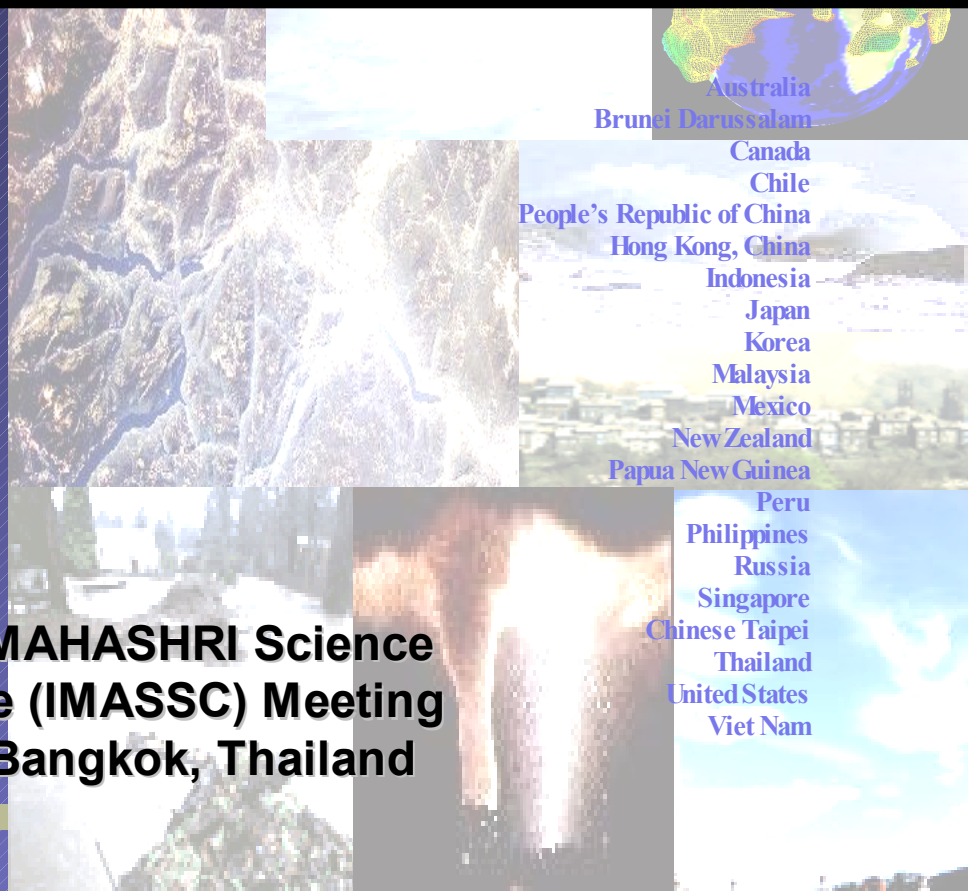
APEC Climate Center (APCC)
Climate Information Services

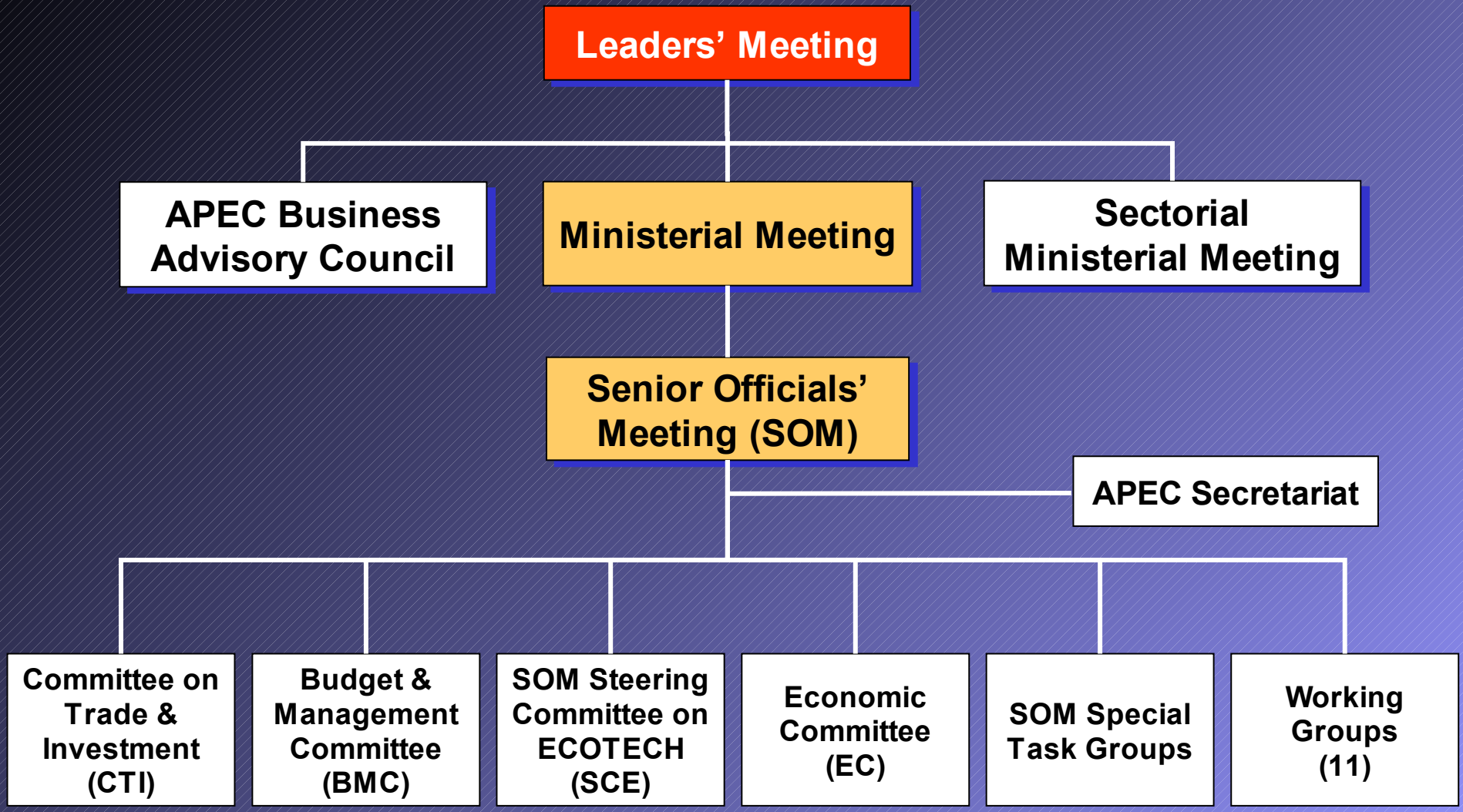
Asia
Pacific
Economic Cooperation
Climate
Center



First International MAHASHRI Science Steering Committee (IMASSC) Meeting
Sep. 19-20, 2006, Bangkok, Thailand

Interim APCC Building

APEC Structure



Establishment of APCC

3rd APEC S&T Ministers' Meeting (Mexico, October 1998)

- Proposed the APCN (APEC Climate Network).

17th APEC ISTWG Meeting (USA, August 1999)

- Approved the APCN.

4th APEC S&T Ministers' Meeting (New Zealand, March 2004)

- Recognized the work of APCN and the initiative to accelerate the establishment of APCC.

27th APEC ISTWG Meeting (Singapore, September 2004)

- Supported the establishment of APCC.

4th APCN Working Group Meeting and
3rd APCN Steering Committee Meeting
(Busan, Korea, November 2004)
- Discussed and coordinated the functions and operations of APCC.

2005 First APEC Senior Officials' Meeting (SOM I)
(Seoul, Korea, March 2005)
- Endorsed the establishment of APCC.

28th APEC ISTWG Meeting
(Gwangju, Korea, March 2005)
- Endorsed the functions and operations of APCC.

17th APEC Ministerial Meeting

(Busan, Korea, November 2005)

- WELCOMED the ESTABLISHMENT of APCC.

13th APEC Economic Leaders' Meeting

(Busan, Korea, November 2005)

- INAUGURATION of APCC.

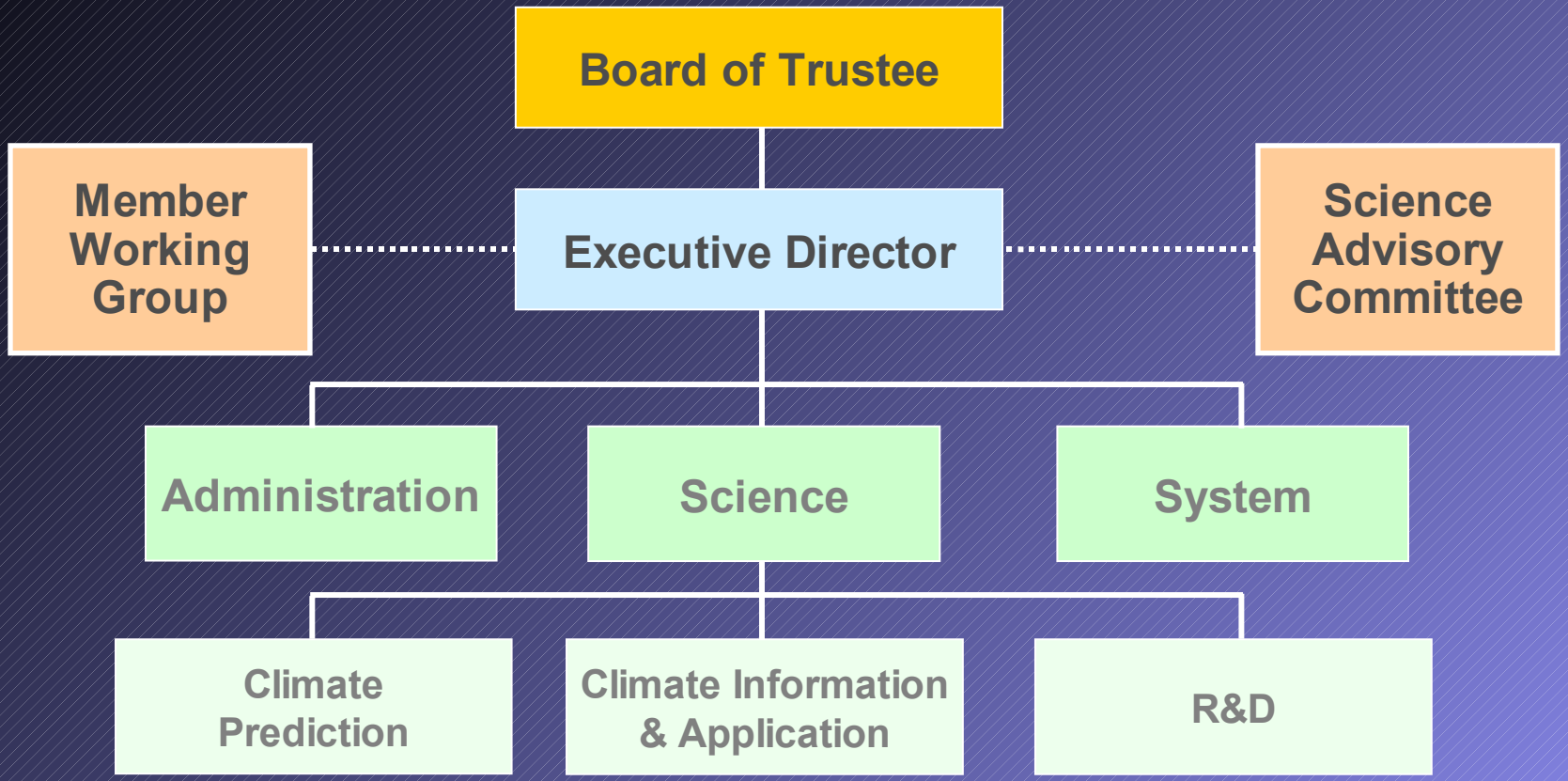
Goals of APCC

- Facilitating the share of high-cost climate information
- Capacity building in prediction and sustainable social and economic applications of climate information
- Accelerating and extending socio-economic innovation

Functions of APCC

- Developing a value-added reliable climate prediction system
- Acting as a center for climate data and related information
- Coordinating research toward development of an APEC integrated climate-environment-social-economic system model

APCC Structure



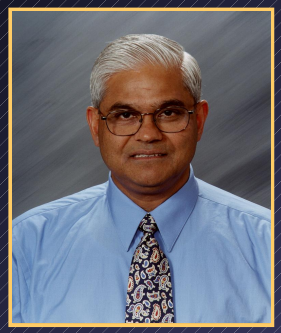
	Executive Director	Administration Division	Science Division	System Division
Total 21	1 person	5 persons	10 persons	5 persons

Science Advisory Committee

- **Composition**
  - Leading scientists in the fields of climate modeling and prediction, and other relevant areas of interest
- **Functions**
  - Serving as a main science advisory body on various issues relevant to the successful implementation of APCC
  - Providing guidelines on research and development activities related to APCC's mission

Science Advisory Committee

- **Co-chairs**



COLA/George Mason Uni.
USA
Prof. Jagadish Shukla

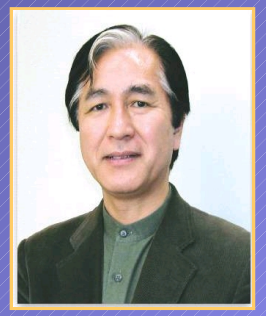
Climate Environment System
Research Center, SNU
Korea
Prof. In-Sik Kang

- **Members**

Dr. Oscar Alves
(BMRC, Australia)

Prof. Yihui Ding
(CMA, China)

Prof. Hui-Jun Wang
(IAP, China)



Prof. Toshio Yamagata
(UT, Japan)

Science Advisory Committee

- **Members (continued)**

Prof. Akimasa sumi
UT, Japan

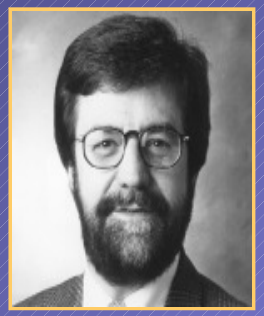
Dr. Vladimir Kattsov
(MGO, Russia)

Prof. C. P. Chang
(NPGS, USA)

Prof. Bin Wang
(UH, USA)

Dr. Anthony Rosati
(GFDL. USA)

Dr. Antonio Navarra
(INGV, Italy)

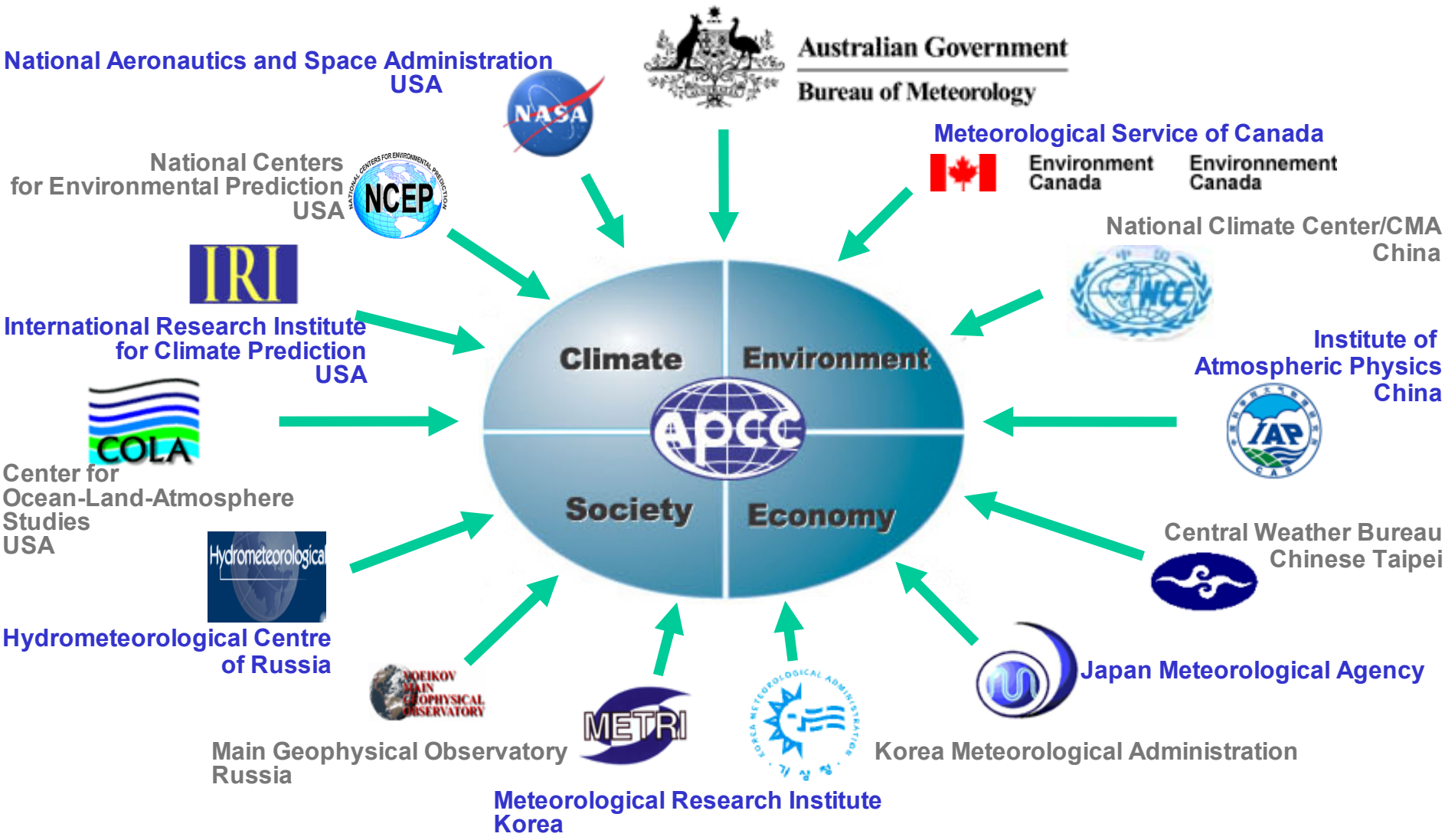


Dr. Antonio Divino Moura
(INMET, Brazil)

Member Working Group

- **Composition**
  - Representatives from the NMHSs of all APEC member economies and participating institutions
- **Functions**
  - Facilitating the exchange of regional climate information, particularly climate prediction, among APEC member economies
  - Facilitating the individual efforts in operational centers and research institutions within the framework of APEC
  - Working closely with the Science Team of APCC for the improvement of MMES and development of new applications

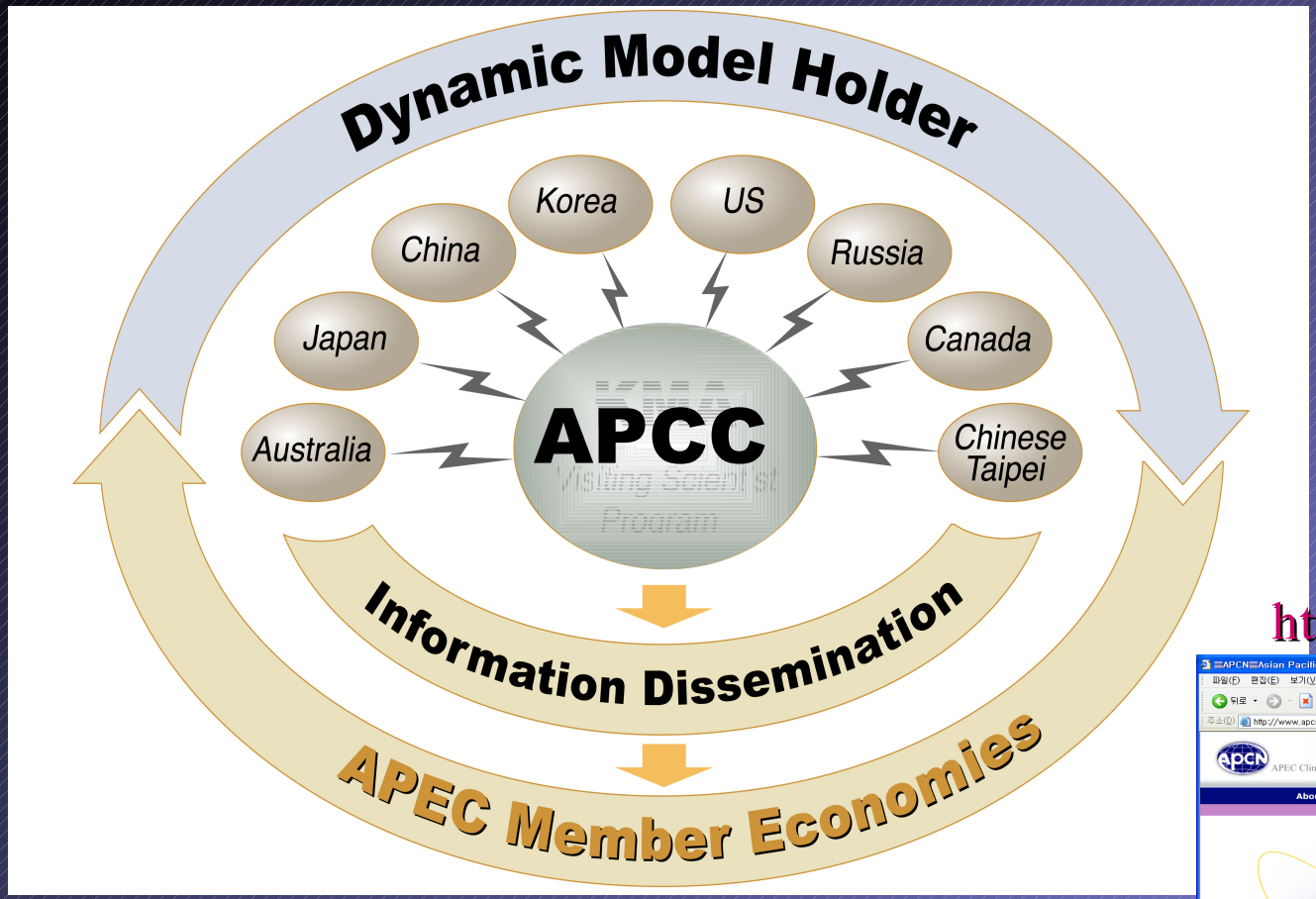
Multi-Institutional Cooperation



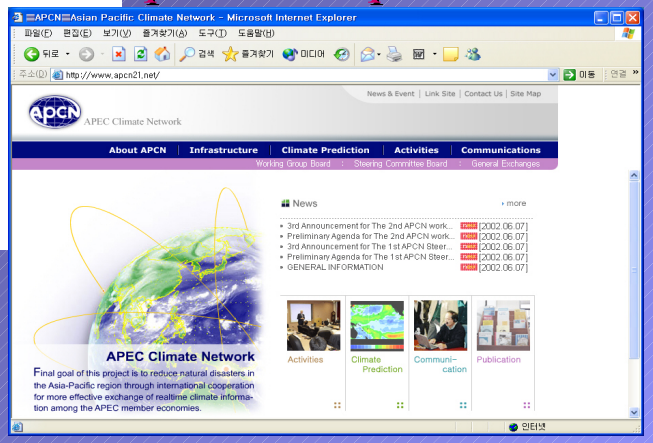
Visiting Scientist Program 2006

	Name	Sex	Nation	Duration
1	Wang Yongguang	M	China	7.1 ~ 8.31
2	Analiza S. Solis	F	Philippines	〃
3	Atul K. Sahai	M	India	〃
4	Anastassia Bundel	F	Russia	8.1 ~ 9.30
5	Luo Jingjia	M	China	9.1 ~ 10.31
6	Kornrawee Sitthichivapak	F	Thailand	〃
7	Lynette Bettio	F	Australia	10.9 ~ 10.20

APCC Multi-Model Ensemble



http://www.apcc21.net



APCC Deterministic MME Schemes

- **SCM- Simple Composite Method**
- **CPP- Coupled Pattern Projection:**

Based on optimally correlated patterns as predictor

- **MRG- Multiple ReGression:**

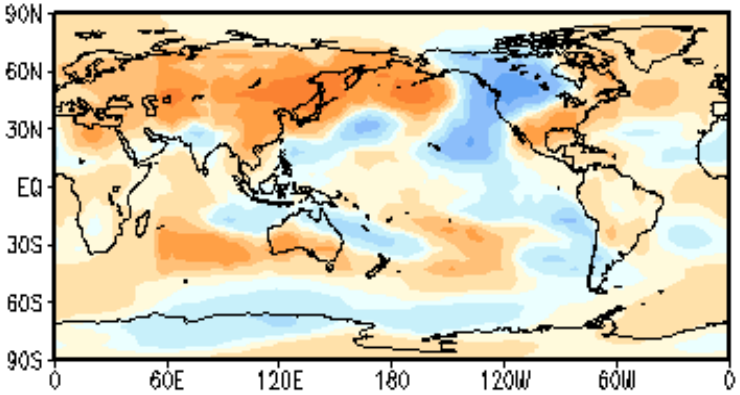
i.e. Multi-model super ensemble

- **SSE- Synthetic multi-model Super Ensemble**

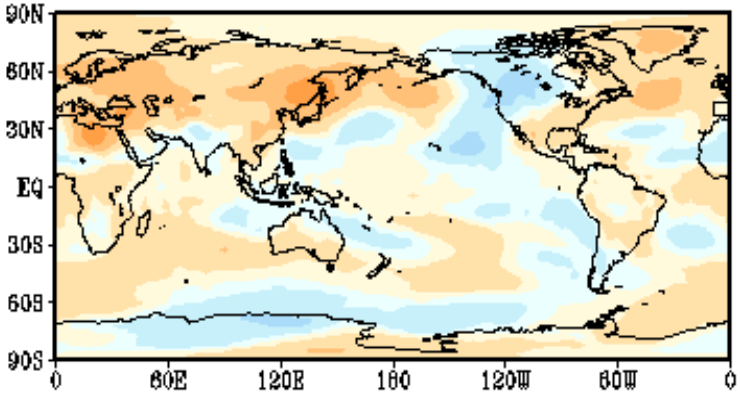
Super ensemble with EOF filtering

Global t850. Forecast for SON2006 by APCC/MME

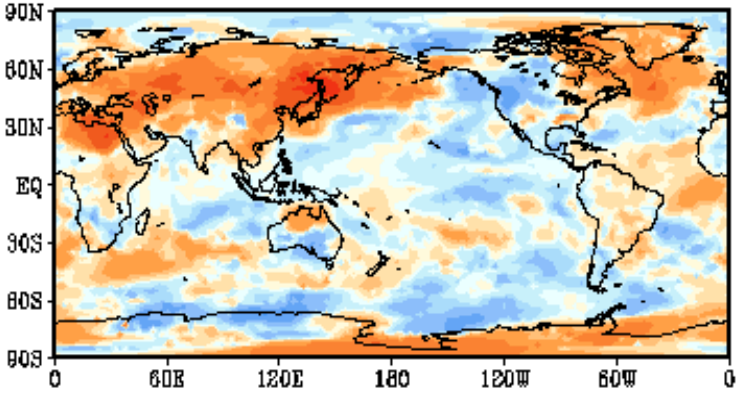
CPP



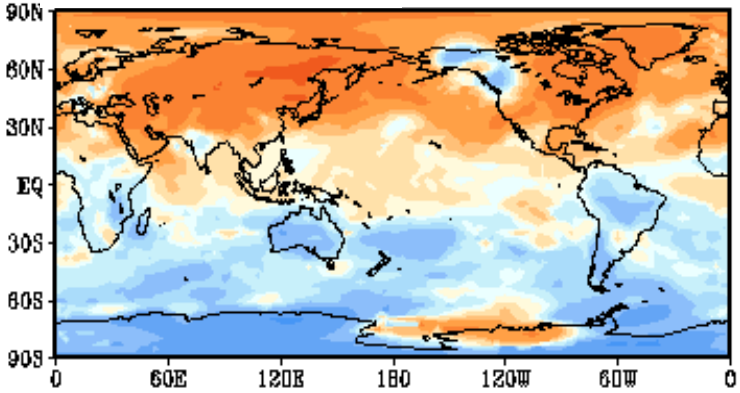
SCM

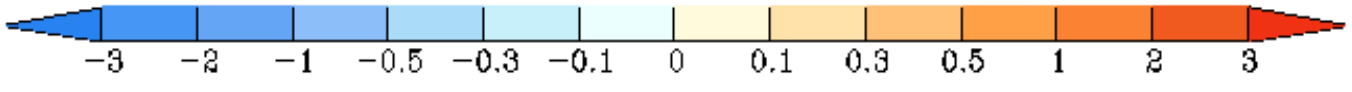


MRG



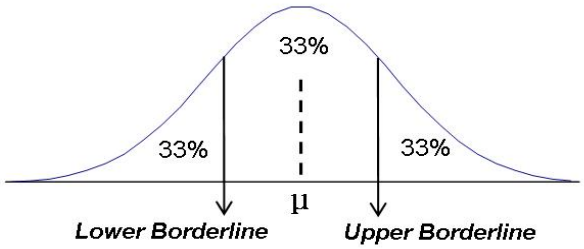
SSE





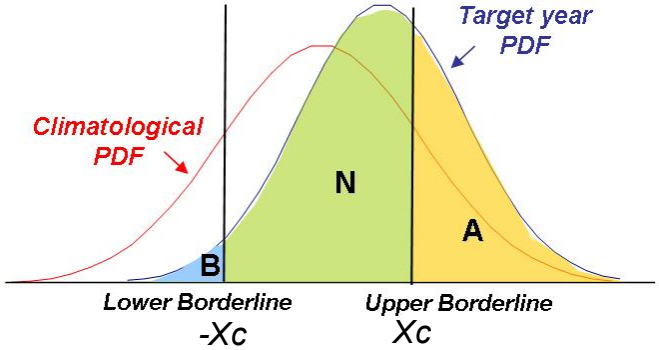
Probabilistic Forecast Method

▪ Defining terciles using Normal Fitting Method



- For the middle/upper tercile boundary :
  mean plus 0.43 times the standard deviation
  → $\mu + 0.43\sigma$
- For the lower/middle tercile boundary :
  mean minus 0.43 times the standard deviation
  → $\mu - 0.43\sigma$

▪ Forecast probability

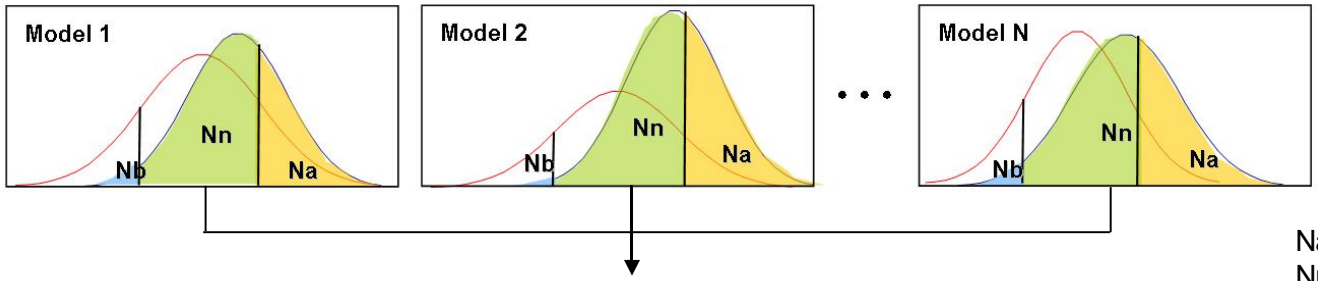


- Above normal case (For example)

A	Probability of Above-normal
N	Probability of Near-normal
B	Probability of Below-normal

Probabilistic Forecast Method

▪ Combine different models



Combine : according to each model's square root of ensemble size

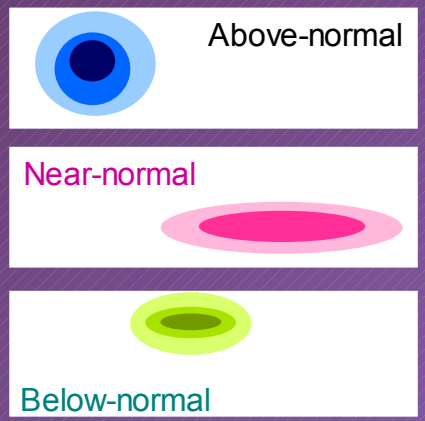
Na : num. of above-normal
Nn : num. of near-normal
Nb : num. of below-normal

▪ Merged 3-category distribution

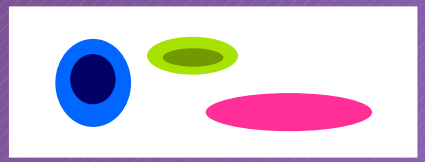
(Chi-square) TEST

O : Forecast frequencies
E : Hindcast frequencies

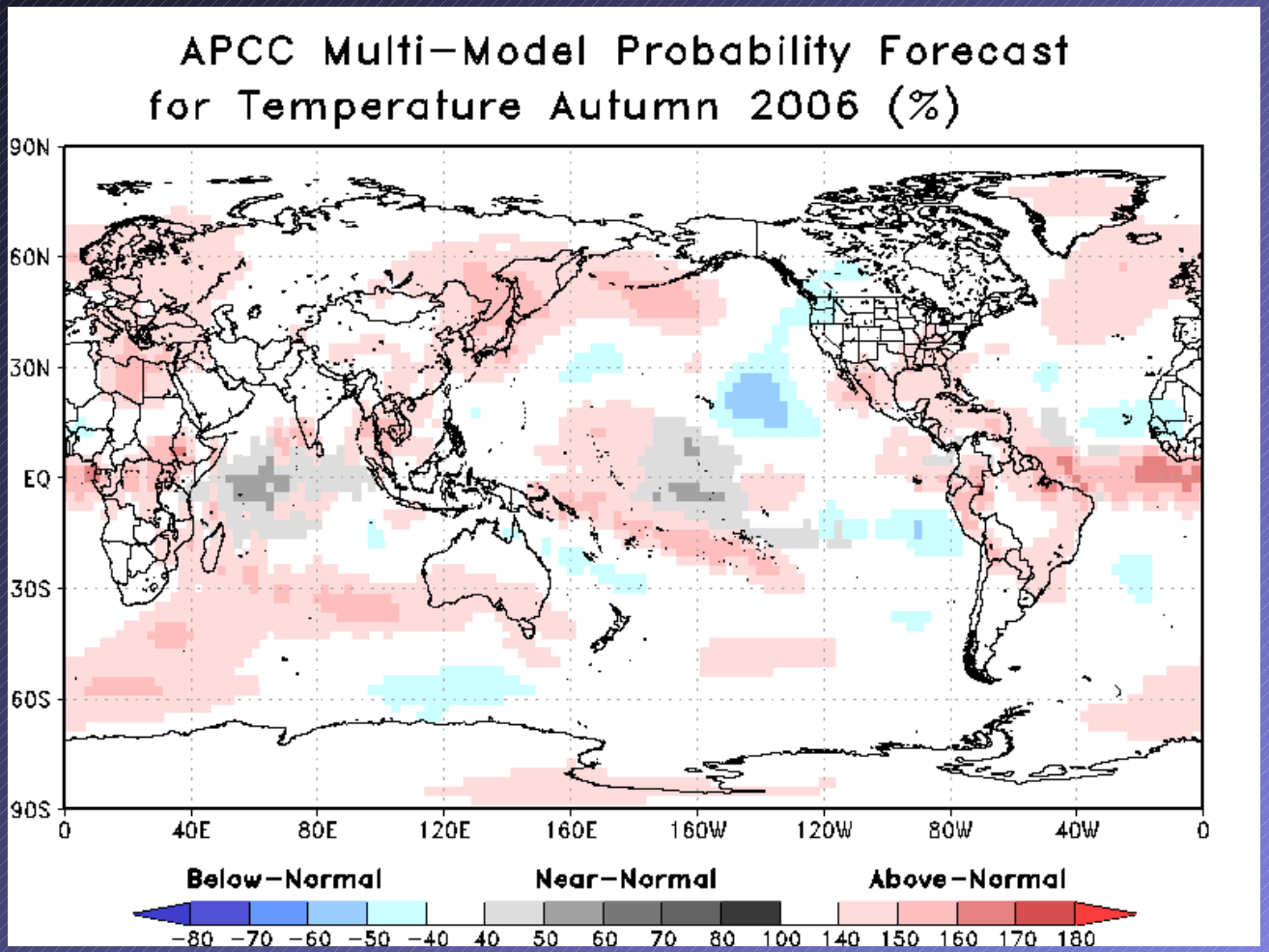
Under 0.05% significance level



3-Categorical distribution



Probabilistic Forecast



Other Services/R & D Activities

- Archiving Hindcast and Forecast expt' data
- Probabilistic Forecast of Extremes
- Statistical Downscaling based on multi-model outputs
- Estimates of "Economic Values" for decision making

In future:

- Dynamical Downscaling
- As Data Portal for observations/model expt'
- Intraseasonal Variability Prediction

Possible Collaboration with MAHASHRI

- Provide seasonal forecast/hindcast data from different models
- Coordination of predictability experiments
- Regional downscaling for decision making
- Development of Early Warning Systems
- Data center for MAHASHRI observations

Future Plan

1. APCC Operation

Period	Contents
06.10~07.06	▪ Revision of the terms of reference and operational regulation ▪ International recruitment and recommendation of director general
07.07~07.12	▪ Formation of the Executive Council
08.01~08.09	▪ Selection of director general

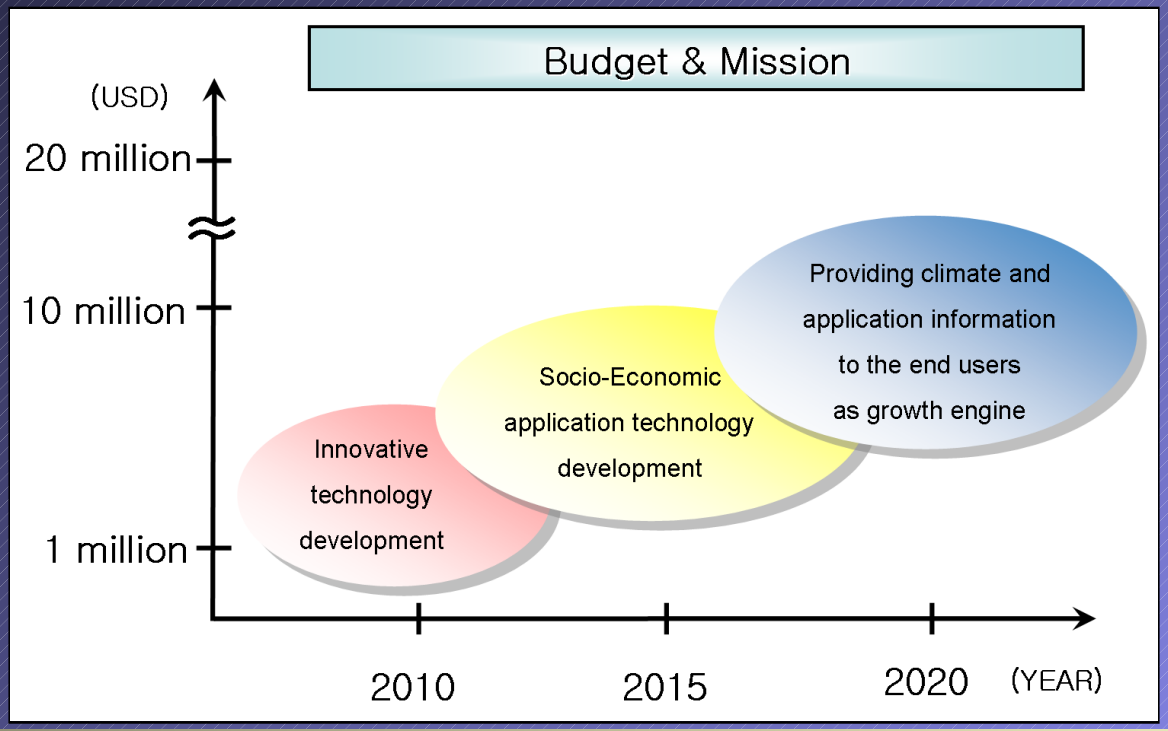
2. Construction of APCC Building

- Busan Metropolitan City provides the land and construction cost
- Construction Scale : land 3300 m^2, total floor space of 3300 m^2
  (6 billion won: approx. USD 6 million)
- Construction Plan : architectural design in 2006 → launching the construction in 2007 → completion in 2008

Future Plan

3. Improving Quality of Service

- 1st phase : Innovative technology development (~2010)
- 2nd phase : Socio-economic application technology development (2011~2015)
- 3rd phase : Providing climate and application information to the end users as growth engine (2016~2020)



Thank you