Overview of the climate change simulated using the Global 20km mesh Atmospheric Model

Lincoln Alves, Jose Marengo, Jose Pesquero, Carlos Nobre

Bonn-Germany

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PURPOSE

1. To provide high resolution climate change scenarios in South America (download of Earth Simulator data – A1B scenario)

To remark on...

1. To examine the AGCM simulations of climate variability for South America at the present-day (1979-1988)

1. A fairly overview of the climate change in South America simulated by 20km mesh AGCM

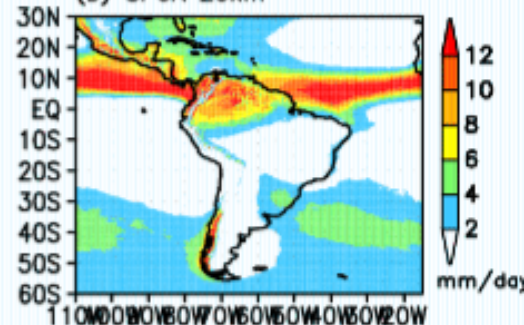# Mean Precipitation for the AGCM models (different horizontal resolution) and Observational data

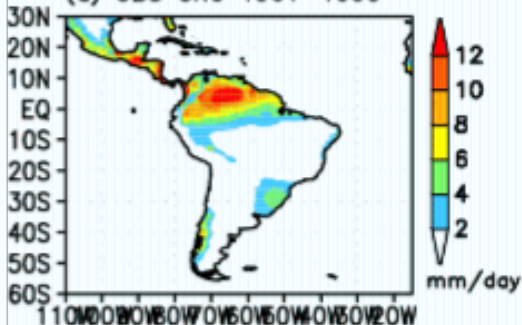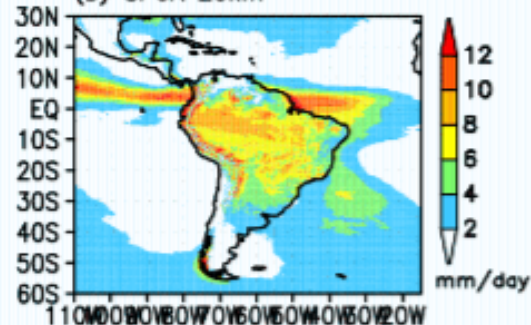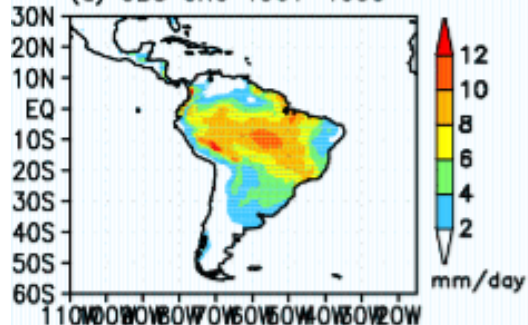summer   winter
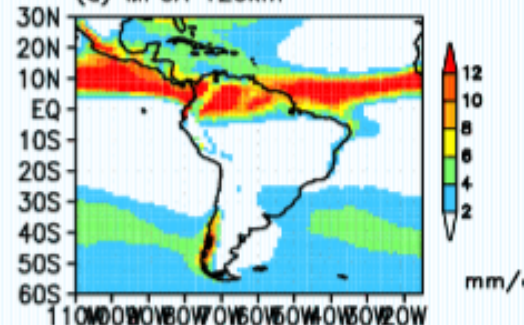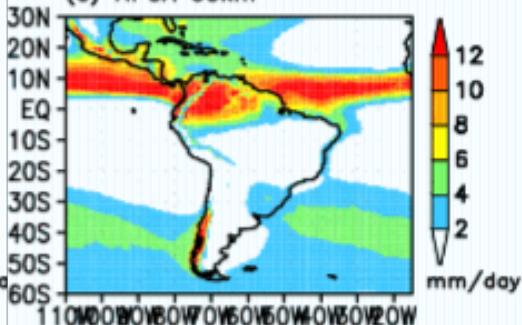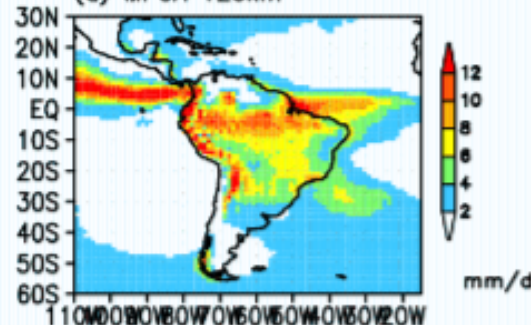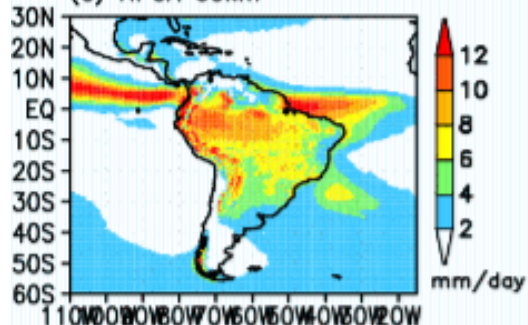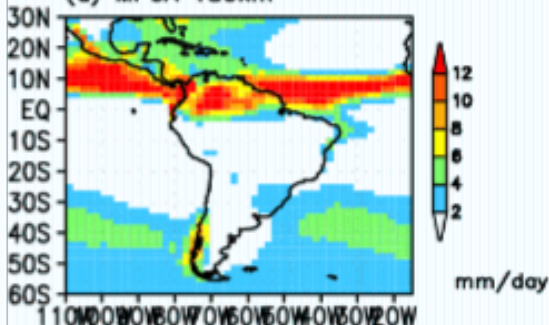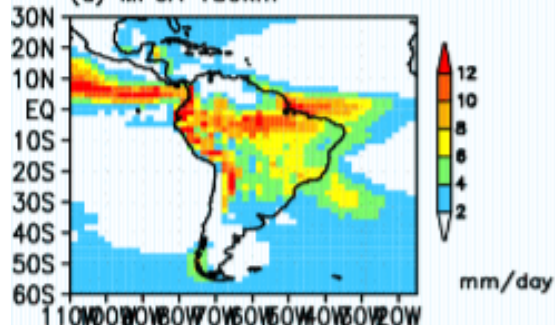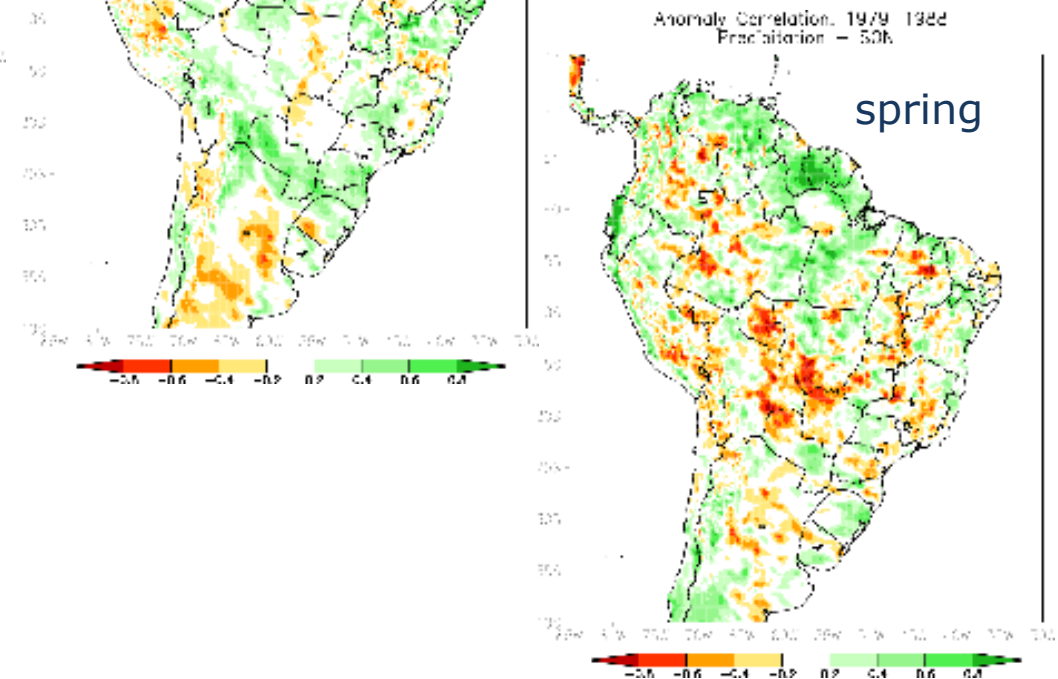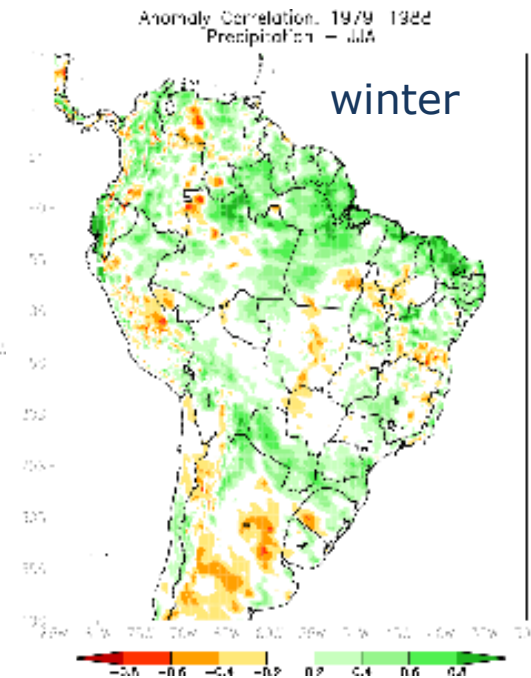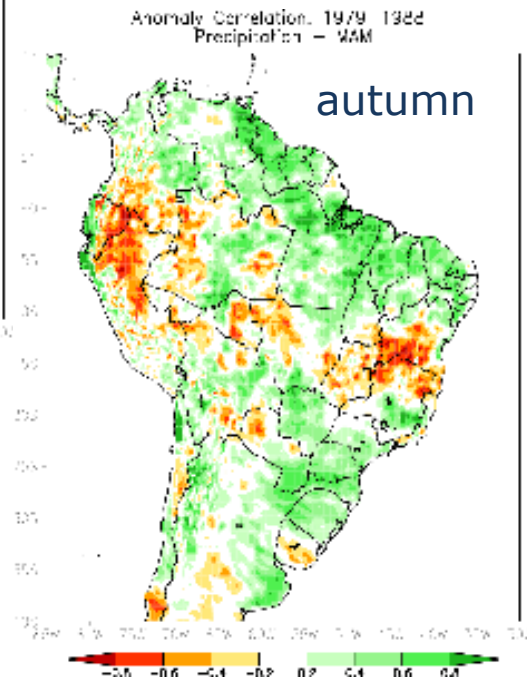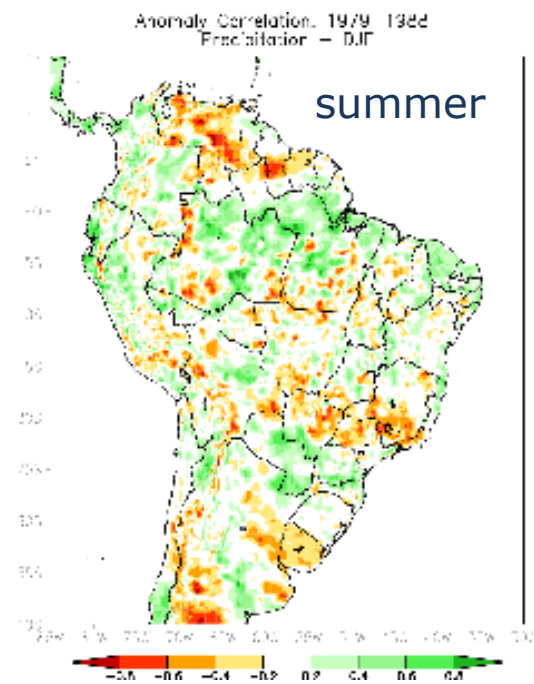
The differences of precipitation between model and observation (present-day) 20km-mesh AGCM
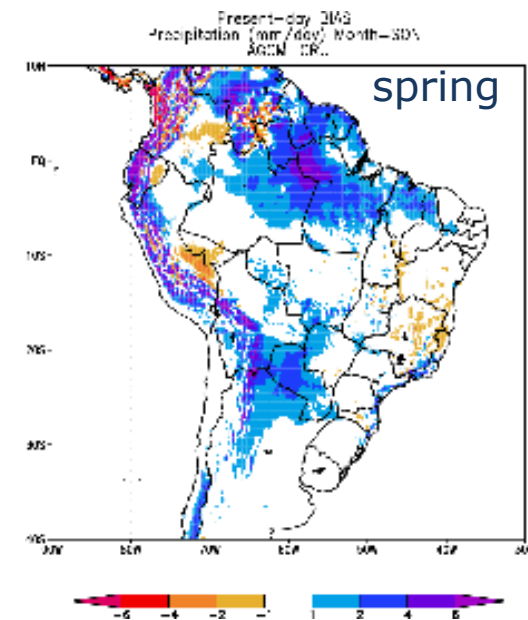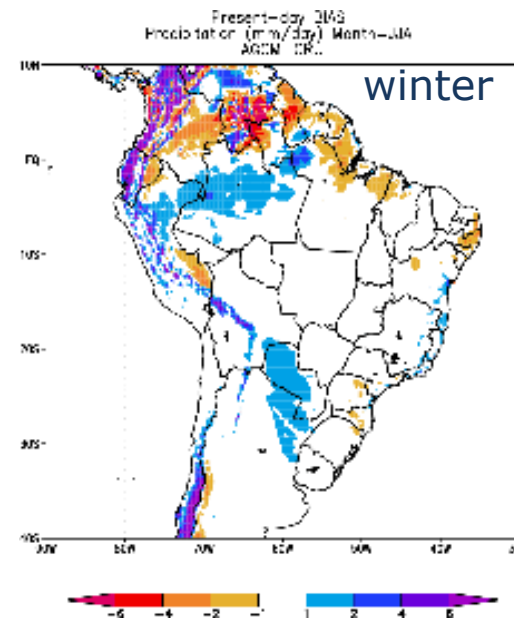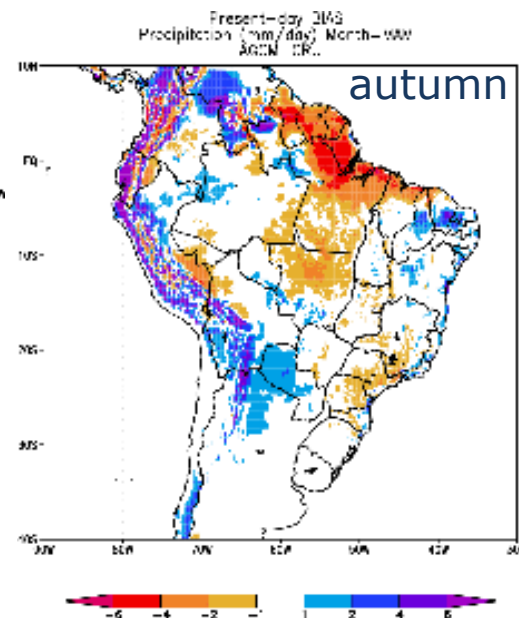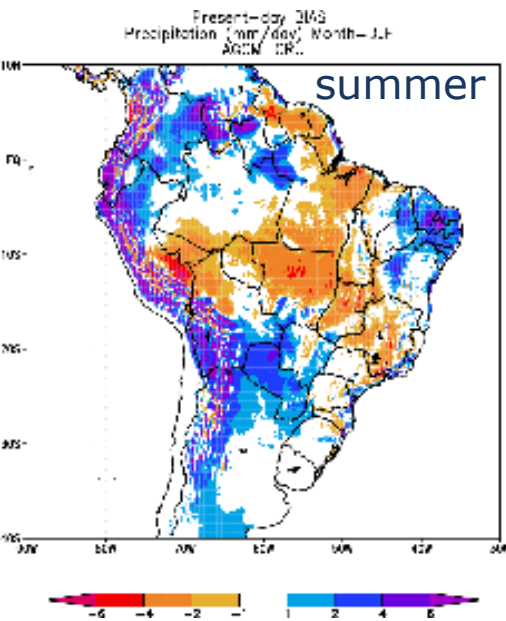
Correlation coefficients between model anomalies and observed anomalies of rainfall (1979-1988) 20km-mesh AGCM
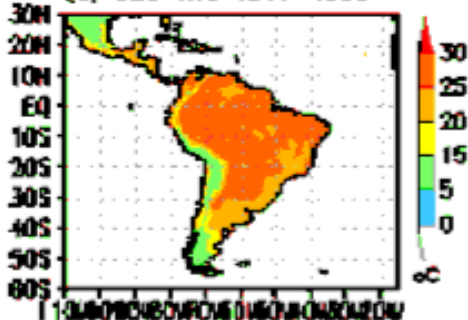
Mean Temperature for the AGCM models (different horizontal resolution) and Observational data
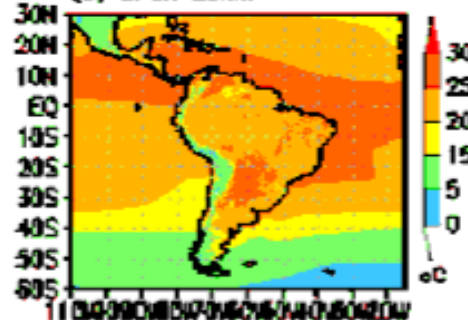
summer

winter

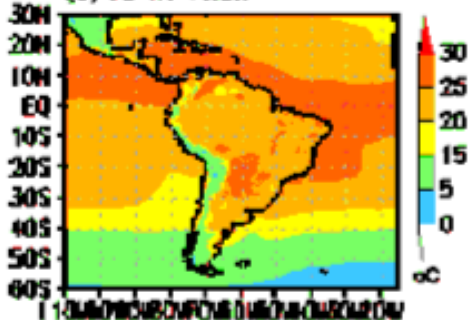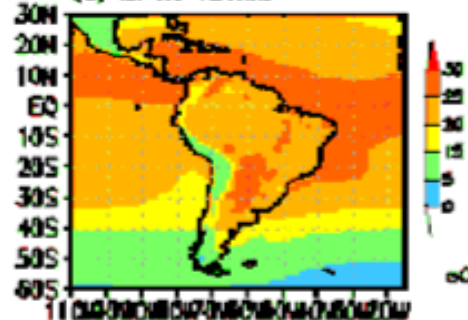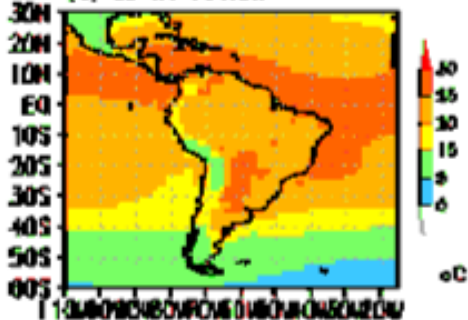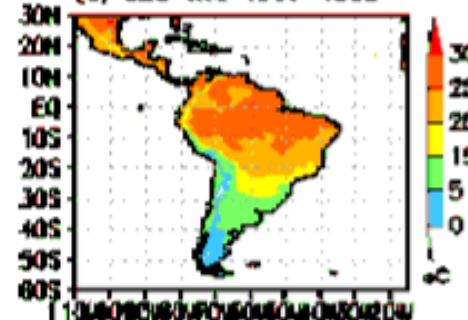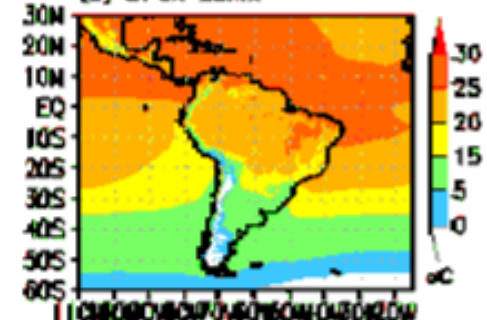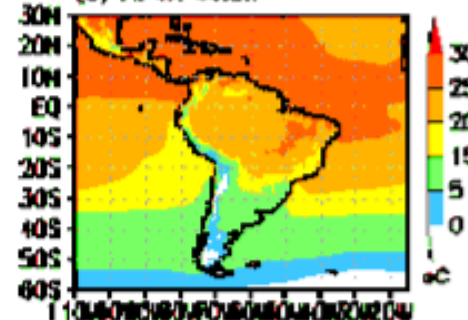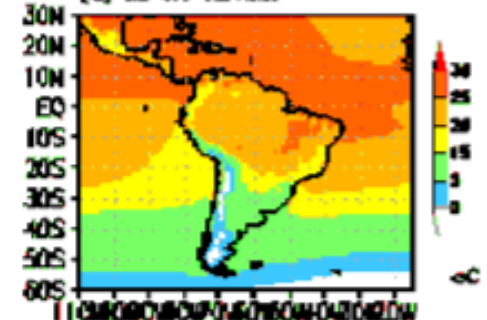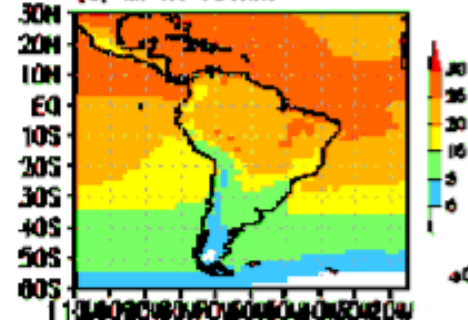The differences of temperature between model and observation (present-day) 20km-mesh AGCM

summer

autumn

winter

spring
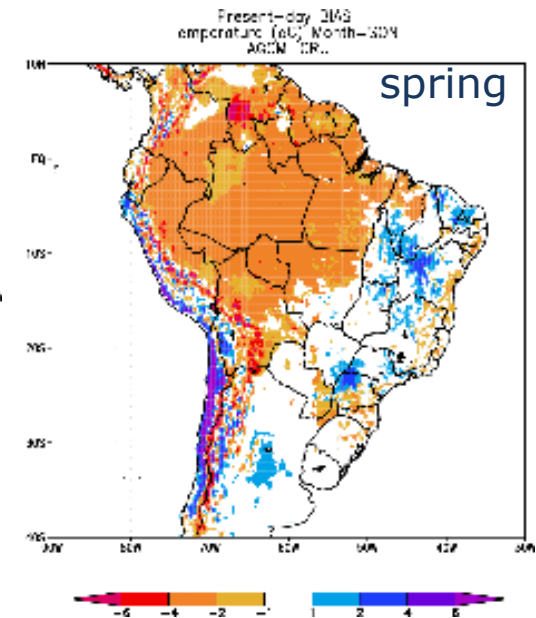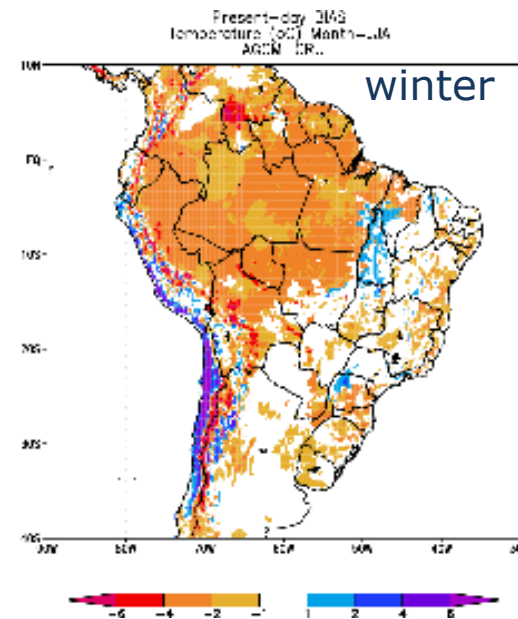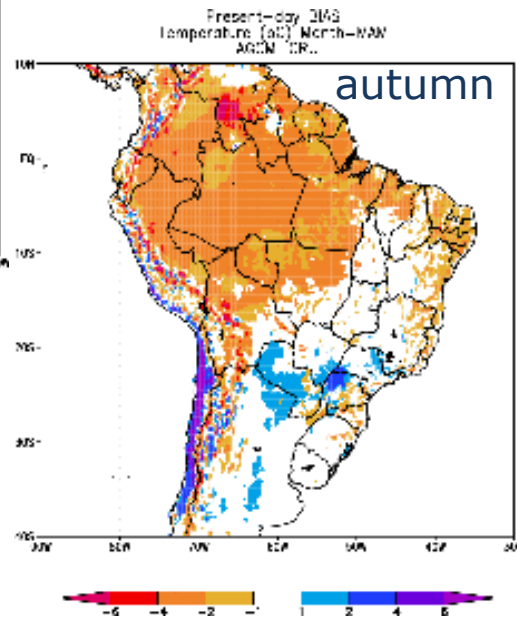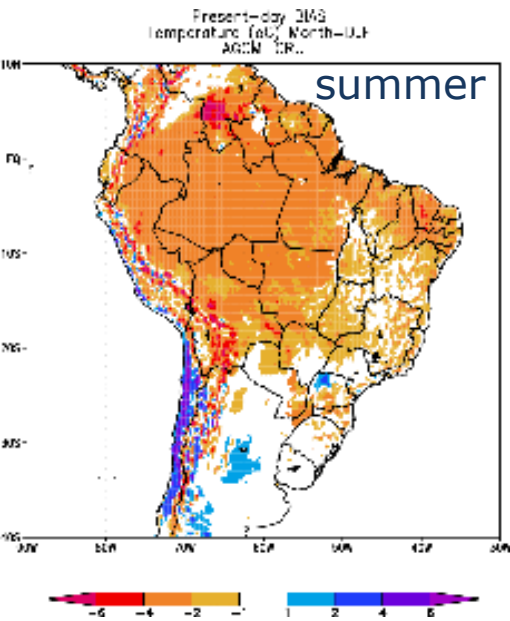
Correlation coefficients between model anomalies and observed anomalies of temperature (1979-1988) 20km-mesh AGCM
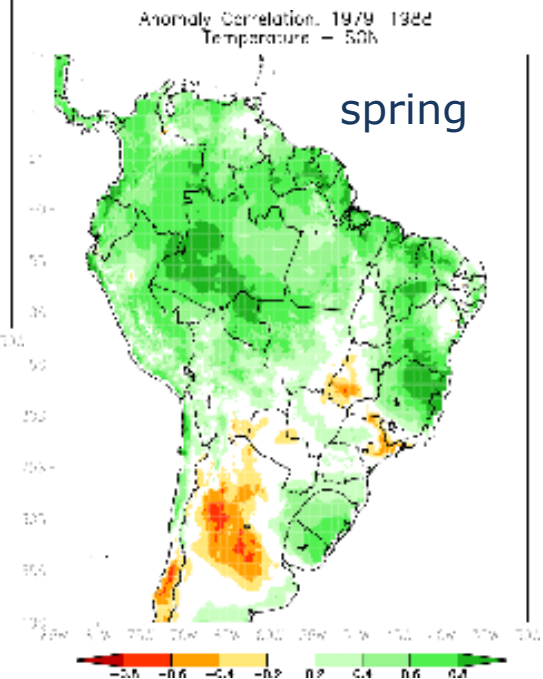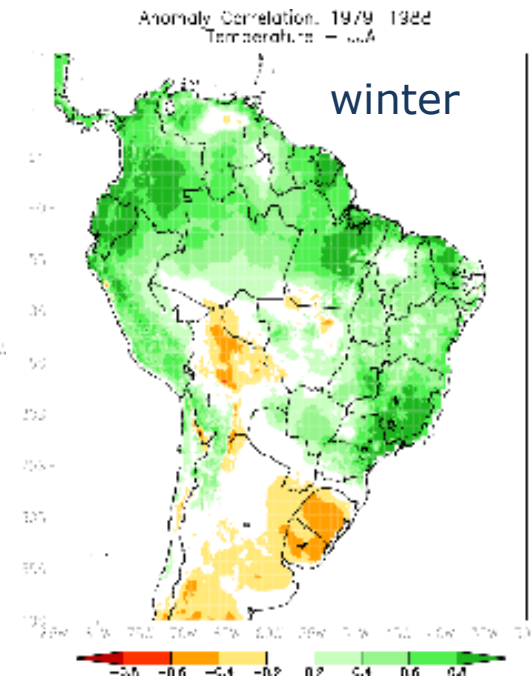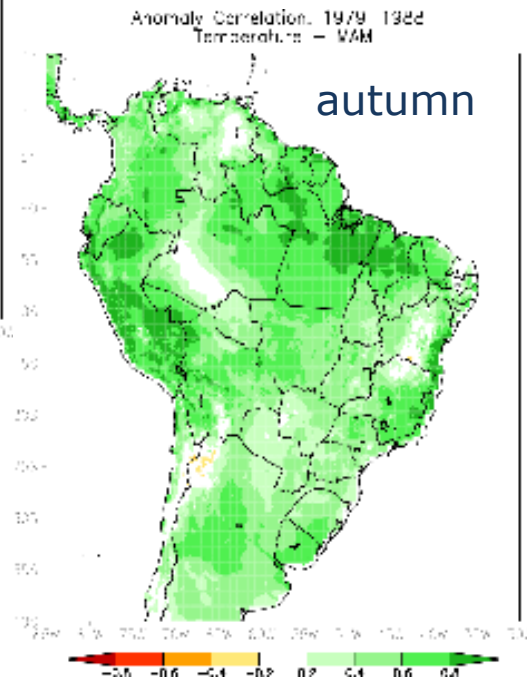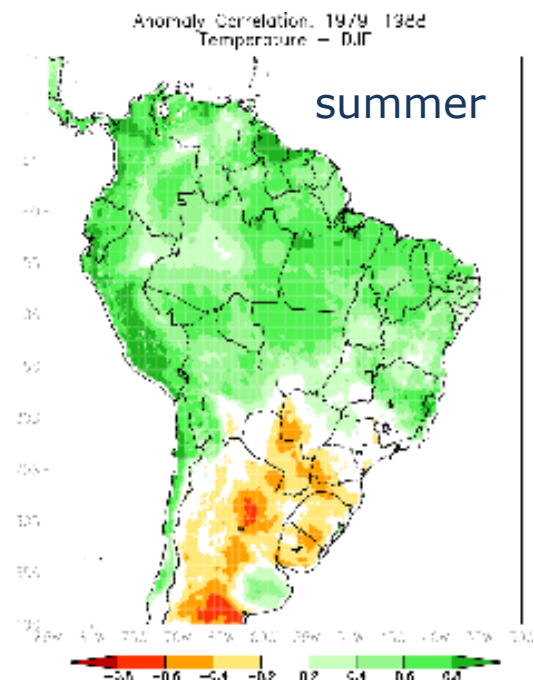
Precipitation change over South America (%)
Precipitation change with respect to 1979 to 1988
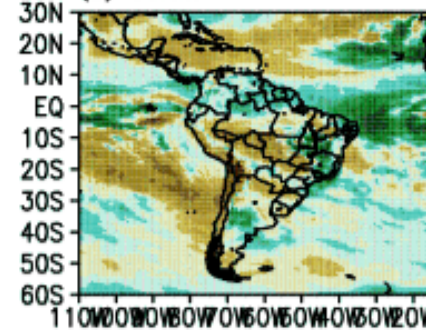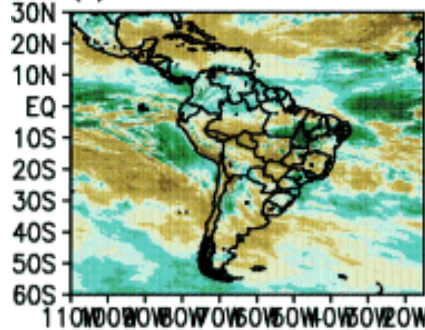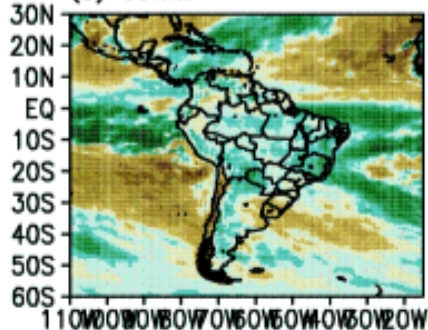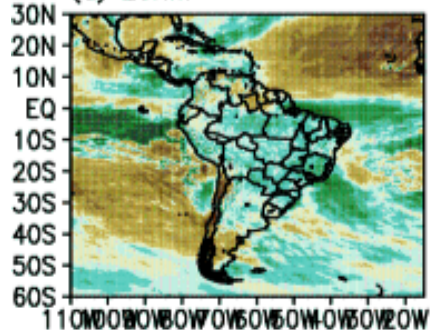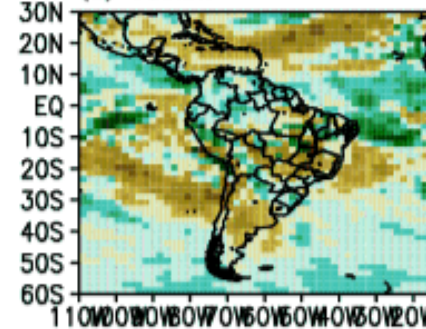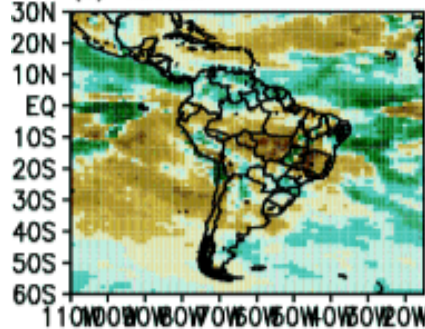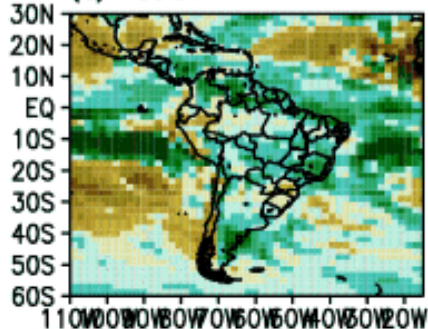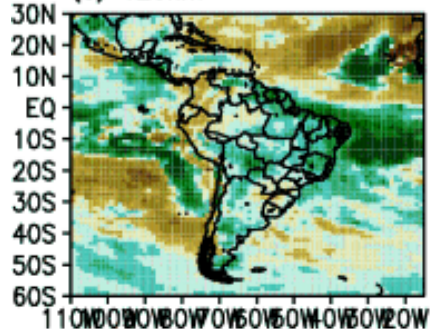
summer   winter

Annual cycle of observed and modelled rainfall in several regions (mm/day)
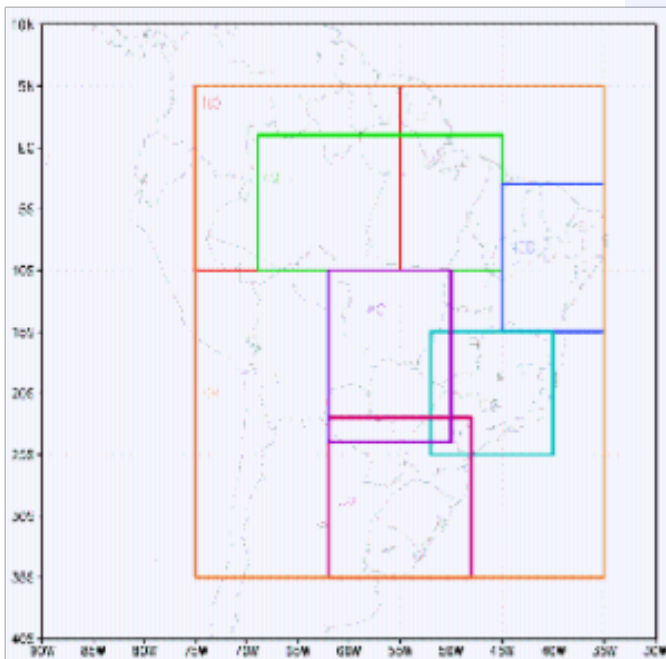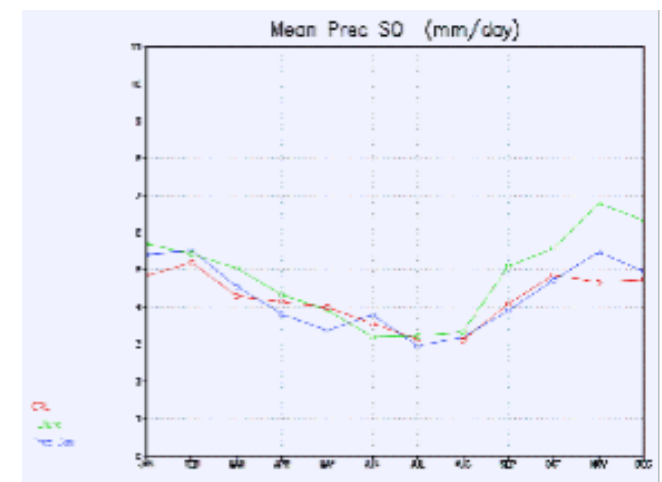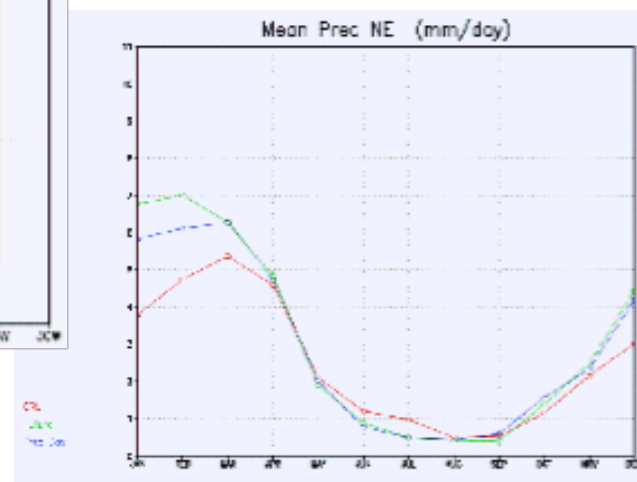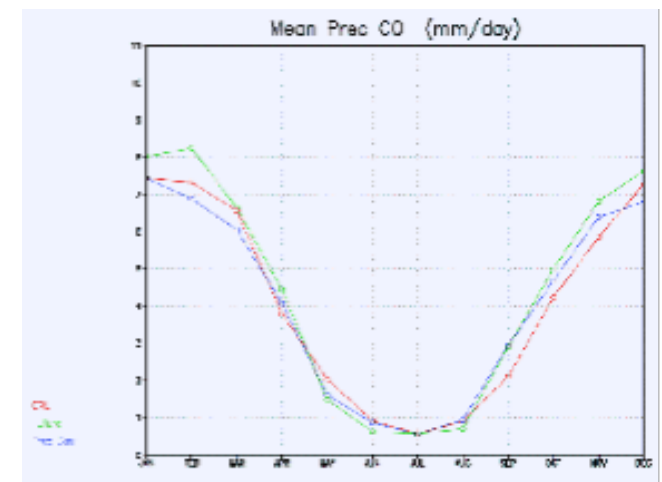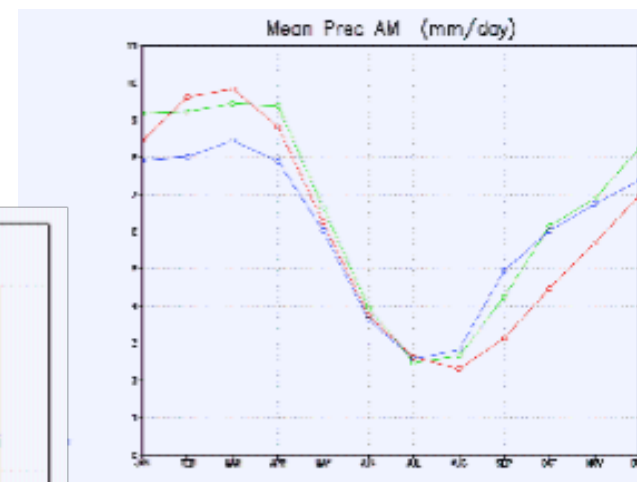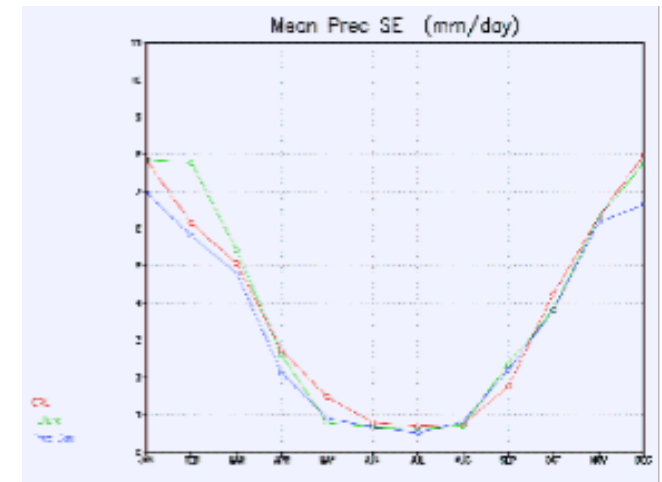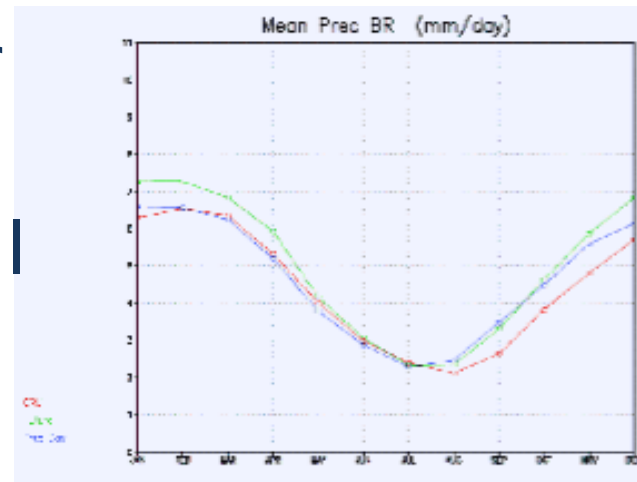
20km-mesh
AGCM

Temperature change over South America (%)
Temperature change with respect to 1979 to 1988

summer

winter
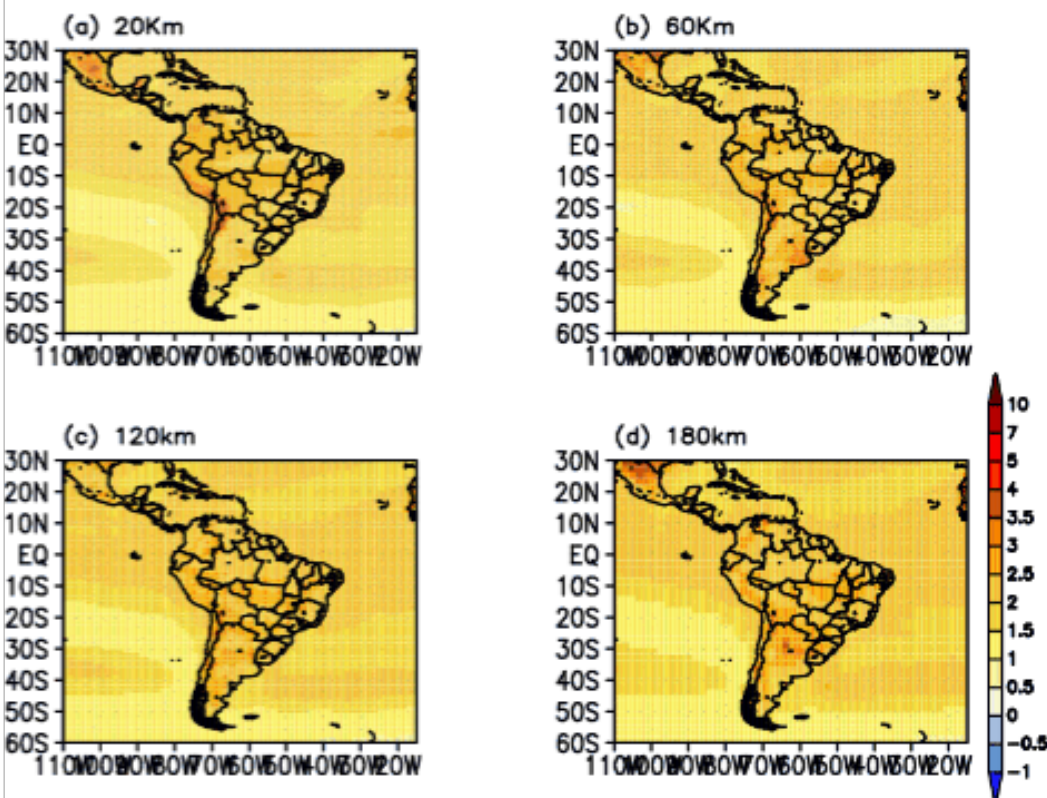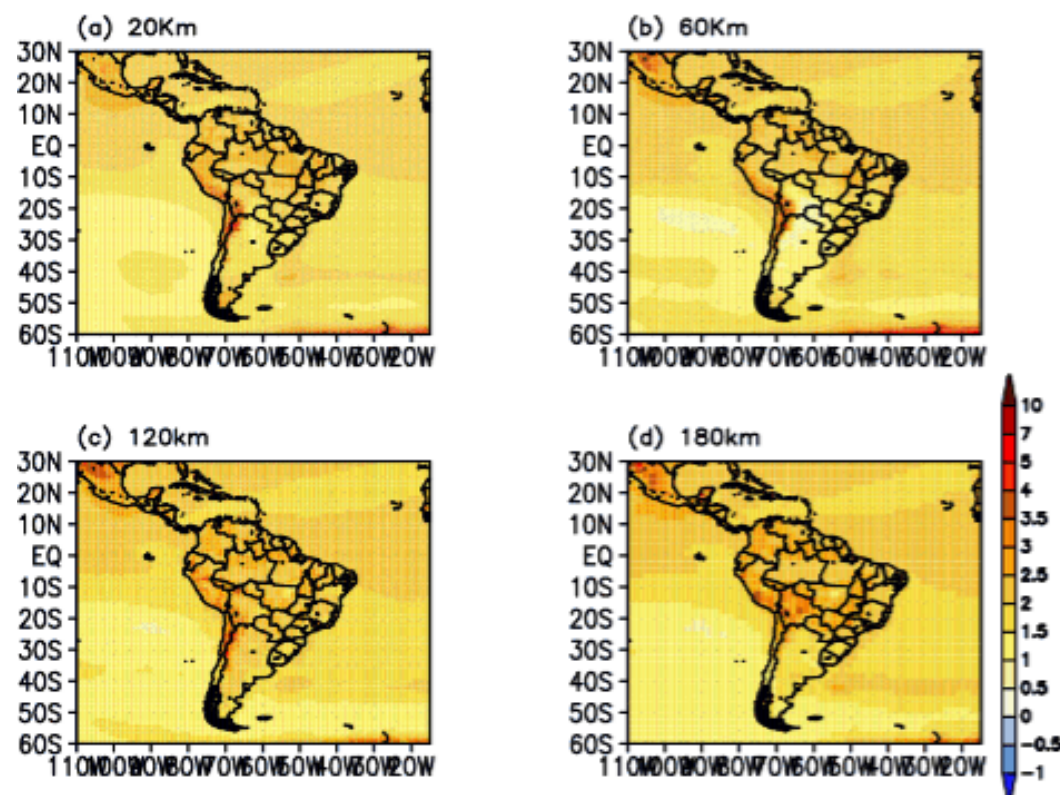
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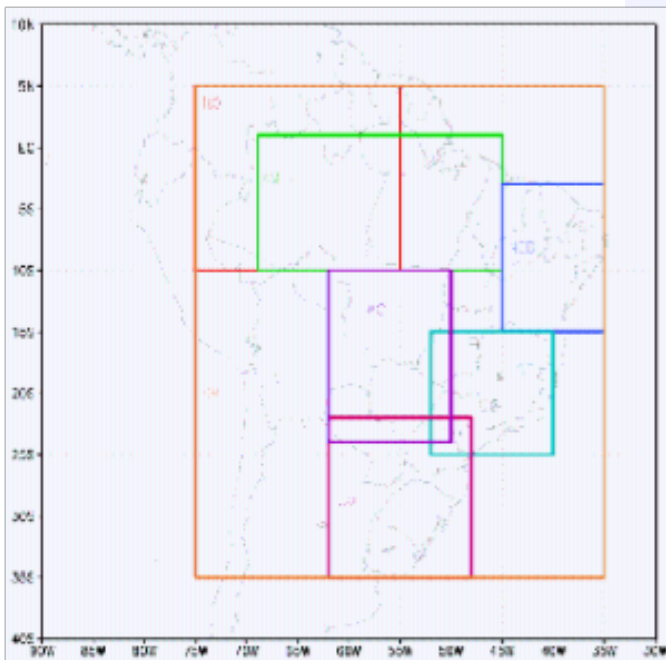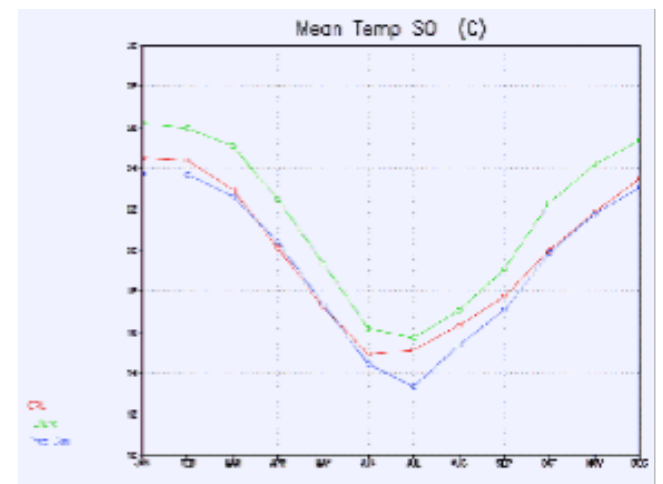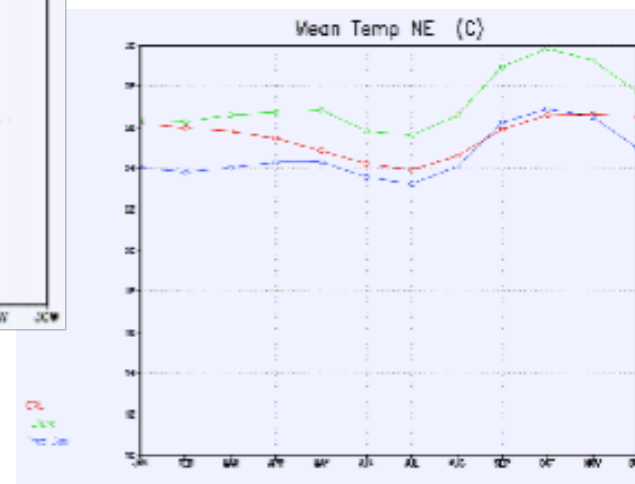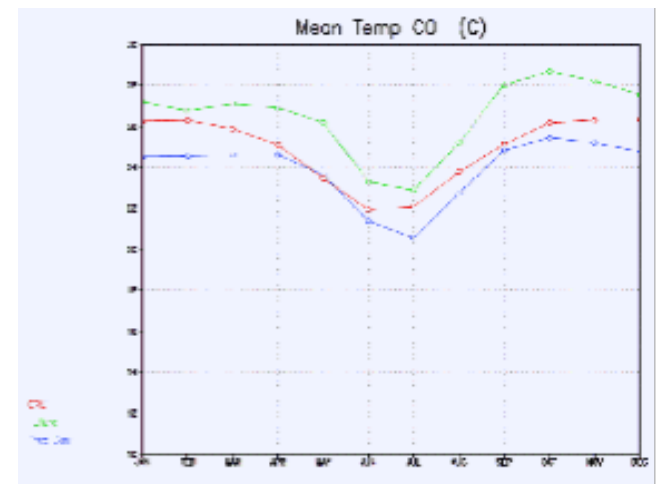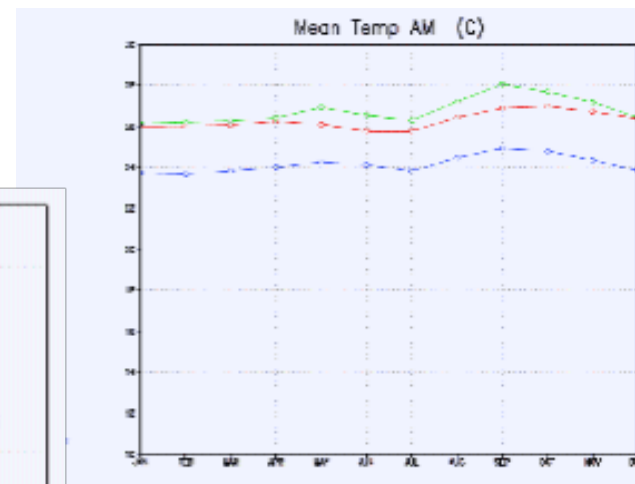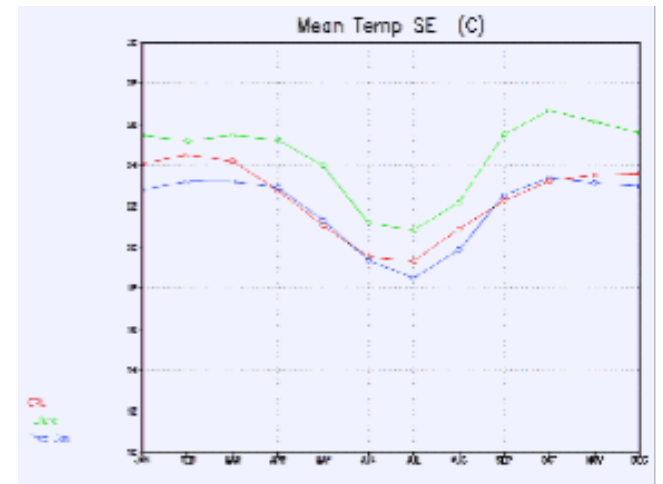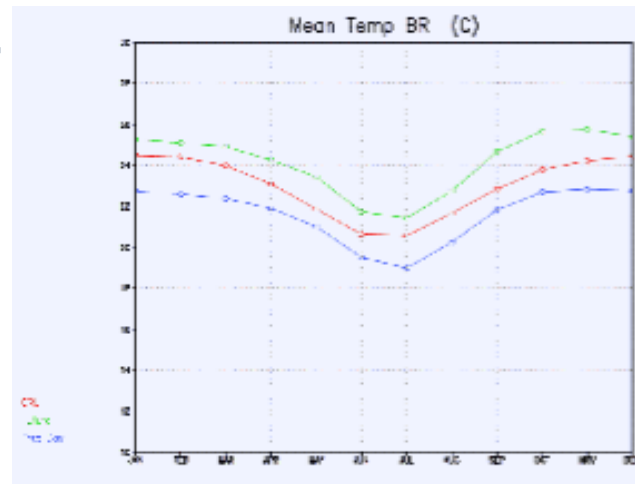
20km-mesh AGCM

SUMMARY AND CONCLUSIONS

1. The model is able to reproduce well the main seasonal large-scale climatological features of the circulation;

1. The main features of the seasonal cycle of precipitation are well simulated by the models. Generally, it still shows deficiency in simulating rainfall along the SACZ and mountain. Systematically underestimates rainfall in Amazonia;

1. The model has reasonable skill over northern South America;

1. The seasonal variability of temperature in the models is simulated well mainly in the mid-latitudes regions in both seasons. However, there are large cold bias over the northern part of South America;

SUMMARY AND CONCLUSIONS

1. All the results about temperature in the future are more warming than today. The values are between 0.5 and 2.5. Turning that result inside of happened with climate change simulation for this type scenario.

1. The bias are more large mainly for Amazon Region and northeastern Brazil. The bias of Brazil could be related with the great amount of precipitation in the same period;

1. In the climate response to A1B scenario projected by 20km mesh AGCM the changes in occurrence of extreme indices suggest increases in the frequency and intensity of extreme rainfall events for the most part of the Brazil.

MANY THANKS!

Corresponding author:
Lincoln M. Alves
INPE/CPTEC
Cachoeira Paulista, Sao Paulo, Brazil
12630-000

lincoln@cptec.inpe.br