

APCC Climate Prediction System

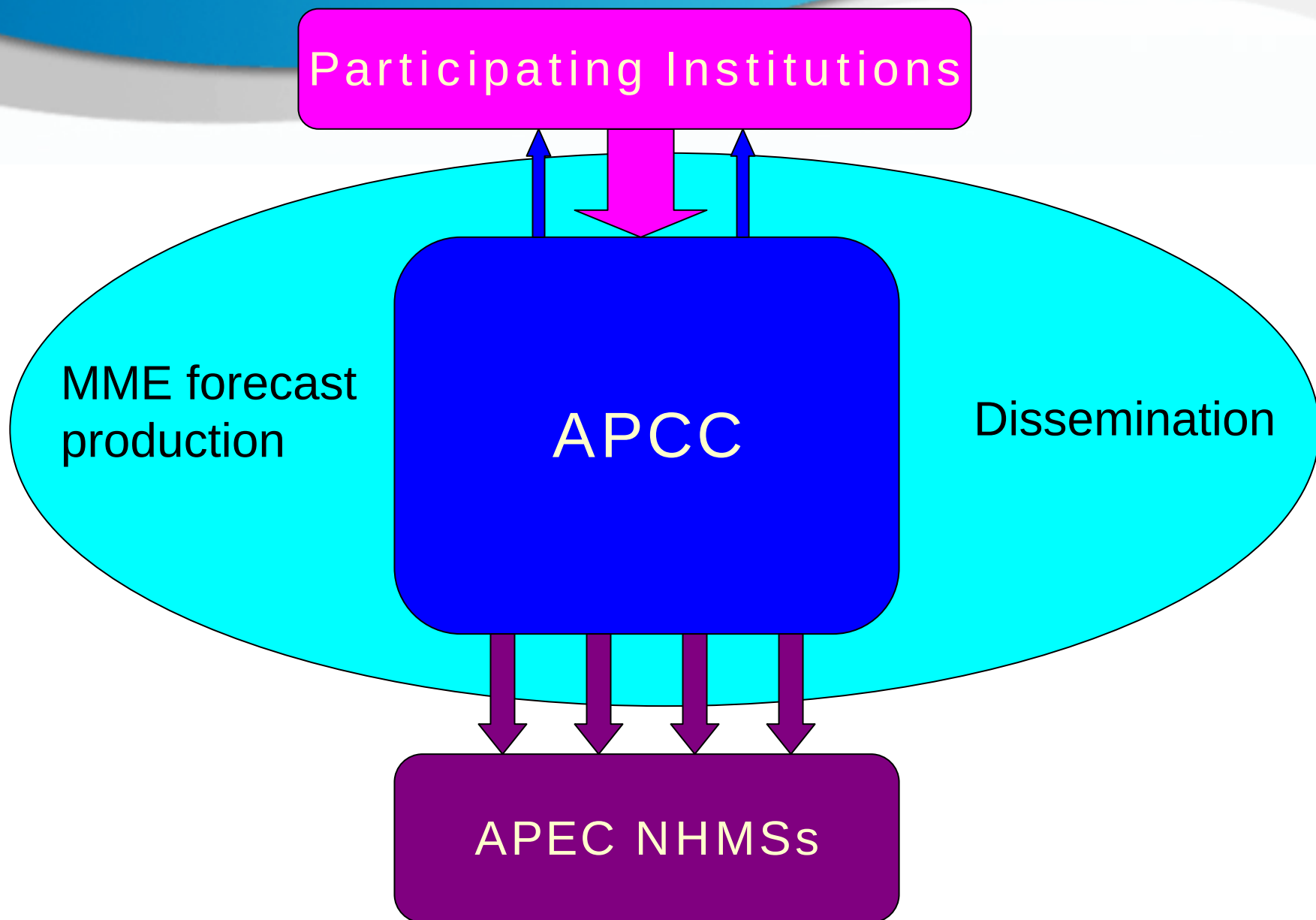
Vladimir Kryjov

APCC

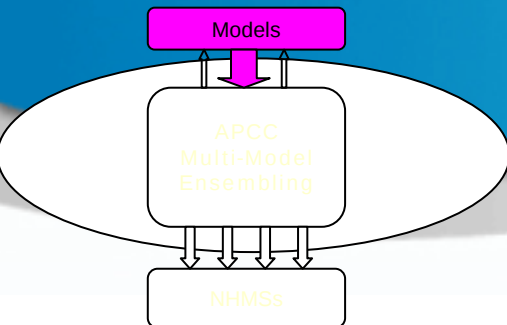


Outline

- Introduction
- Climate Prediction System
- Further Development
- Summary



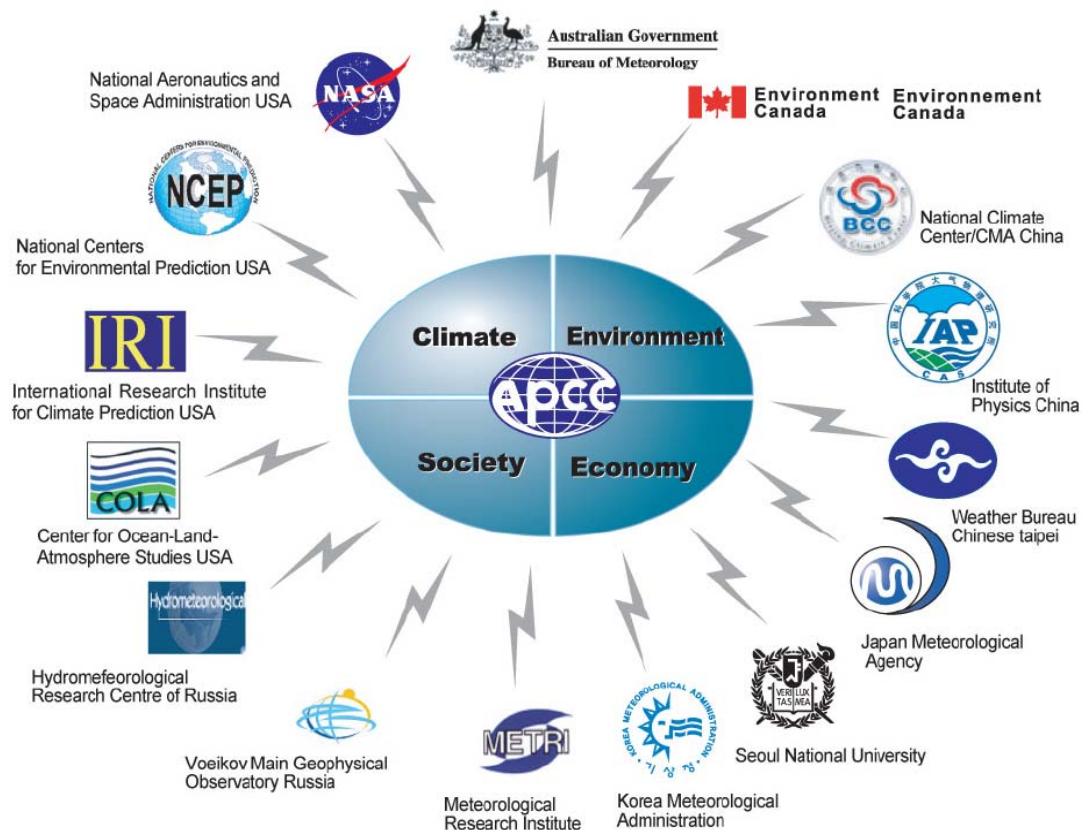
INTRODUCTION



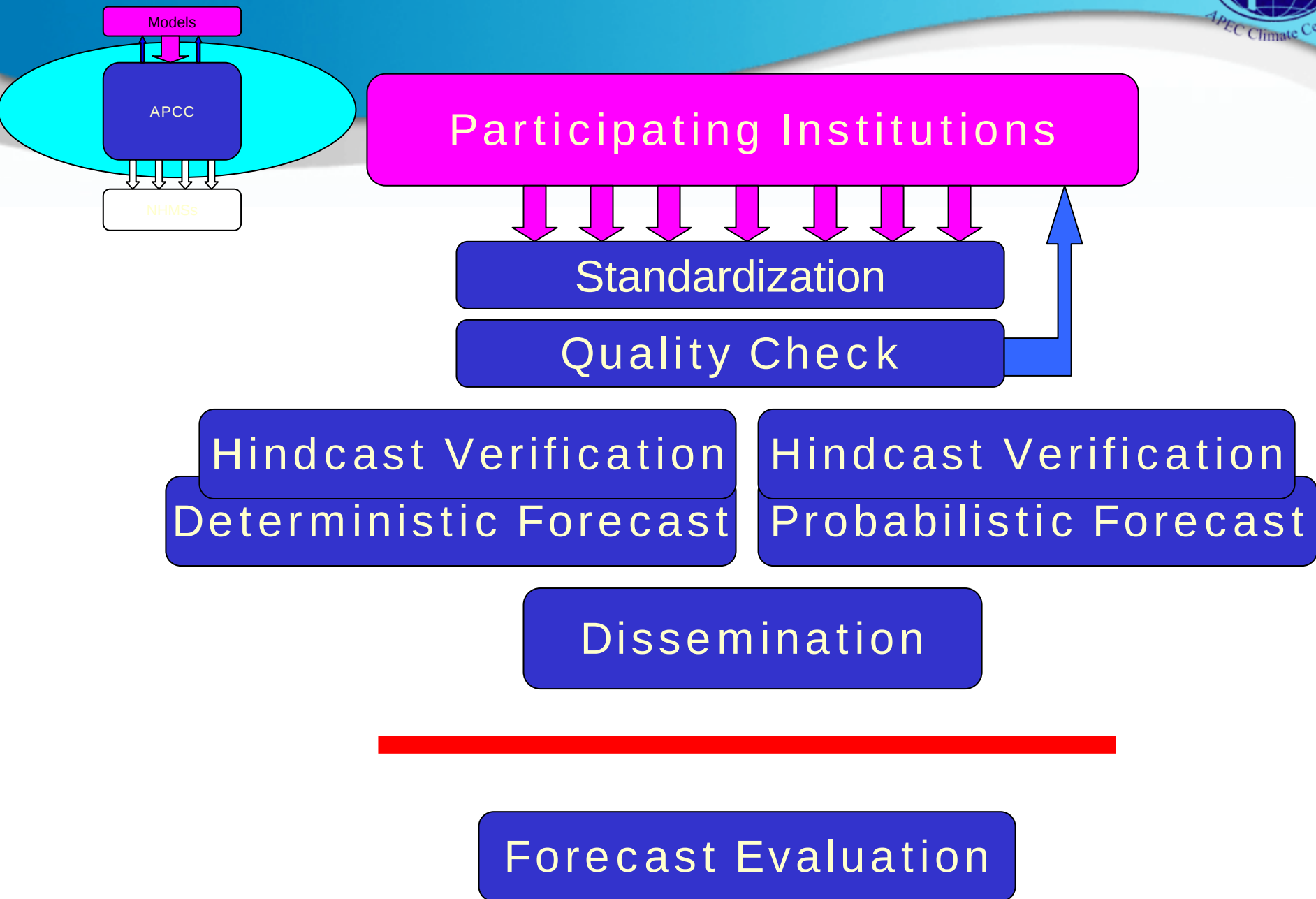
Participating Institutions

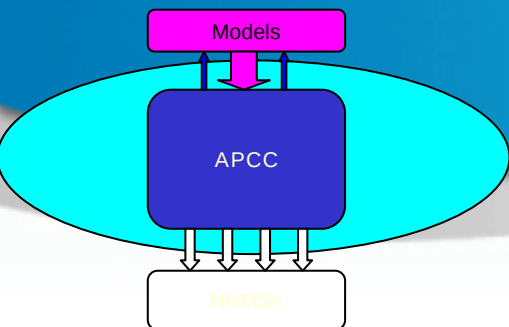
VARIABLES:

Precipitation
850hPa Temperature
500hPa geopotential height
Surface (2m) Air Temperature
Sea Surface Temperature
Mean Sea Level Pressure
Outgoing Longwave Radiation
850hPa Zonal and meridional velocity
200hPa Zonal and meridional velocity



Climate Prediction System

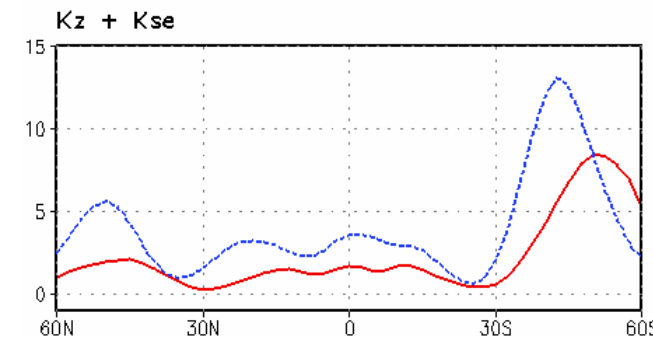
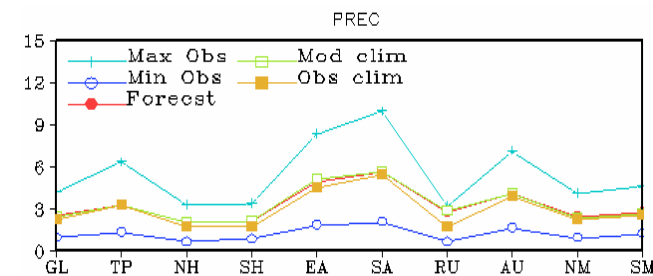
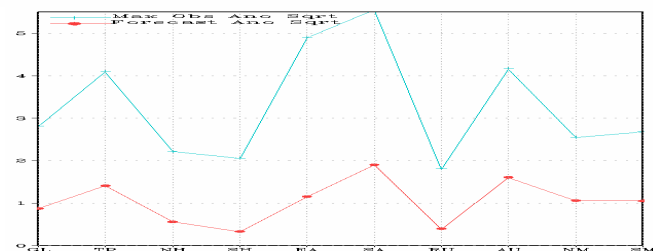
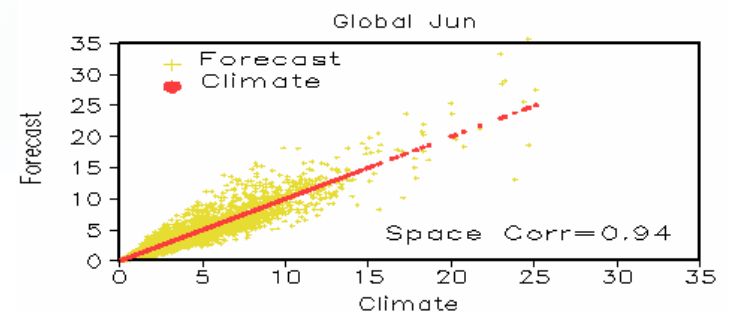




Quality Check

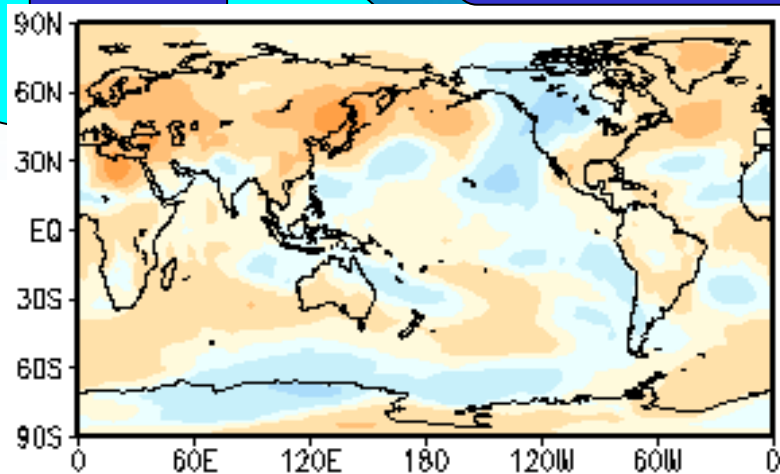
The primary goal of Quality Check:

to **uncover mistakes** in the forecasts
fields originated in data
transferring, encoding, etc.,
and **correct them**
in cooperation with modelholders
in **real time** mode

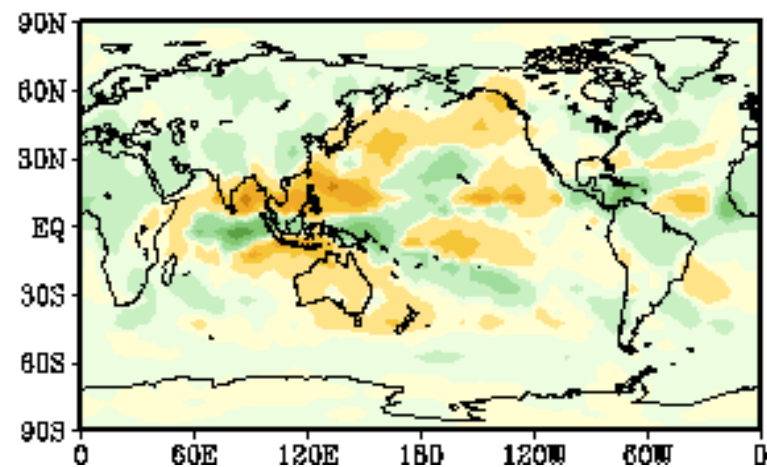


Models

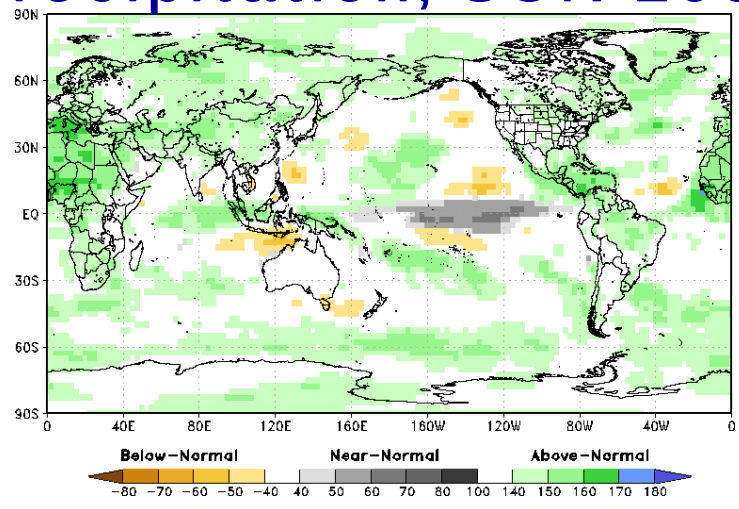
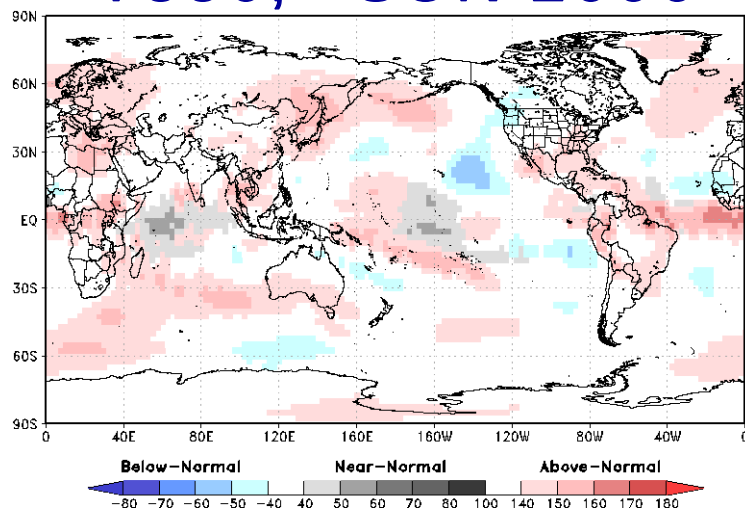
Deterministic Forecast



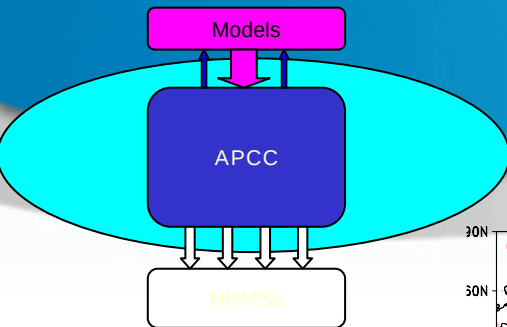
T850, SON-2006



Precipitation, SON-2006

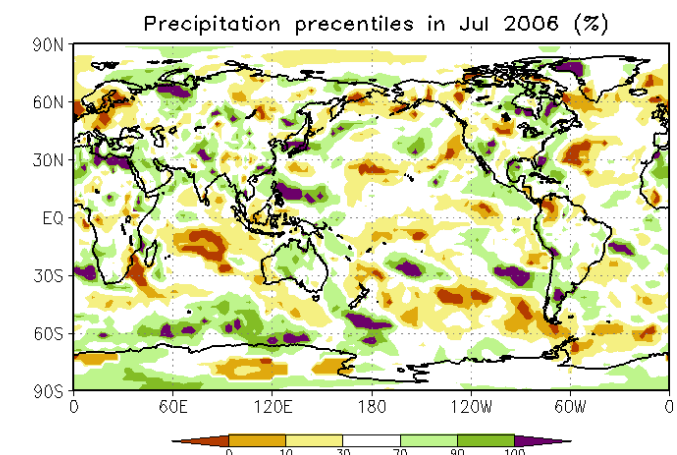
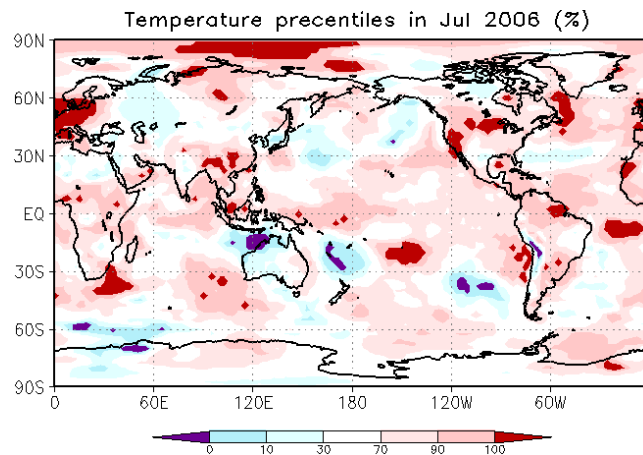
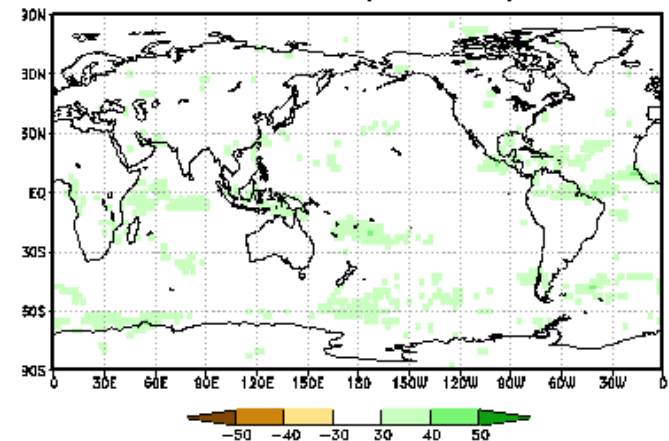
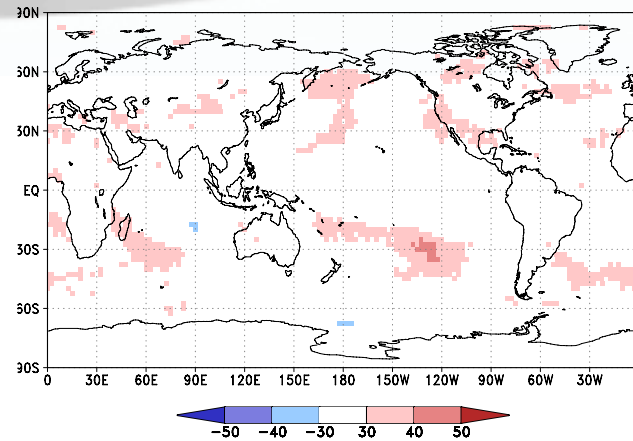


Probabilistic Forecast: Terciles



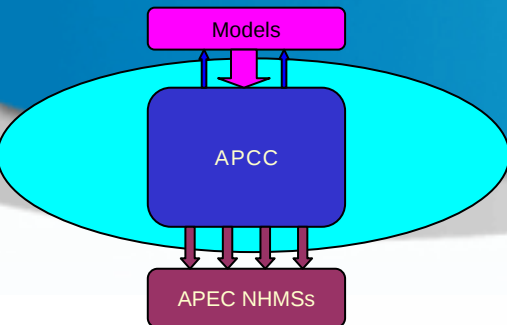
Probabilistic Forecast: Extremes

COMBINED (Jul 2006)



Probability of predicted variable falling into **upper or lower 15% quantiles** of the climatological PDF

Climate Prediction System



Dissemination



Prediction & Monitoring

▸ Seasonal Forecast

- Latest Forecast
- Past Forecast

▸ Verification

▸ Monitoring

▸ Documentation

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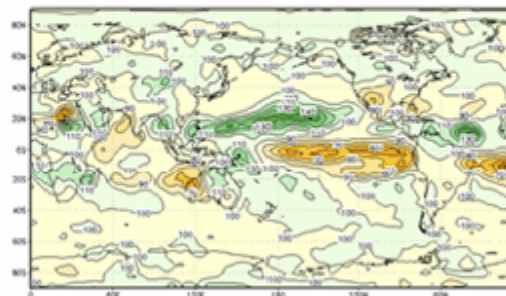
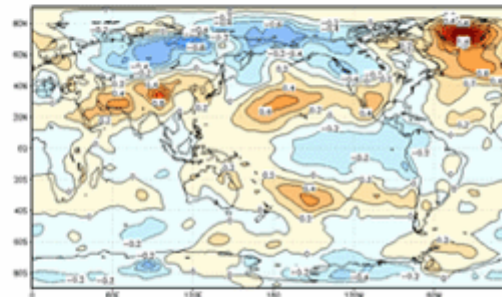
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Latest Forecast

▮ APCC MME Outlook



2006 SON

Globe

Precipitation:

Neutral ENSO. Normal and slightly above normal precipitation over the globe with exception of western and equatorial eastern pacific.

Temperature:

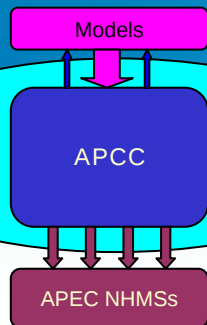
Neutral ENSO. Near normal temperature and positive and temperature anomalies prevail over the globe with exception of the North-Eastern Pacific.

▮ MONTH

SON

▮ REGION

Global

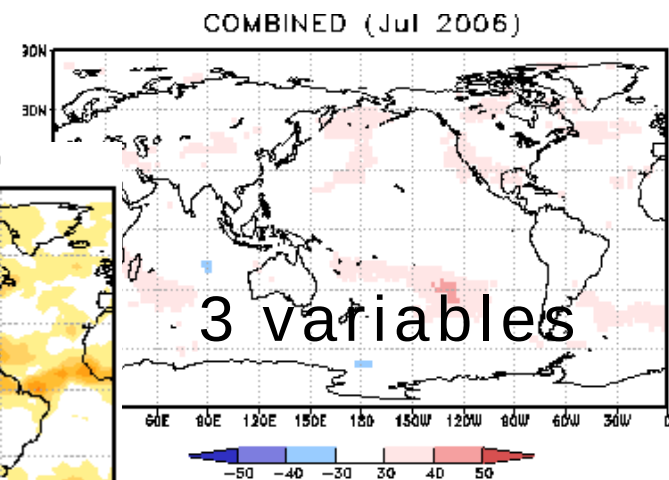
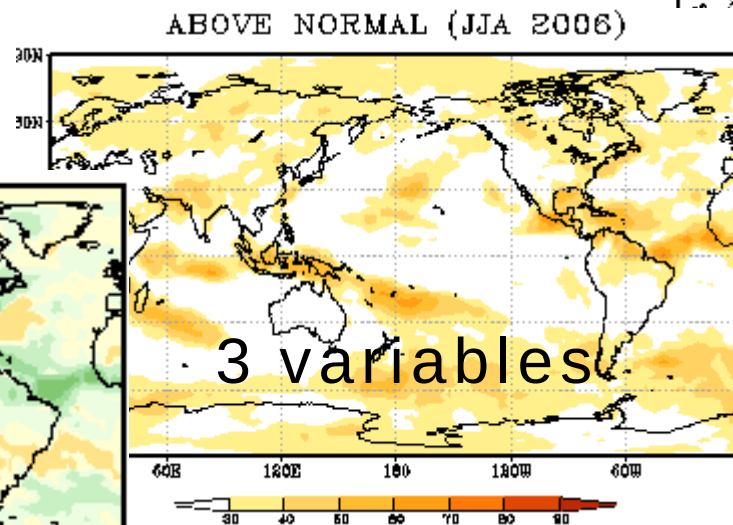
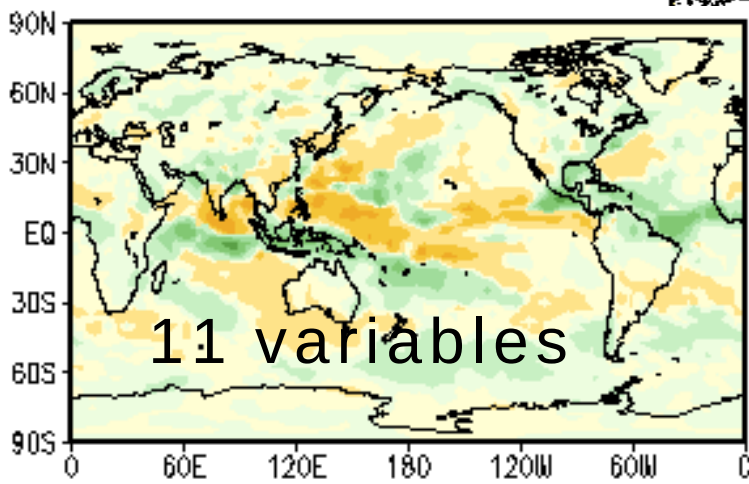


Climate Prediction Products

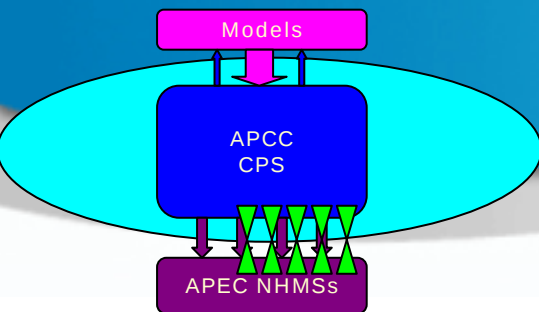
Probabilistic Forecast:
Extremes

Probabilistic Forecast:
Terciles

Deterministic Forecast



Further Development of the System

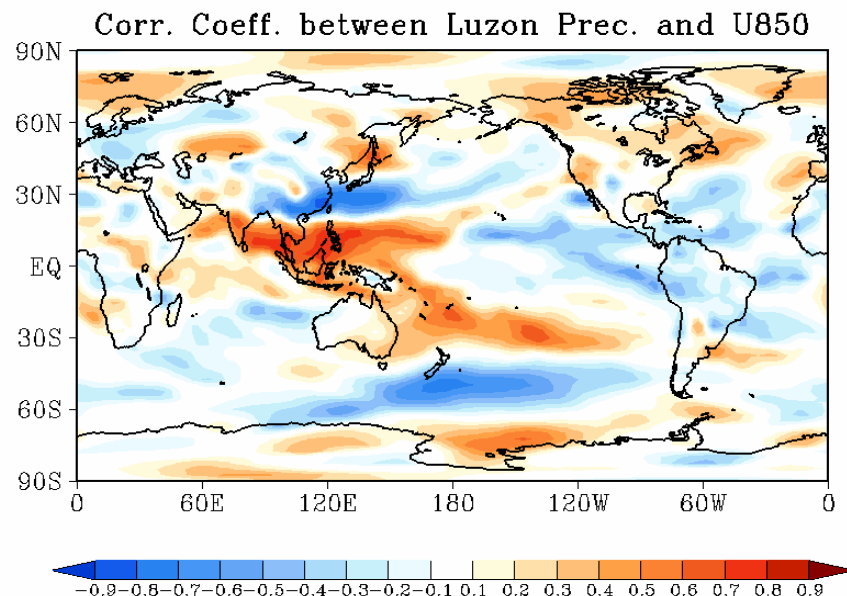


Deterministic Forecast

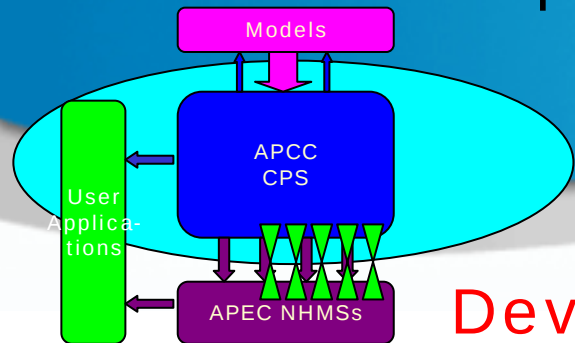
Regional downscaling with implementation of the downscaling procedures at APEC NHMS'

MOTIVATION:

Complex terrain of the land areas of the APEC region implies necessity of downscaling from the large scale forecast fields to local areas, with special attention being paid to circulation characteristics as basic large scale variables.



Further Development of the System



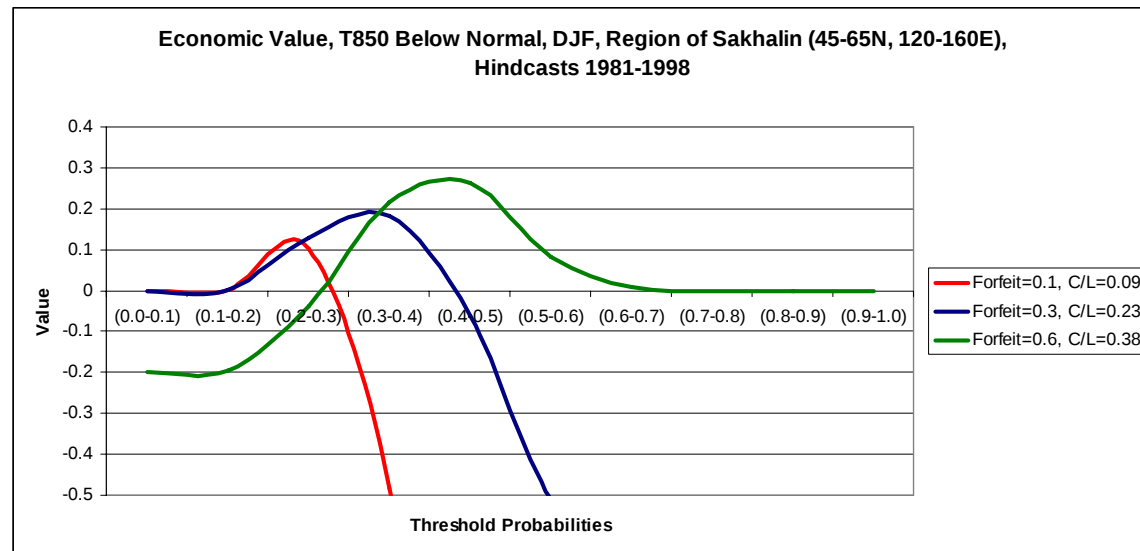
Probabilistic Forecast: Terciles

Development of the User Applications Example: Decision Supporting Systems

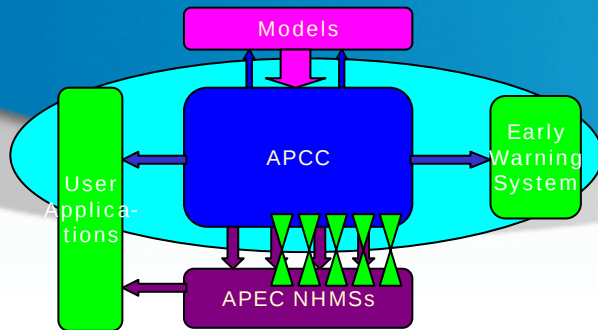
MOTIVATION:

The ultimate goal of the climate prediction is a support for decision making on prevention and mitigation of the human/economic losses caused by severe climate events, both abnormal and ordinary.

Categorical probabilistic forecasts provide appropriate basis for development of decision supporting systems accounting for probabilities of environmental variables fall into different ranges.



Further Development of the System



Probabilistic Forecast:
Extremes

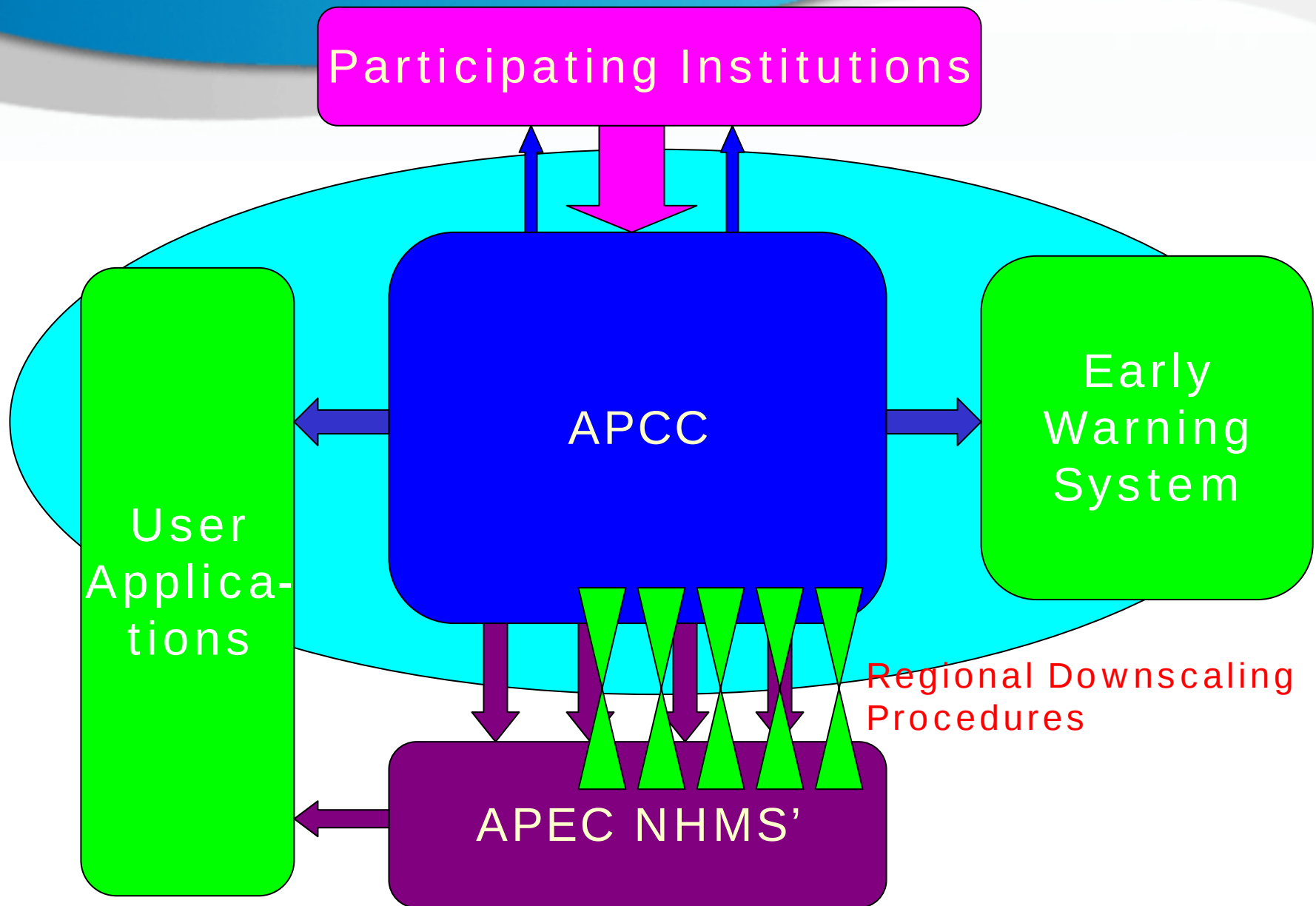
DEVELOPMENT OF THE EARLY WARNING SYSTEM

MOTIVATION:

Natural disasters, heat and cold waves, droughts, floods, epidemics, etc., associated with extreme climate events strongly impact both industry and society. It is why Early Warning of extreme climate events is one of the major concerns and goals of the climate prediction.

Probabilistic forecast of extreme climate events, associated with extreme forcing on climate system, provides the basis for development of the Early Warning System for natural disasters and their consequences.

Further Development of the System



SUMMARY

1. APCC Climate Prediction System is a state-of-the-art tool for development of the seasonal climate forecast information with monthly resolution on the basis of multi-model ensemble of forecasts
2. The APCC CPS delivers two basic forecasts:
deterministic forecast of 11 environmental variables,
probabilistic categorical forecast of terciles
of three variables, namely, Z500, T850, precipitation
3. APCC begins experimental production of
probabilistic categorical forecast of extremes
of three variables, namely, Z500, T850, precipitation
4. APCC's climate products provide the basis for development of the system toward the needs of industry and society.

Thank You