Application of Experimental Climate Prediction Center (ECPC) Global to Regional Spectral Model (G-RSM) for Monthly to Seasonal Prediction in Thailand

Submitted by: Thailand
Climate information and prediction is very interesting important issue which to concerned in early 21st century, and many country is setting up to the national strategic plan. The meteorological department of Thailand (TMD) is concern about climate information and prediction for the society which based on the low resolution models of climate research center. The ensemble results are not more detail to describe phenomena, especially in coastal, climate predictability base on the normal grid point. In order to investigate climatic information and prediction to support the climate science community on time scales of week to annual. TMD is using ECPC G-RSM prediction model to generated climate forecasting data with high horizontal and vertical resolution (T248L28, about 50 km). This model was developed by Experimental Climate Prediction Center (ECPC). This high resolution is necessary in order to better reproduce the orographic patterns of the area. The climate forecasting is designed for monthly to seasonal with the initial conditions and SST come from the NCEP Global Forecasting system (GFS) and Global Data Assimilation (GDAS) 00UTC operational analysis. TMD began making experimental, near real-time routine monthly long-range global prediction in 2007. In this presentation, some of the results of climate forecasting for monthly and seasonal are presented and discussed.
Application of ECPC G-RSM
for
Monthly to Seasonal Prediction in Thailand

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TOPICS

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- ECPC G-RSM
- Experiments
- Results
- Conclusion
**Introduction**

- Long Range Weather Forecast is base on the Global product from the international climate prediction centers,
- These products are difference value from grid point normal data and most are low-resolution in both temporal and spatial,
- Some, of the end-user need quantitative value to input to specific application; such as agriculture for crop yield estimation, hydrology for water resource management,
- To served the need of the public in various sectors, ECPC G-RSM model is address in TMD since 25 Aug 2007.

**ECPC G-RSM**

- Based on NCEP Year 2000 SFM and RSM.
- GSM and RSM merged.
  - Physics and their drivers are common to both GSM and RSM.
- User friendly interface (g-rsm.wikispaces.com)
- Only atmospheric model used by ECPC
ECPC G-RSM (cont)

Welcome to G-RSM Wiki
This is a Wiki forum for G-RSM system at ECPC.

Please add your name, institution, and e-mail address to the User List.
Note: If you are already a user, please add shortcuts explaining the use of the model at the end of your user address.

Area: Global
Initial Condition: 00UTC GFS Analysis
Boundary Condition: 00UTC GDAS SST Analysis
Resolution: T248L28 (0.5 degree x 0.5 degree)
Time Step: 450 Sec.
Ensemble: 1 member
OS: Linux Cluster (x86_64)
Data output format: GRIB
Experiments (cont)

Time Integrations

- one month (34-days)
- four month (120-days)

Results (global view)
Results (Thailand - view)

Results (Period - view)
Results (Maximum Temperature)

Obs and G-RSM Fct of Bangkok Metropolis
Initial: 20080616

Results (Minimum Temperature)

Obs and G-RSM Fct of Bangkok Metropolis
Initial: 20080616
Conclusion

- ECPC G-RSM is useful for climate prediction
- Monthly and Seasonal prediction with GFS and GDAS data analysis
- Temperature estimation is more accuracy than precipitation
- To operate in routine, need more ensemble member

Thank you for your attention

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