



CLIMATE PROJECTIONS IN THE PHILIPPINES UNDER FAO-AMICAF PROJECT

ANTHONY JOSEPH R. LUCERO

Senior Weather Specialist

Climate Monitoring and Prediction Section



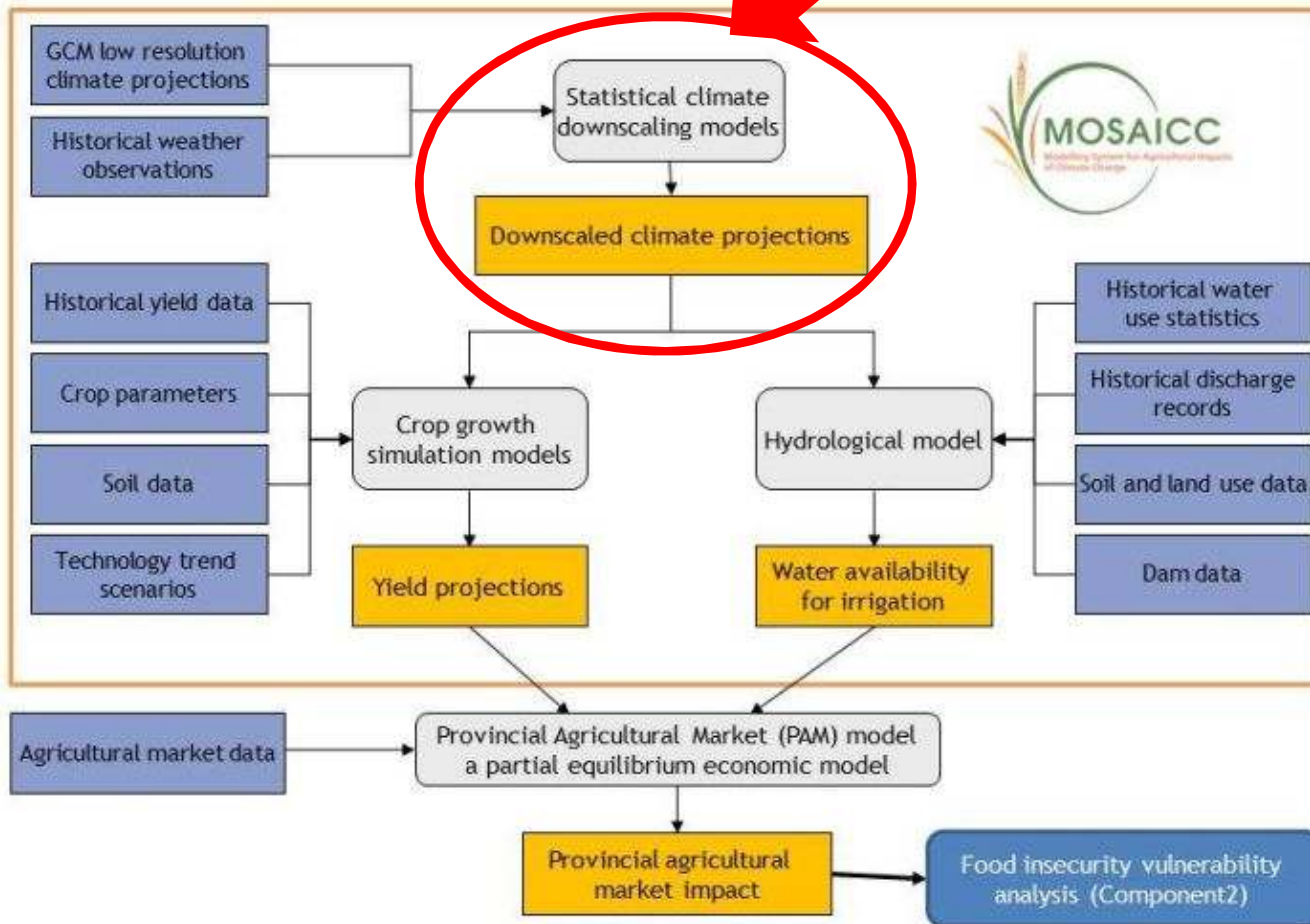


OUTLINE

- Involvement of PAGASA with FAO-AMICAF Project
- Introduction to basic concepts of climate projections
- Methodology and Timeline
- Results

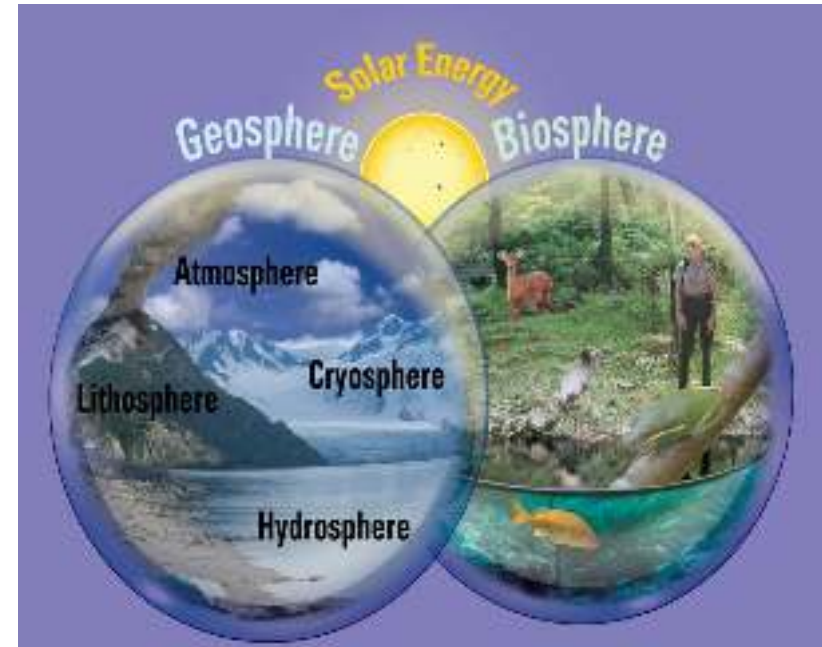


AMICAF PROJECT



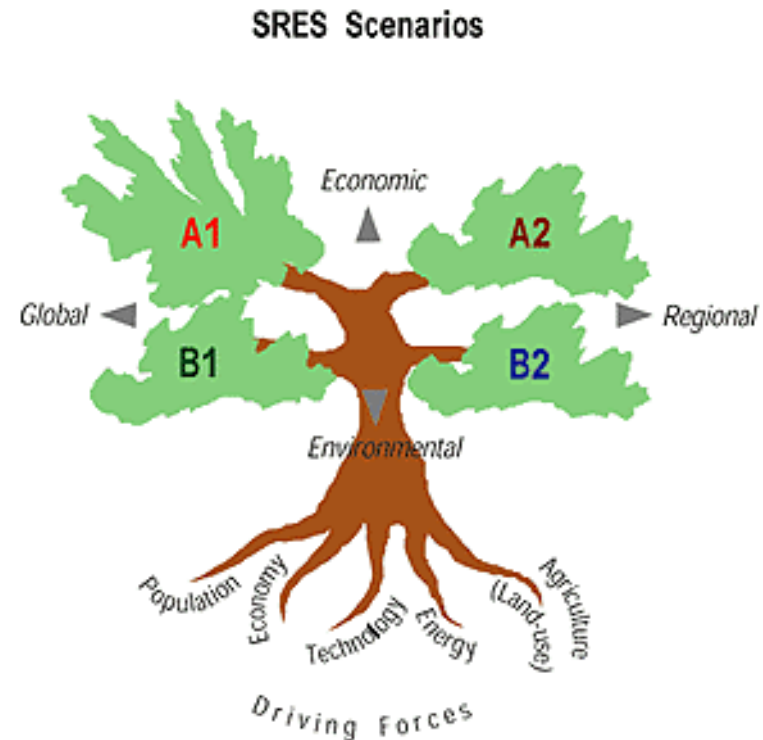
BASIC CONCEPTS

- **CLIMATE MODELS** – representation of the interactions in the global climate system



BASIC CONCEPTS

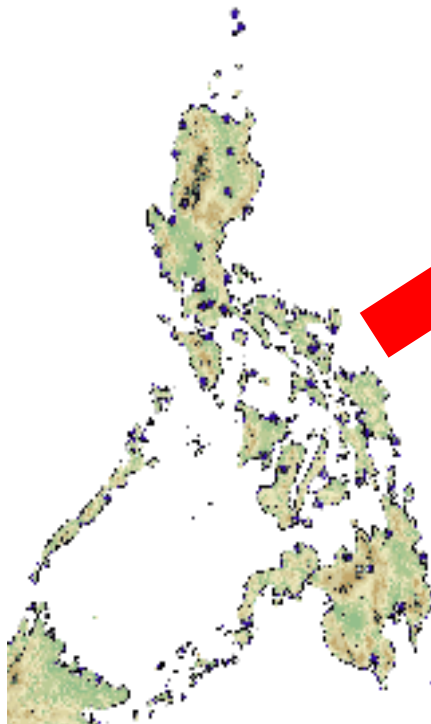
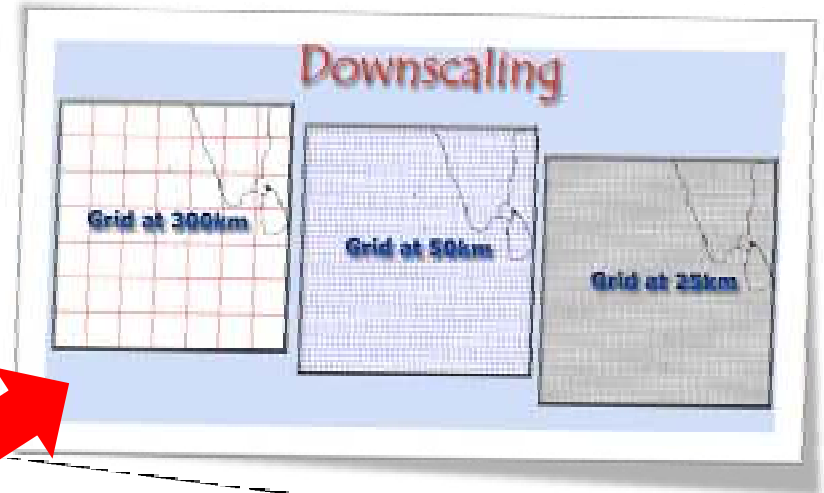
- **CLIMATE SCENARIOS** – description of the future world through different storylines
- **A1B Scenario** - very rapid economic growth, global population that peaks in mid-century and declines thereafter, and the rapid introduction of new and more efficient technologies and BALANCE USE OF FOSSIL AND NON-FOSSIL FUEL
- **A2 Scenario** - Economic development is primarily regionally oriented and per capita economic growth and technological change more fragmented and slower than other storylines.



BASIC CONCEPTS

- **STATISTICAL DOWNSCALING**

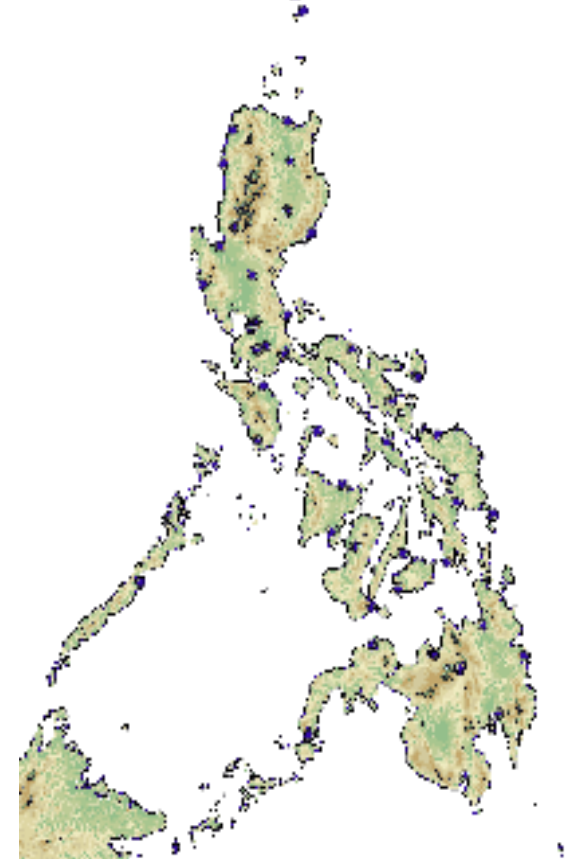
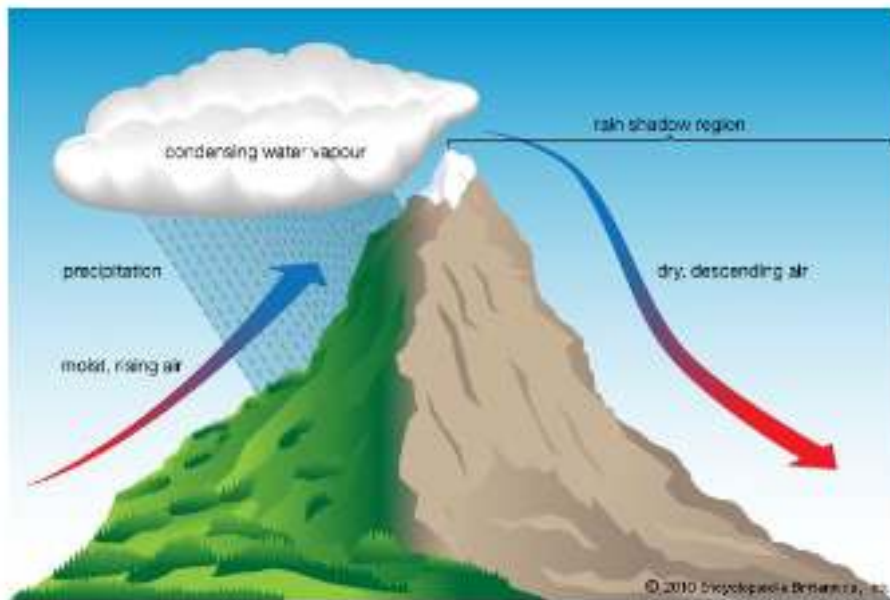
- establishment of statistical relationship between observations and large-scale climate models and scenarios



BASIC CONCEPTS

SPATIAL (AURELHY) INTERPOLATION

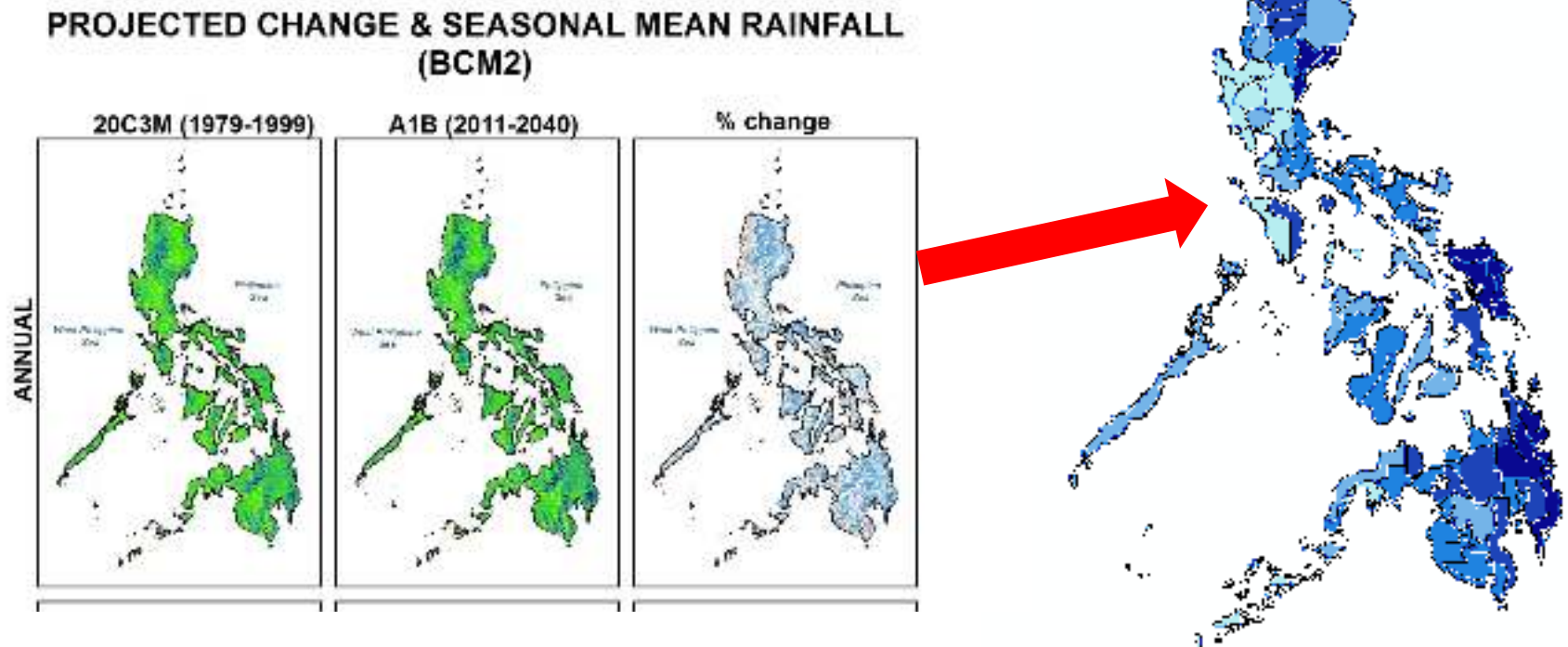
- using model output at station level from statistical downscaling to interpolate model output with topography



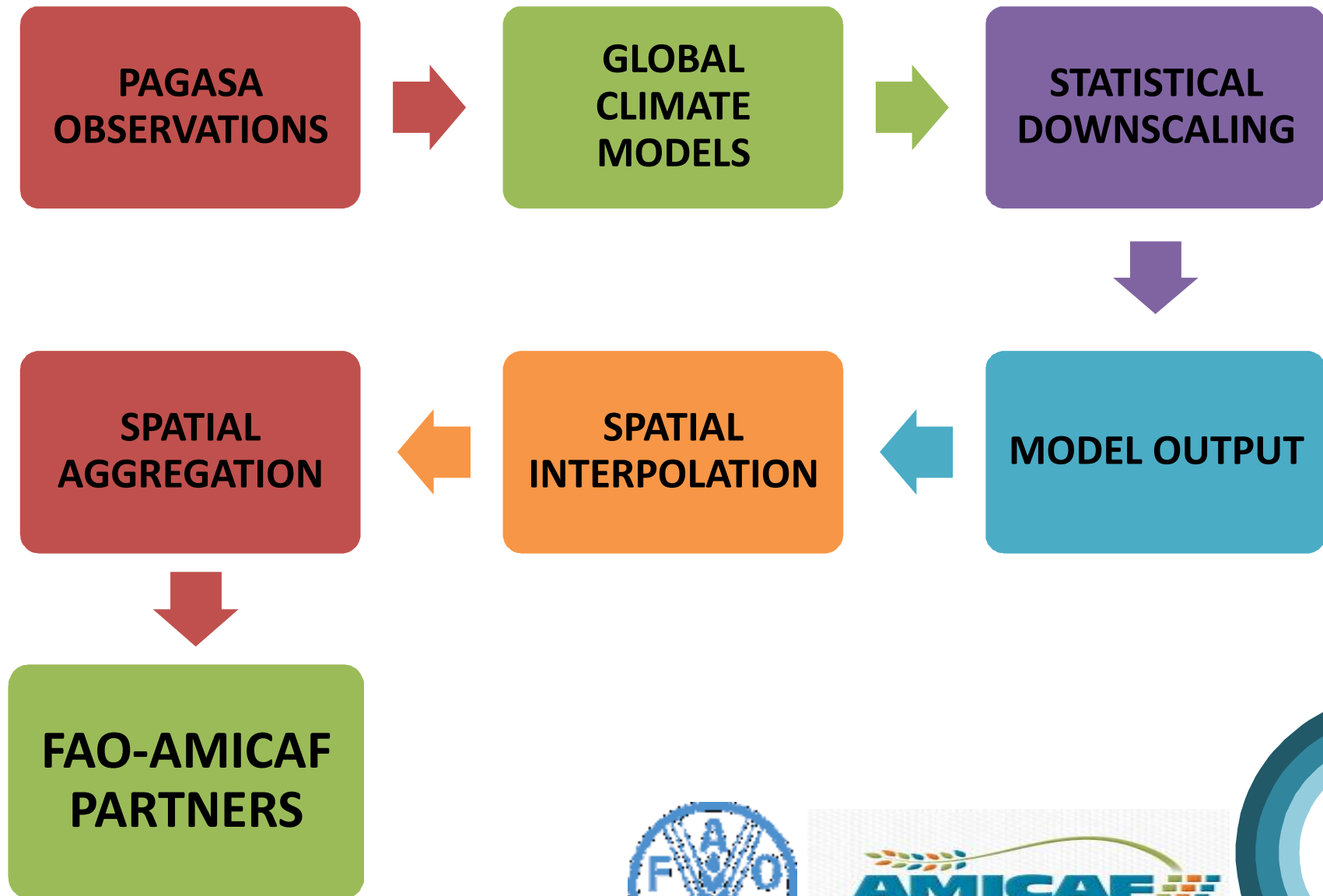
BASIC CONCEPTS

SPATIAL AGGREGATION

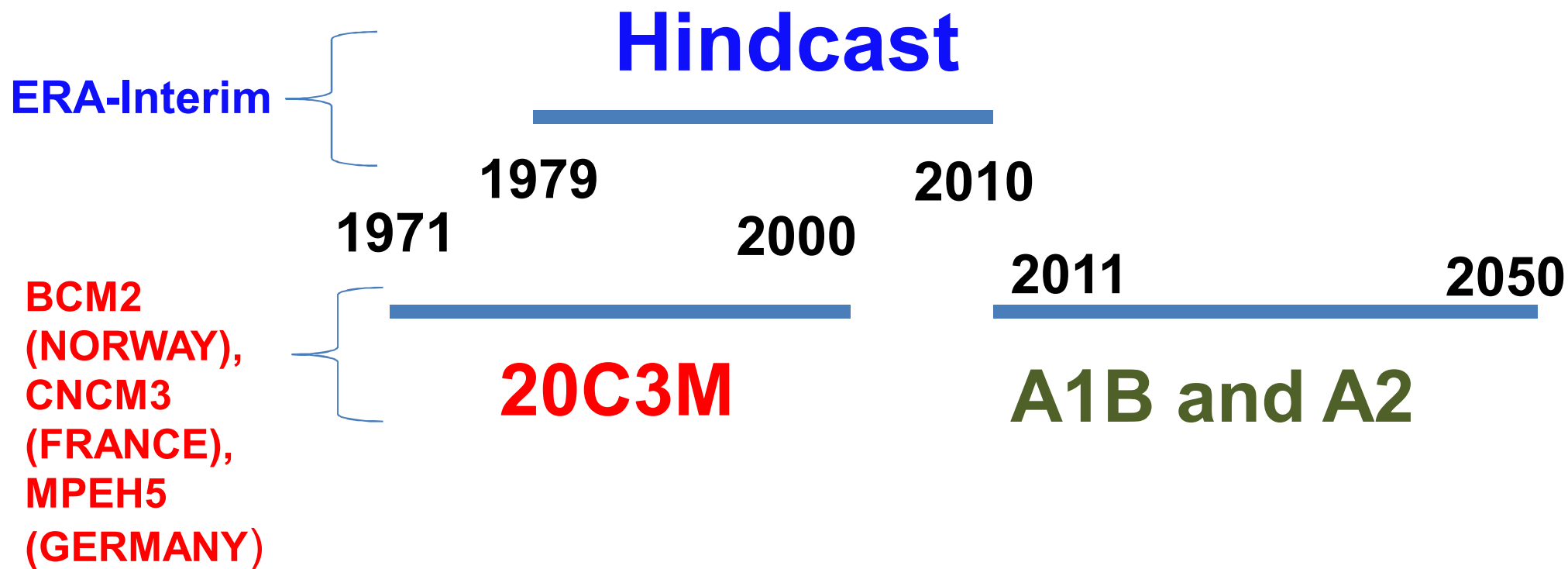
- Generating climate data for all provinces of the Philippines



METHODOLOGY



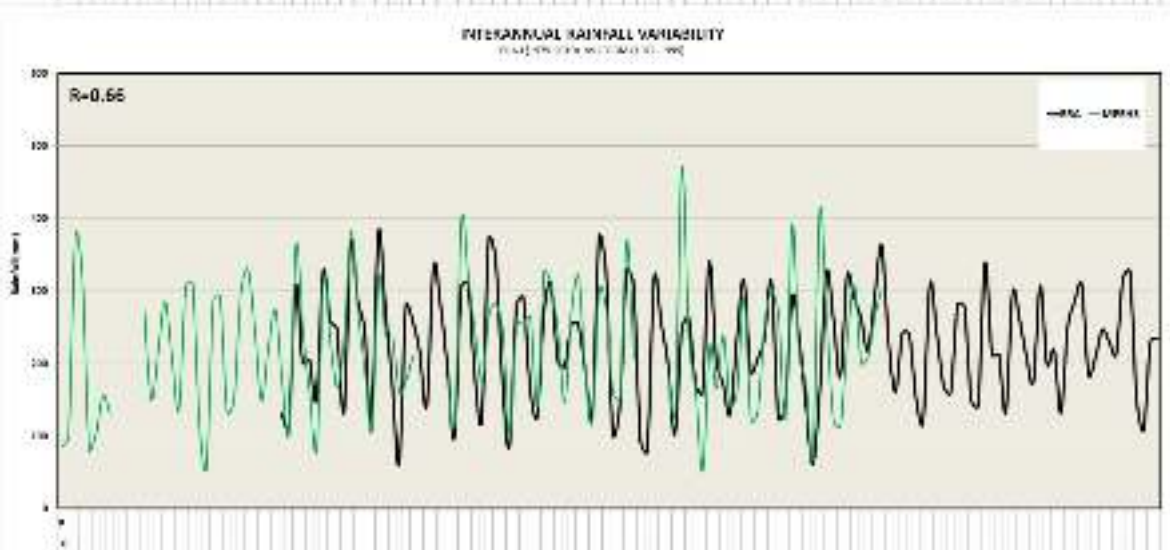
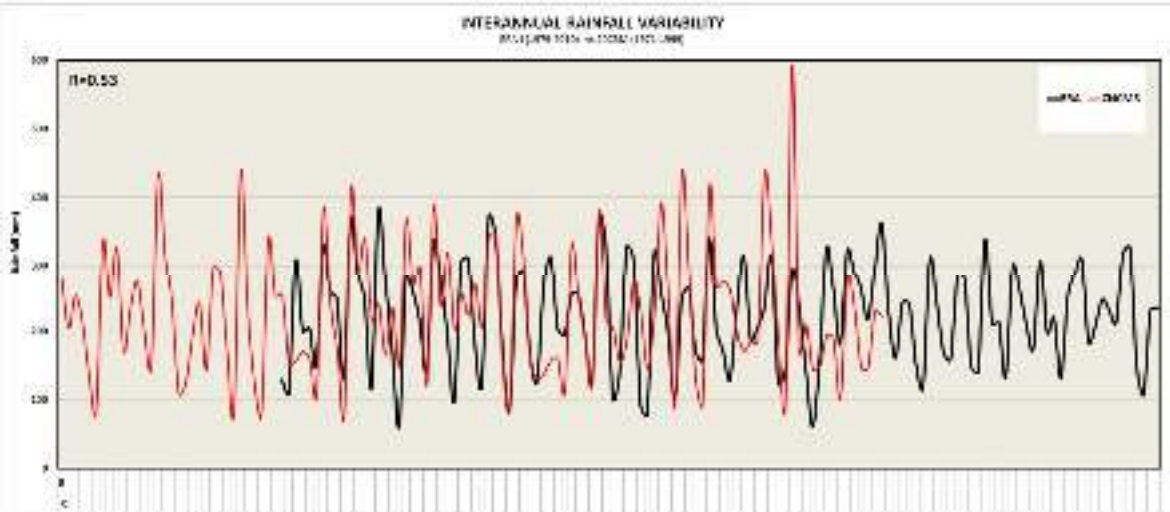
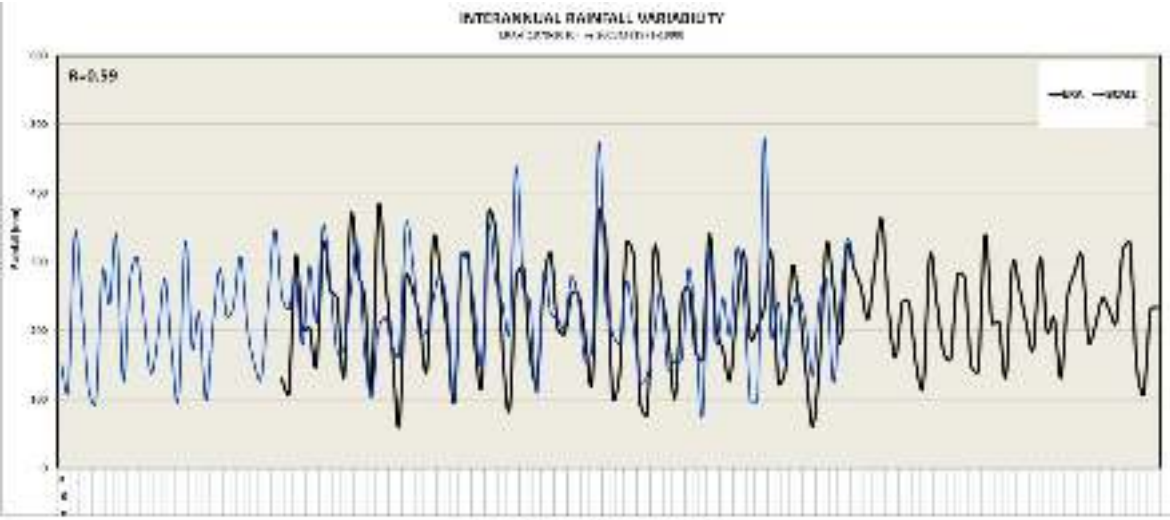
TIMELINE





RESULTS AND FINDINGS



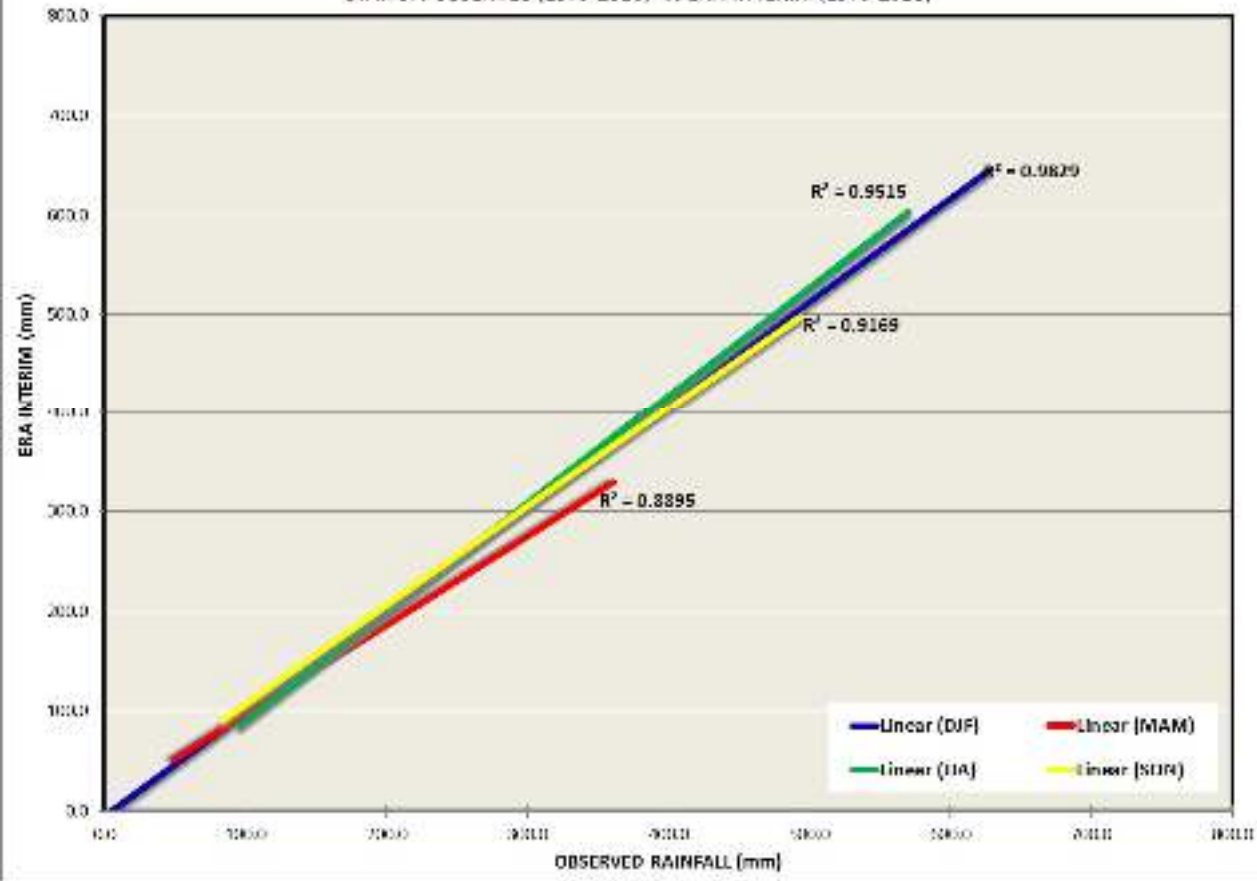


RESULTS (RR)

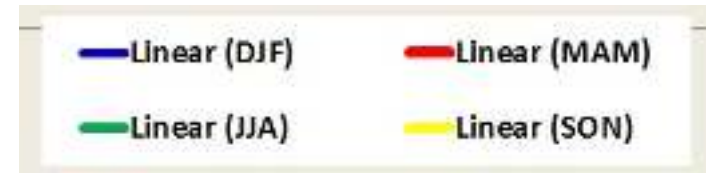
- In overlapping years, 20C3M is significantly correlated with ERA-Interim



SEASONAL CORRELATION (RAINFALL)
STATION-OBSERVED (1979-2010) vs ERA-INTERIM (1979-2010)



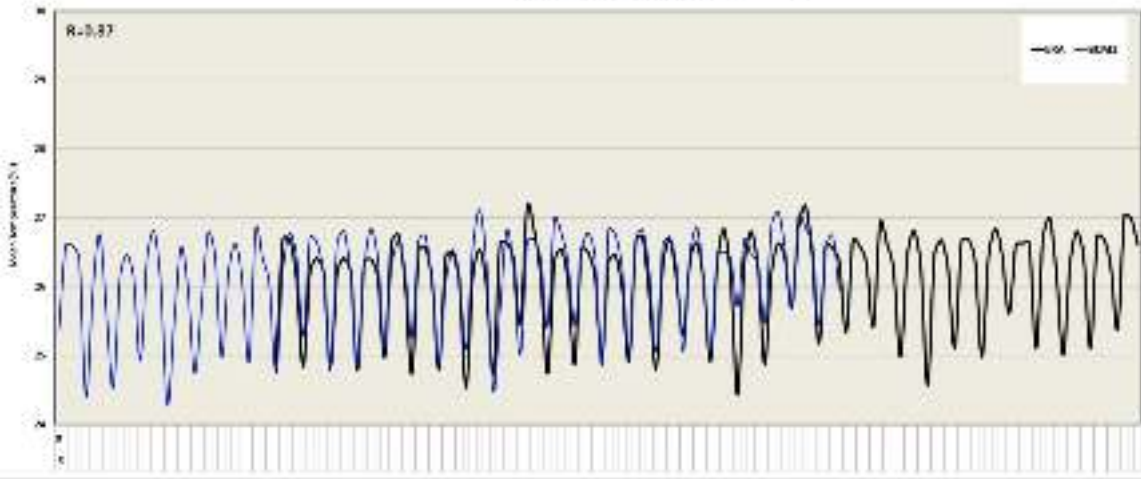
RESULTS (RR)



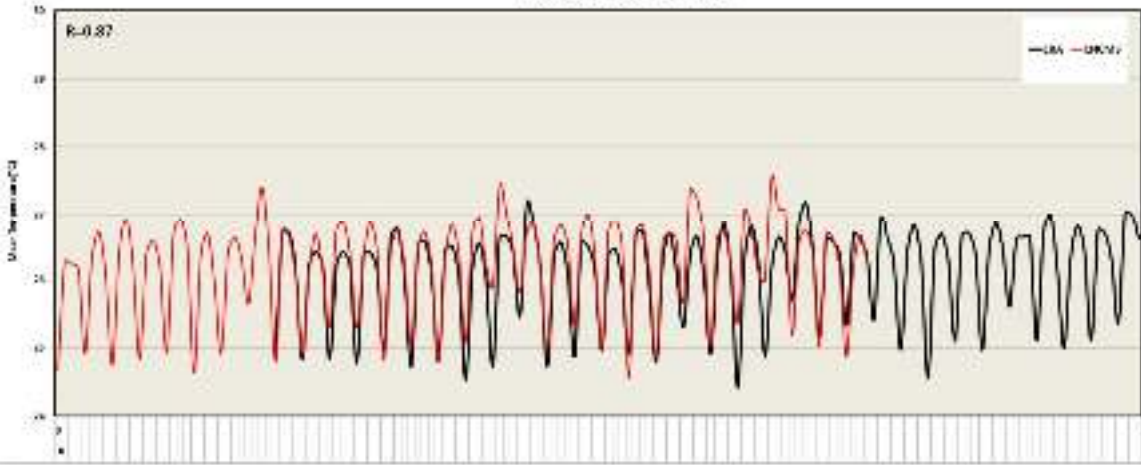
- Observed rainfall from 1979-2010 is significantly correlated with ERA-I (1979-2010) especially in DJF and SON



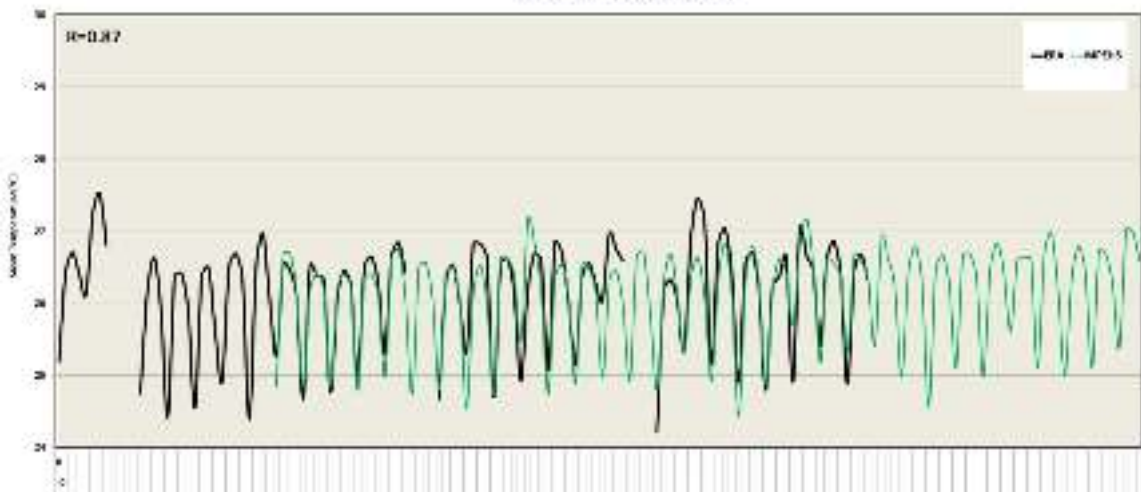
INTERANNUAL VARIABILITY (MEAN TEMPERATURE)
ERA (1979-2012) - 20C3M (1979-1998)



INTERANNUAL VARIABILITY (MEAN TEMPERATURE)
ERA (1979-2012) - 20C3M (1979-1998)



INTERANNUAL VARIABILITY (MEAN TEMPERATURE)
ERA (1979-2012) - 20C3M (1979-1998)



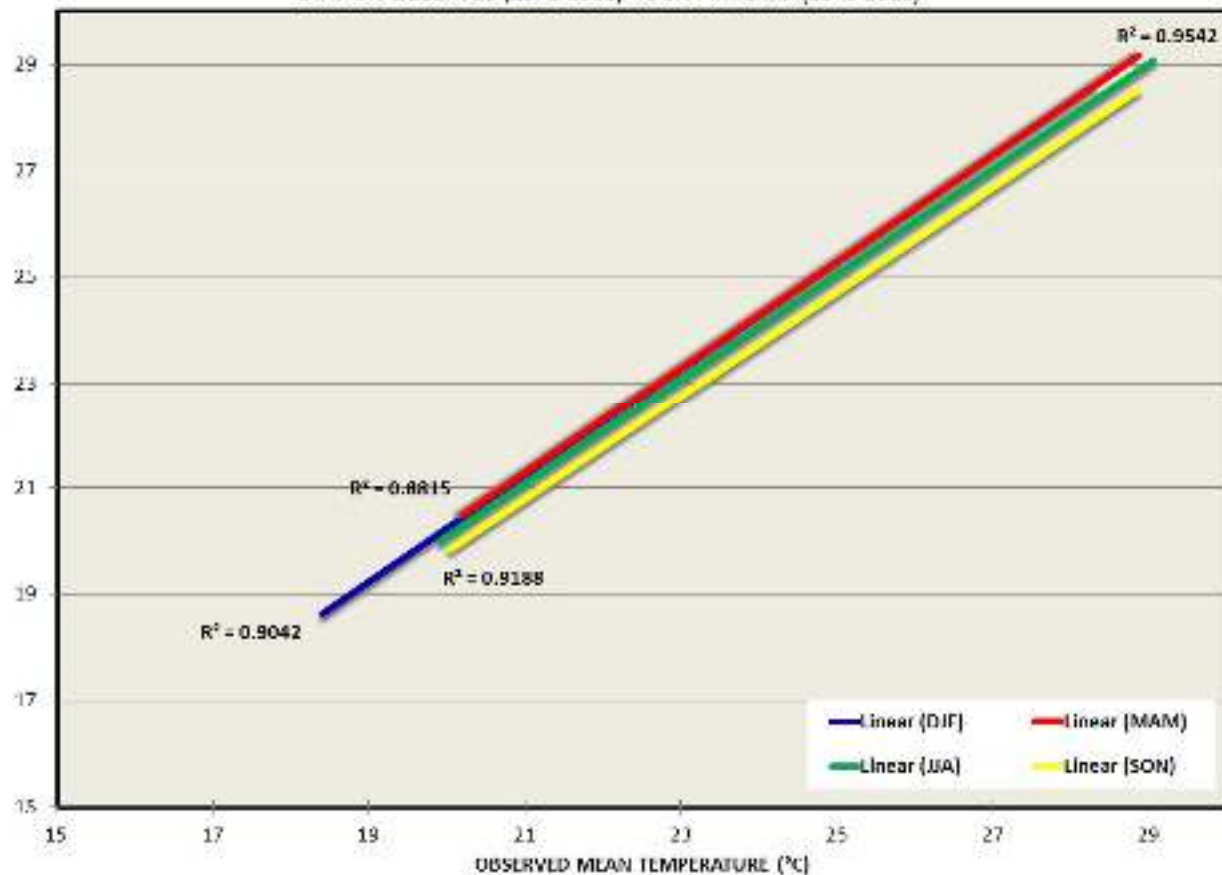
RESULTS (TMEAN)

- In overlapping years, 20C3M is highly correlated with ERA-Interim

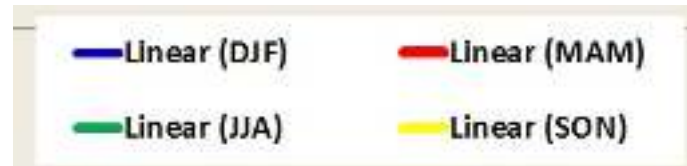


SEASONAL CORRELATION (MEAN TEMPERATURE)

STATION-OBSERVED (1979-2010) vs ERA-INTERIM (1979-2010)



RESULTS



- Observed TMEAN from 1979-2010 is significantly correlated with ERA-I (1979-2010)

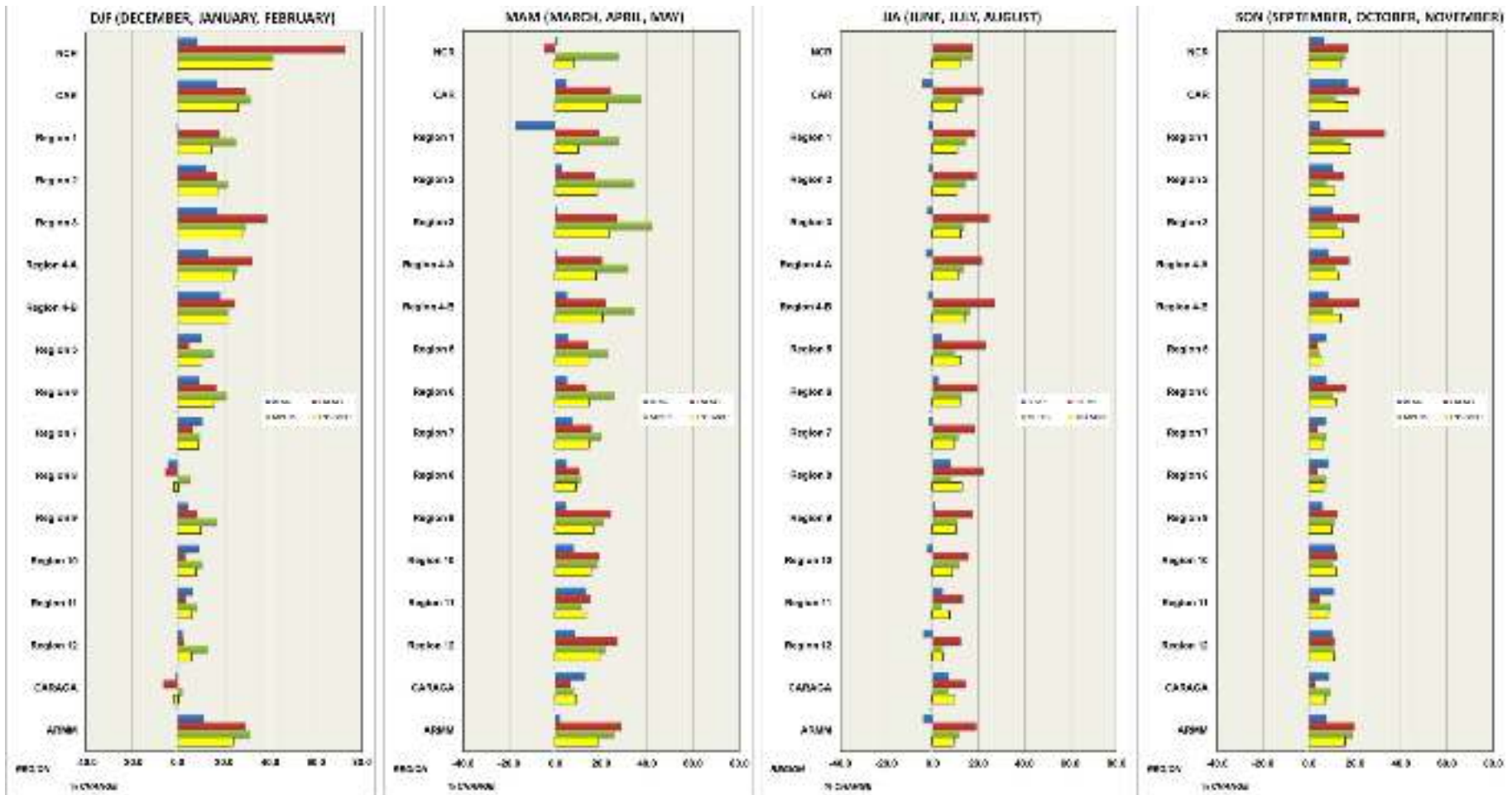
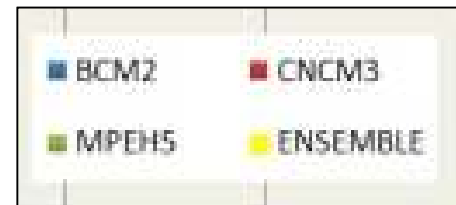




PROJECTED CHANGES IN RAINFALL (2011-2040)

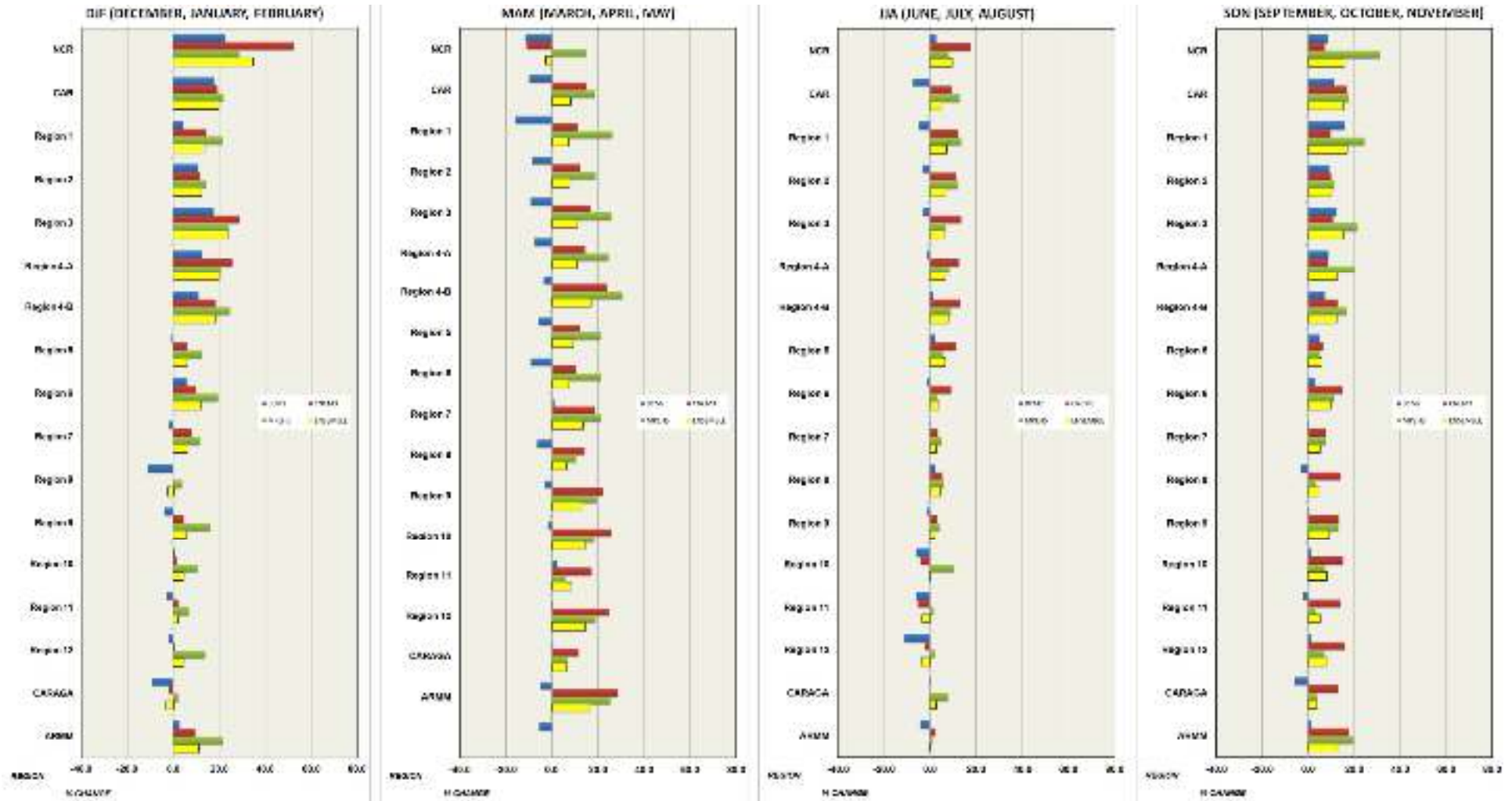
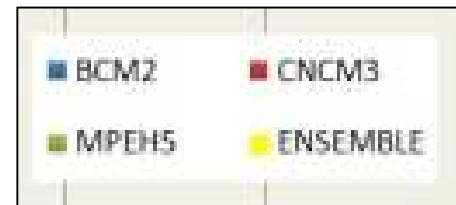


RR under A1B



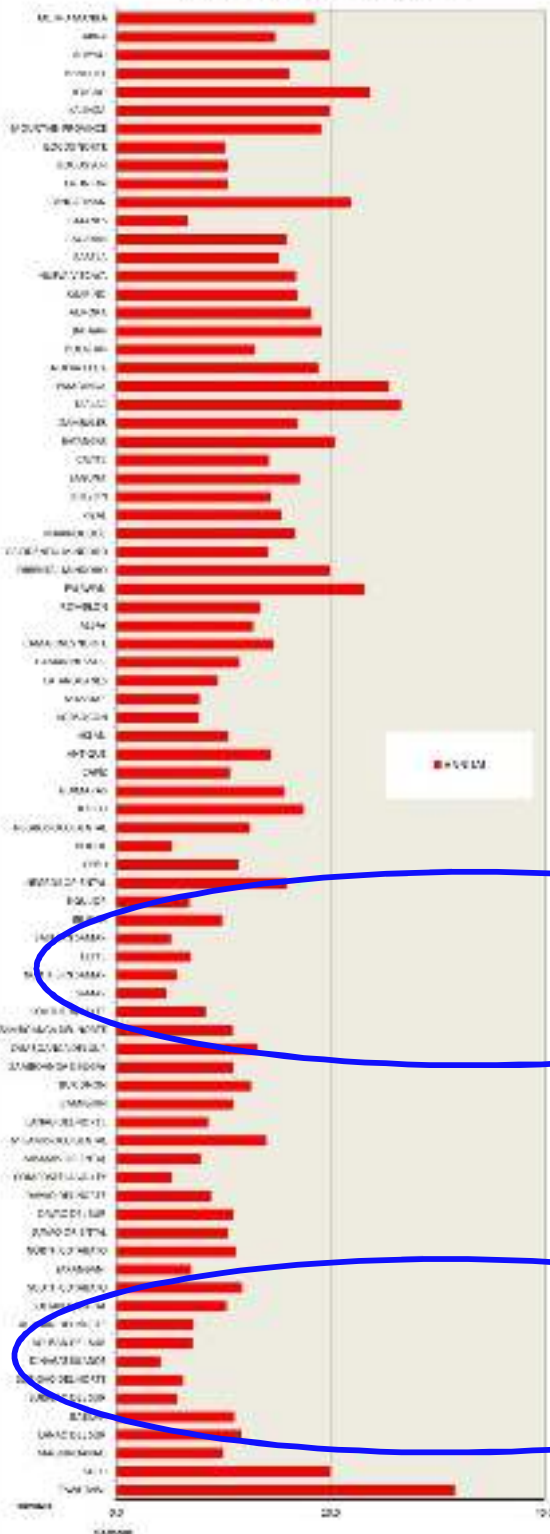
- Except for some regions in DJF, all parts of the country will experience increase in RR under A1B

RR under A2

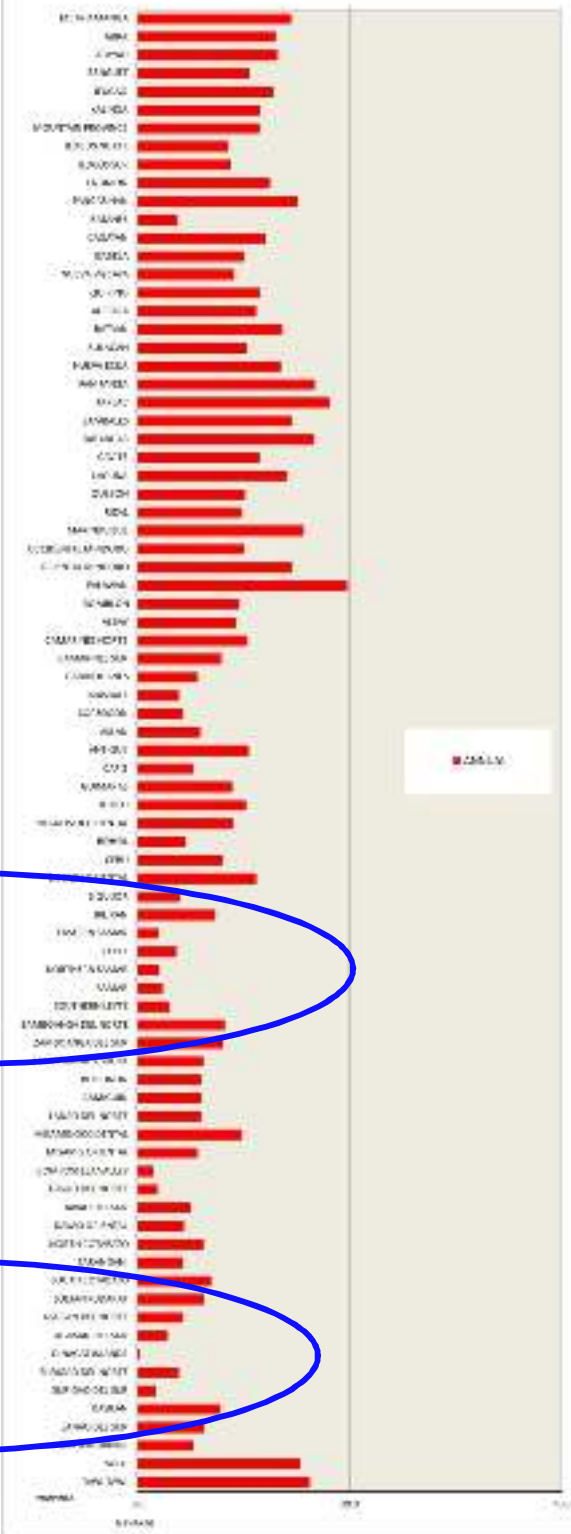


- Except for some regions in DJF and MAM, all parts of the country will experience increase in RR under A2

MEAN ANNUAL CHANGE



MEAN ANNUAL CHANGE



SUMMARY (RR)

- **A1B SCENARIO**
RANGE: 6-20%
- Lowest in eastern Philippines
- **A2 SCENARIO**
RANGE: 3-14%
- Lowest in eastern Philippines

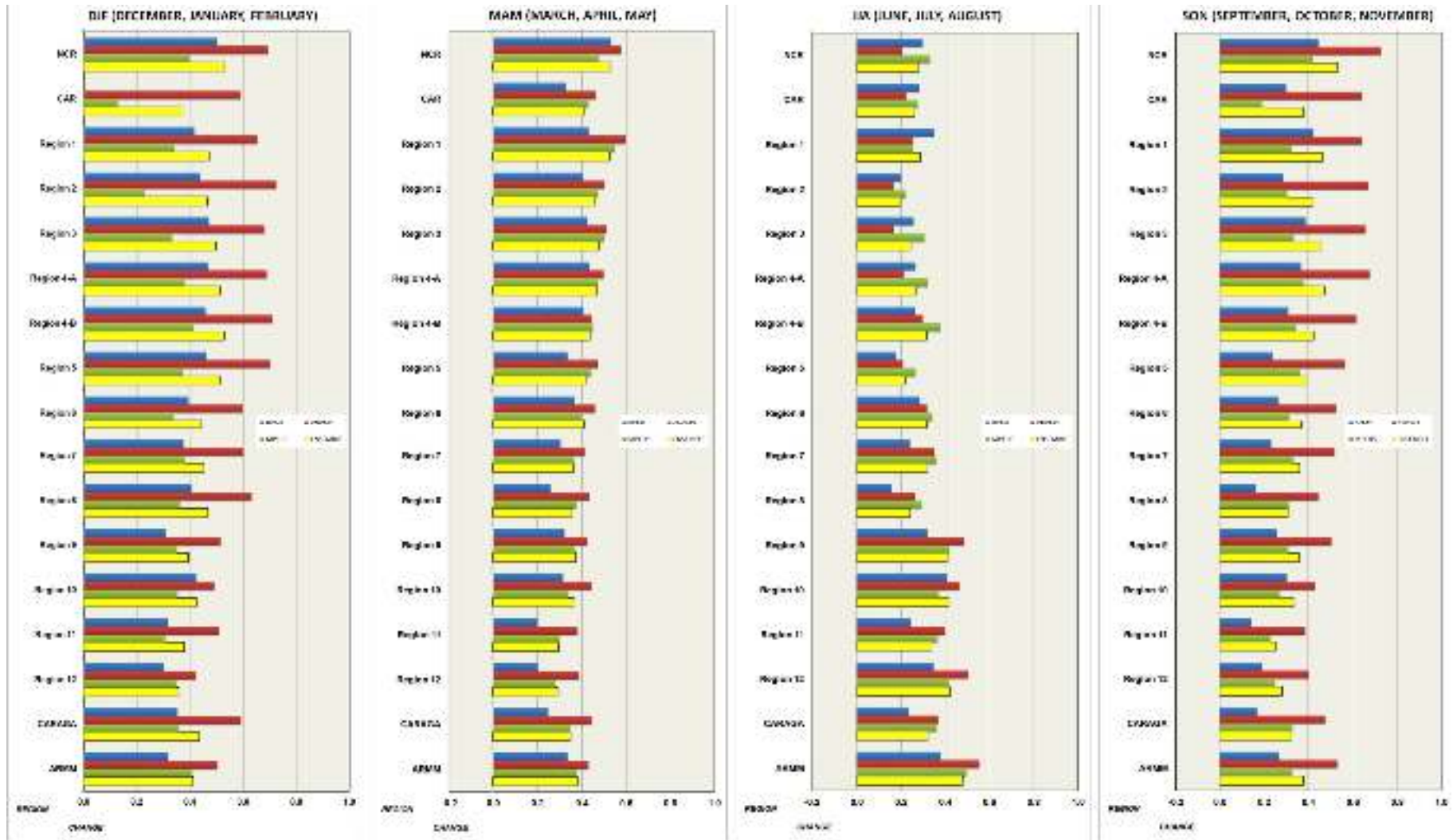
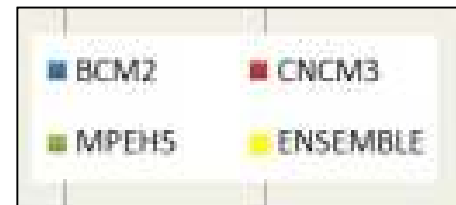




PROJECTED CHANGES IN MEAN TEMPERATURE (2011-2040)

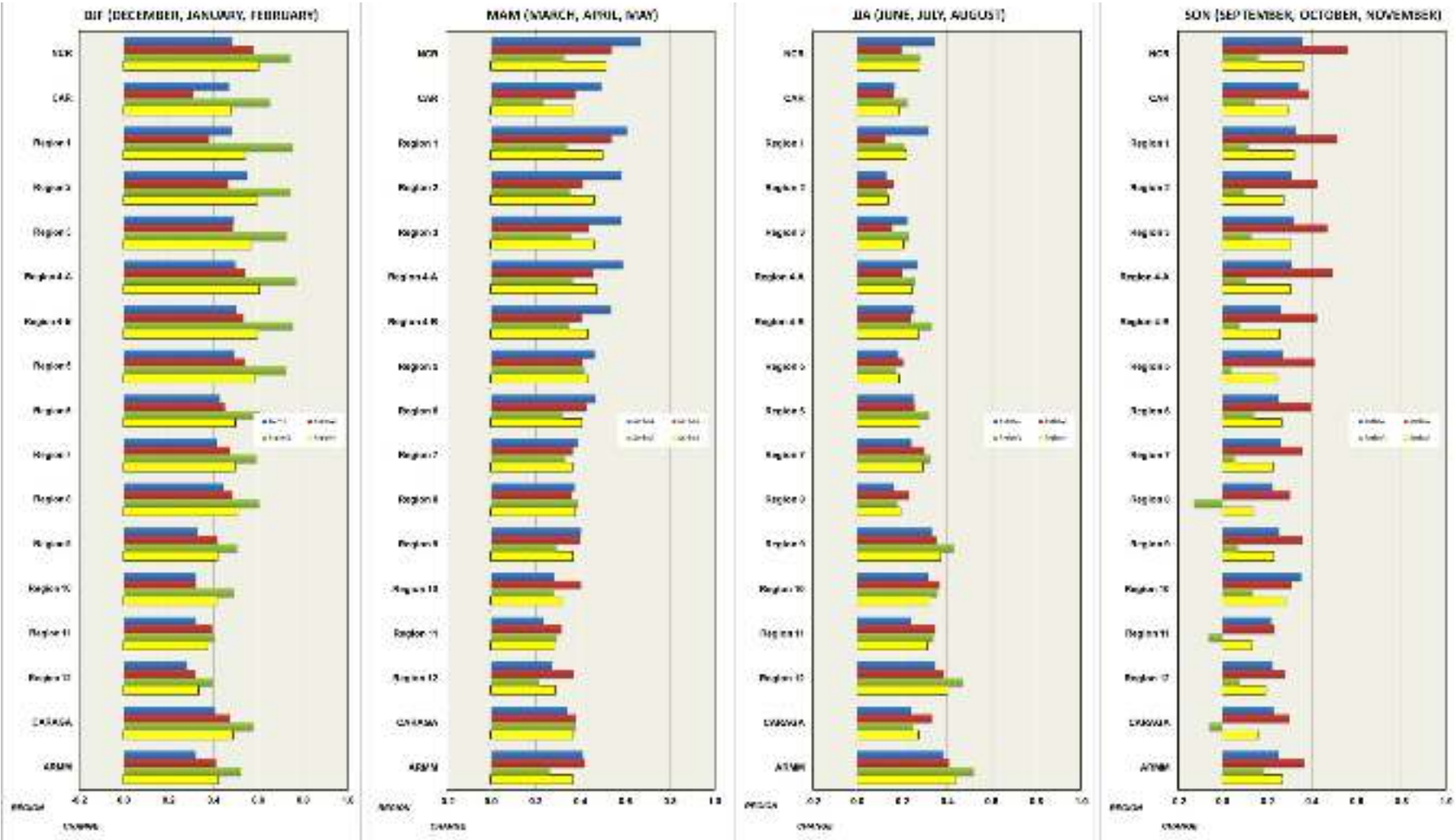


TMEAN under A1B



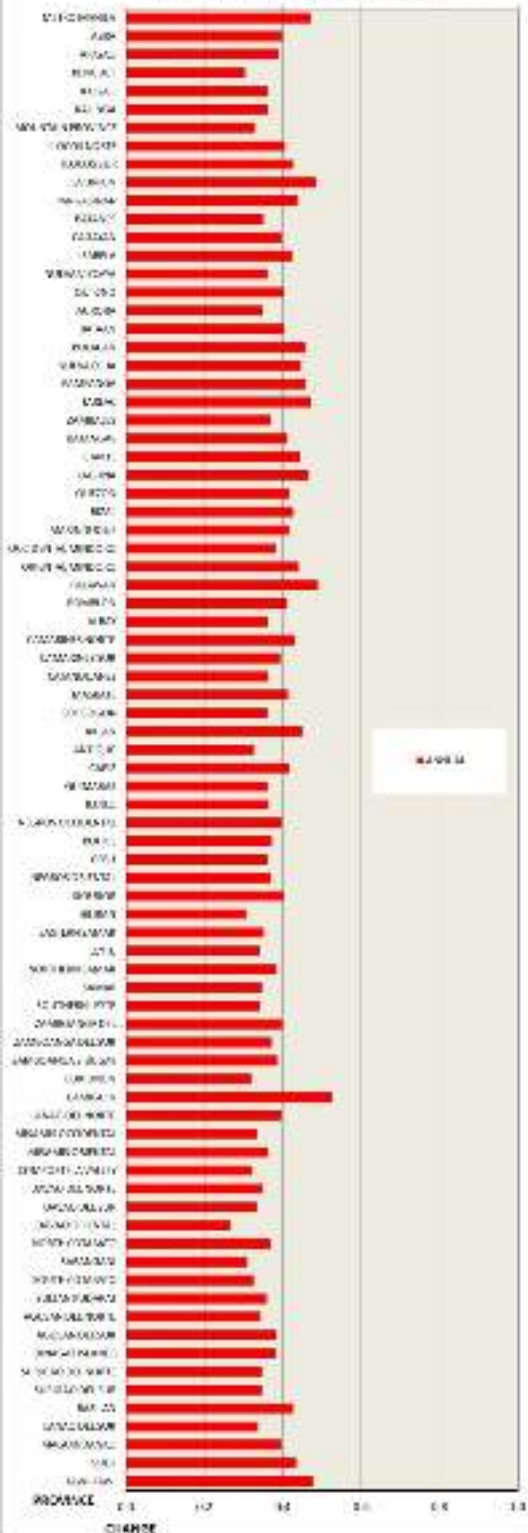
- All parts of the country will experience increase in temperature under A1B especially in urban areas

TMEAN under A2

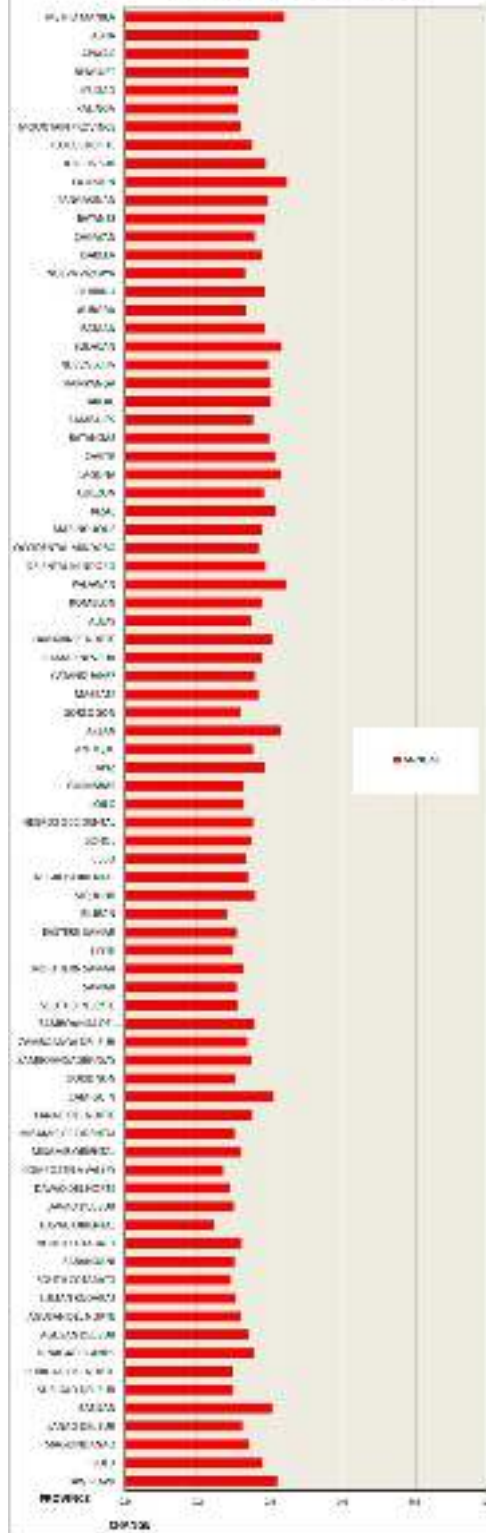


- All parts of the country will experience increase in temperature under A2 especially in urban areas

MEAN ANNUAL CHANGE



MEAN ANNUAL CHANGE



SUMMARY (TMEAN)

- **A1B SCENARIO**
 RANGE: 0.3°C – 0.5°C
 - Highest in NCR
- **A2 SCENARIO**
 RANGE: 0.3°C – 0.5°C
 - Highest in NCR





KEY FINDINGS

- Rainfall will increase the least in **eastern Philippines**
- **NCR and neighboring provinces** will have higher increase in temperature by 2040 by as much as 0.5°C in March, April, May
- Temperature will increase by as much as 0.9°C
- Greater rainfall will be experienced ranging from 3-20% increase





**THANK YOU FOR YOUR
ATTENTION!**

CONTACT DETAIL: pagasa_climps@yahoo.com

