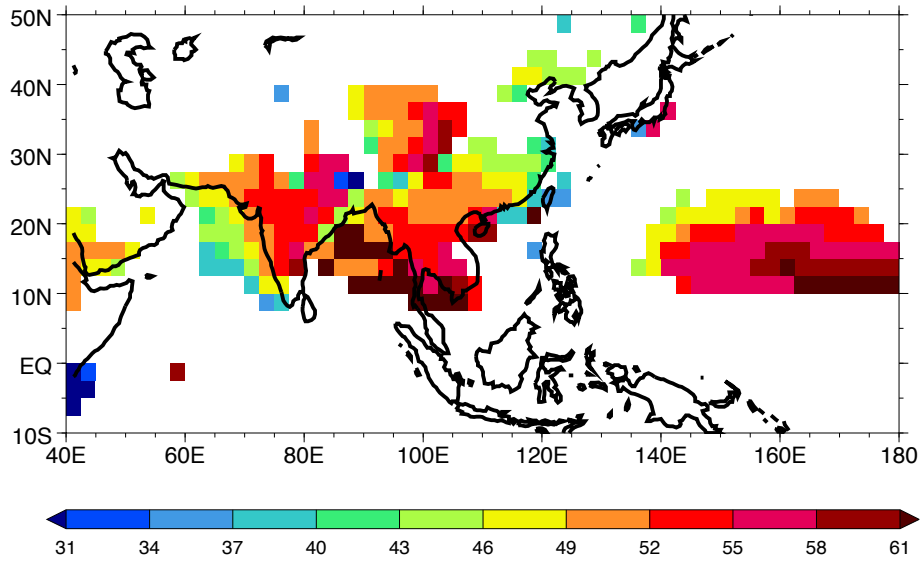
ccsm3



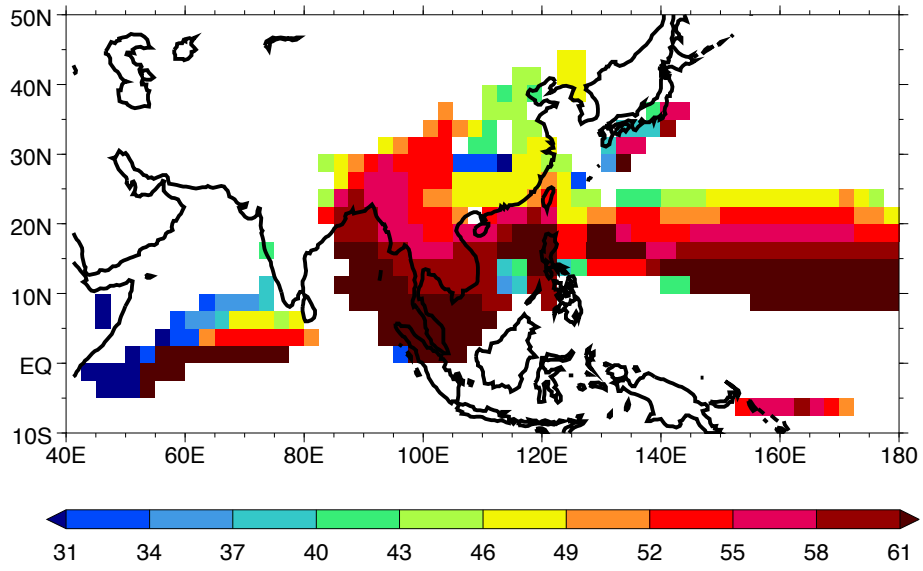
# CNRM-CM5



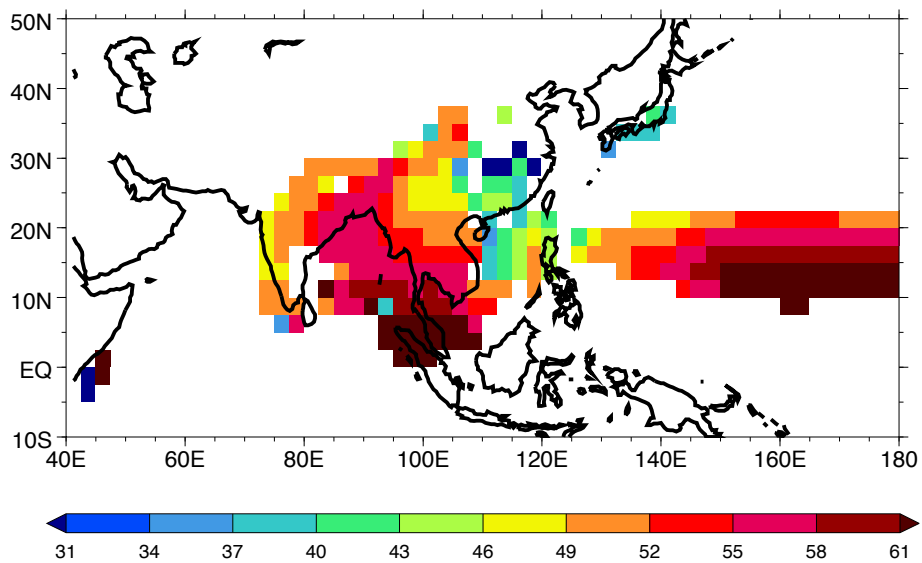
cnrm-cm3



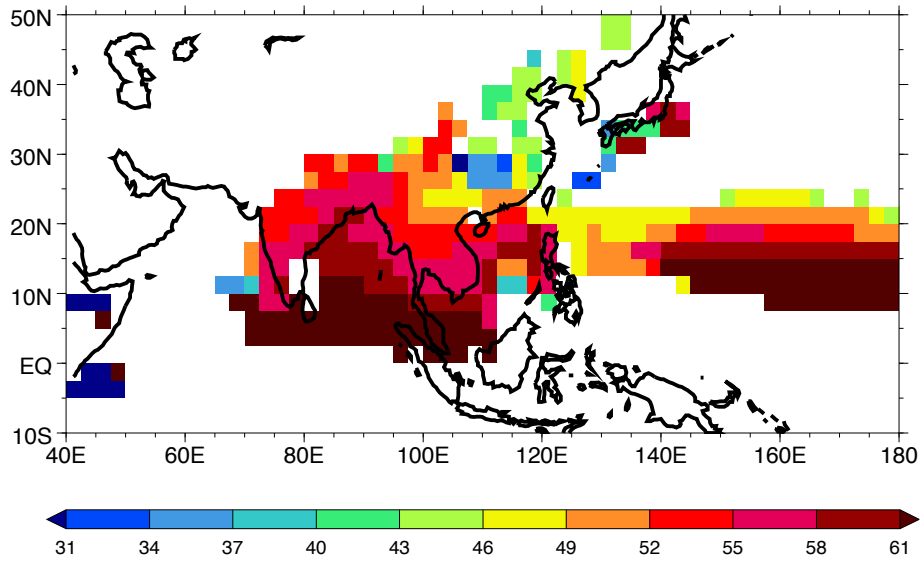
# CSIRO-Mk3.6.0



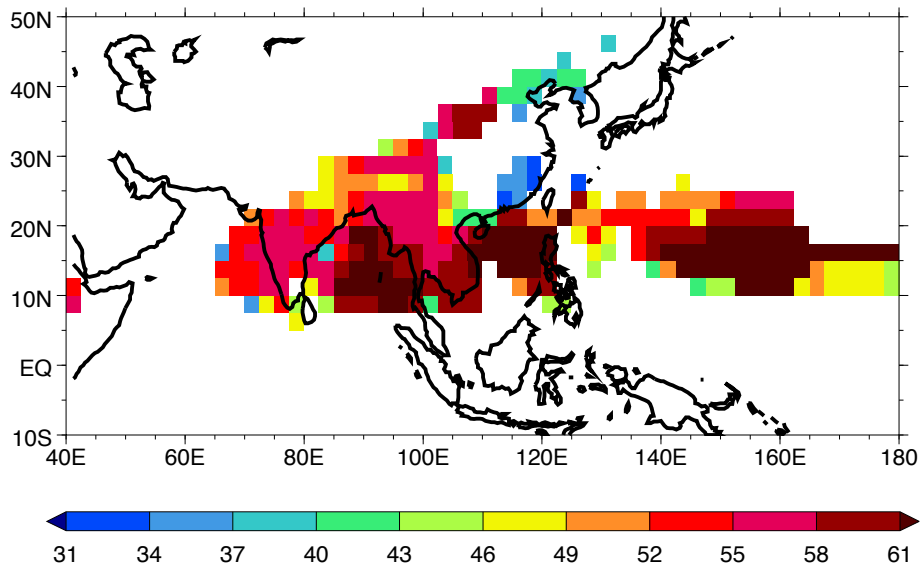
csiro-mk3.0



csiro-mk3.5

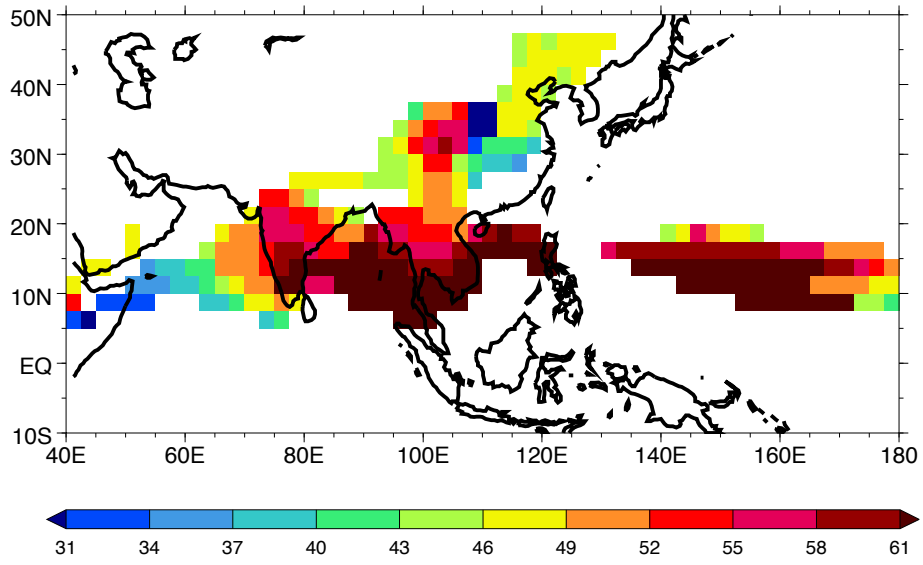


# FGOALS-s2

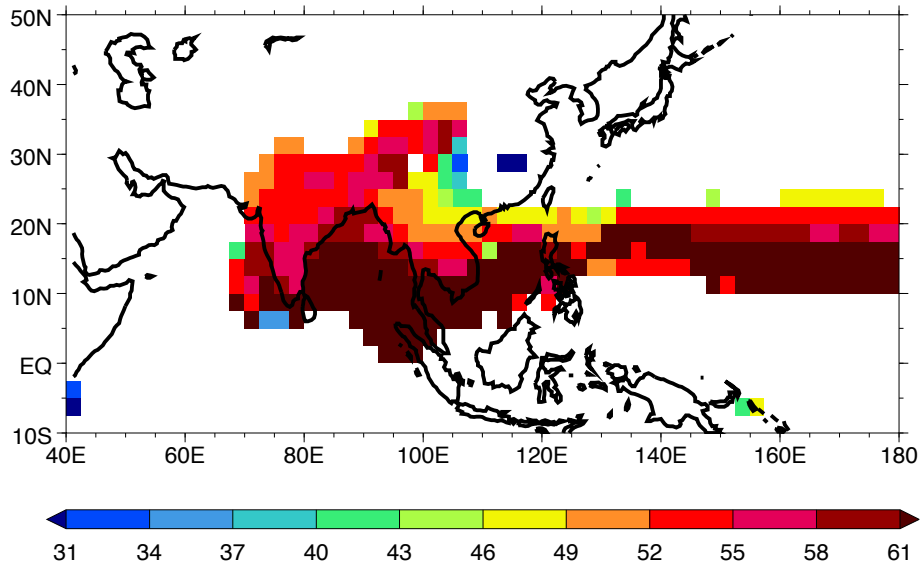




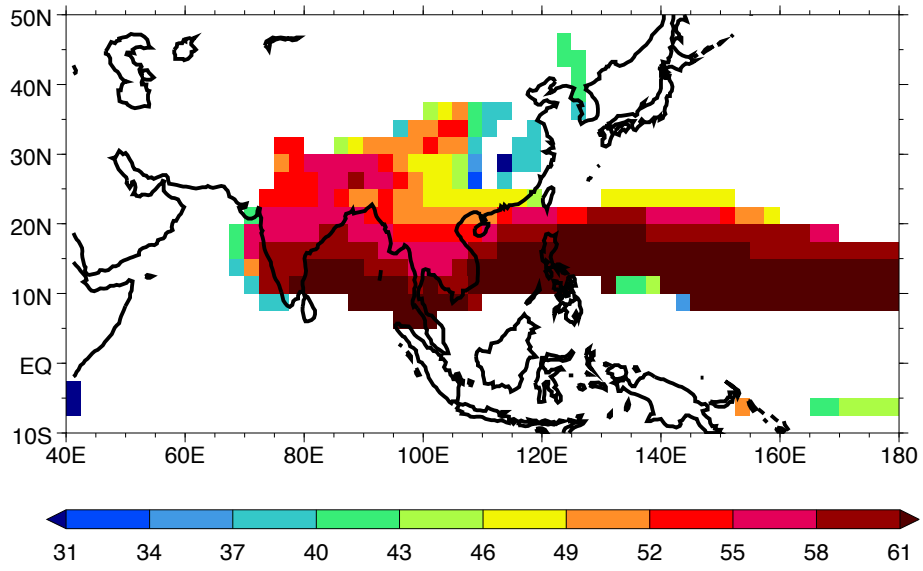
# fgoals-g1.0



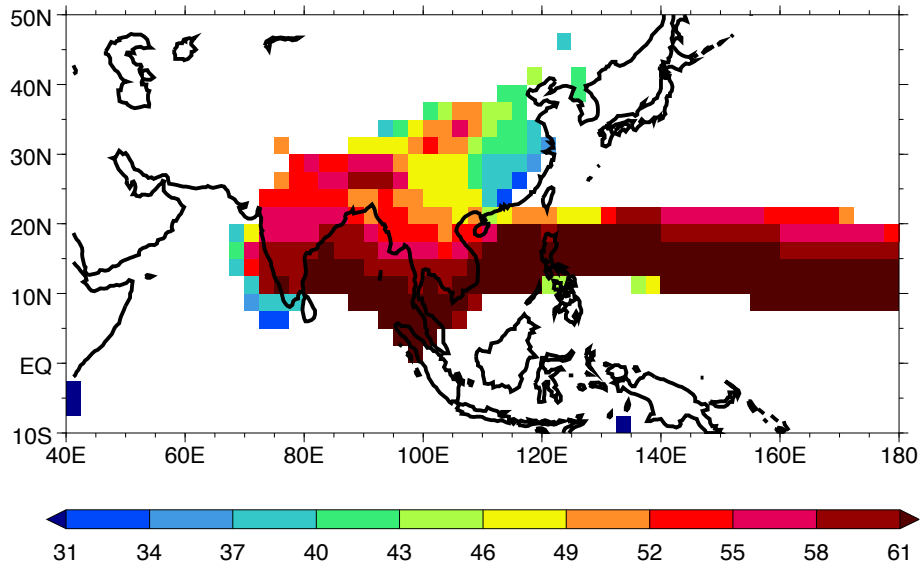
# GFDL-CM3



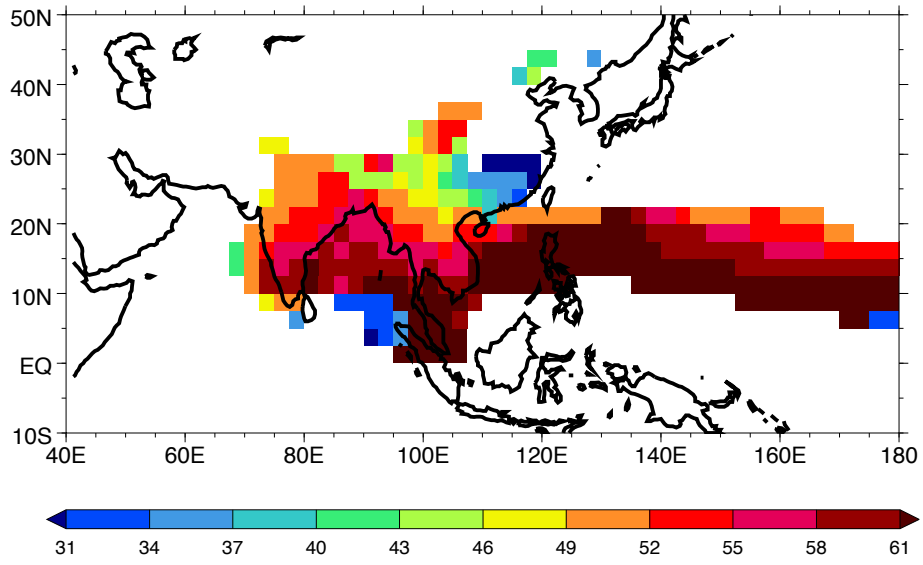
# GFDL-ESM2G



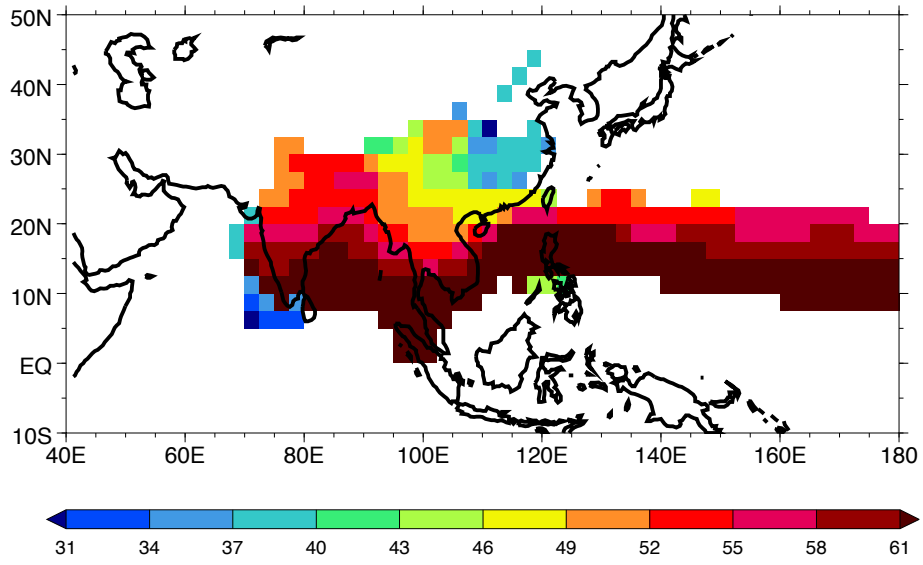
# GFDL-ESM2M



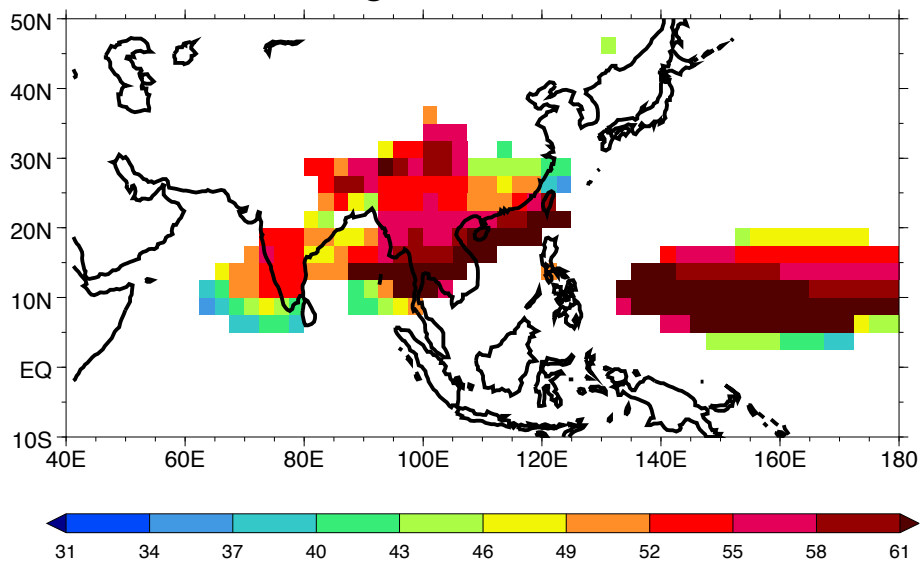
gfdl-cm2.0



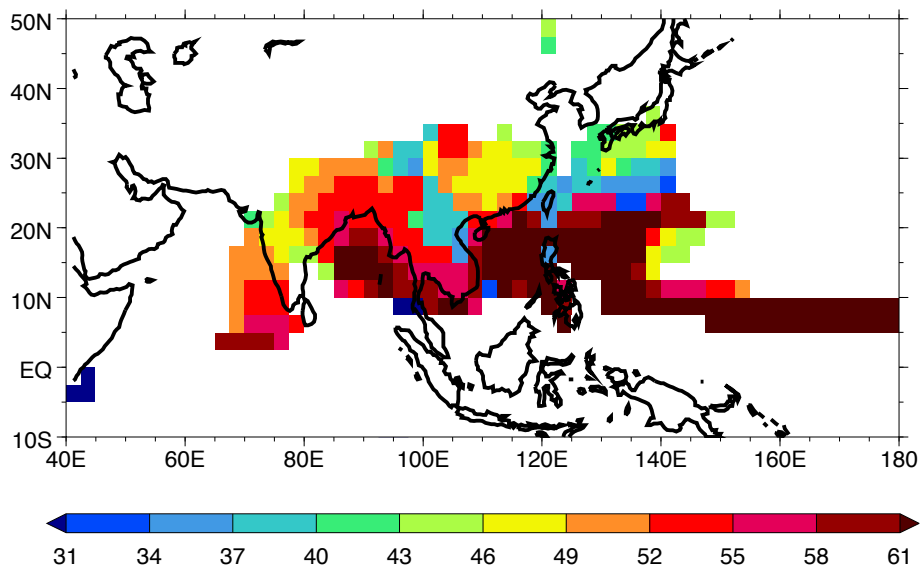
gfdl-cm2.1



# giss-aom

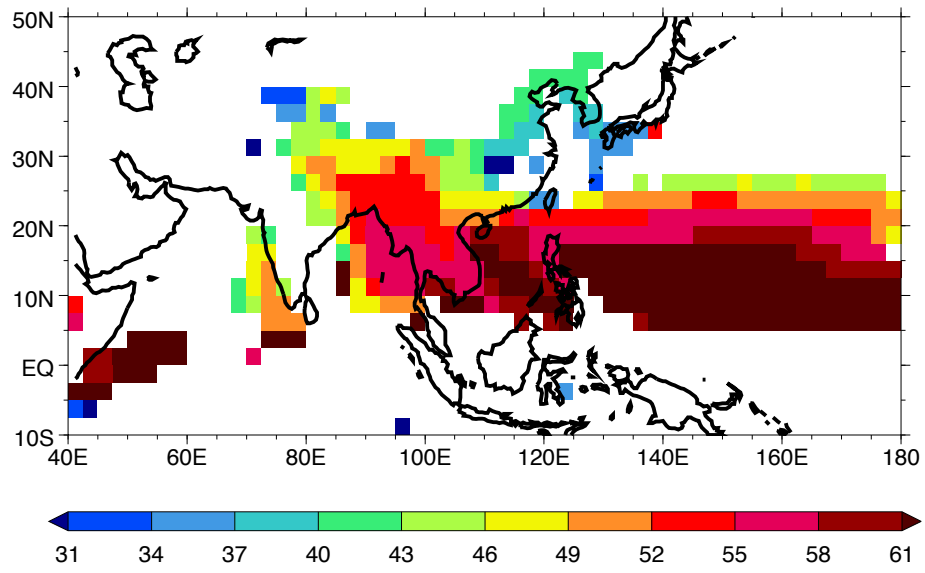


# HadCM3

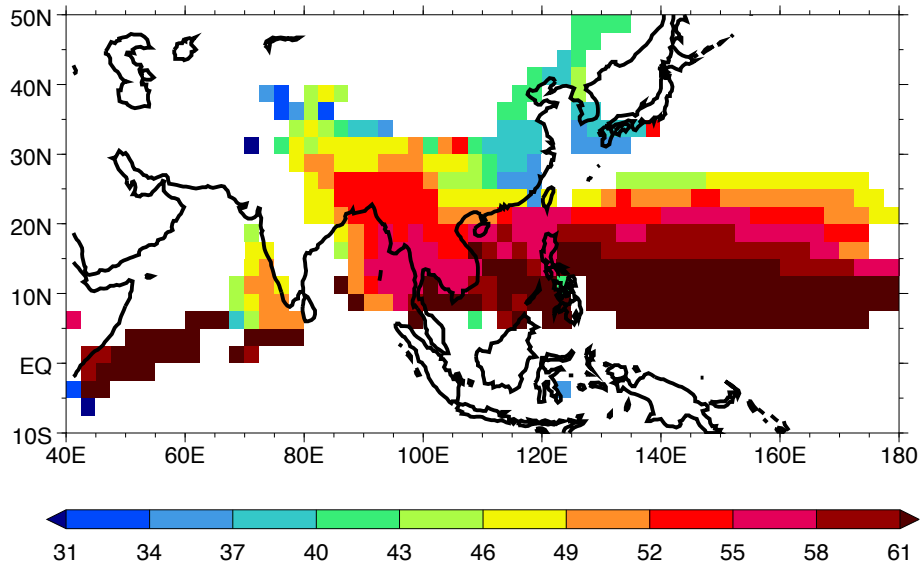




# HadGEM2-CC

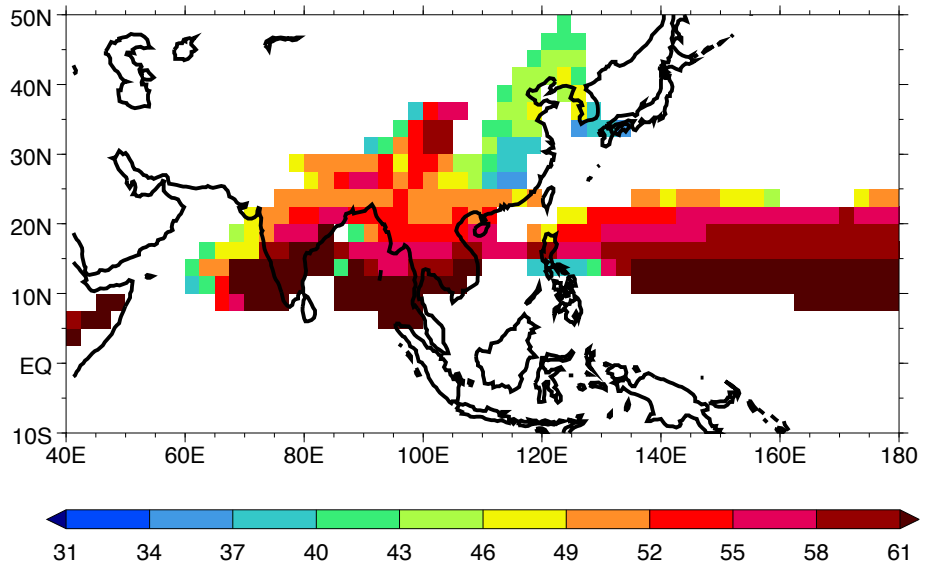


# HadGEM2-ES

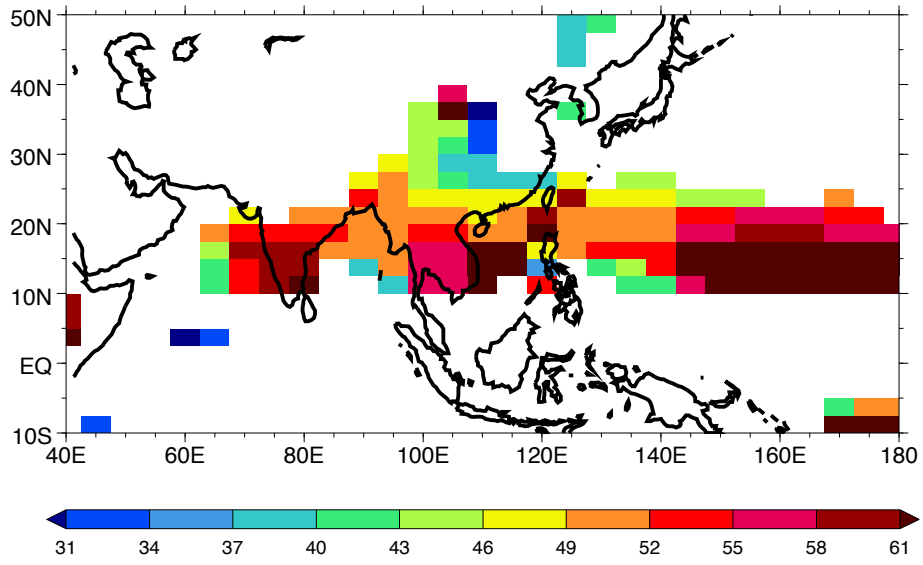




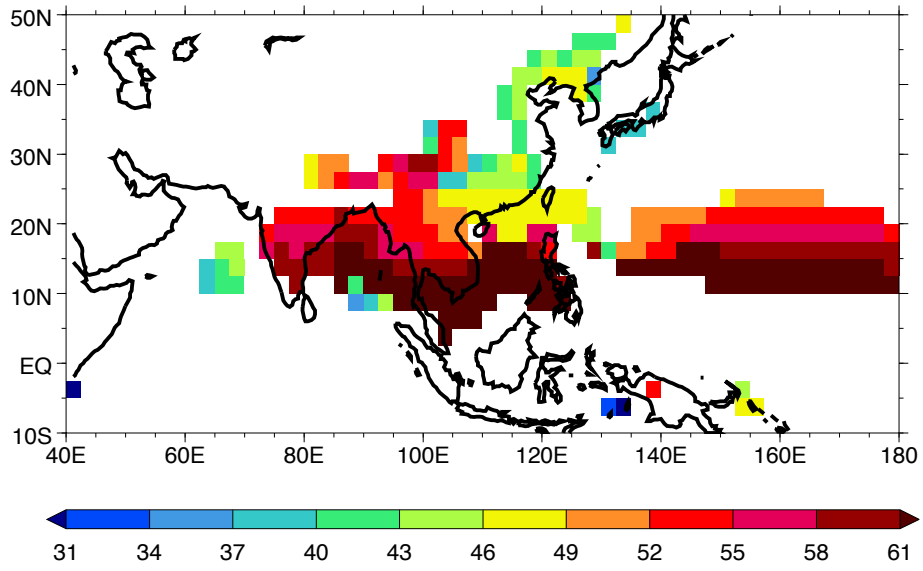
# INM-CM4



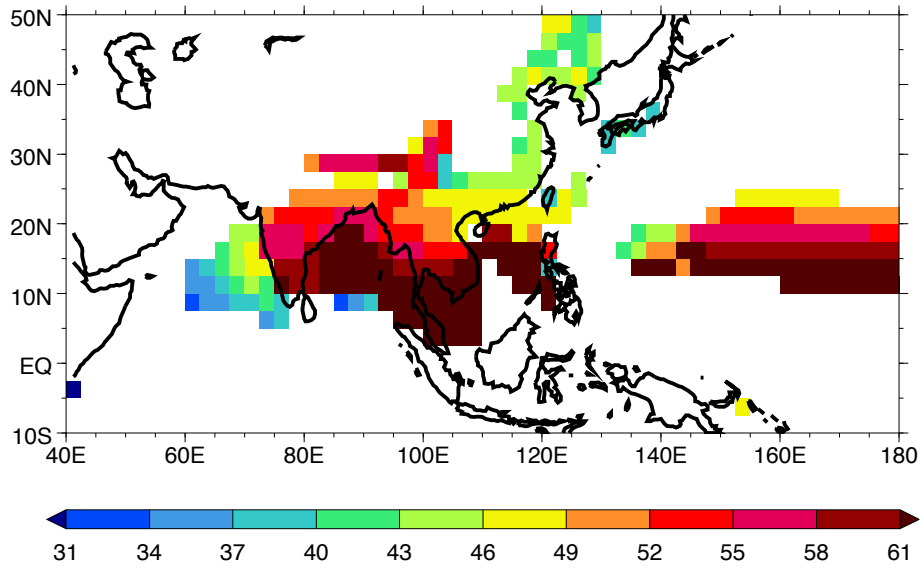
# inm-cm3.0



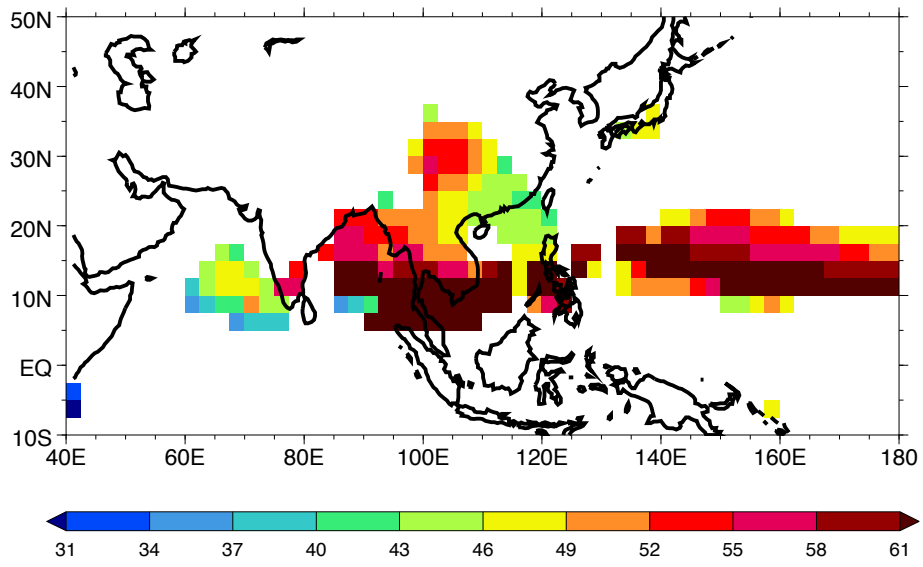
# IPSL-CM5A-LR



# IPSL-CM5A-MR

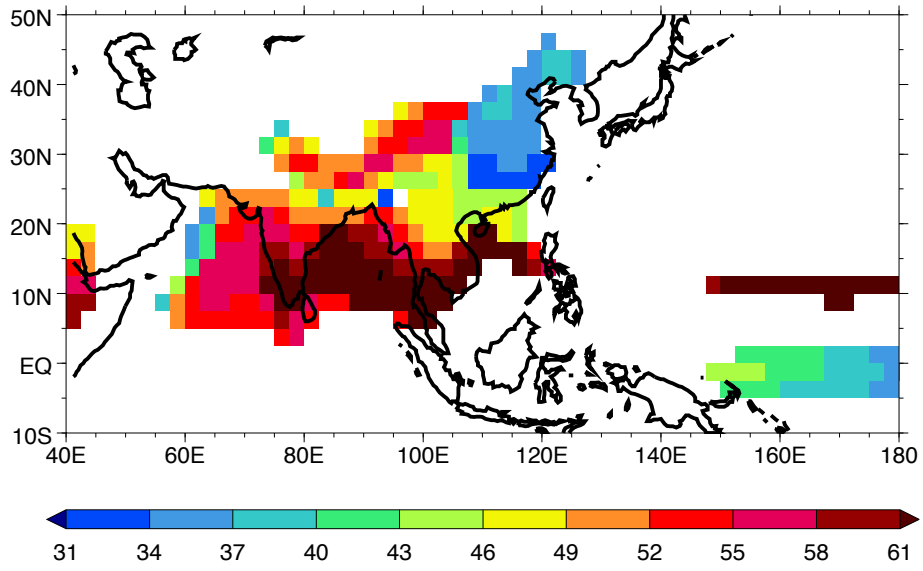


ipsl-cm4

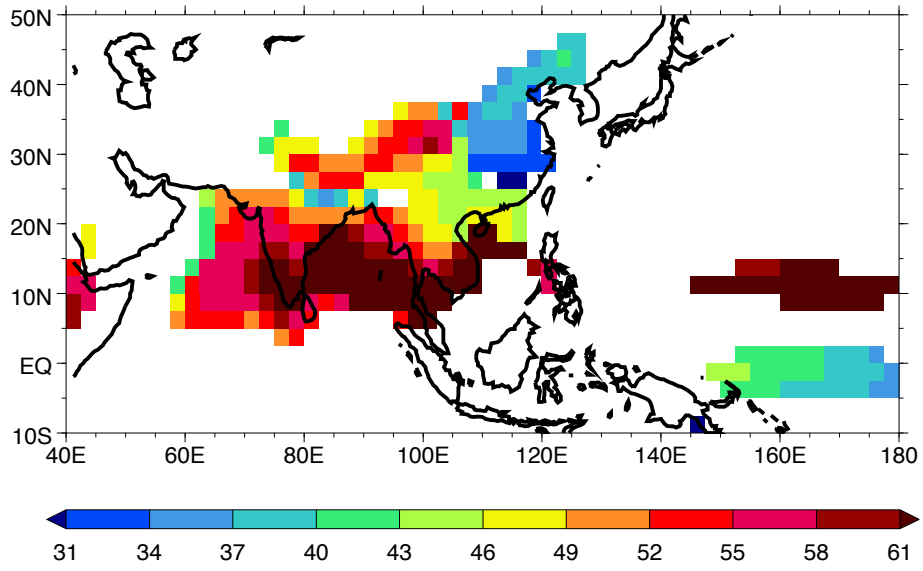




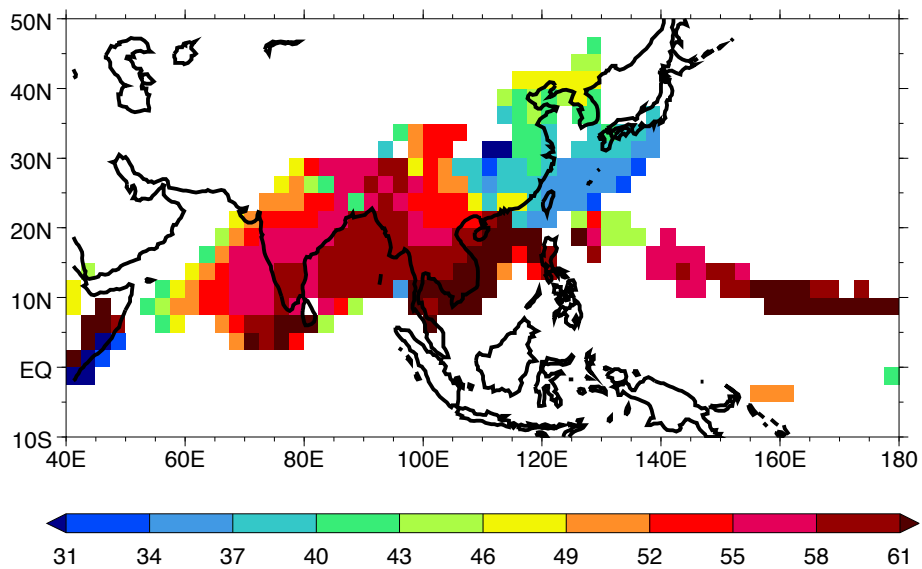
# MIROC-ESM



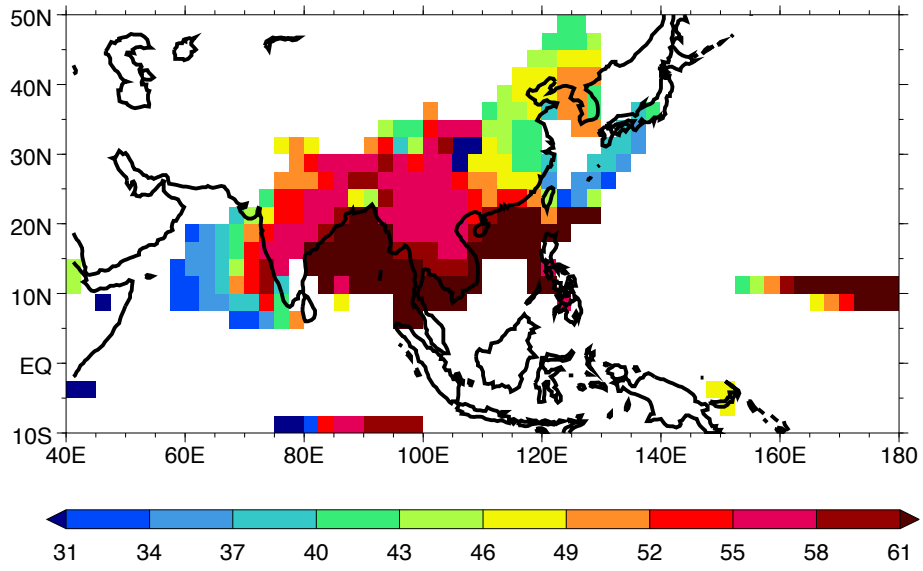
# MIROC-ESM-CHEM



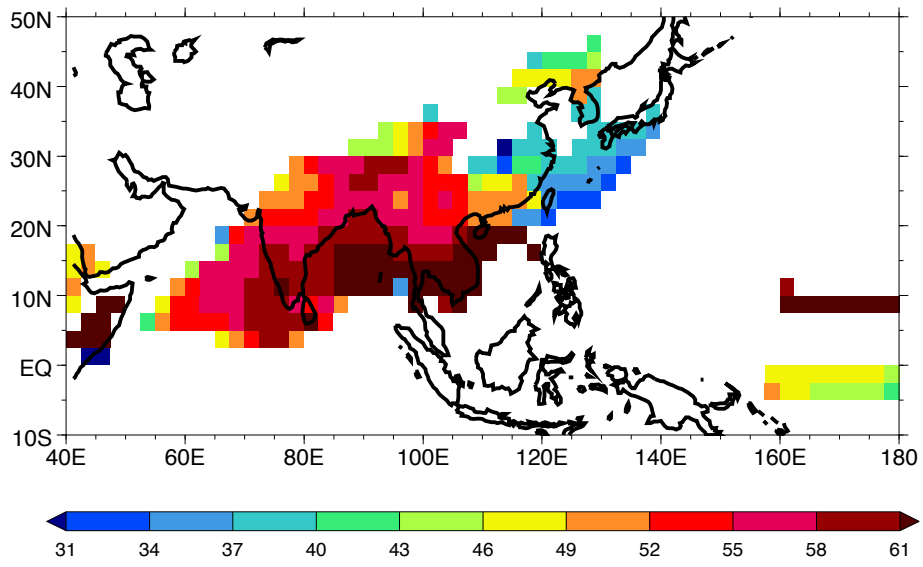
# MIROC4h



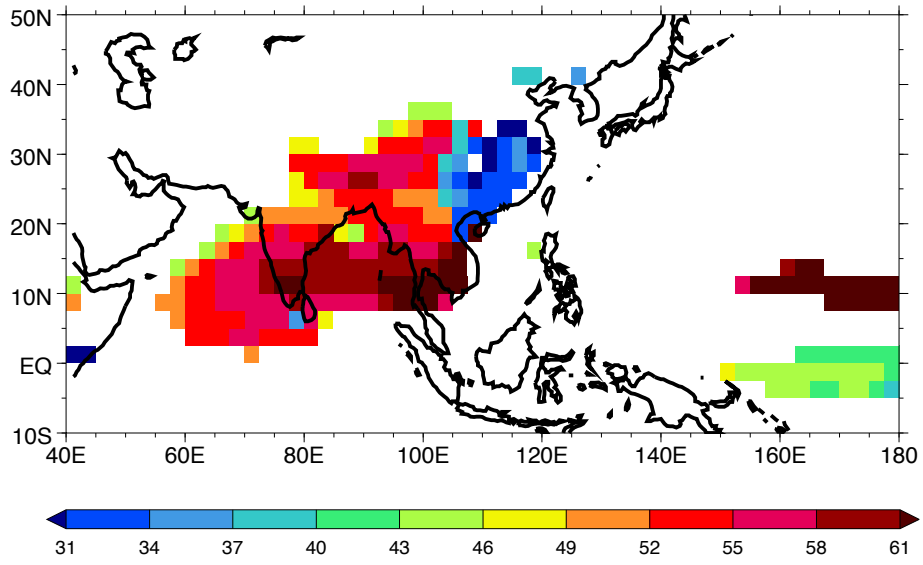
# MIROC5



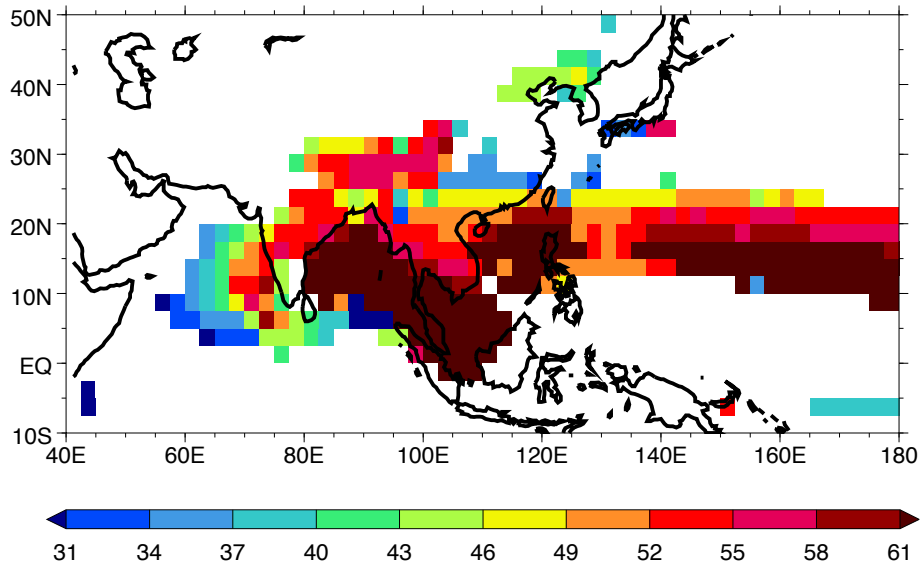
miroc3.2 (hires)



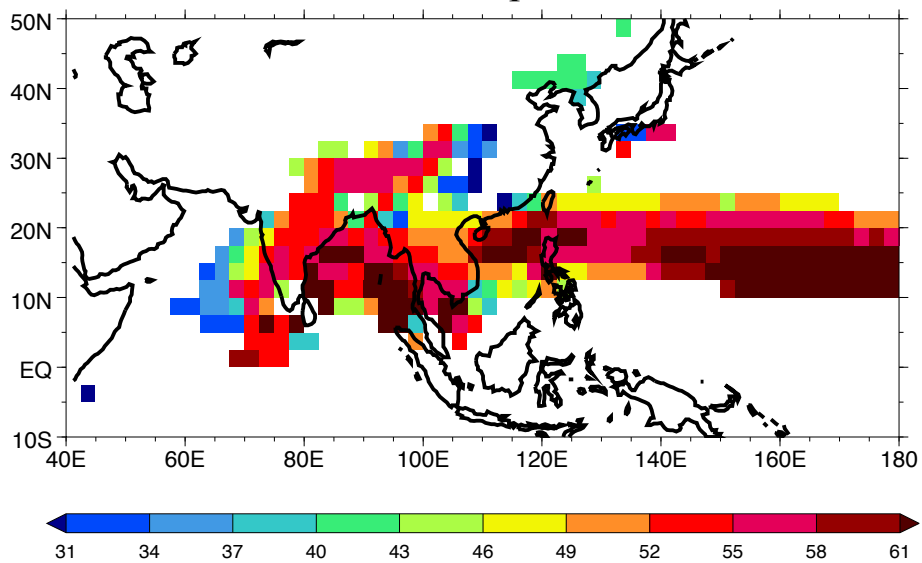
miroc3.2 (medres)



# MPI-ESM-LR

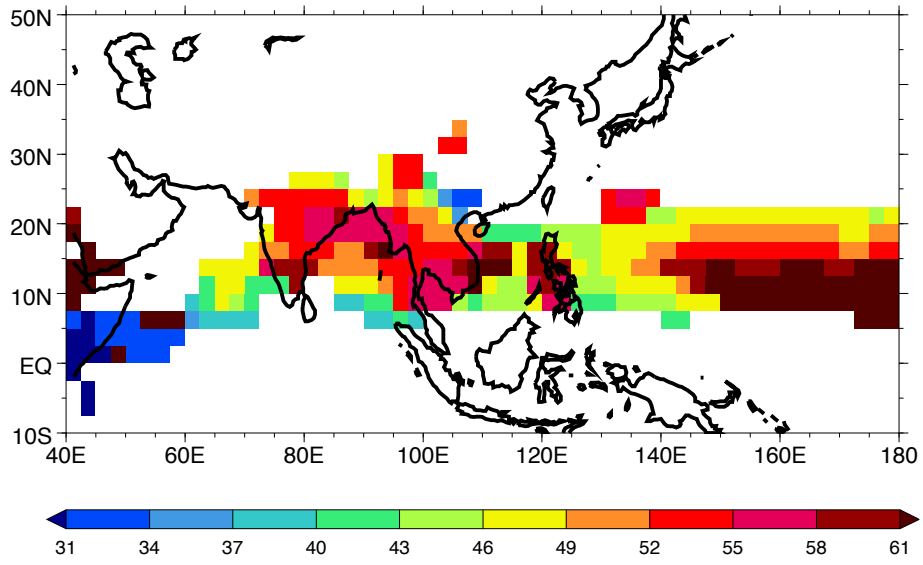


# echam5/mpi-om

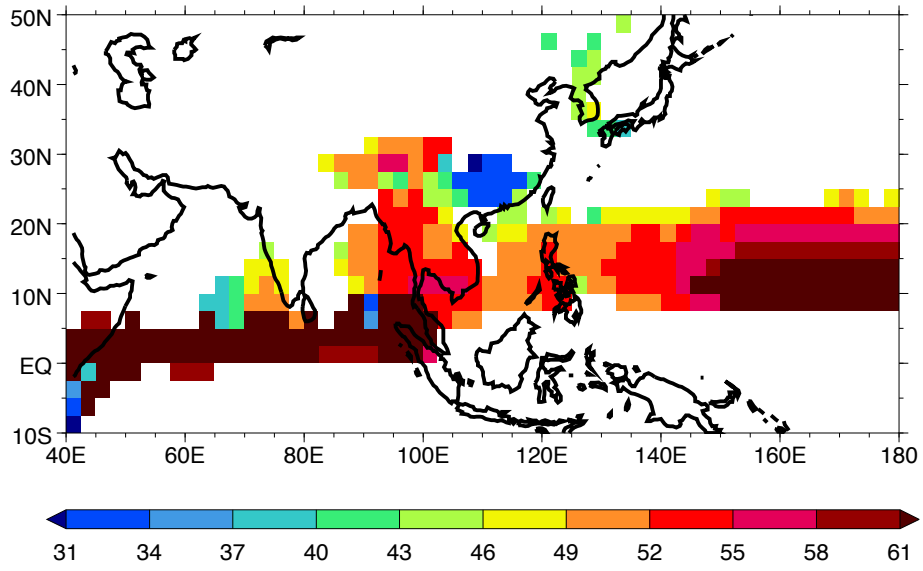




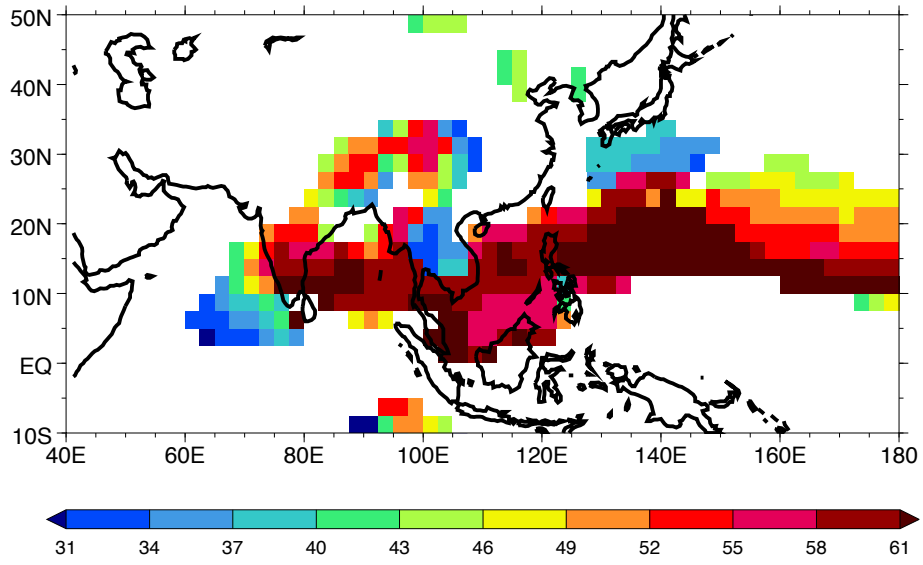
# echo-g



# MRI-CGCM3



mri-cgcm2.3.2



# NorESM1-M

