NARClM: Regional Climate Modeling over Australia

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INTRODUCTION

NARClM (NSW/ACT Regional Climate Modelling project) is a regional climate modeling project for the Australian area. It will provide a comprehensive dynamically downscaled climate dataset for the CORDEX-AustralAsia region at 50km, and South-East Australia at a resolution of 10km. NARClM data will be used by the NSW and ACT governments to design their climate change adaptation plans.

EXPERIMENTAL SETUP

NARClM uses WRFv3.3 regional climate model (RCM) to perform an ensemble of 12 members for the present and the projected future climate.

- 3 WRF model configurations
- 4 different GCMs: MIROC, ECHAM5, CCMA, CSIRO mk3.5
- 3 periods: 1990-2009, 2020-2039, 2060-2079
- 2 domains: Australia (CORDEX AUS-44, 50 km), SE Australia (10 km)

Additionally to the GCM-driven simulations, 3 control run simulations driven by the NCEP/NCAR reanalysis for the entire period of 1950-2009 have also been performed.

CONCLUSIONS & FURTHER WORK

WRF differences over SE Australia

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CONCLUSIONS & FURTHER WORK

* WRF simulations provide a significant improvement with respect to the NCEP re-analysis
* WRF climatologies show a good agreement with observed gridded values
* Any WRF configuration performs the best in all the AWAP variables
* Preliminary results suggest that BMJ cumulus scheme (R2) suites better for Australia precipitation regimes rather than KF
* YSU/MM5 pbl configuration seems to suite the best in all the Australian climatological regimes
* At the end of the project, all data will be available to general public throughout a web portal
* Steering committee constituted by scientists and policy makers maximizes the utility of the project

More information:
http://www.cccr.unsw.edu.au/NARCliM/

REFERENCES
Abramowitz, G. and C. Bishop, 2010: Defining and weighting for model dependence in ensemble prediction, AGU Fall meeting, San Francisco, USA

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