J M A Home Page


Tokyo Climate Center


Topics

Joint Meeting for Seasonal Prediction of the East Asian Winter Monsoon (11-13 Nov 2003)
Training Workshop on Climate System Monitoring, Diagnosis and Prediction in the Asia-Pacific Region (25-28 Nov 2003)

What's new on the TCC website

Global Warming Projection(1 Nov 2004) NEW
Addition of Seasonal and Annual Climate(15 Sep 2004) NEW
Visualization of Ensemble Prediction GPVs with GrADS(30 Jun 2004) NEW
Training Modules for Long-Range Forecast and Climate Monitoring(30 Jun 2004) NEW

ENSO

Data and products

Index | Global Climate | Climate System Monitoring | ENSO | Ensemble Prediction | Global Warming Projection

Long-range forecast over Japan

Note | One-month forecast | Three-month outlook | Warm/Cold season outlook

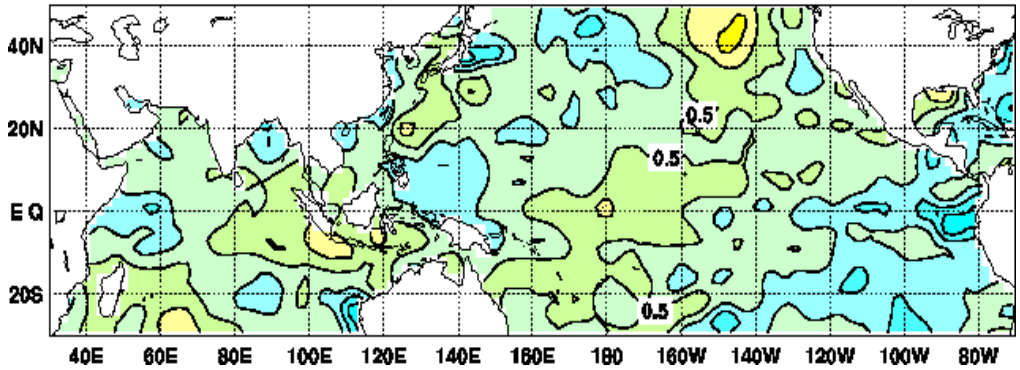
Library

Training Modules NEW

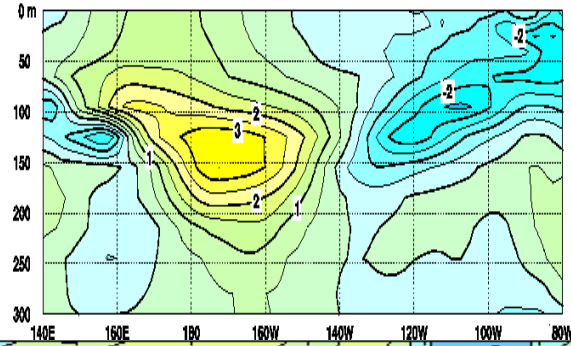
El Niño Monitoring As of March 11

The latest analysis of oceanic and atmospheric conditions in the equatorial Pacific is shown in Table and Figs. 1-8. This analysis is produced routinely by the Japan Meteorological Agency. Figs. 3 and 5 are based on the Ocean Data Assimilation System (ODAS) of JMA.

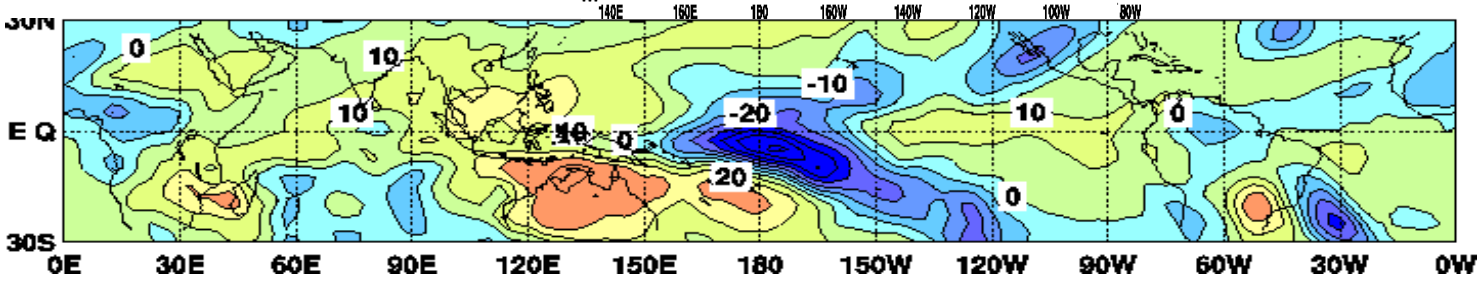
SST Anomaly



Sea Temperature Anomaly along the EQ

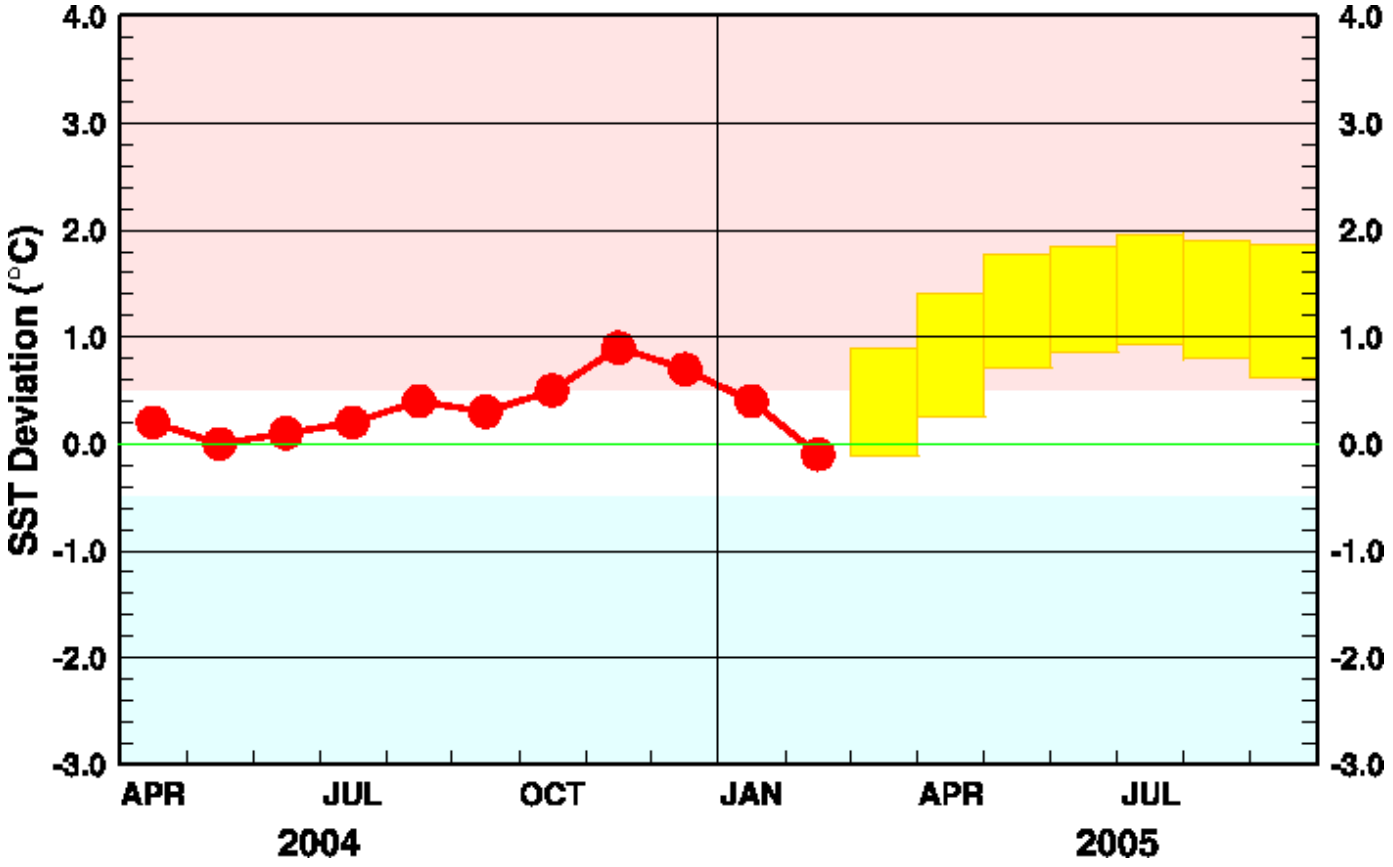


OLR Anomaly



El Niño Outlook by the forecast model As of March 11

The outlook of SST deviation from the 1961-1990 mean for Region B (Niño.3) is presented in Fig.9. This outlook is produced based on JMA's El Niño forecast model with Model Output Statistics (MOS). The JMA official announcement is produced by considering not only the results of the forecast model, but also the analysis of the latest atmosphere-ocean conditions.



[Table] Main specification changes of JMA-CGCM02

Atmospheric General Circulation Model

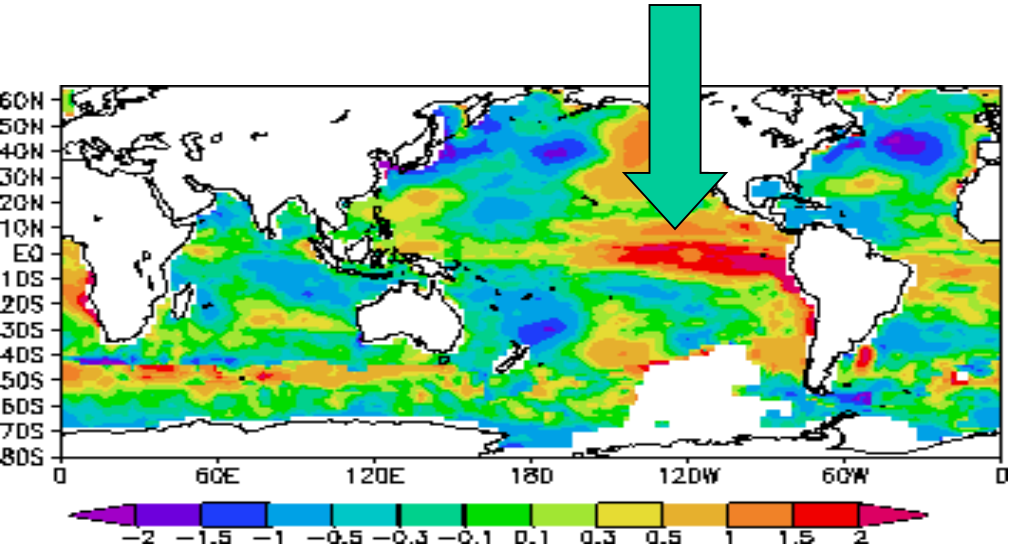
	Former model (T42L21 GSM8911)	New Model (T42L40 GSM0103)
Vertical resolution	21 levels (model top: 10hPa)	40 levels (model top: 0.4hPa)
Cumulus convection parameterization	Kuo scheme	Prognostic Arakawa-Schubert scheme
Cloud water content	Diagnostic	Prognostic variable
Radiation process	Solar, Infrared	Solar, Infrared, direct aerosol effect

Ocean Data Assimilation System
(OGCM : 2.5° (lon.) x 0.5 - 2° (lat.), L20)

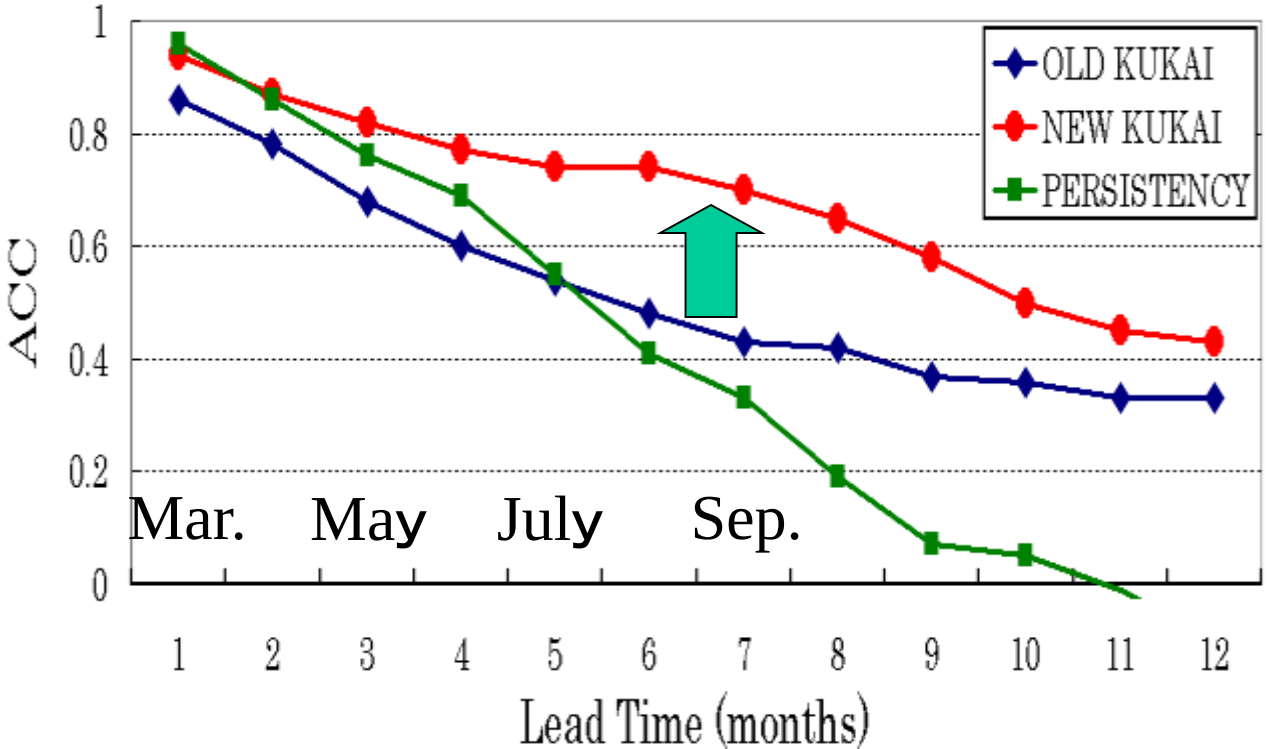
	Former model	New Model
Analysis scheme	Two-dimensional optimum interpolation method	Three-dimensional variational method
Assimilation scheme	Nudging	Incremental Analysis Update
Assimilated data	Temperature	Temperature, Salinity, Sea surface height
Analysis interval	5-day	1-day

July 2003

NINO3 SST Prediction Skill



- **Old Model :**
  116 cases Feb.1989 - Nov. 2000
- **New Model :**
  88 cases Jan. 1989 - Jan. 2000
- **Persistency Forecast**



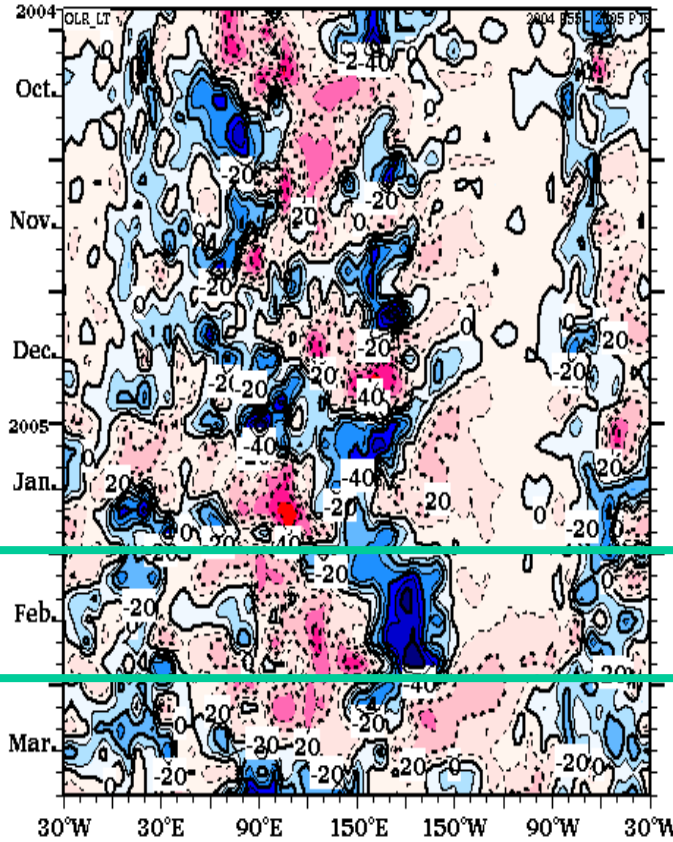
El Niño Outlook

(March 2005 - September 2005)

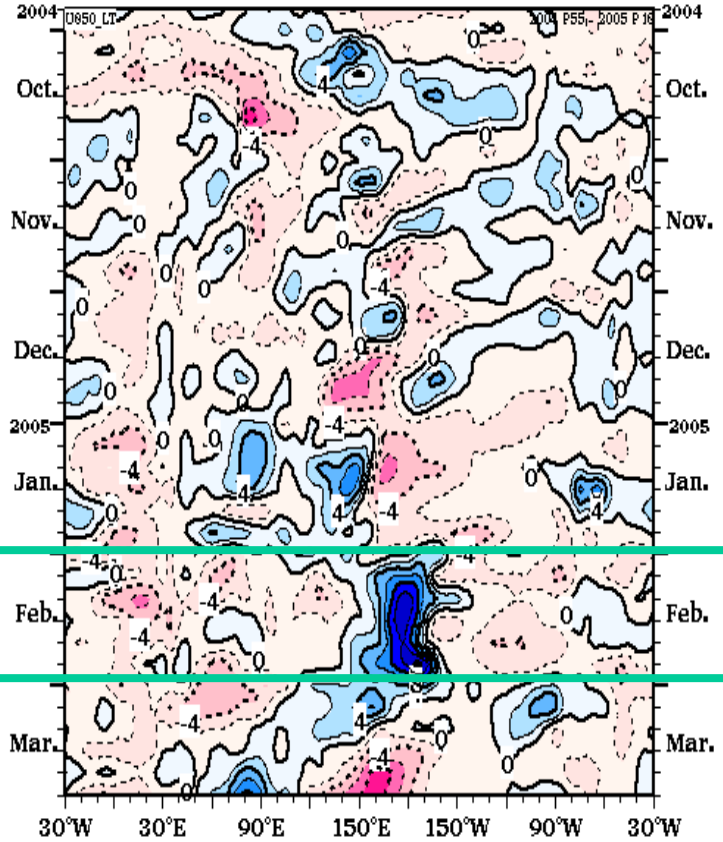
Last Updated: **11 March 2005**

- **The Region B (Niño 3) SST is likely to be around normal during spring, and be slightly warmer than normal afterwards until September 2005.**
- **It is unlikely that El Niño will develop throughout the prediction period.**

OLR at EQ



U850 at EQ



Feb **Feb**

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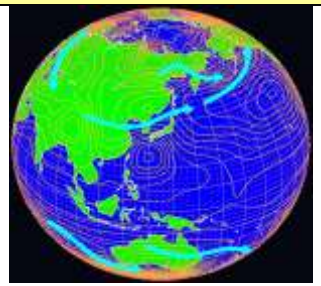
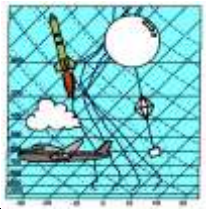
Training Modules NEW

One-Month Prediction

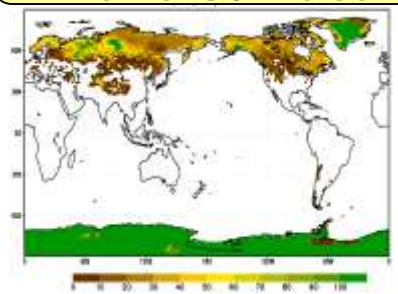
Dynamical Forecast System

Initial Atmosphere

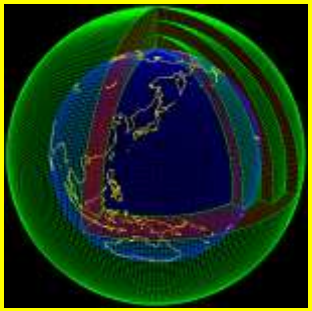




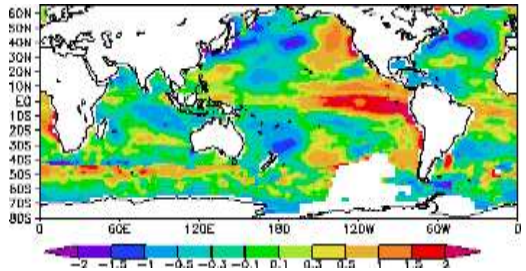
Initial Land Surface



Atmosphere-Land Model

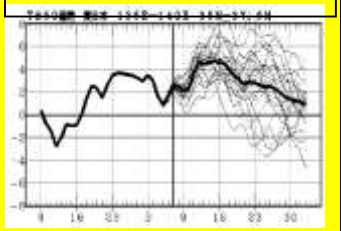


Persistent SST Anomaly is assumed

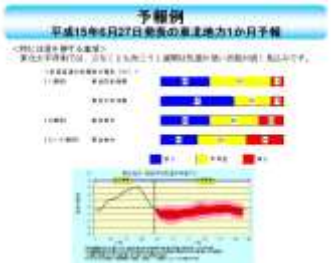


Guidance

Ensemble Product



Forecasters



Description of the Forecast Models

Several specificatio

Table 2 The specification of GSM for one-month EPS and 4/7-month EPS

	Model for Extended-Range Weather Forecasting (one-month EPS)	Model for Long-Range Weather Forecasting (4/7-m EPS)
Horizontal resolution	T106 (about 1.125° Gaussian grid ~110km)	T63 (about 1.875° Gaussian grid ~180km)
Time integration range	34 days	4 months or more, up to 7 months
Executing frequency	Once a week (more ...)	Once a month (4-month prediction) Five times a year (Feb., Mar., Apr., Sep. and Oct.) 7- month predictions for JJA and DJF) (more ...)
Ensemble size	26 members (13 members × 2 days)	31 members
Perturbation method	Hybrid of Breeding of Growing Mode (BGM) method and Lagged Average Forecast (LAF) method	Singular Vector method
SST	Persisted anomaly	Two-tiered method ; Combination of persisted anom climate and prediction
Land Surface Parameters (soil temperature, soil moisture and snow depth)	Initial conditions of land parameters are provided by a land data assimilation system, that has been operatioal April 2002. Observation of snow depth reported in SYNOP is assimilated. (more ...)	
note	1-month prediction is an extension of extended range forecast	7-month prediction is an extension of 4-month predi
* Physical processes are the same as those of short- and medium- range forecast model except for the coefficients of gravity wave drag parameterization		

- ***Operation of Extended- and Long- Range Forecast***
- ***on Land Surface Parameters***

- More details on NWP system : Outline of the Operational Forecast and Analysis System of the Japan Meteorological Agency (March 2001)
- Much more details on NWP system : Numerical Weather Prediction of JMA

Ensemble Prediction System : Extended- and Long- Range Forecast

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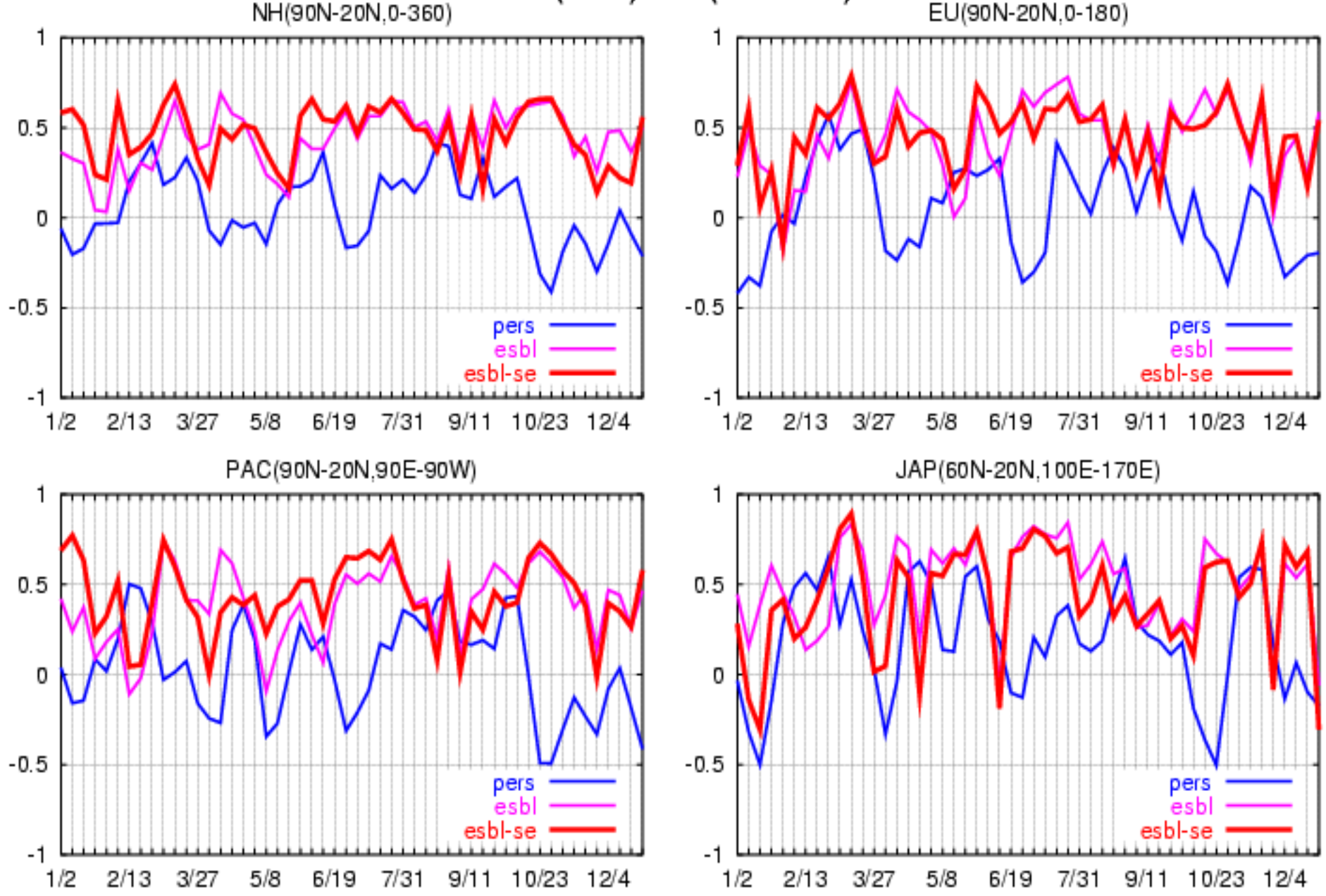
  - Other Ensemble Products Available on Internet Web Sites of Major GDPS Centre
  - Standardised Verification System for LRF (WMO page : *Attachment II.8 and 9*
  - A Guide to the Code Form FM 92-IX Ext. GRIB - Edition 1 (WMO page : GRIB
  - FM92 GRIB - Edition 2 (WMO page : GRIB2)

1-Month Forecast

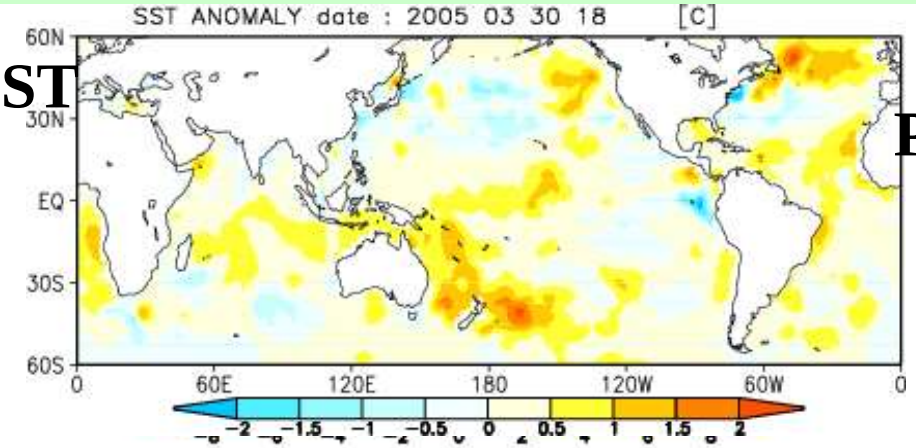
Verification of one-month forecast (28 day mean : day 2-29)

ACOR(Z500):2003(1/2~12/25)

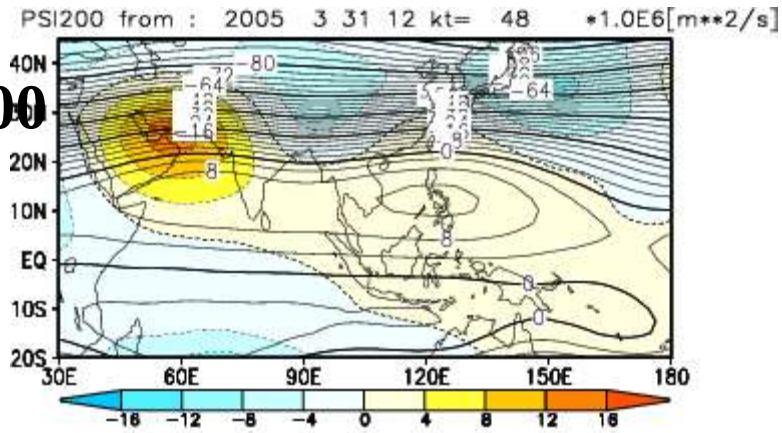


Two-tiered Ensemble Prediction for **April Mean** starting on March 31

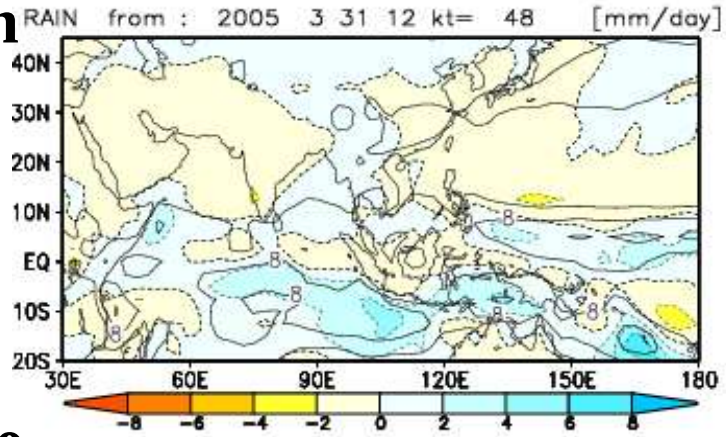
SST



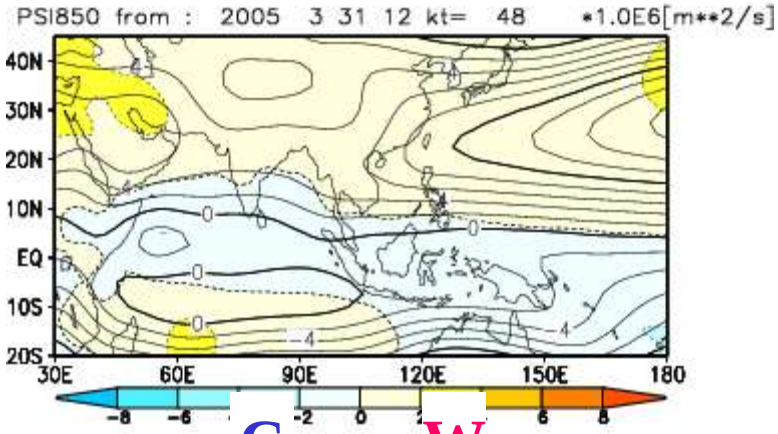
Psi200



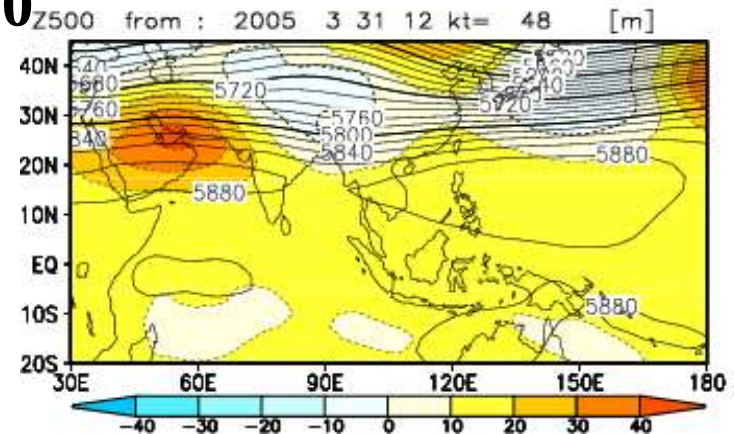
Rain



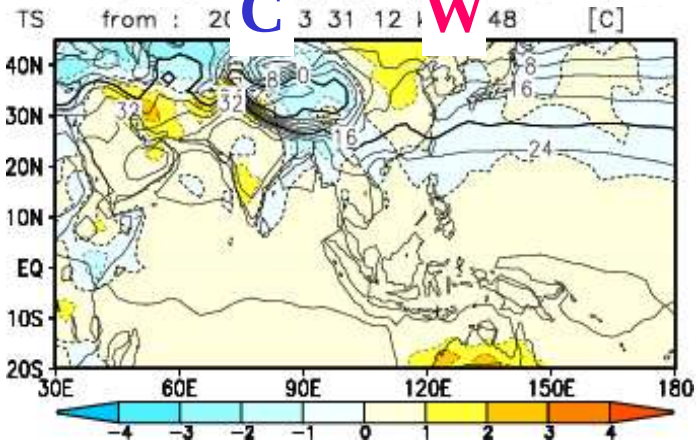
Psi850



Z500



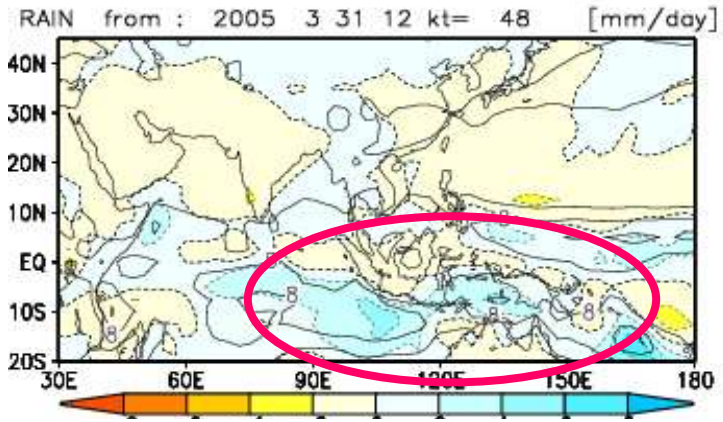
Ts



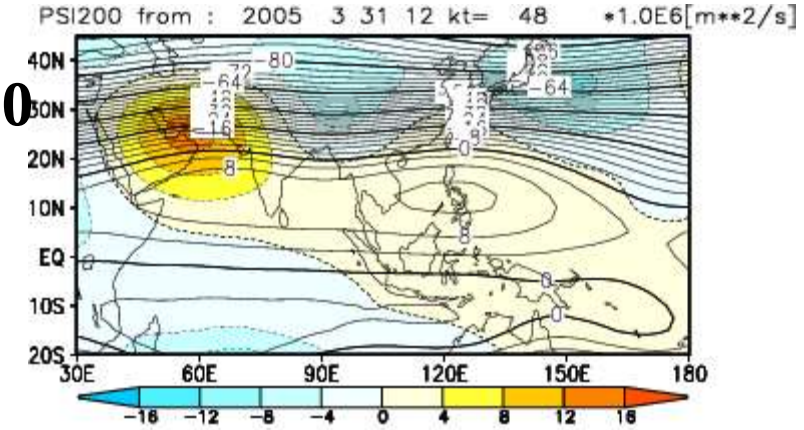
C **W**

Two-tiered Prediction for **April Mean** starting on March 31

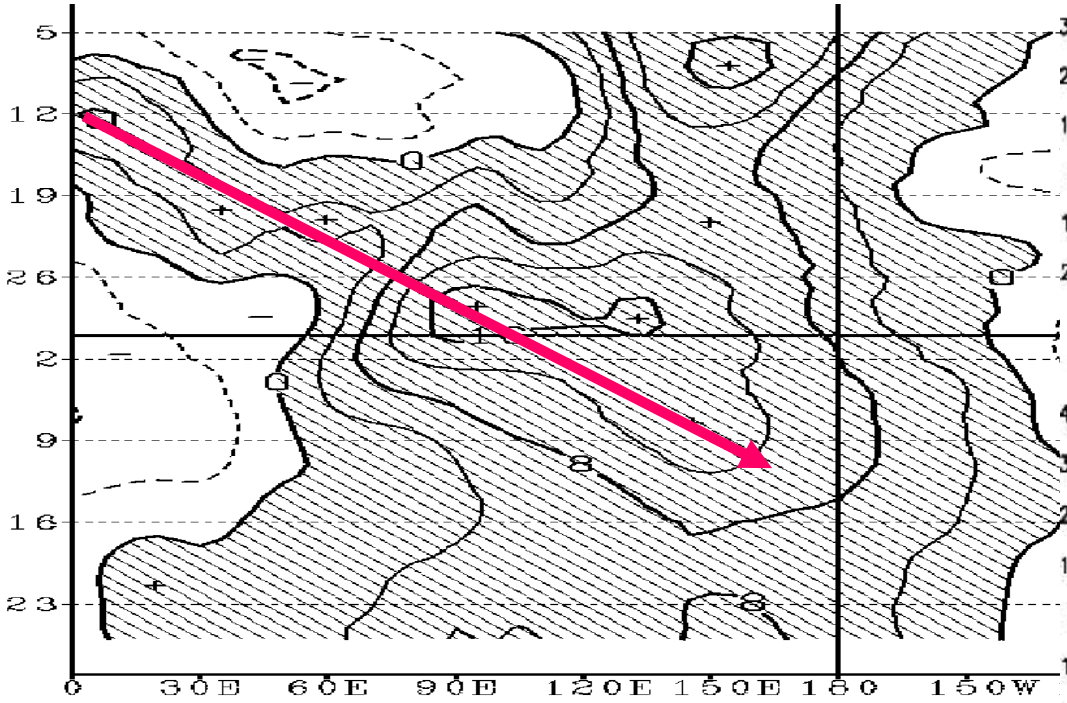
Rain



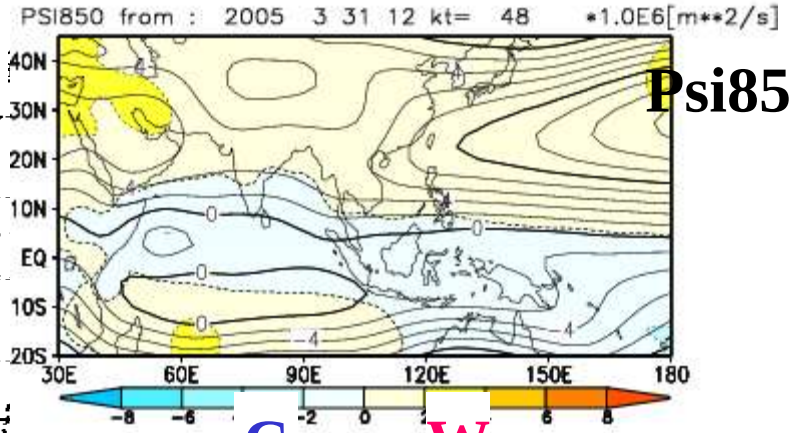
Psi200



Velocity Potential at 200hPa along EQ

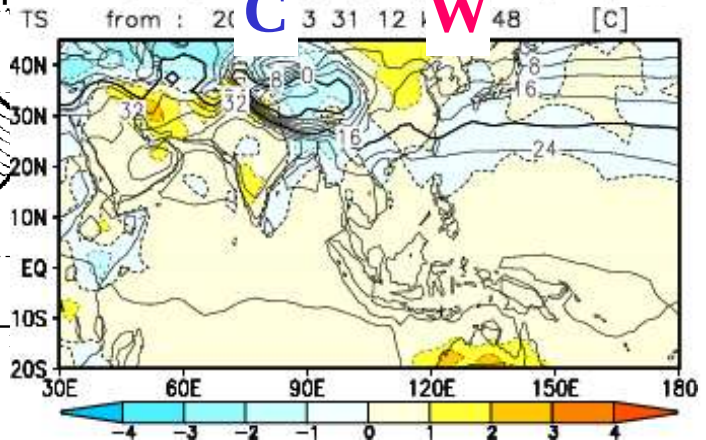


Psi850



C W

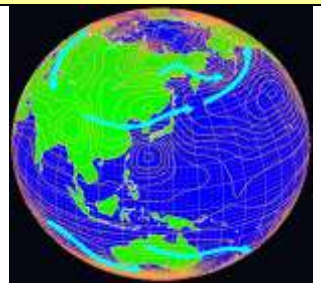
Ts

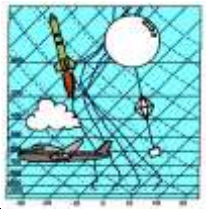


Three and Six Month Prediction

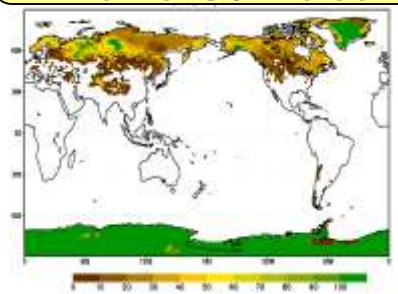
Dynamical Forecast System

Initial Atmosphere

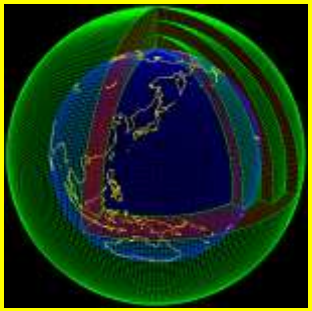


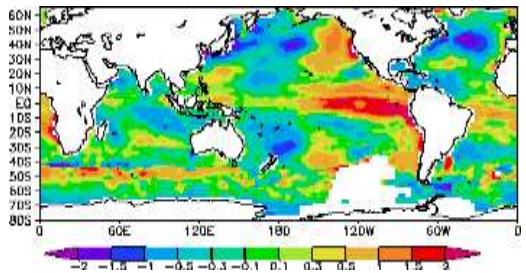


Initial Land Surface



Atmosphere-Land Model

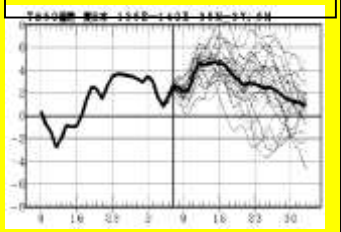




Global SST anomay is statistically predicted based on the output of El Nino Prediction Model

Guidance

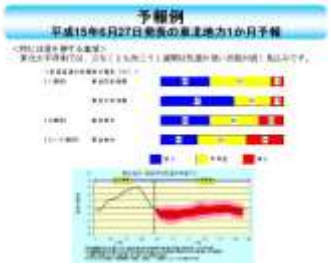
Ensemble Product



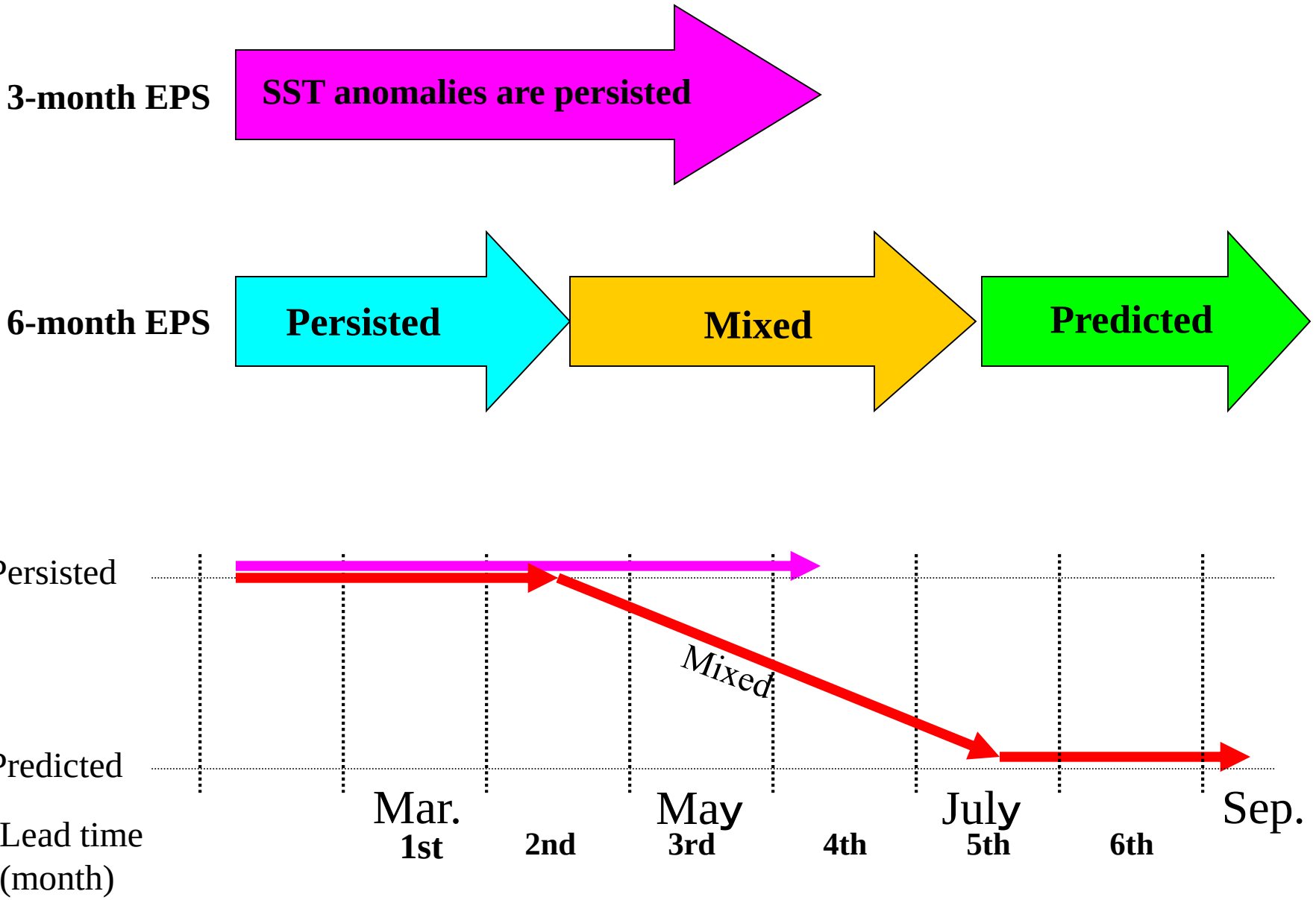
Verification

Seasonal Forecast Experiments (Hind-cast)

Forecasters



Detailed Description of Sea Surface Temperature



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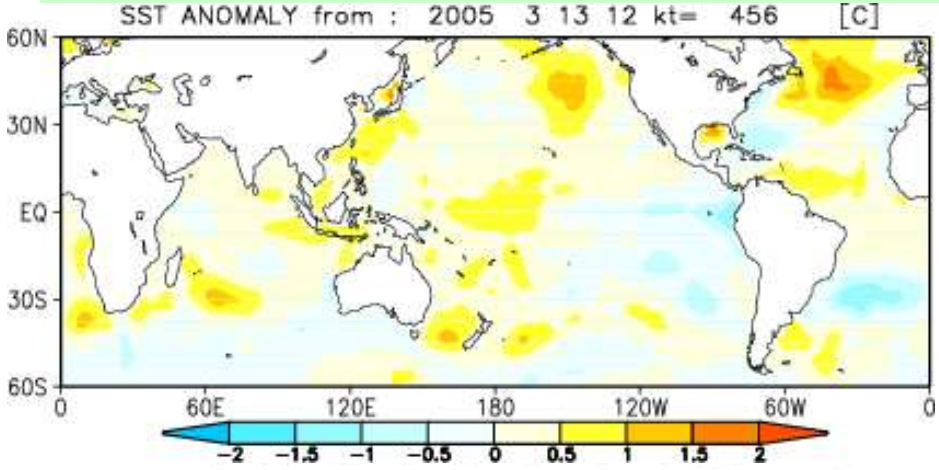
3-Month Forecast

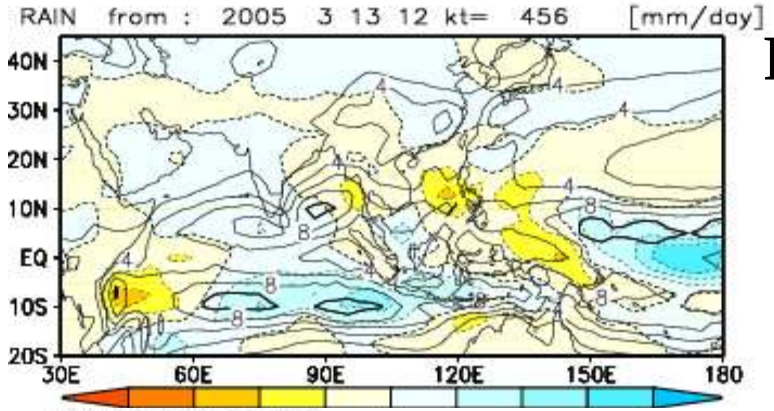
Two-tiered Prediction for **April-May-June** starting on March 13



Slightly Warm SST

around the Dateline

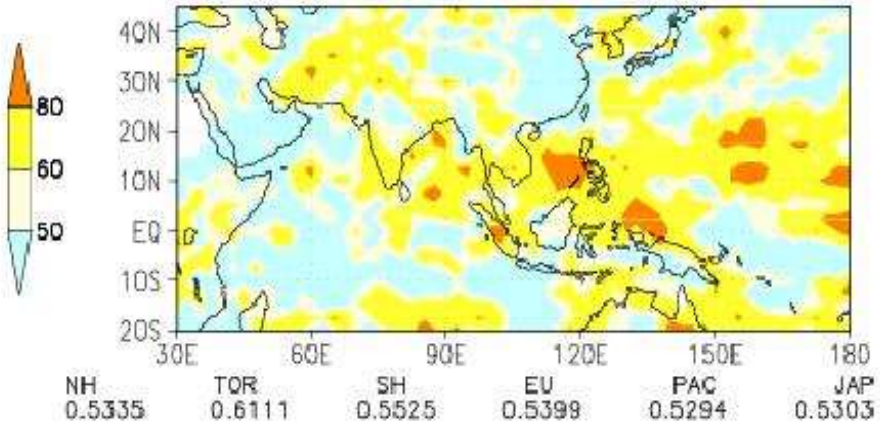
SST



Rain

Weak (Dry)

South East Asia Monsoon

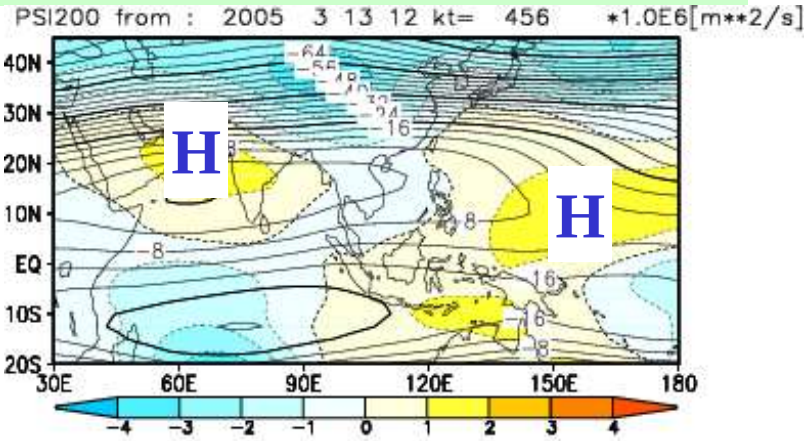


ROC area Verification

for Rain

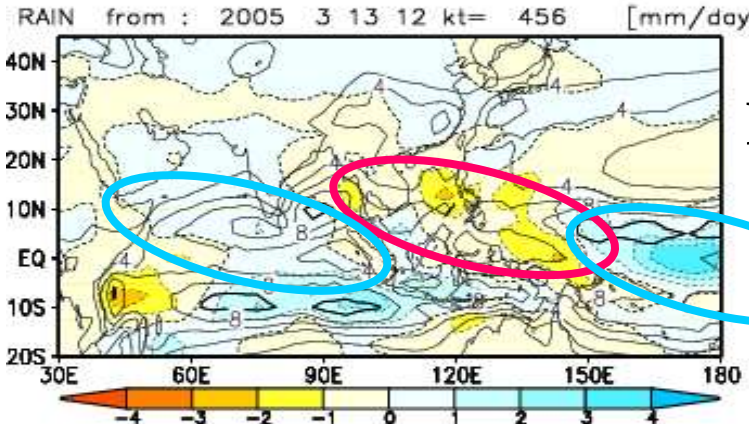
Two-tiered Prediction for **April-May-June** starting on March 13

Psi200

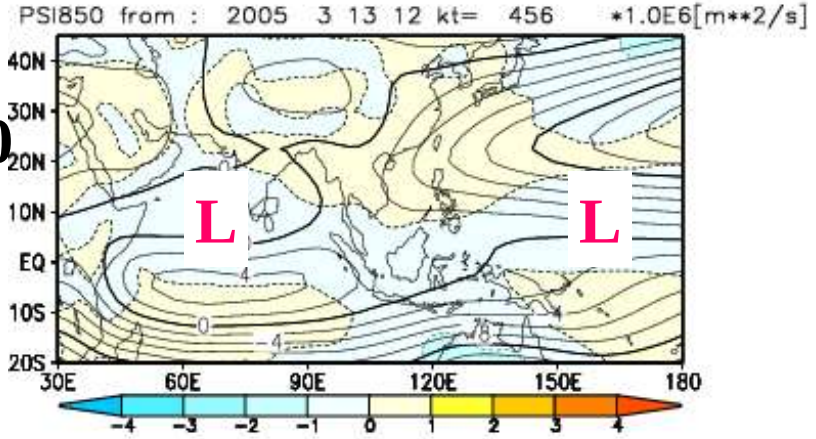


Consistent monsoon circulation anomalies

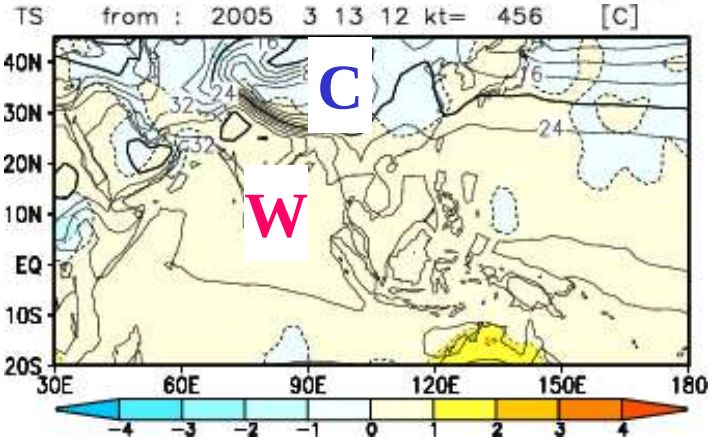
Rain



Psi850



Ts



Cold in the northern parts,
Hot in the southern parts.

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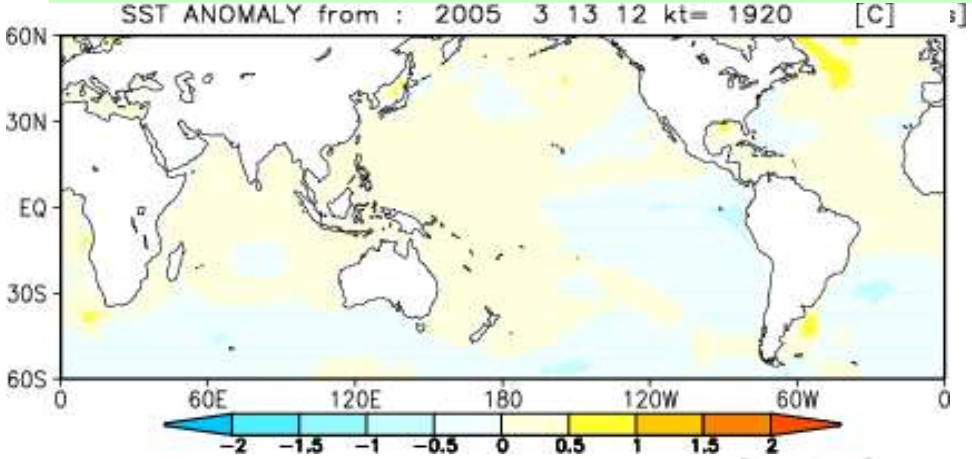
    - Product : Map | Gridded value (Ensemble statistics / All ensemble members) (registered users only)
- Tips
  - Visualization with GrADS NEW
- Related Links
  - Definitions of Meteorological Forecasting Ranges (WMO page)
  - Ensemble Prediction System Products (WMO page)
  - Other Ensemble Products Available on Internet Web Sites of Major GDPS Centre
  - Standardised Verification System for LRF (WMO page : *Attachment II.8 and 9*
  - A Guide to the Code Form FM 92-IX Ext. GRIB - Edition 1 (WMO page : GRIB
  - FM92 GRIB - Edition 2 (WMO page : GRIB2)

6-Month Forecast

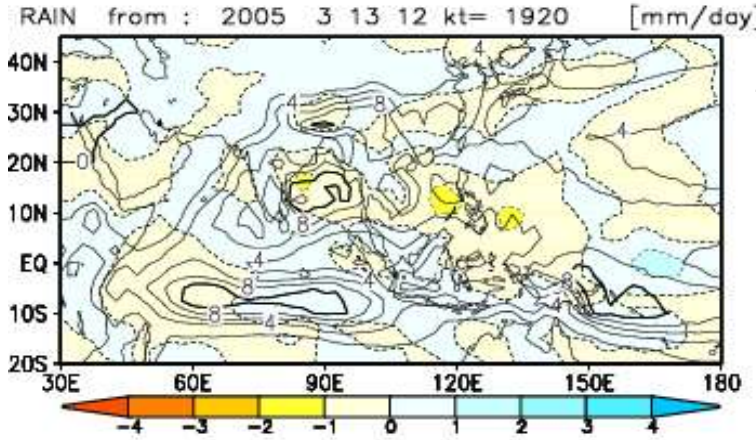
Two-tiered Prediction for **June-July-August** starting on March 13



SST

Weak SST Anomaly

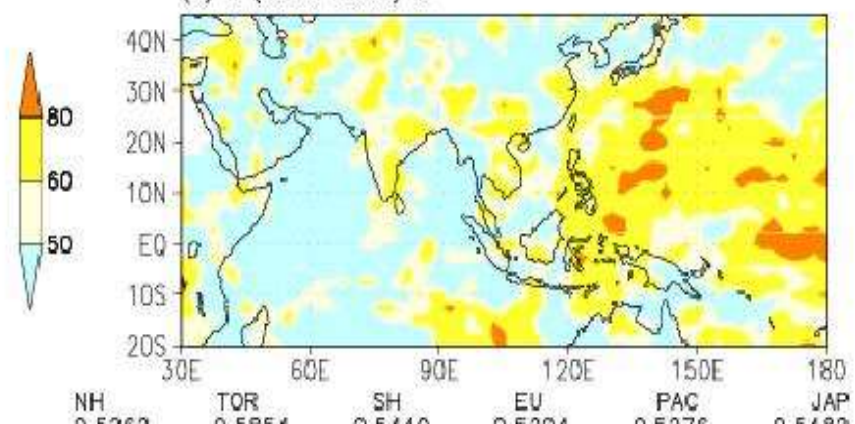
Almost No Signal



Rain

Dry climate tendency

around the Philippines



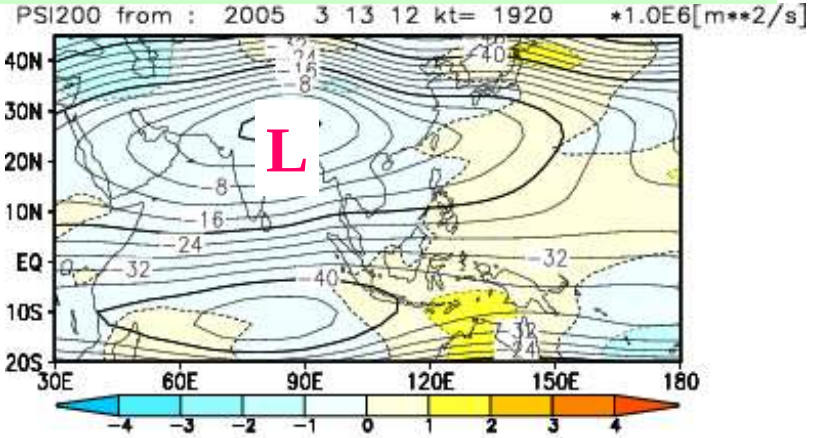
ROC area Verification

for Rain

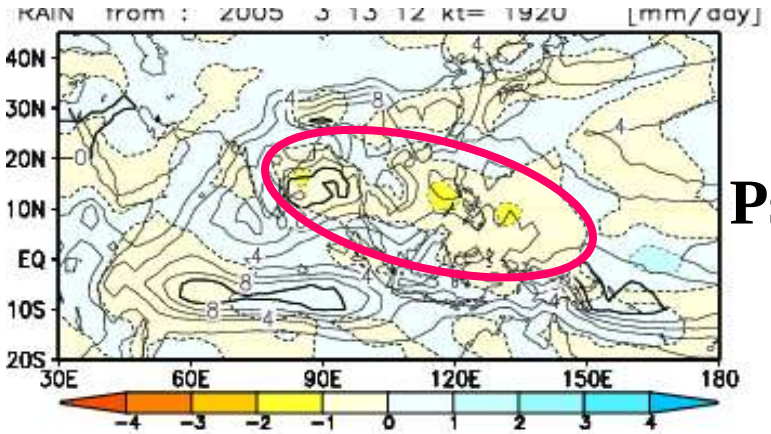
Two-tiered Prediction for **June-July-August** starting on March 13

Slightly weak Asian monsoon

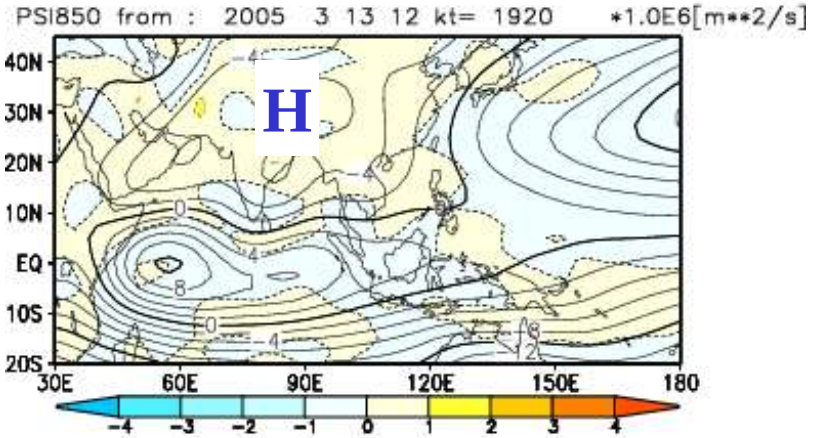
Psi200



Rain



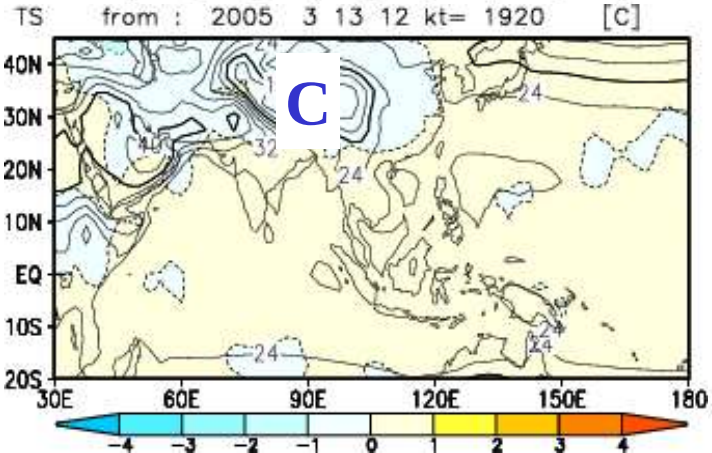
Psi850



Cold tendency

in the northern parts

Ts



Picture based on

Seasonal Prediction Products on TCC

One-Month Prediction: April from March 31

Active Precipitation region moves eastward with MJO from 90E through the dateline. Warm in eastern China and Cold in western China.

Three-Month Prediction: April-May-June from March 13

Weak (Dry) South East Asia Monsoon. Cold in northern parts of the continent and hot in southern parts.

Six-Month Prediction: June-July-August from March 13

Signal in SST anomaly prediction is weak.

Dry climate tendency around the Philippines. Weak tendency for Asian Monsoon.