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กรมอุตุนิยมวิทยา
National Climate Center of Thailand (NCCT)
The Meteorological Department (TMD)

Application of ECPC G-RSM for Monthly to Seasonal Prediction in Thailand

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TOPICS

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- Conclusion



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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 temperal 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.



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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)

The screenshot shows a Microsoft Internet Explorer browser window displaying the G-RSM Wiki homepage. The address bar shows the URL <http://g-rsm.wikispaces.com/>. The page features a navigation menu with links for 'Join this Space', 'Recent Changes', and 'Manage Space'. A search box is located below the navigation menu. The main content area is titled 'home' and includes a 'WELCOME TO G-RSM WIKI' section. Below this, there is a paragraph stating: 'This is a Wiki forum for G-RSM system at ECPC, SIO. Please add your name, institution, and e-mail address to the User List.' A note follows: 'NOTE: If you are already a user, please add short words explaining the use of the model at the end of your email address.' There are three 'NEW' announcements: 'CVS mirror site in Beijing China is now in operation. See installation page.', 'A sample script (gsm_inc) using the incremental interpolation is committed. Please see Incremental Interpolation.', and 'The rsm script updated. A regional simulation with GRIB-formatted ERA40 data is now easily performed. The p2sig is usable for experiments with other global reanalysis and/or simulation data.' The right sidebar contains several advertisements, including 'Get a D&B Credit Report', 'GRIB Wind Forecasts', 'SharePoint Wiki Plus', 'Access Brilliant Minds', and 'AR Marine Science'. The Windows taskbar at the bottom shows the start button and several open applications, including 'g-rsm', 'P2_FY2 (F:)', 'spcc2008_tha...', 'Thailand - 2 p...', 'ECPC_G-RSM...', 'G-RSM > hom...', 'ECPC G-RSM...', and 'gsm@nccct:~'. The system clock shows the time as 7:37 AM.



Experiments

GSM: Global Spectral Model (T248L28)

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





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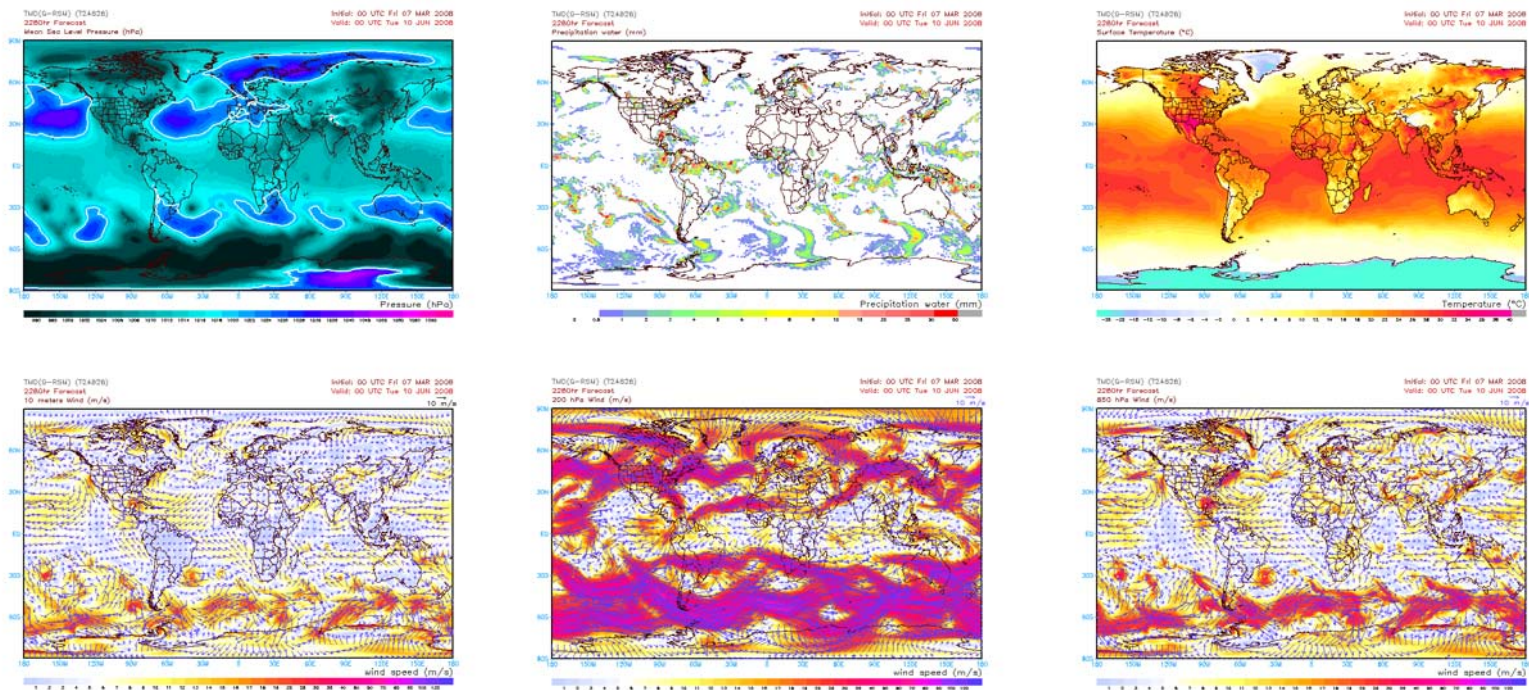
Experiments (cont)

Time Integrations

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

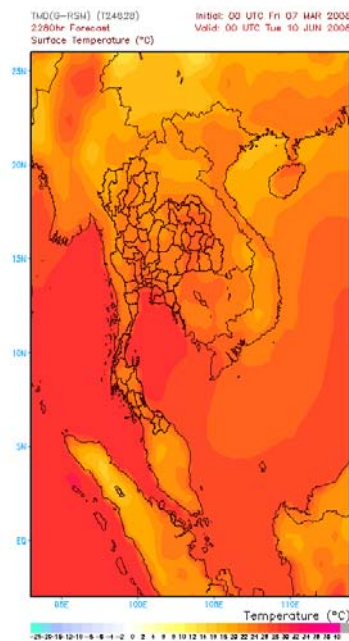
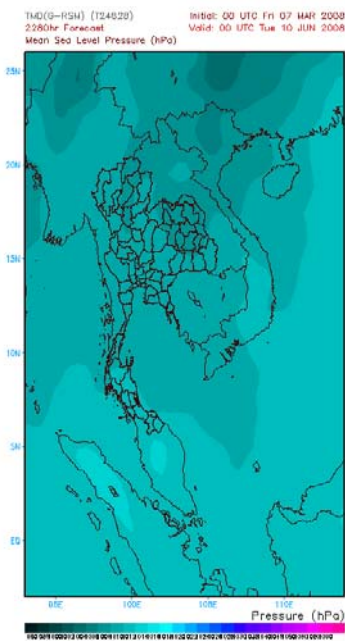
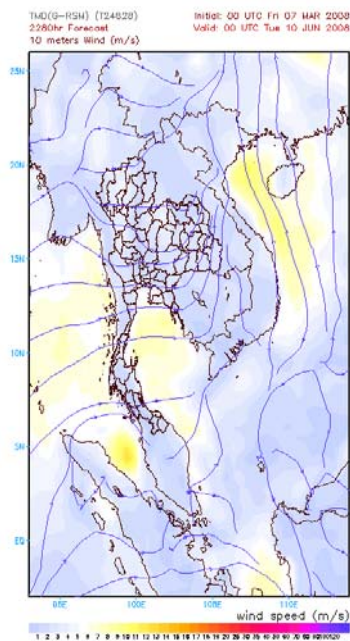
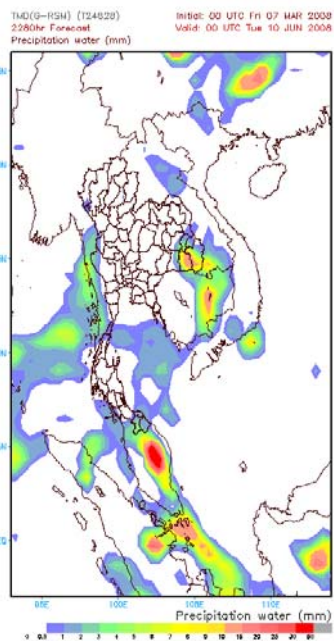


Results (global view)





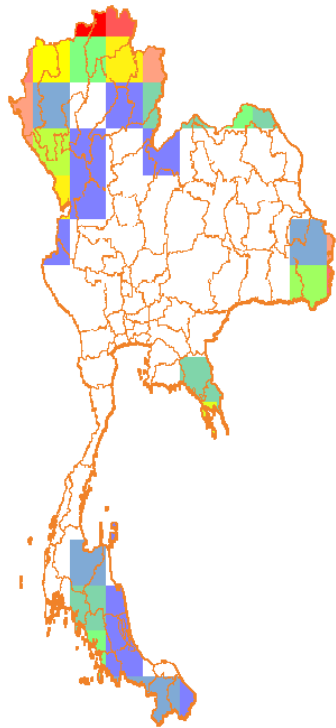
Results (Thailand - view)



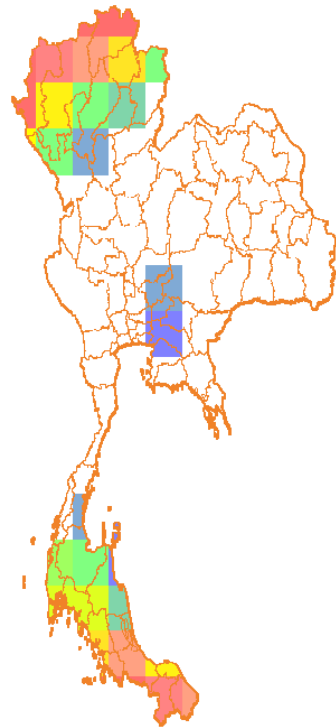


Results (Period - view)

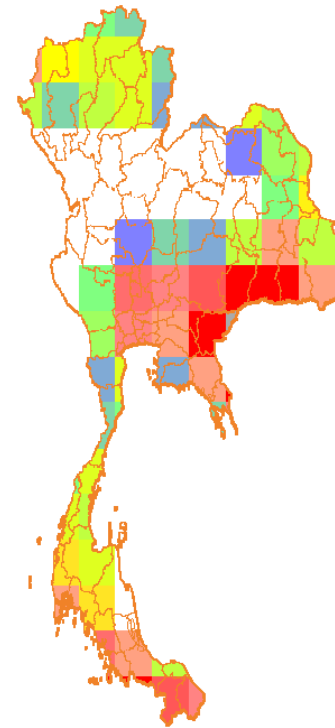
TMD(G-RSM) Initial: 00 UTC Sun 29 JUN 2008
7 day Forecast Valid for: Sun 06 JUL 2008



TMD(G-RSM) Initial: 00 UTC Sun 29 JUN 2008
15 day Forecast Valid for: Mon 14 JUL 2008



TMD(G-RSM) Initial: 00 UTC Sun 29 JUN 2008
38 day Forecast Valid for: Wed 06 AUG 2008



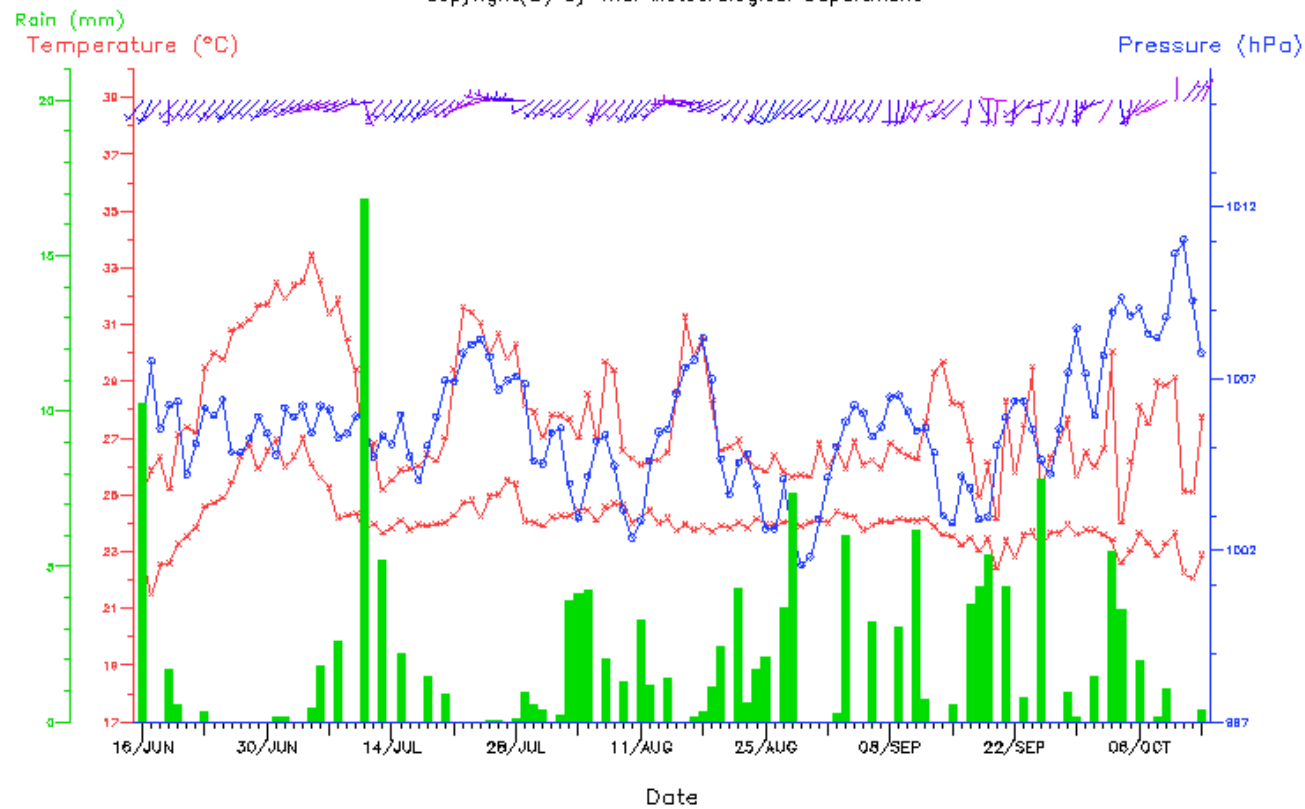


Results (meteogram)

G-RSM Forecast Meteogram for AYUTTHAYA (14.53 N,100.72 E)

Valid at: 16 JUN 2008 - 13 OCT 2008

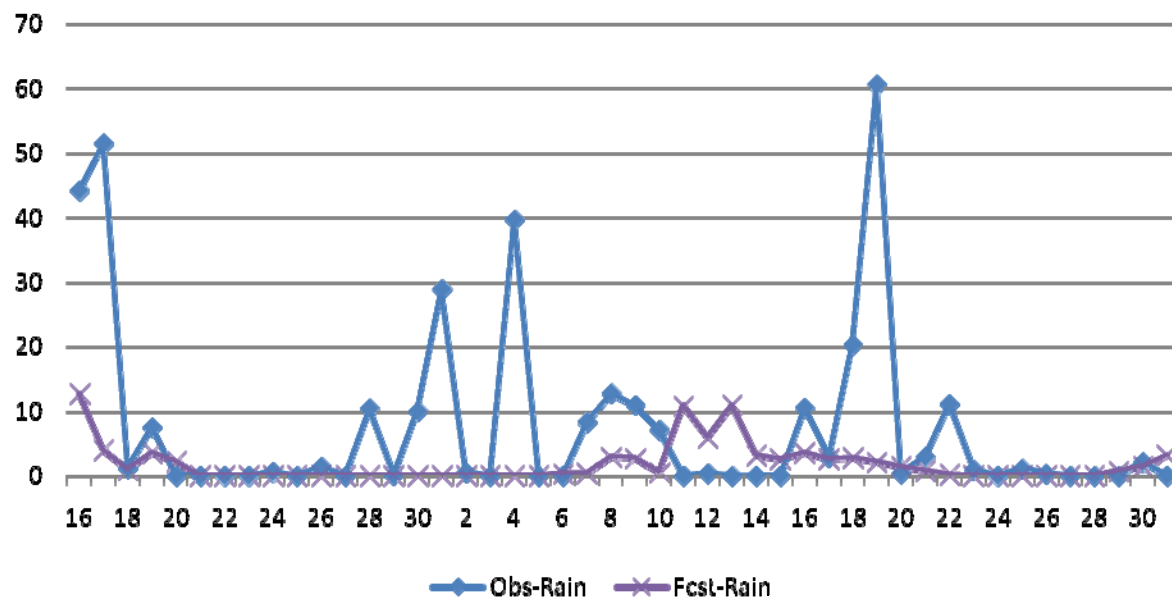
Copyright(©) by Thai Meteorological Department





Results (Rainfall)

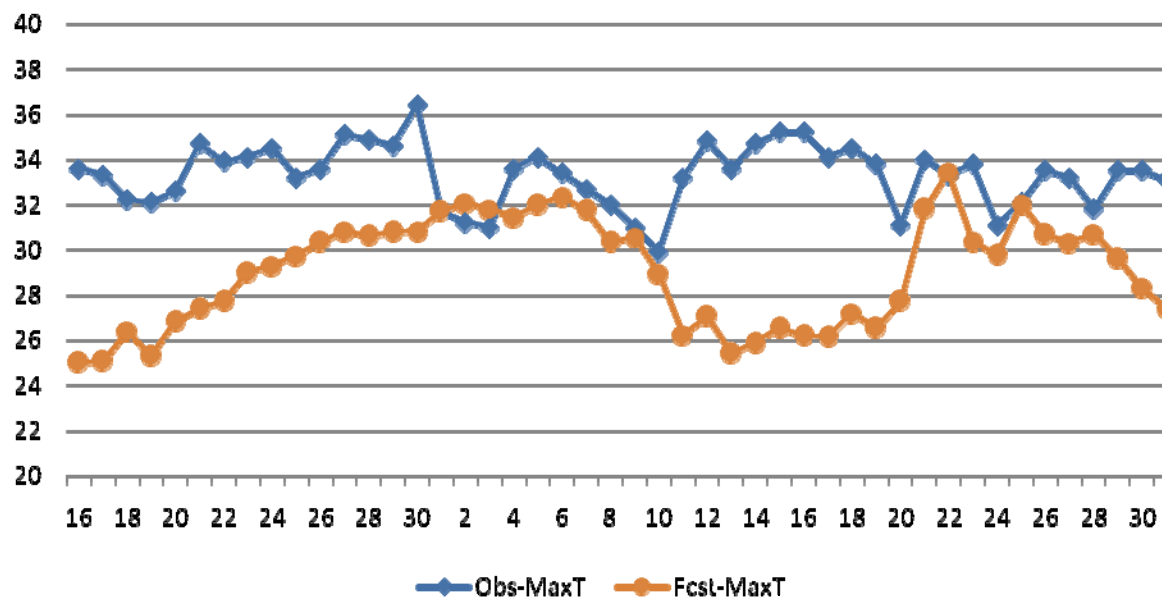
Obs and G-RSM Fcst of Bangkok Metropolis
Initial: 20080616





Results (Maximum Temperature)

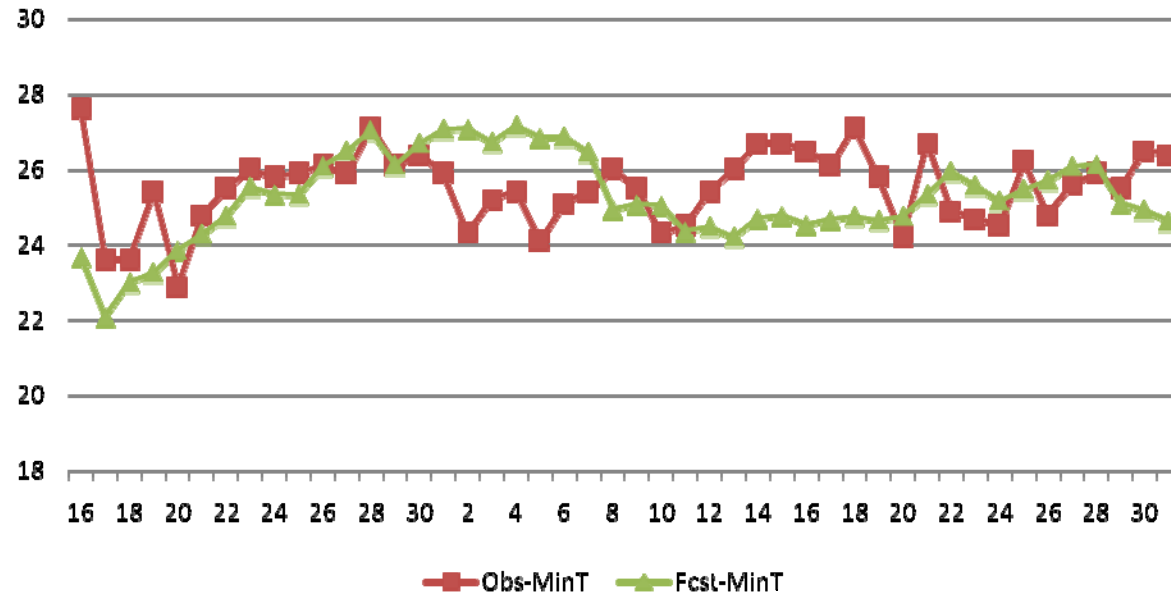
Obs and G-RSM Fcst of Bangkok Metropolis
Initial: 20080616





Results (Minimum Temperature)

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





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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



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Thank you for your attention

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