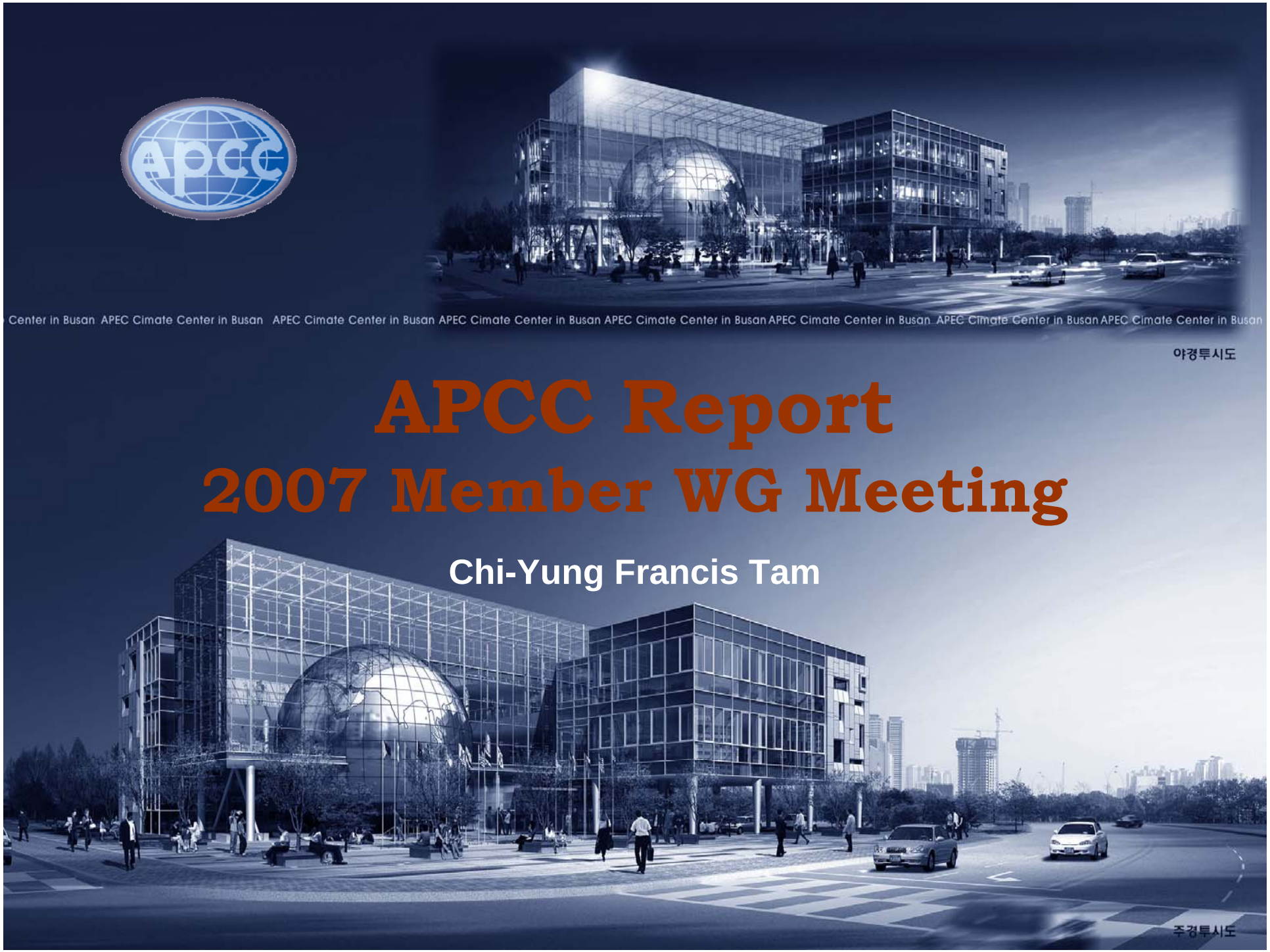
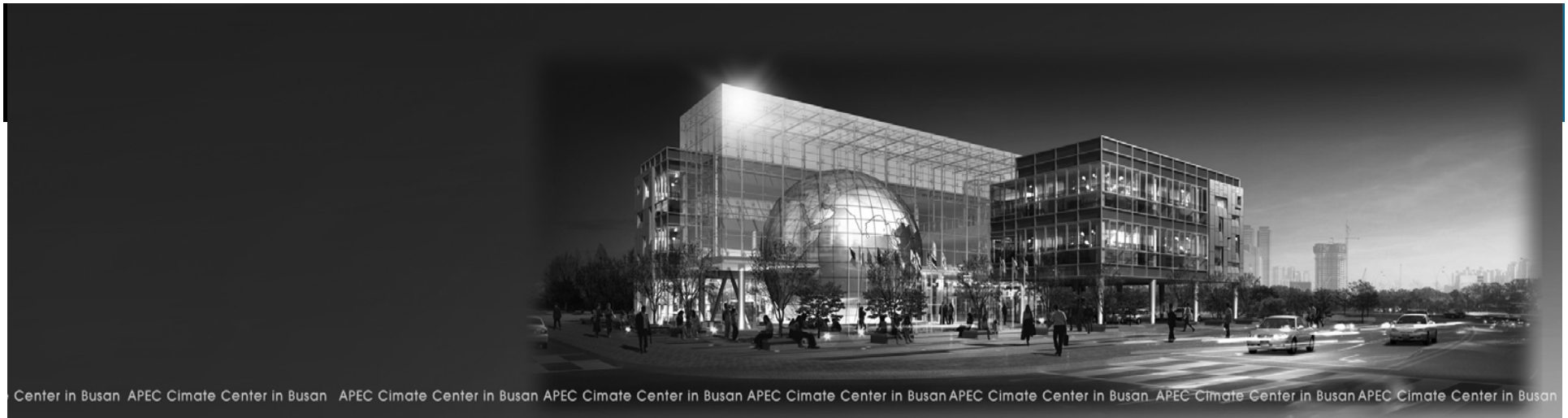


APCC Report
2007 Member WG Meeting

Chi-Yung Francis Tam

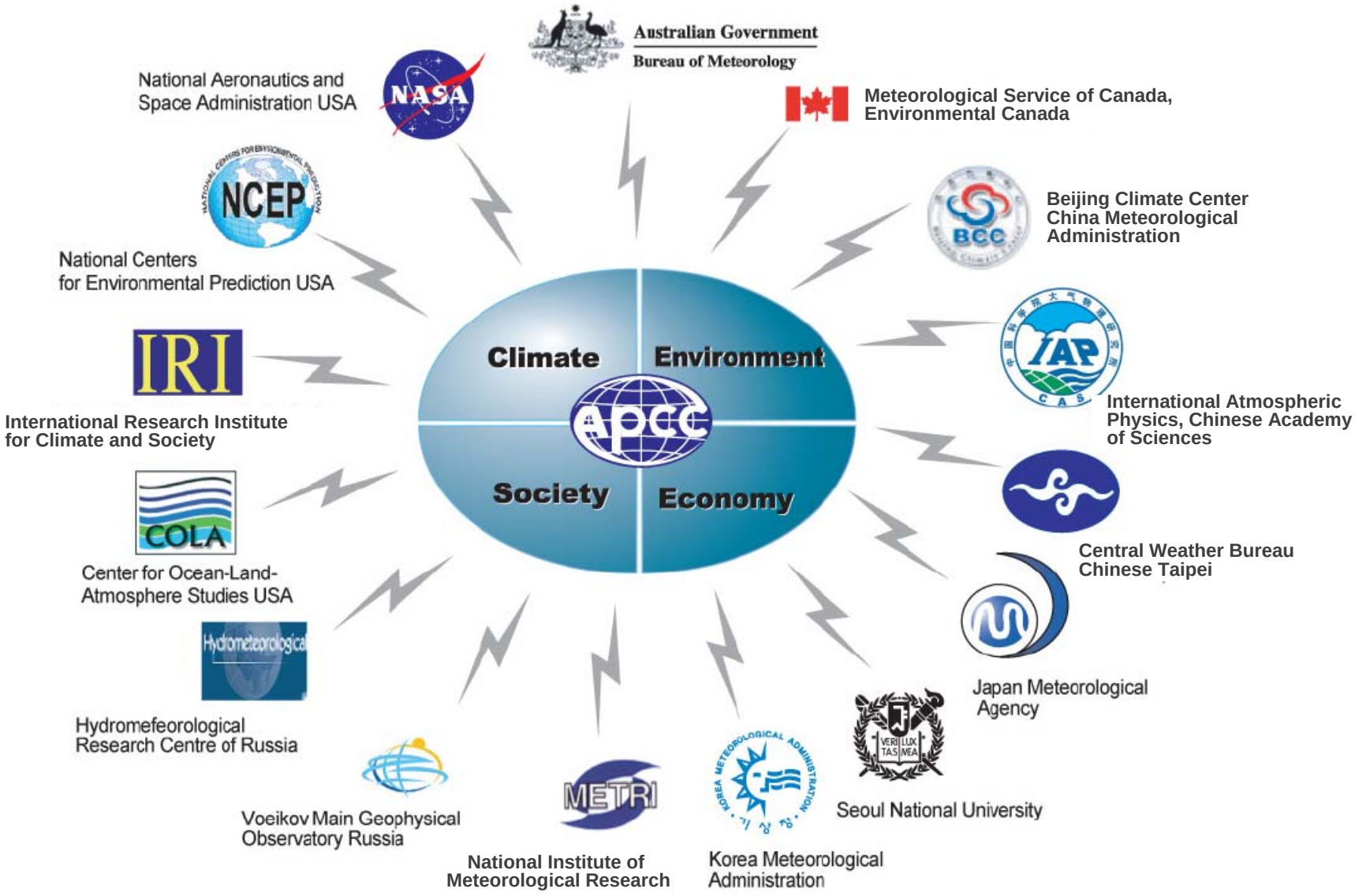


야경투시도

Seasonal Forecast

주경투시도

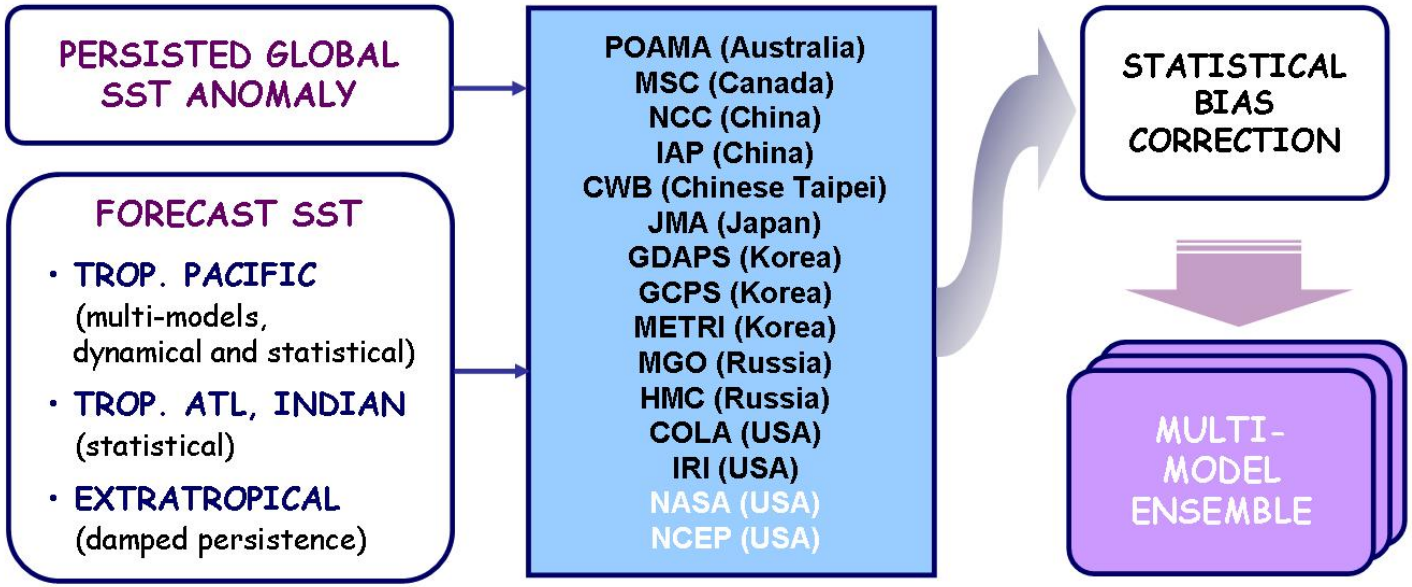
MME Seasonal Forecast

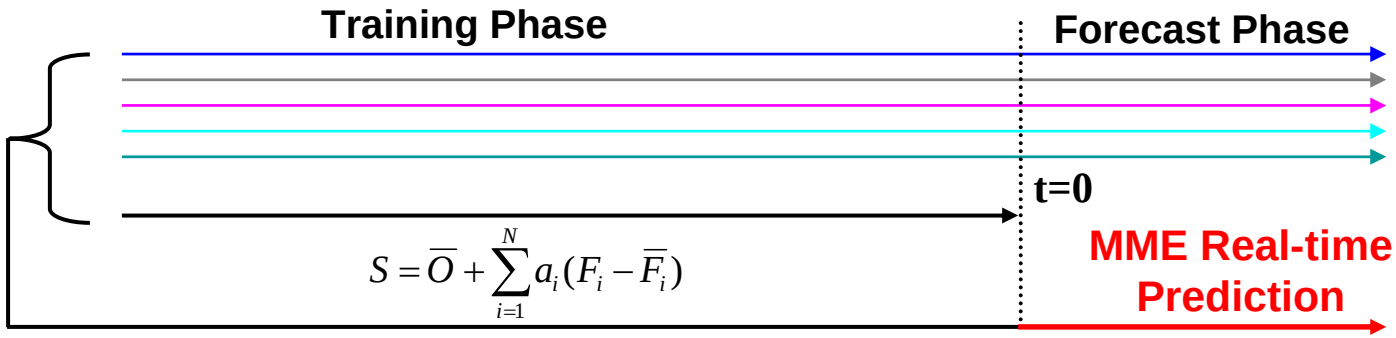


Participating Models

Member Economies	Acronym	Organization
Australia	POAMA	Bureau of Meteorology Research Centre
Canada	MSC	Meteorological Service of Canada
China	BCC	Beijing Climate Center/CMA
	IAP	Institute of Atmospheric Physics
Chinese Taipei	CWB	Central Weather Bureau
Japan	JMA	Japan Meteorological Agency
Korea	GDAPS/KMA	Korea Meteorological Administration
	GCPS/SNU	Seoul National University
	METRI/KMA	Meteorological Research Institute
Russia	MGO	Main Geophysical Observatory
	HMC	Hydrometeorological Centre of Russia
USA	IRI	International Research Institute
	COLA	Center for Ocean-Land-Atmosphere Studies
	NCEP	NCEP Coupled Forecast System
	NASA-GSFC	National Aeronautics and Space Administration

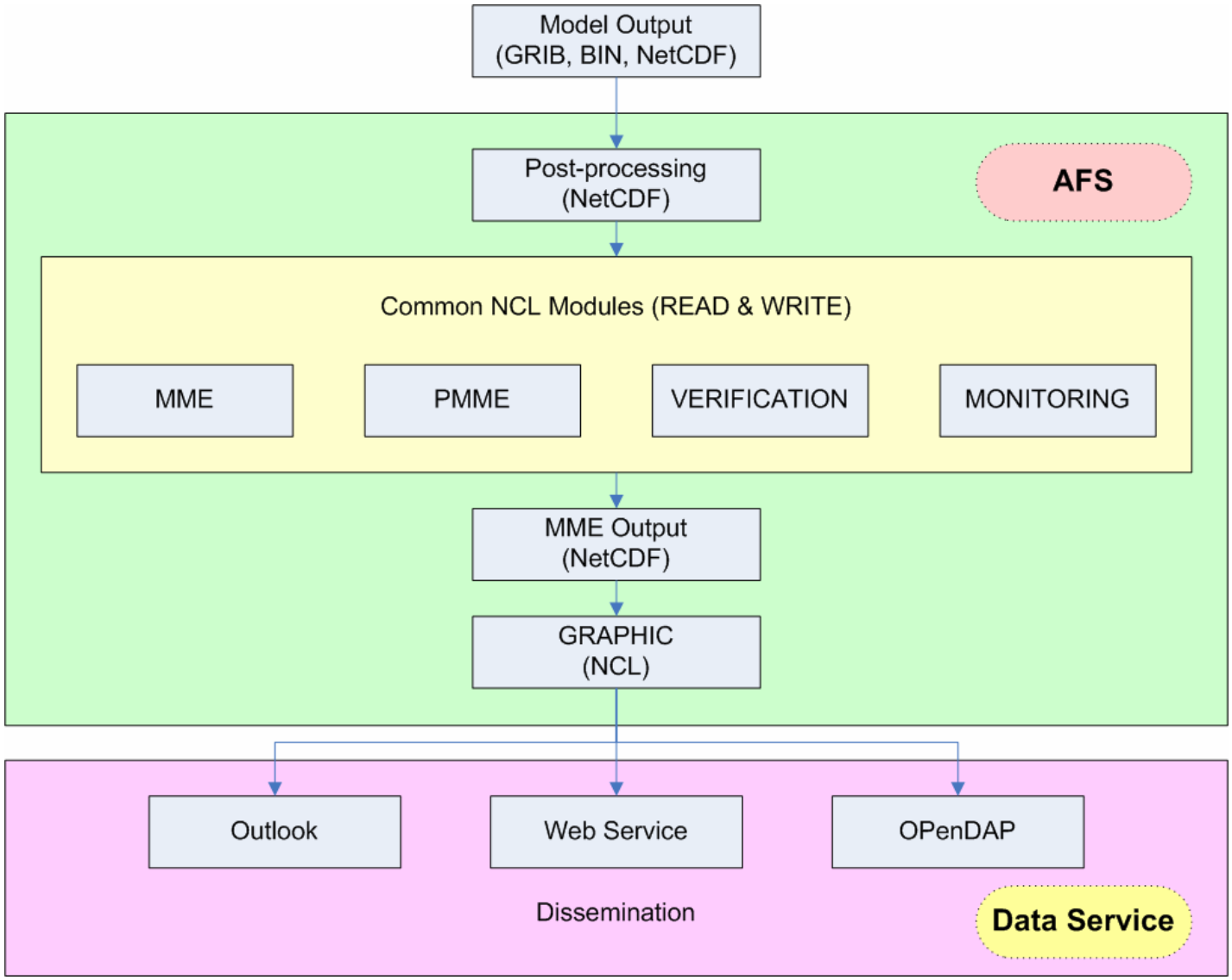
APCC Dynamical Climate Forecast System (Tier2)



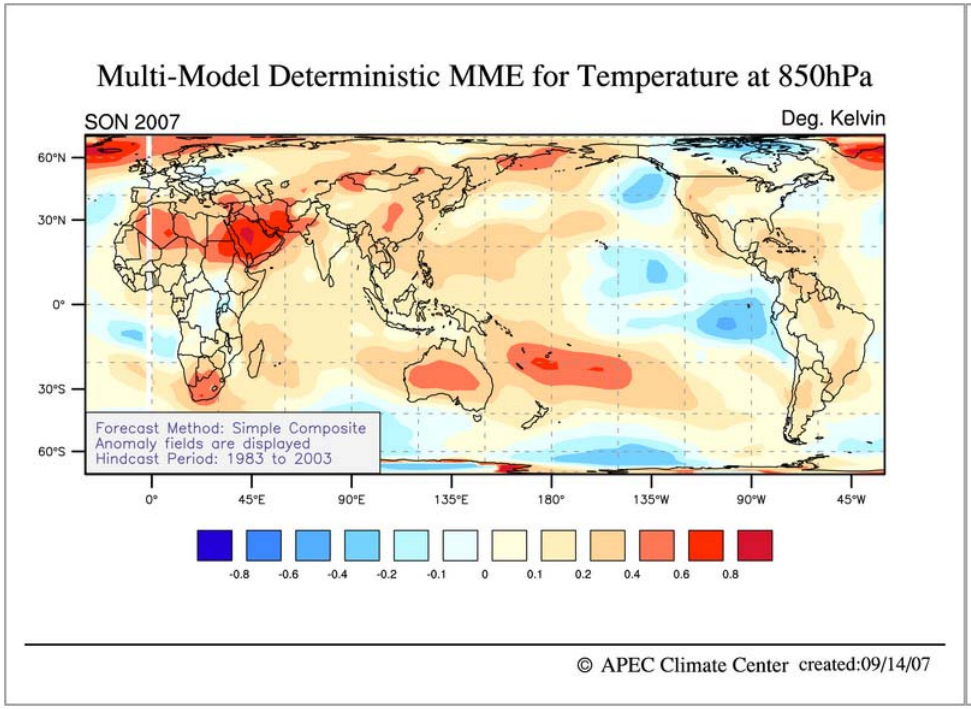


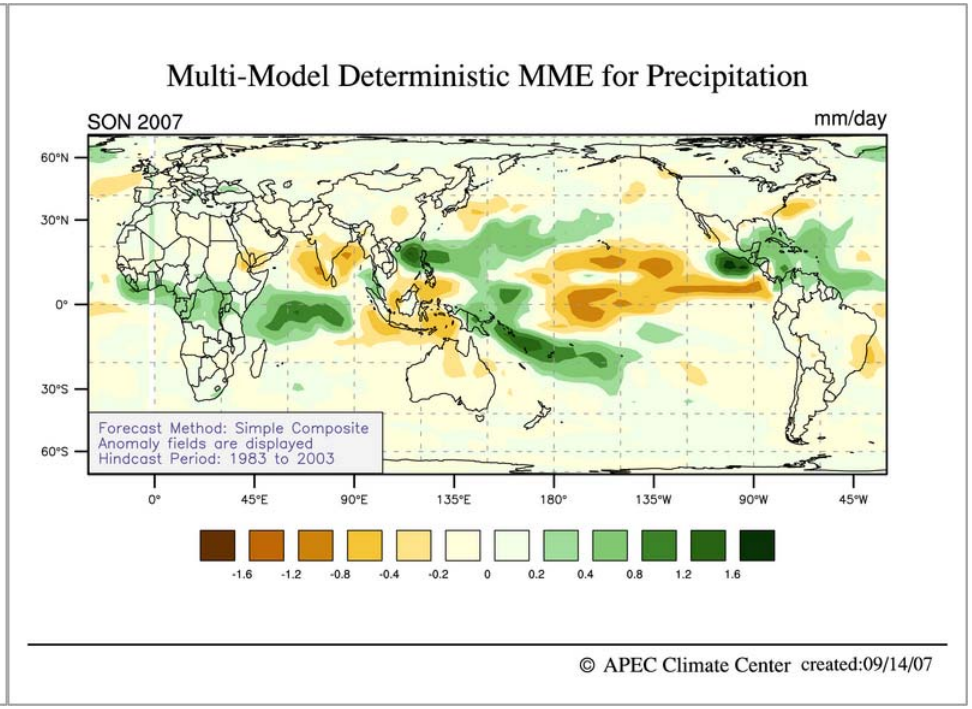
The weights are computed at each grid point by minimizing the function: $G = \sum_{t=0}^{train} (S_t - O_t)^2$

Automatic Forecast System



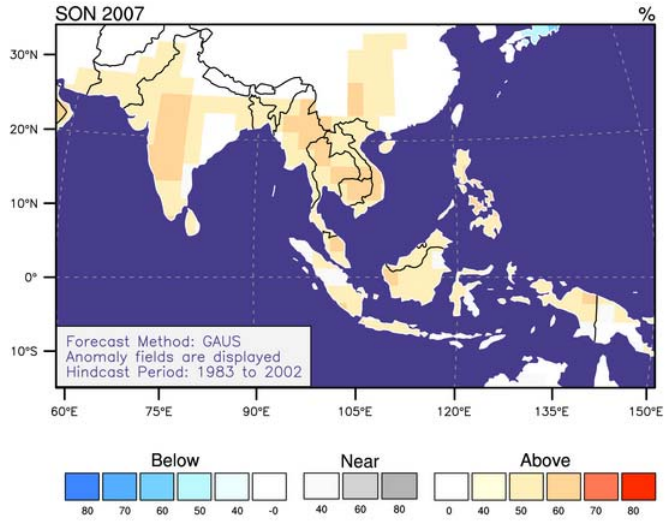
APCC 2007 SON Forecast (DMME)





APCC 2007 SON Forecast (PMME)

Multi-Model Probabilistic MME for Air temperature at 850mb



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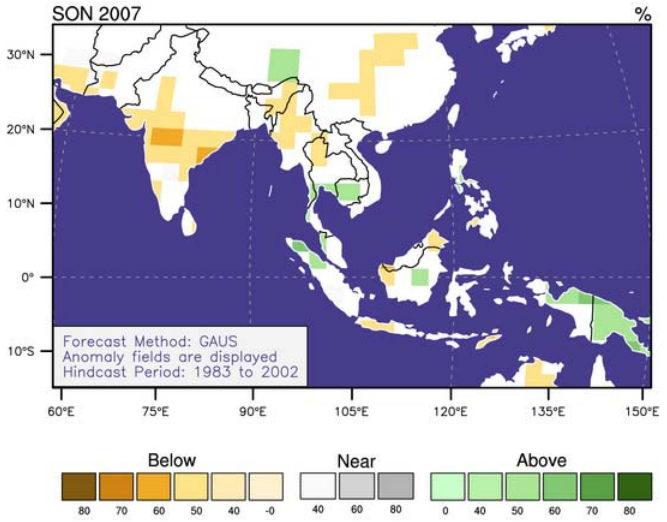
Multi-Model Probabilistic MME for Precipitation



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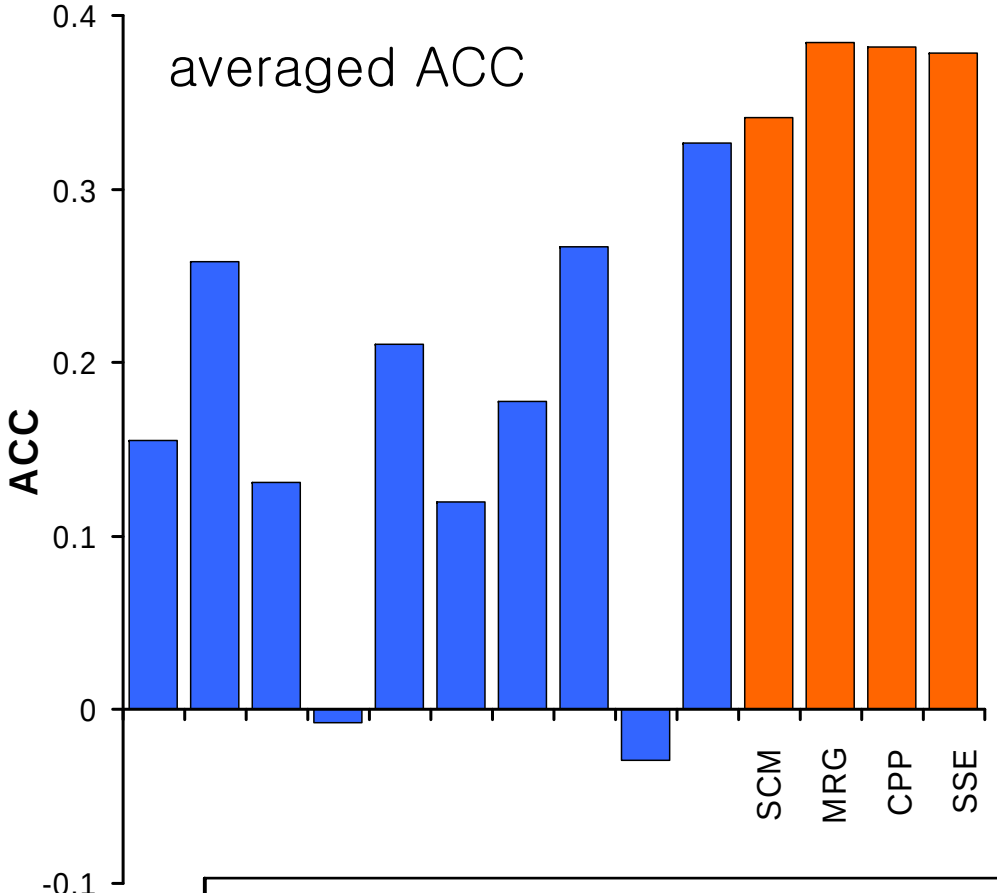
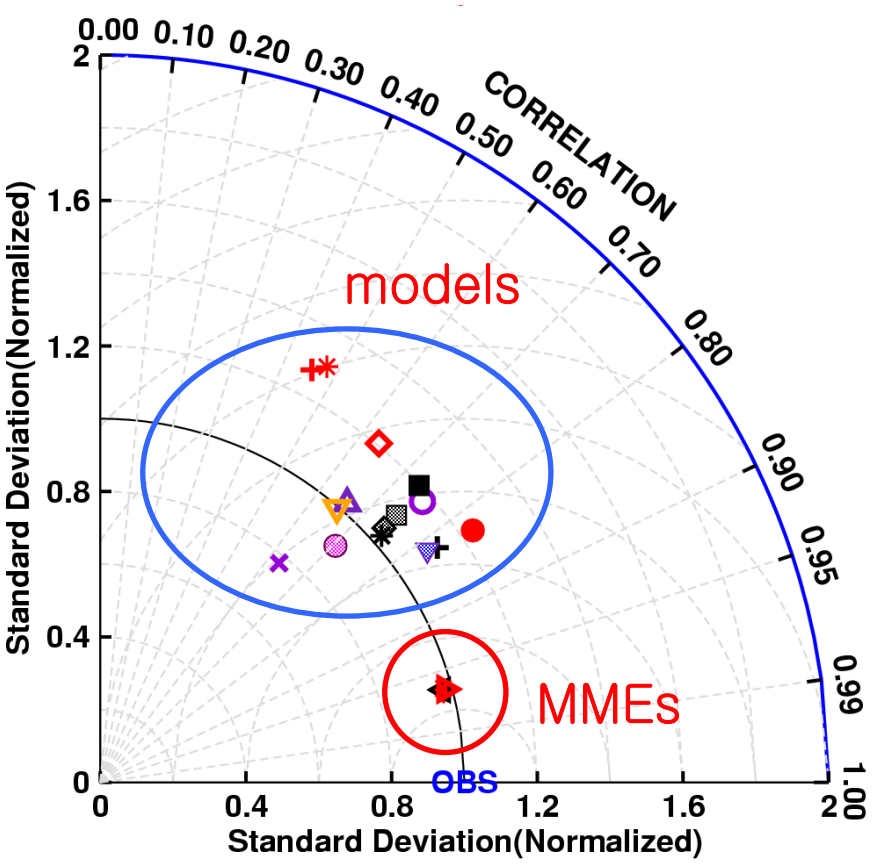
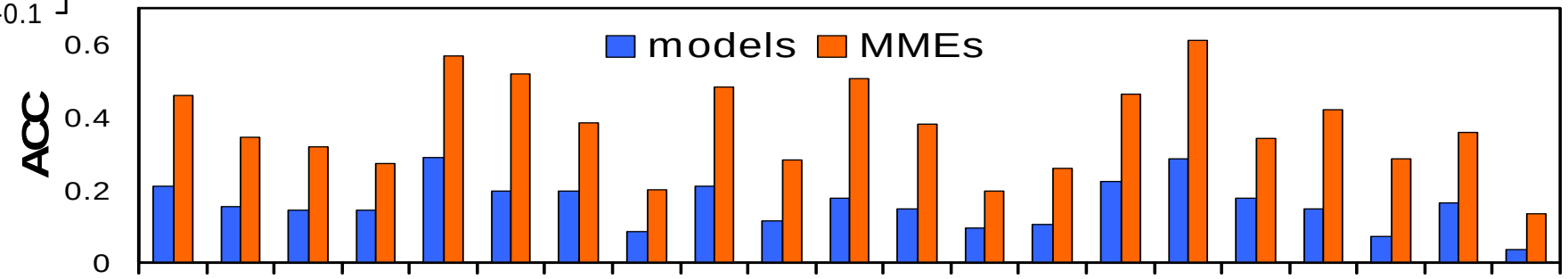
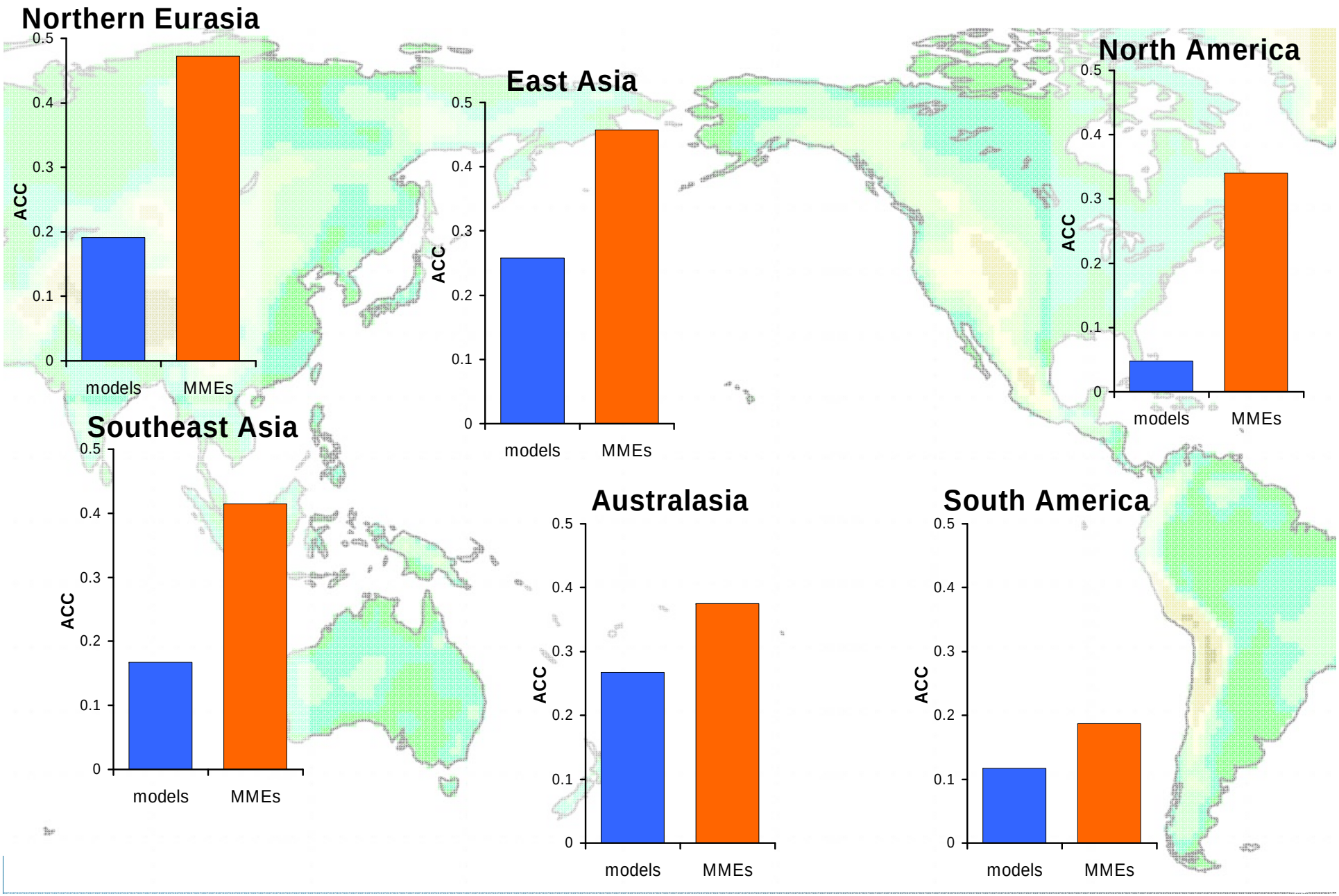
Hindcast Verification (JJA, Prec, Global)





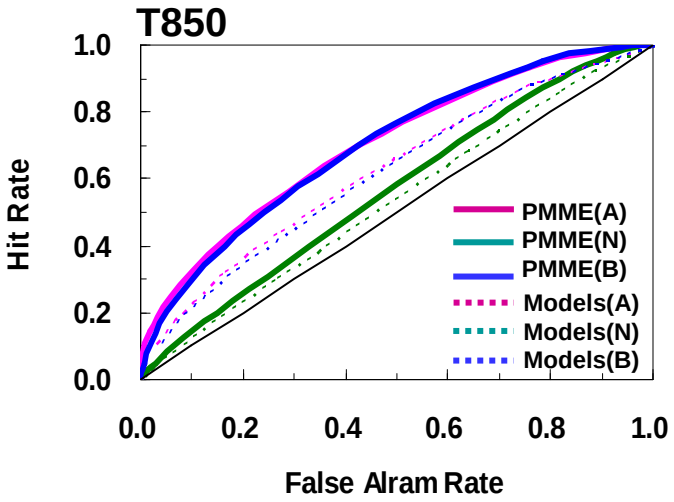


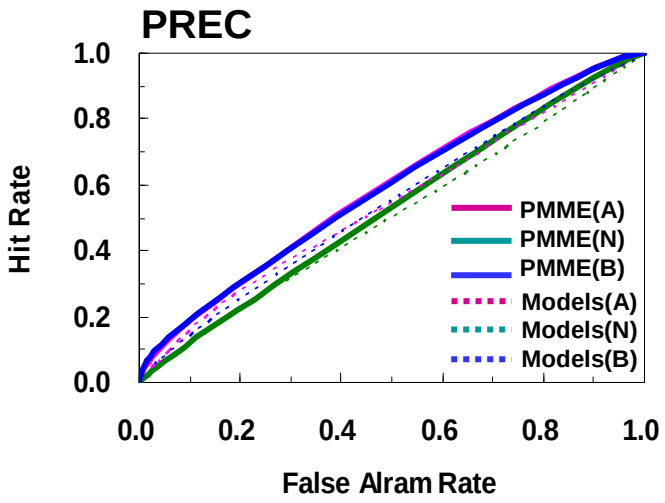
Forecast Verification (2007JJA, T850)



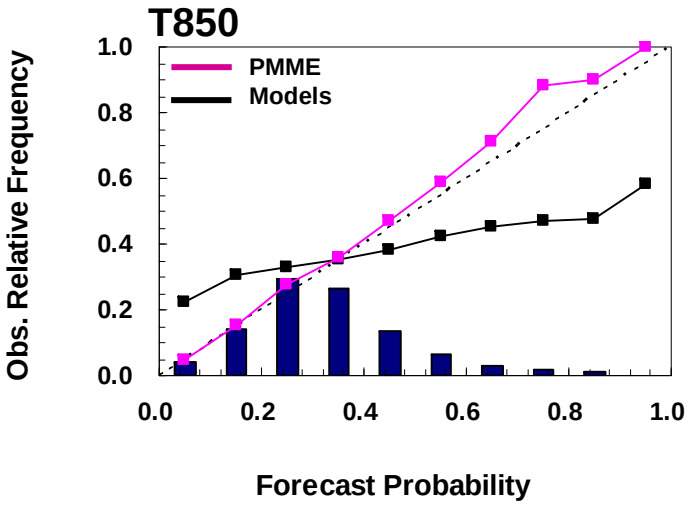
Hindcast Verification (T850, Prec, Global)

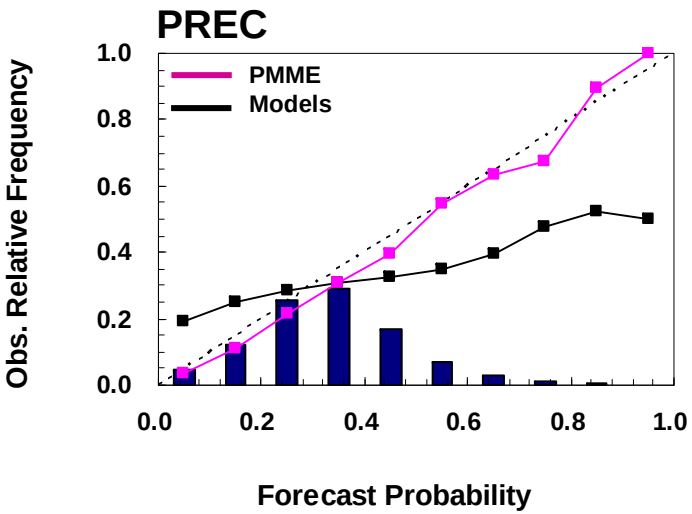
ROC Curve





Reliability Diagram

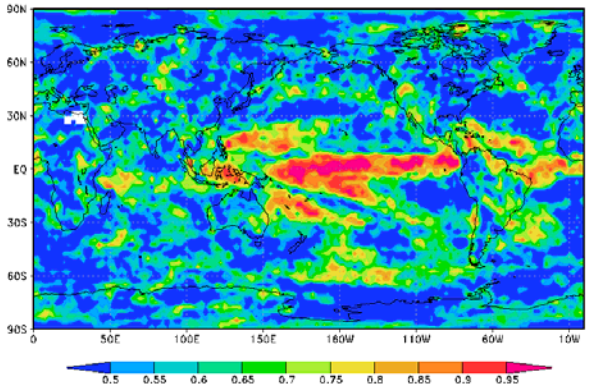




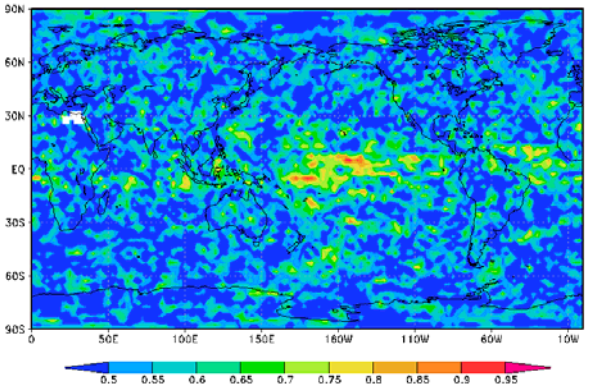
Hindcast Verification (Prec)

AROC and Statistical Significance Maps for JJA Precipitation

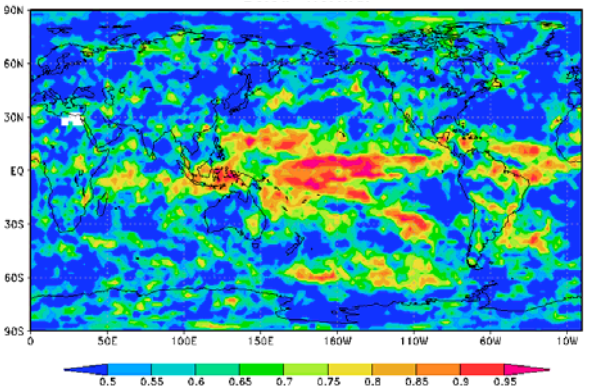
(a) AROC : Above-Normal



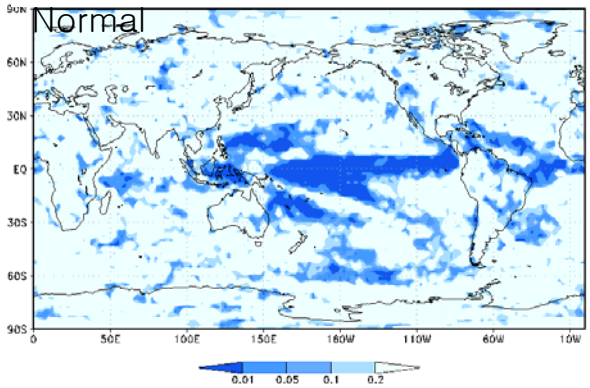
(b) AROC : Near-Normal



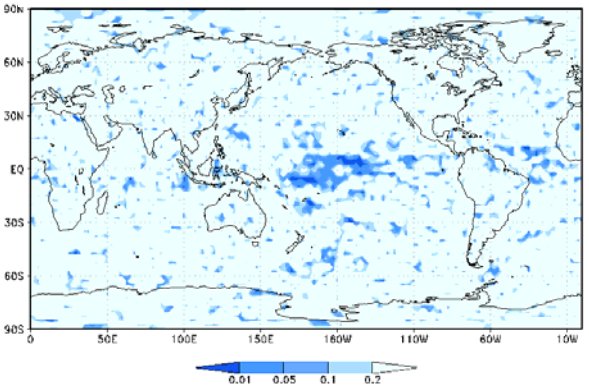
(c) AROC : Below-Normal



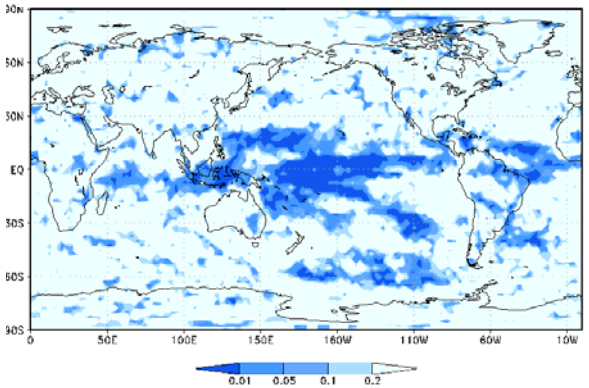
(d) AROC Sig. : Above-Normal



(e) AROC Sig. : Near-Normal

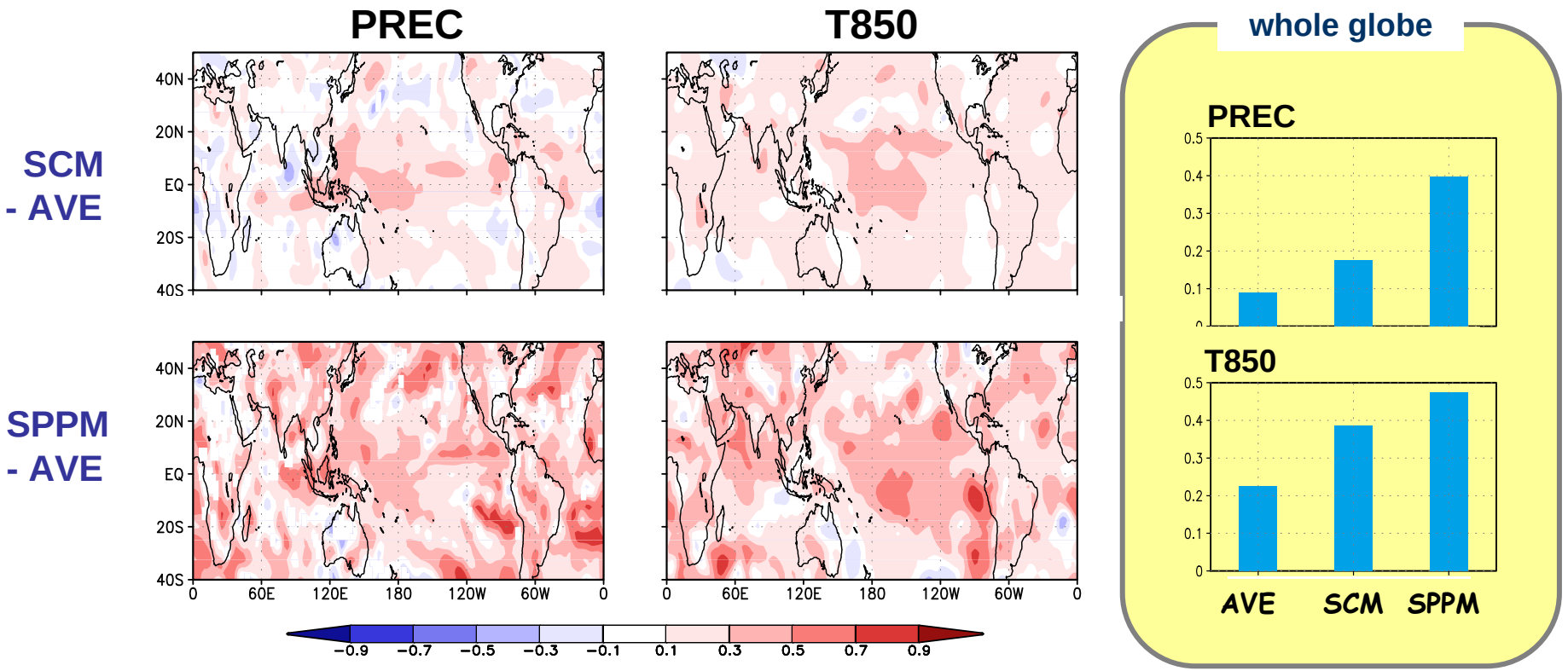


(f) AROC Sig. Below-Normal



Improvement of MME: SPPM Verification

Correlation Skill Difference: AVE/SCM/SPPM

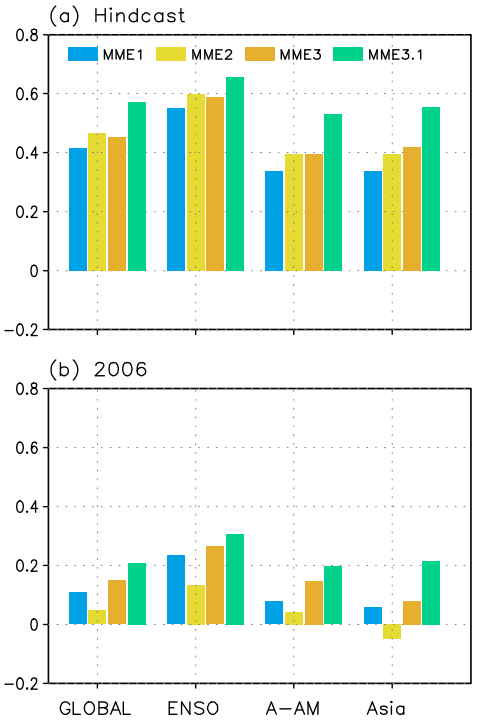


APCC International Research Project

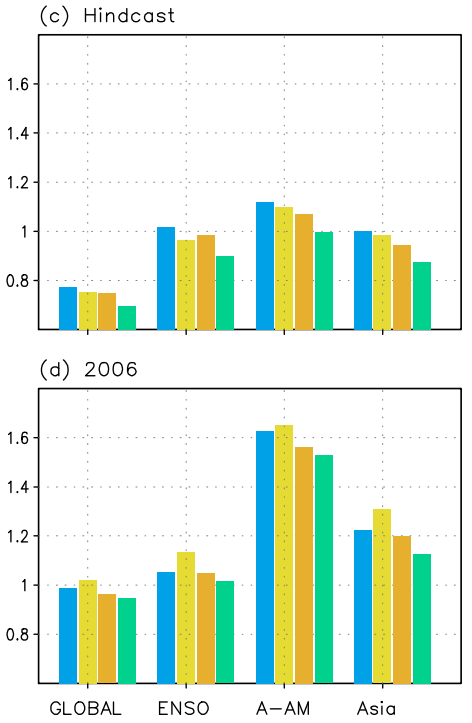
- SPPM was tested on prediction of 850 hPa temperature precipitation using **APCC hindcast data** for the period 1983-2003 and **operational forecast data for 2006**. The results showed much improved skill against the other methods, especially over the East Asian land region.

- SPPM code was transferred to APCC and **is now part of the Automated Forecast System**.

Anomaly Pattern Correlation Skill



Root Mean Square Error

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Climate Monitoring
주경투시도

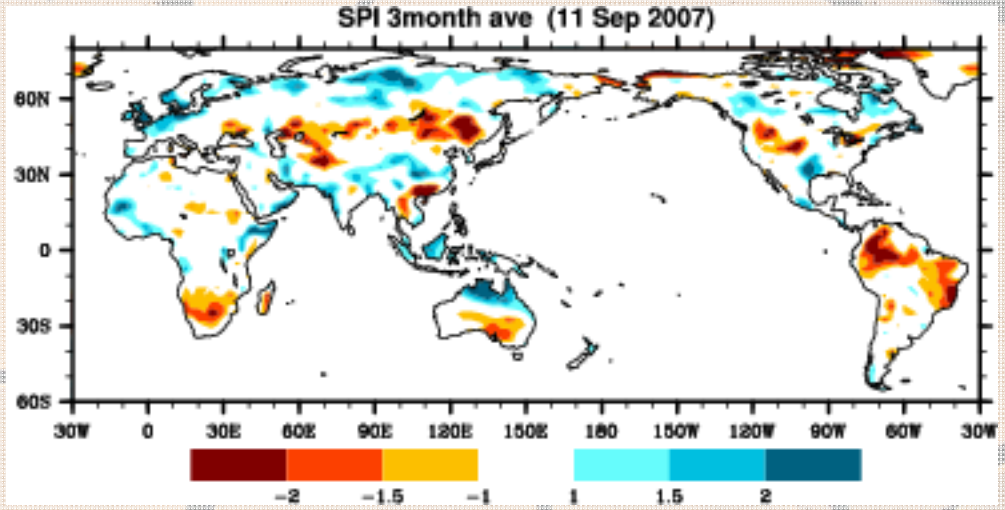
Drought Monitoring

Standardized Precipitation Index (SPI)

Drought monitoring system based on SPI was developed by McKee et al. (1993). The SPI was designed to quantify the precipitation deficit standardized by Gamma distribution for multiple time scales.

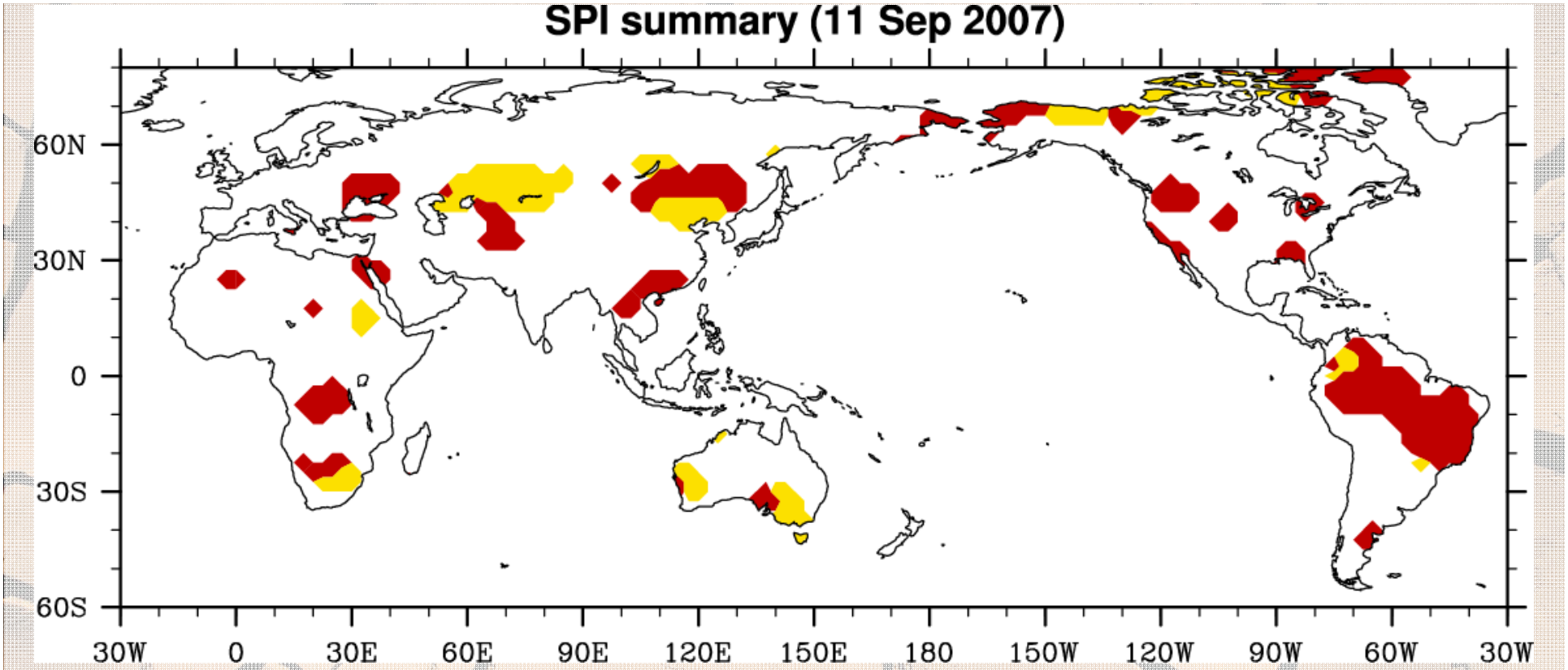
Drought category based on SPI

SPI Values	Category
20+	extremely wet
1.5 to 1.99	very wet
1.0 to 1.49	moderately wet
−0.99 to 0.99	near normal
−1.0 to −1.49	moderately dry
−1.5 to −1.99	severely dry
−2.0 and less	extremely dry



Drought distribution based on SPI

Drought Monitoring



East Asia : Severe drought occurred in south China, Mongolia, and basin of Amur river. During last 1 month, conditions shift to drought in northeast China.

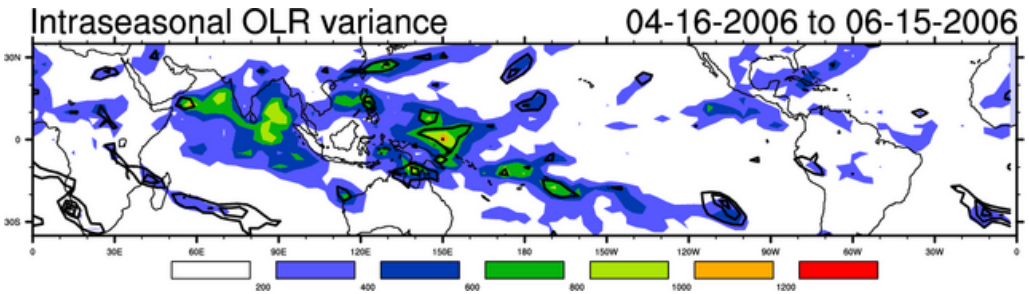
Southeast Asia: Severe drought occurred in Thailand, Myanmar, and Laos.

Australasia: During last 1 month, conditions shift to drought in northeast China. Severe drought from last year in Australia almost recovered.

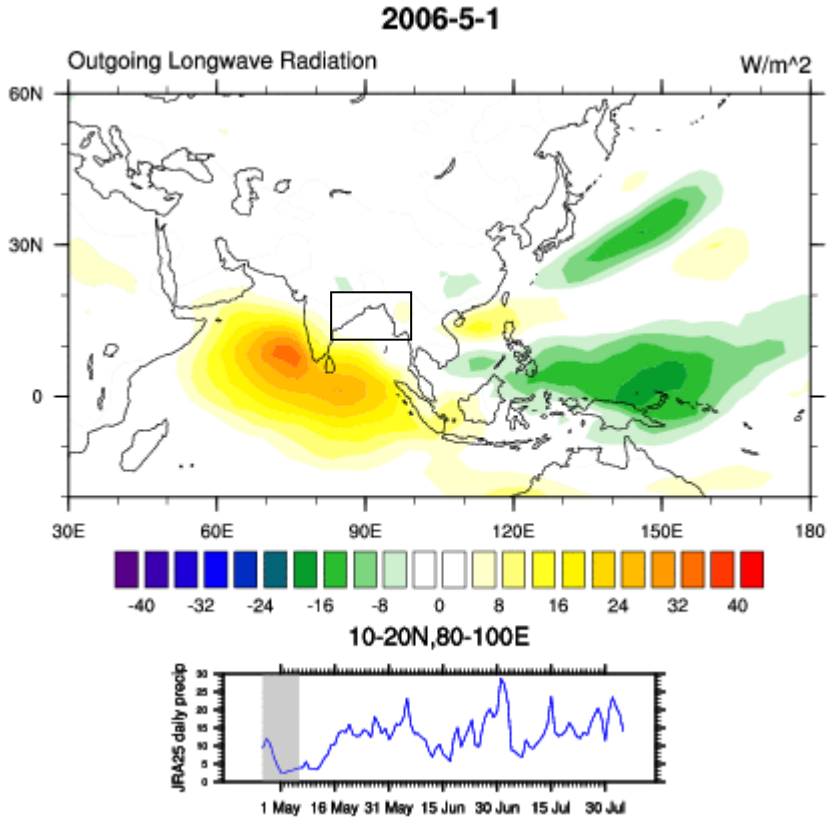
North America: Severe drought from last year in Australia almost recovered.

South America: Severe drought is still persisting in basin of Amazon river. But the conditions are getting better.

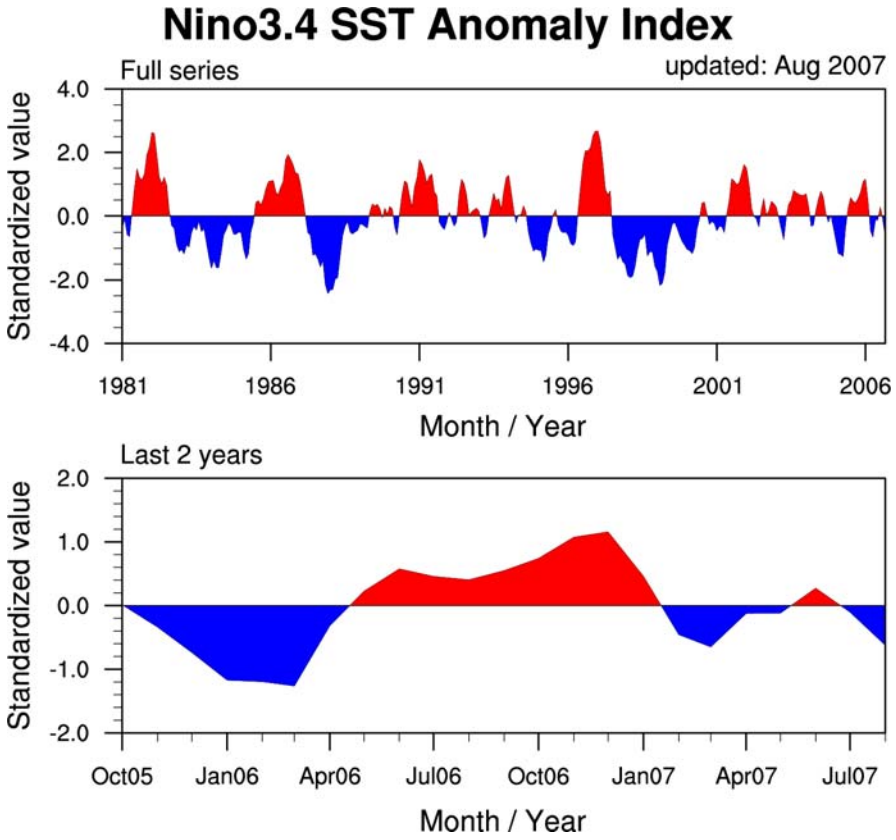
Intraseasonal Variability (ISV) Monitoring

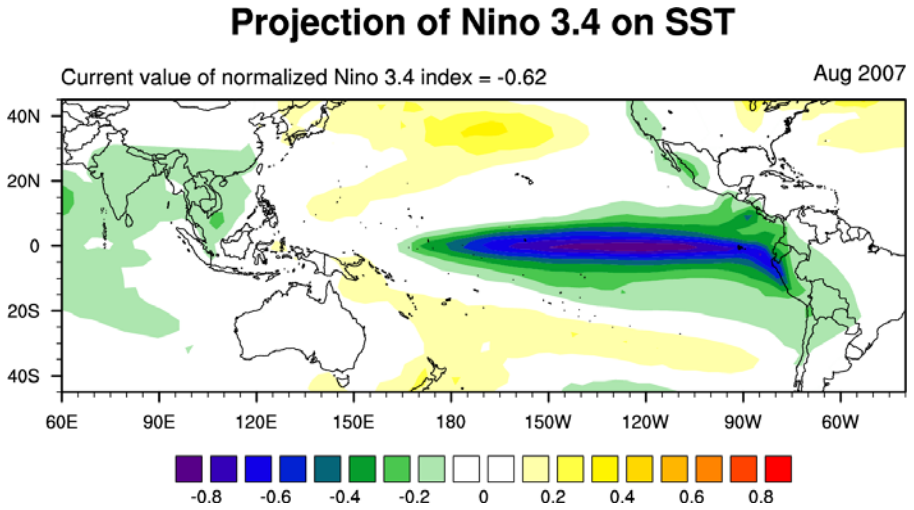


ISV mode reconstruction



Index Monitoring



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Data Service System
주경투시도

Data served on OPeNDAP server

List	Explanation	Variables	Resolution	Periods
TMI	TRMM (Tropical Rainfall Measuring Mission satellite) Microwave Imager	Sea Surface Temperature Rain rate	All images cover a global region extending from 40S to 40N at a pixel resolution of 0.25 deg (~25 km).	Jun. 2006 ~ present
QuikScat	The microwave scatterometer SeaWinds was launched on the QuikBird satellite in June 1999. We refer to this instrument as QuikScat (or QSCAT) to distinguish it from the nearly identical SeaWinds scatterometer on Midori-II (ADEOS-II), launched December, 2002.	Sea Surface Wind	3-day time averaged files are byte arrays of size 1440 x 720 x 3 (longitude, latitude, parameter)	Jan. 2006 ~
NCEP	The NCEP/NCAR Reanalysis 1 project is using a state-of-the-art analysis/forecast system to perform data assimilation using past data from 1948 to the present.	Air temperature Sea level pressure Winds Geopotential heights	2.5 degree x 2.5 degree global grids 17 Level (144x73x17) T62 Gaussian grid with 192x94 points	Jan. 1979 ~
NOAA	Daily, non-interpolated Outgoing Longwave Radiation (OLR) data from NCAR archives	Outgoing Longwave Radiation	2.5 degree latitude x 2.5 degree longitude global grid (144x73).	Jan. 1986 ~
MME	Climate prediction and hindcast datasets from APCC participating models	850 hPa Temperature Precipitation 500 hPa Geopotential height	2.5 degree x 2.5 degree global grids	Each season

APCC Data Service System

Visiting ADSS

APCC Data Service System (ADSS)

Data Service System was constructed for real time climate monitoring and digital data service to APEC members. This system will be of great serve for APCC to play an important role as a hub of data service center. The major goal of setting up of data service system is to provide a comprehensive set of model and observational climate data, in order to establish a scientific basis for climate prediction.The second is to monitor climate information using near real-time in situ observation and prediction data interfaces on the webpage for various users.

Currently Available Data Set

NCEP	Info	OPeNDAP	FTP
NCEP_SFC	Info	OPeNDAP	FTP
NOAA_OLR	Info	OPeNDAP	FTP
TMI	Info	OPeNDAP	FTP
QuikScat	Info	OPeNDAP	FTP
AVISO	Info	OPeNDAP	FTP

Today : 2 Total : 21

http://cis.apcc21.net:8080/opendap

APEC Climate Center

Contents of /

Name	Last modified	Size	Response Links
NCEP/	2007-05-11 02:54:16	-	- - - - -
NCEP_SFC/	2007-03-18 09:42:59	-	- - - - -
NOAA_OLR/	2006-12-04 10:05:24	-	- - - - -
QuikScat/	2006-12-03 10:57:29	-	- - - - -
TMI/	2006-12-03 10:57:29	-	- - - - -

THREDDS Catalog HTML XML — Hyrax development sponsored by NSF, NASA and NOAA

OPeNDAP Hyrax (1.1.0) ServerUUID=e93c3d09-a5d9-49a0-a912-a0ca16430b91-contents
Documentation

Visiting ADSS

APEC Climate Center

Contents of /TMI/

Name	Last modified	Size	Response Links
Parent Directory		-	
Daily/	2007-07-03 07:07:34	-	- - - - -
Monthly/	2007-05-31 08:42:15	-	- - - - -

THREDDS Catalog HTML XML — Hyrax development sponsored by NSF, NASA and NOAA

OPeNDAP Hyrax (1.1.0)
Documentation

APEC Climate Center

Contents of /TMI/Daily/

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Backdate/	2007-03-06 03:40:03	-	- - - - -
Climatology/	2006-12-08 10:17:14	-	- - - - -
ISV/	2007-03-05 04:08:29	-	- - - - -
Longer/	2007-09-11 07:06:44	-	- - - - -
Mean/	2007-04-16 02:42:37	-	- - - - -
ano_org/	2007-06-29 07:42:39	-	- - - - -
test/	2007-07-02 10:01:57	-	- - - - -

THREDDS Catalog HTML XML — Hyrax development sponsored by NSF, NASA and NOAA

OPeNDAP Hyrax (1.1.0)
Documentation

APEC Climate Center

Contents of /TMI/Daily/Mean/

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Parent Directory		-	
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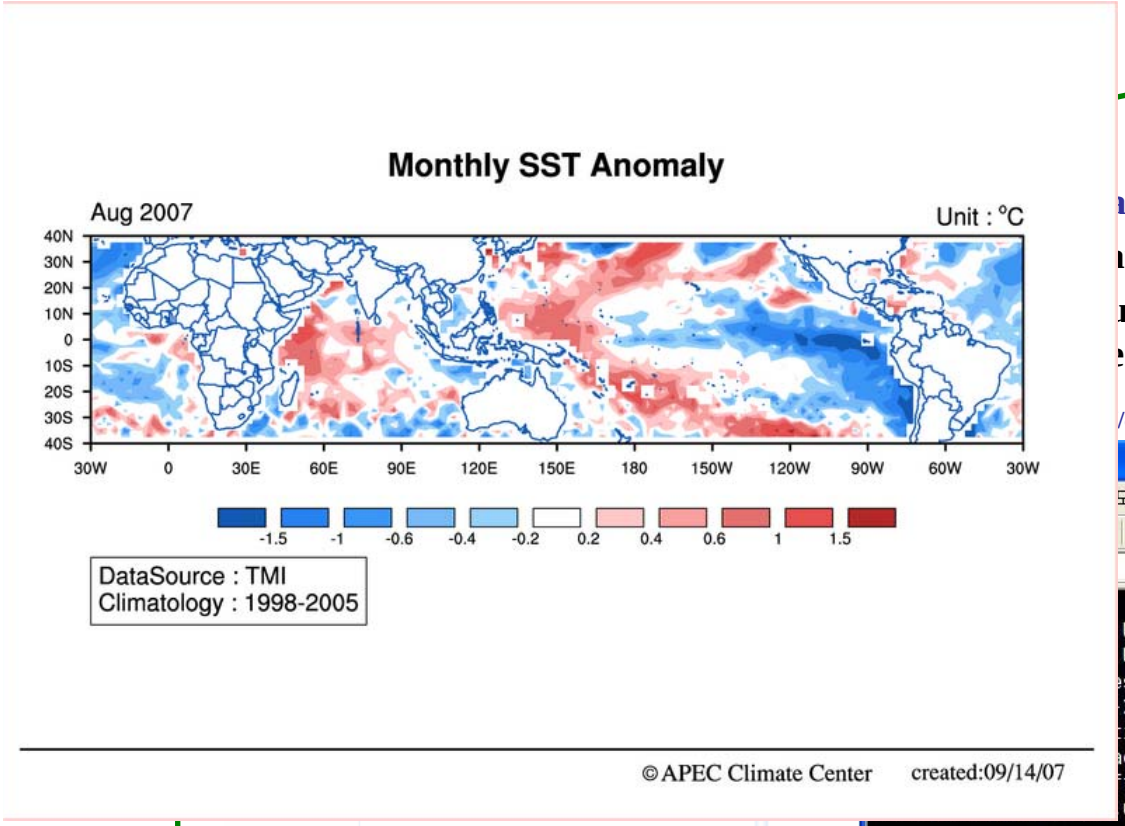
2007/	2007-09-10 07:04:03	-	- - - - -

THREDDS Catalog HTML XML — Hyrax development sponsored by NSF, NASA and NOAA

OPeNDAP Hyrax (1.1.0)
Documentation

APCC Data Service System



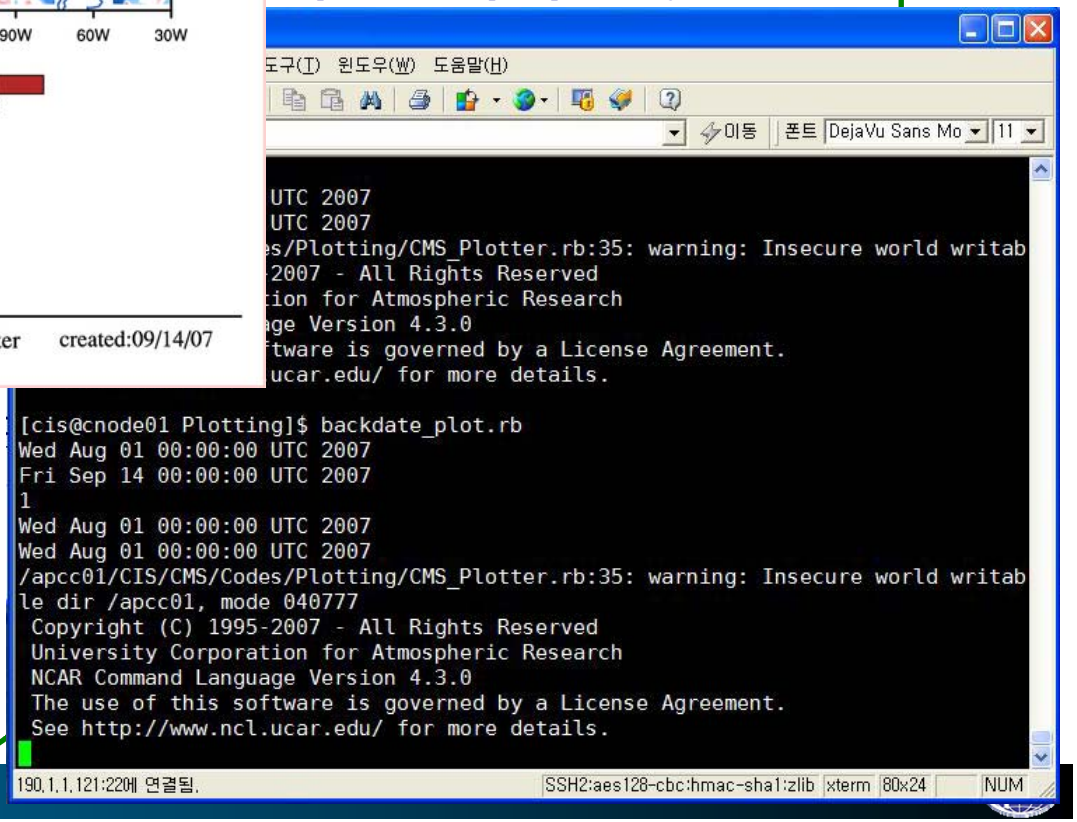
How to use

ample 1 :

unch GrADS

t and paste "Data URL" into the erface of the client software :

/cis.apcc21.net:8080/opendap/TMI/Daily/Mean/2007/sst.nc

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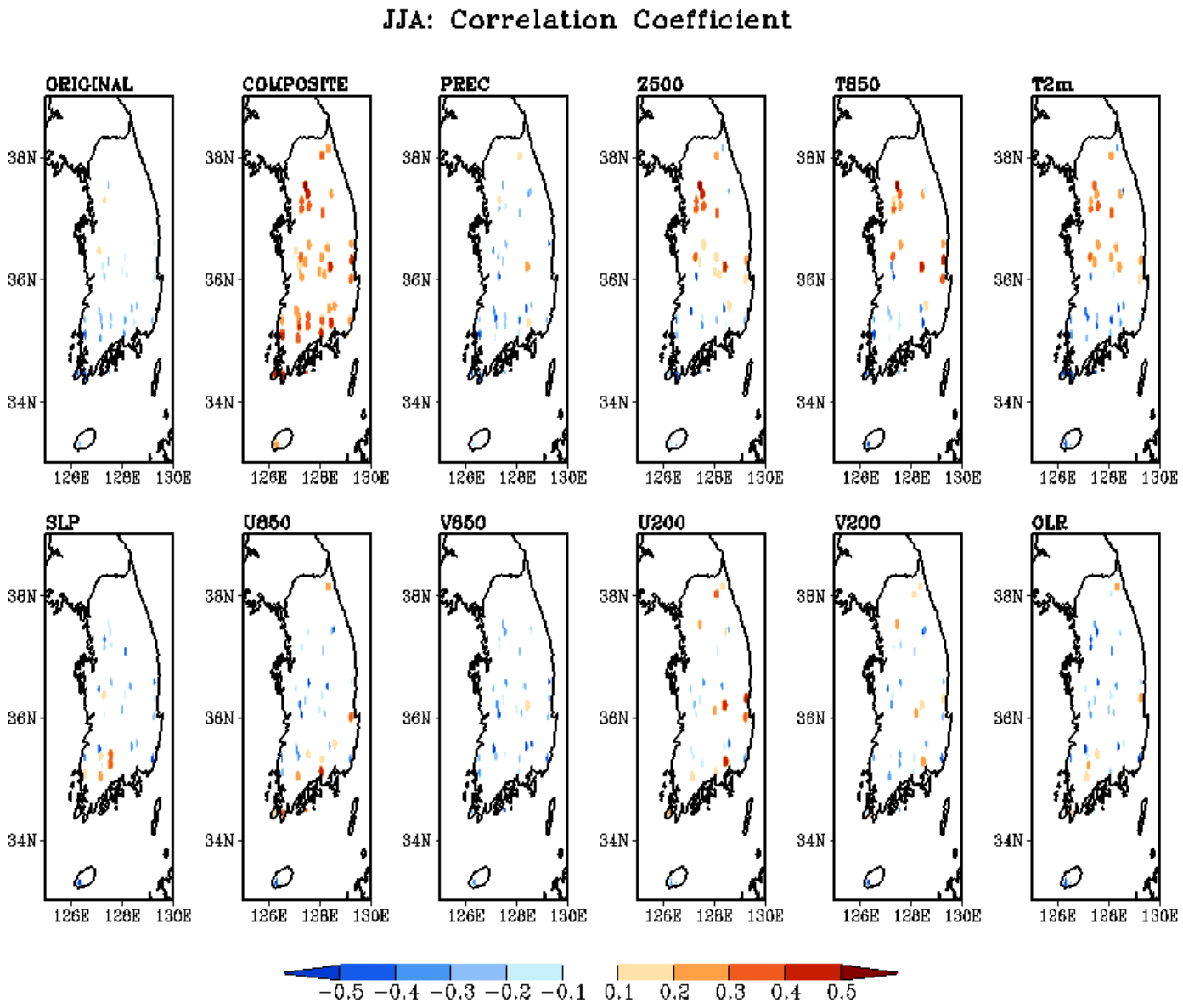
Connection to NMHSs
주경투시도

APCC Forecast Product Survey

- No. of replies: 12
- Replied model providers: 8 (**BoM Australia, CMC, IAP, BCC, KMA, METRI, HMC, CWB**)
- Other NMHSs: 4 (**Hong Kong, China; Malaysia; Thailand; Vietnam**)

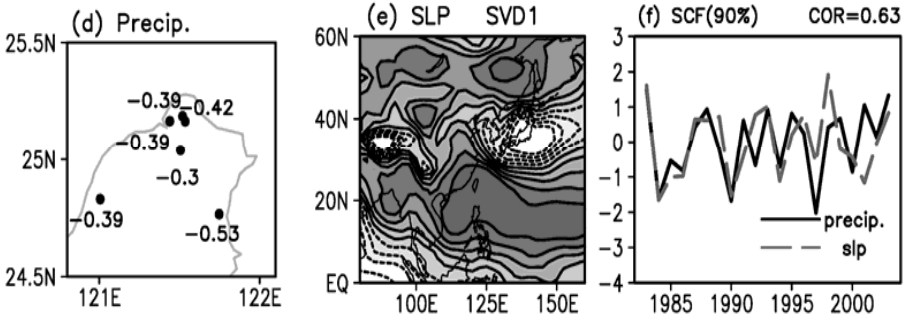
Question	Summary of feedbacks
2. Right now APCC issues MME predictions four times a year for the DJF, MAM, JJA and SON seasons. Is there any other additional period for prediction that you would like to suggest?	o Monthly issued forecast will be most useful
3. Do you think that monthly issued 3-month MME forecast products will improve the seasonal outlook or other related services of your organization?	o Monthly issued forecast will be most useful o Depending on prediction skill
4. Would you find it useful to have extended seasonal predictions (say with 6-month lead time)? If so, then for which season or period?	o 4-month lead forecast o 6-month lead forecast o 9-month lead forecast o Extended forecast for northern spring & summer o Extended northern summer season/Typhoon season (June-Oct) o Nov-April o All seasons o Eventually- if more skillful than statistical model
5. Would you like to see more frequent seasonal predictions during climate events such as El Ninos, heat waves and prolonged drought conditions?	o No o Yes- during ENSO, drought and floods

Statistical Downscaling- Korea

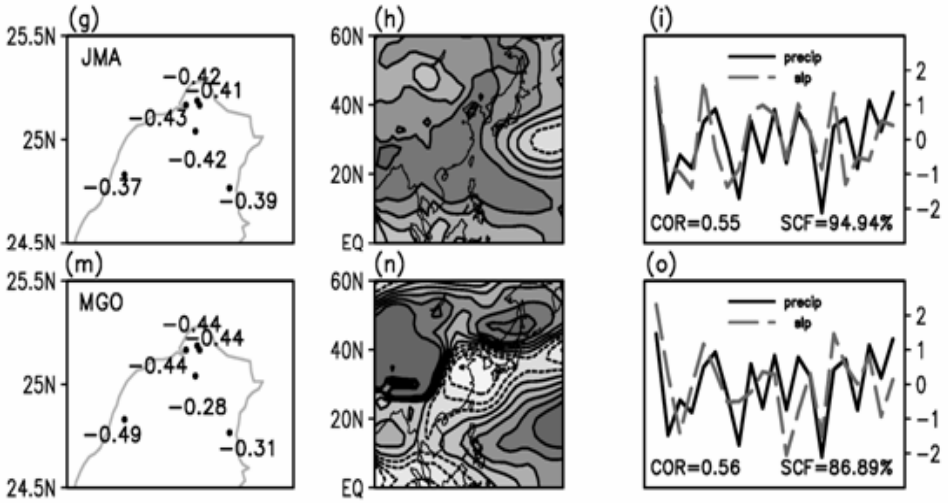


Statistical Downscaling- Taiwan

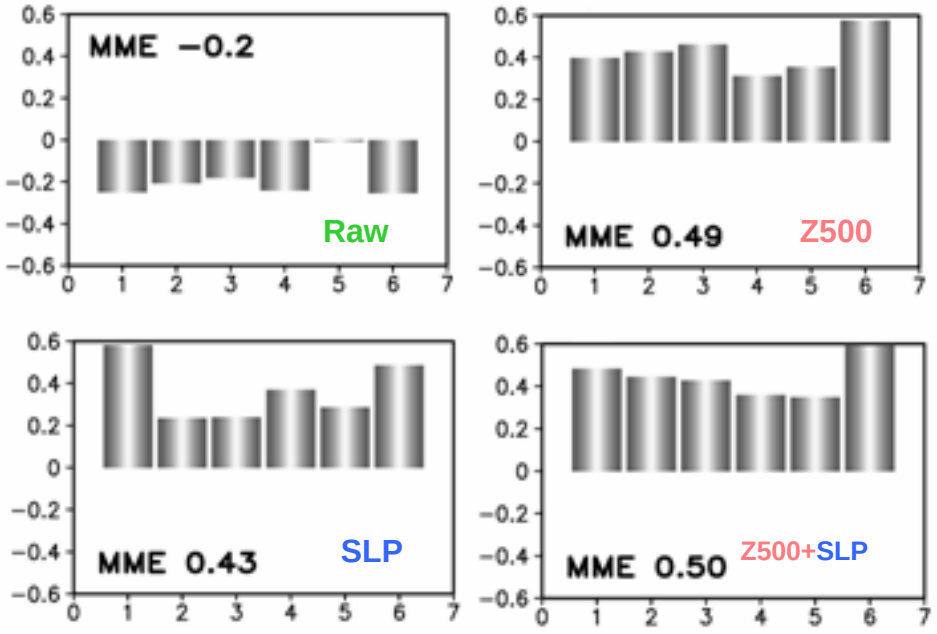
Observation SVD 1



Model SVD 1

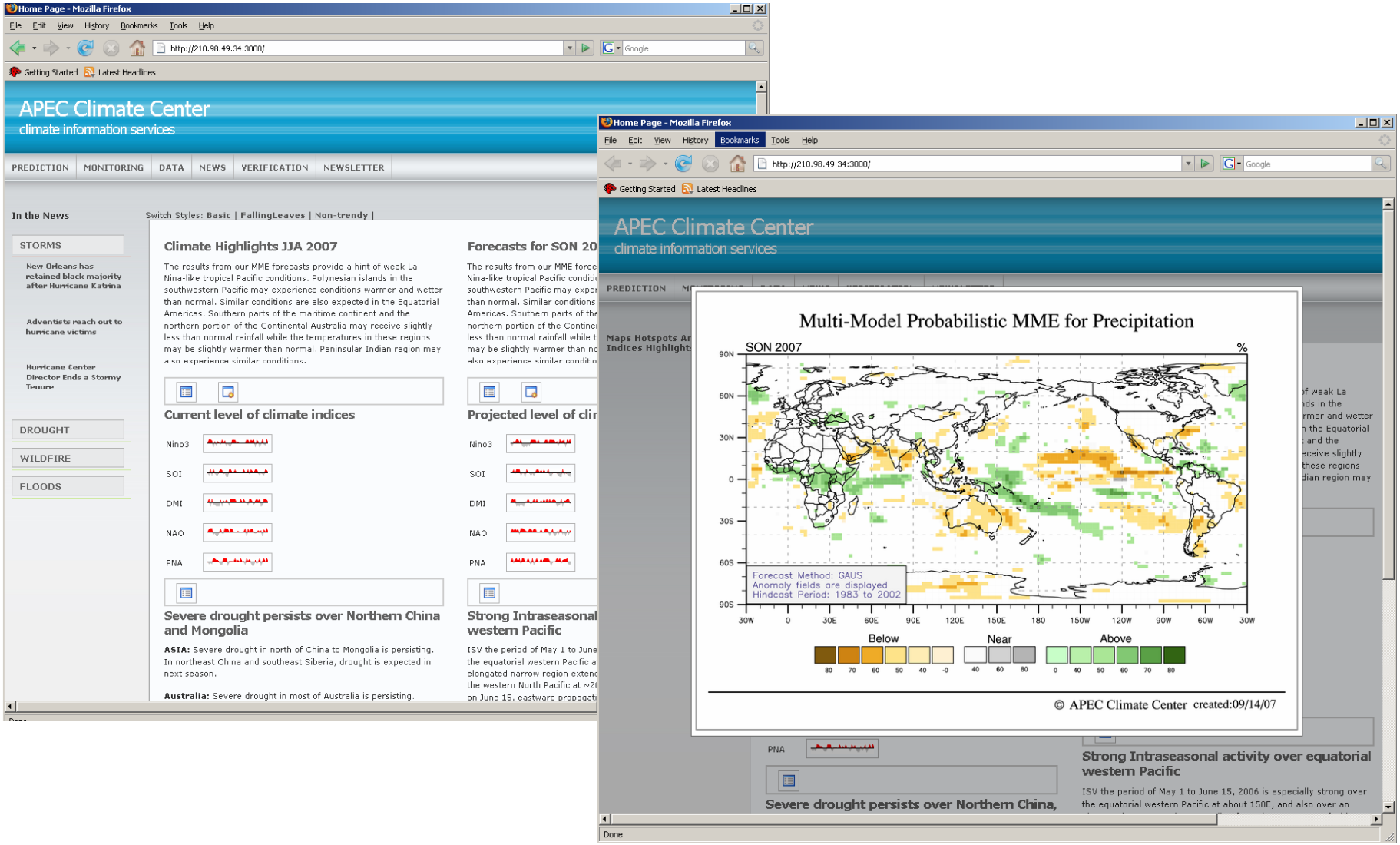


Skill of Downscaling



New Homepage

Visit: http://210.98.49.34:3000/




Thank You !