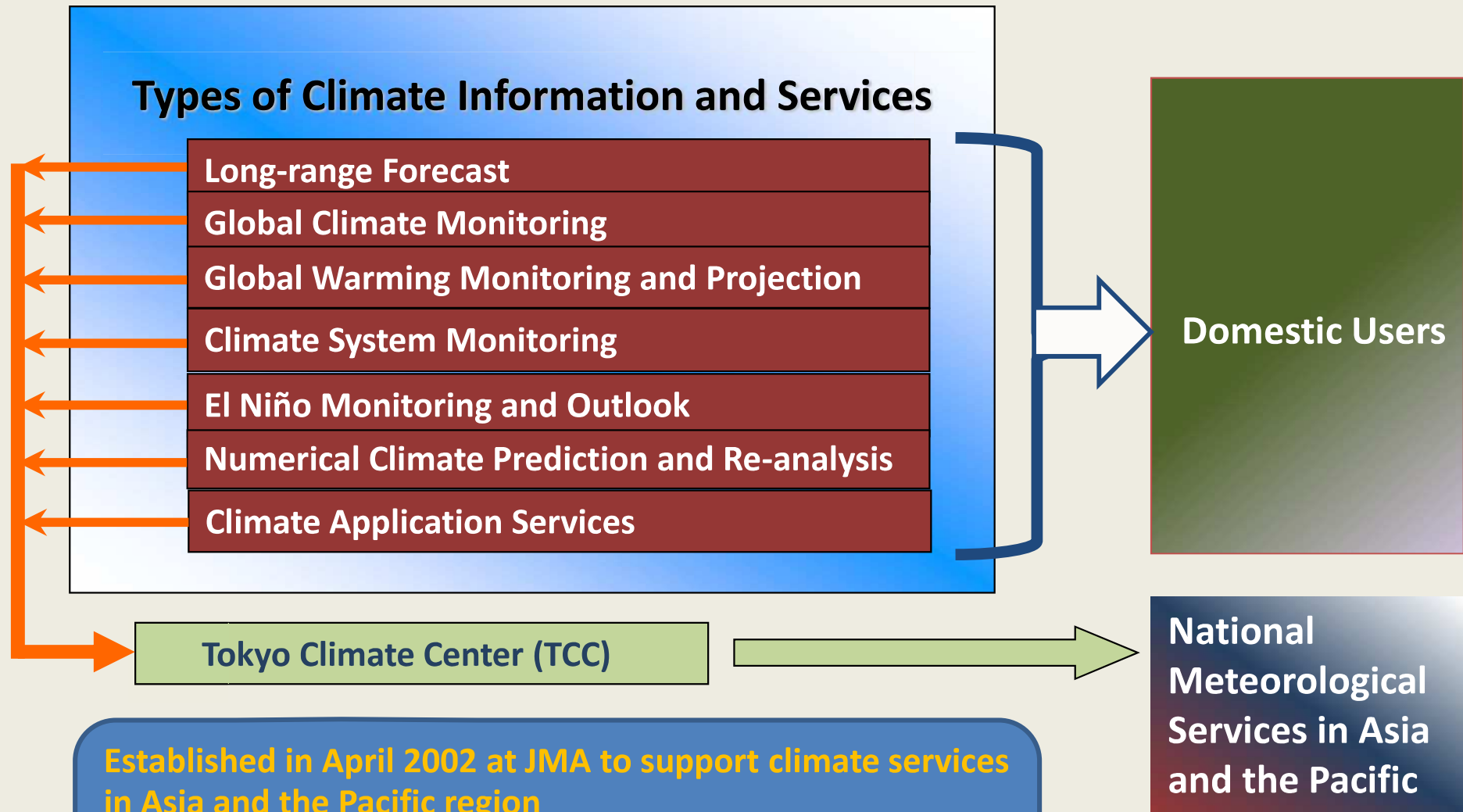


*Outline and Scope of the Training Seminar  
and  
Main Products provided by TCC*

Kumi Hayashi  
Tokyo Climate Center  
Climate Prediction Division  
Global Environment and Marine Department  
Japan Meteorological Agency  
[tcc@climar.kishou.go.jp](mailto:tcc@climar.kishou.go.jp)

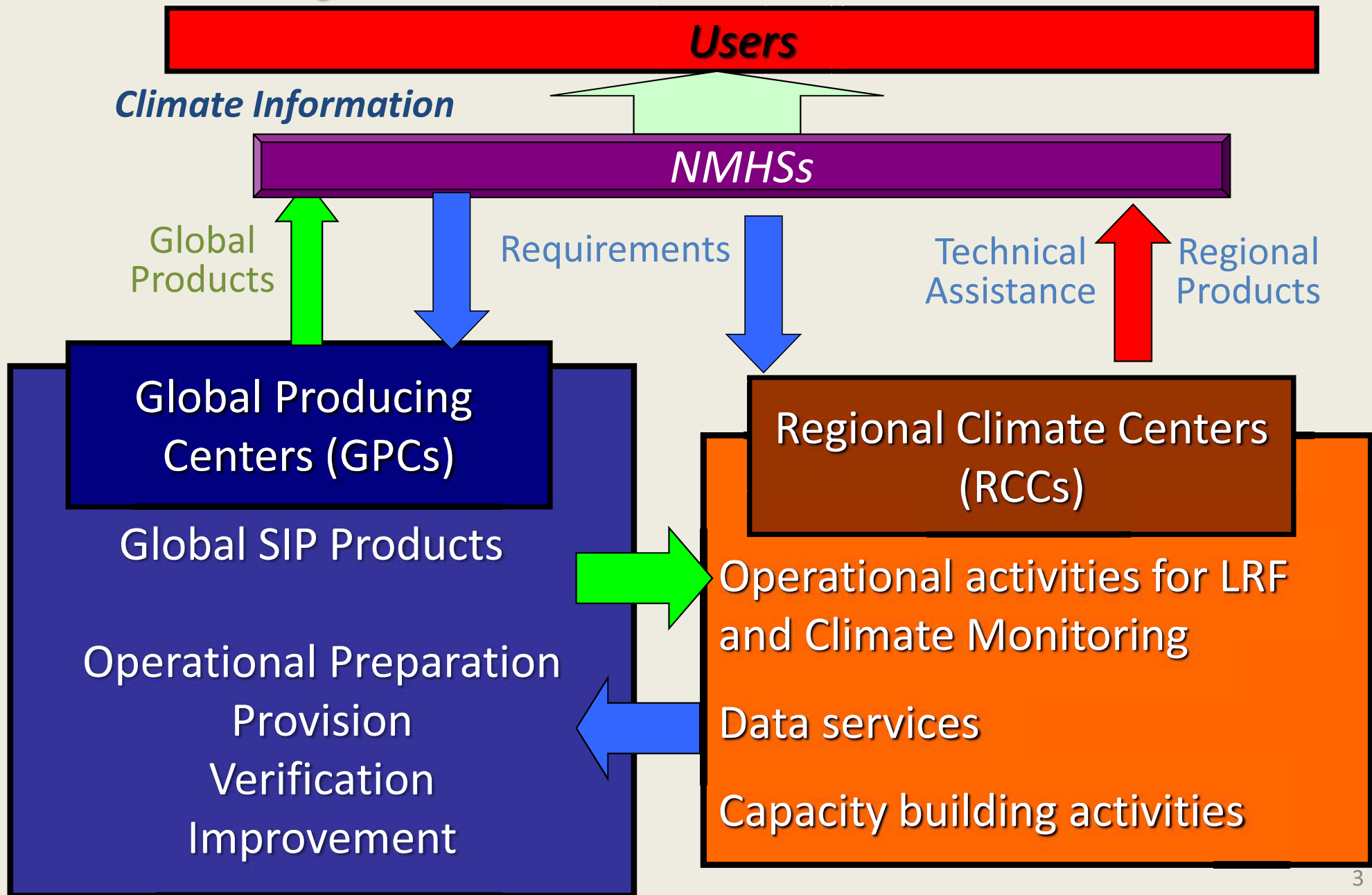
# structure of Climate Prediction Division



Established in April 2002 at JMA to support climate services in Asia and the Pacific region

Designated as one of the Regional Climate Centers (RCCs) by WMO in 2009

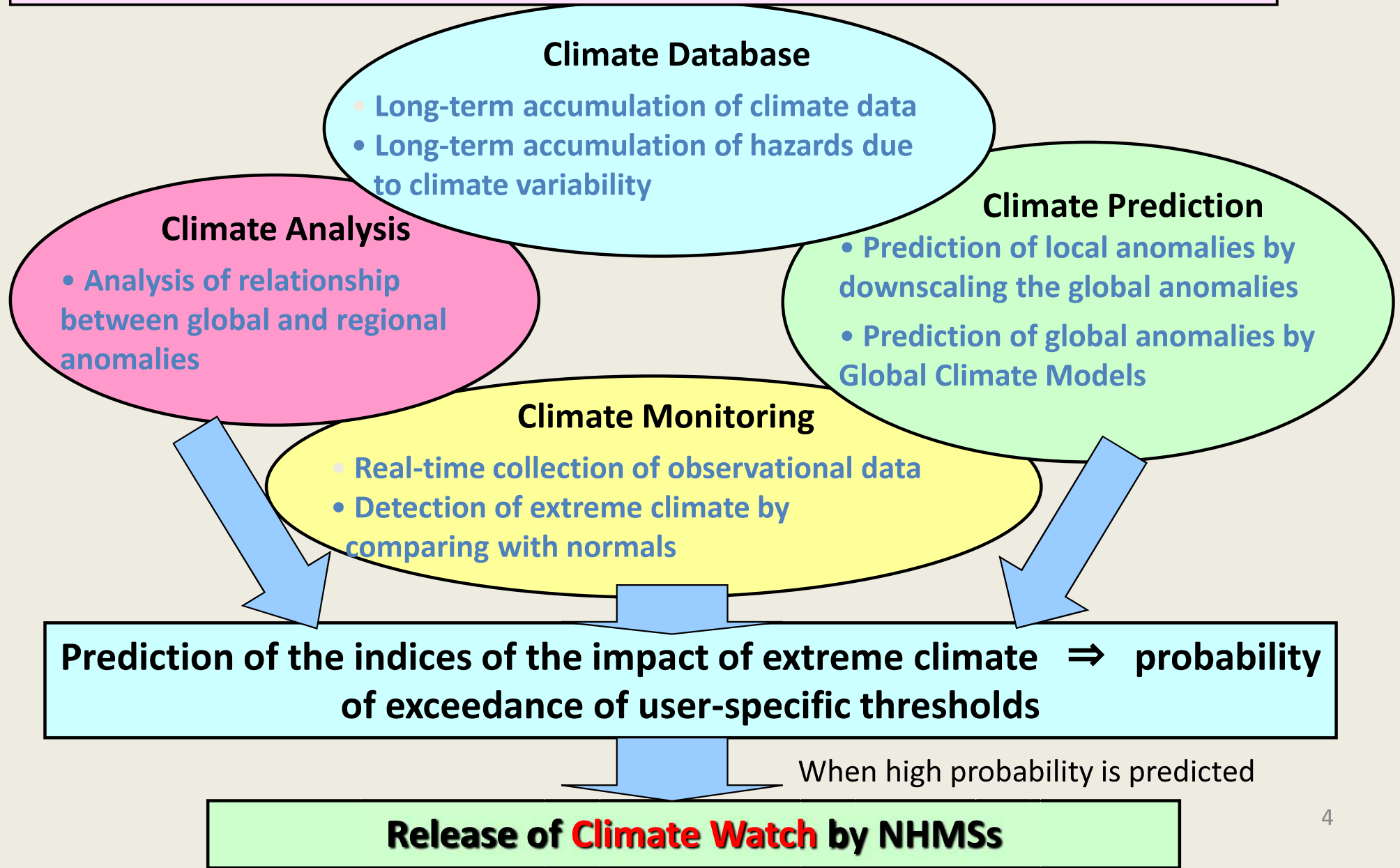
# Framework proposed by WMO for Advanced Climate Service





# Goal of RCC

## Mitigation of hazards due to climatic variability



## *Scope of TCC training seminar*

To engage in **operational** LRF(long range forecast) at NMHSs in Asia and the Pacific with the purpose of familiarization with seasonal forecast GPV data available on the webpage of TCC as well as its application to seasonal forecast products such as probabilistic seasonal forecasts.



- Apply knowledge to make operational seasonal outlooks from tomorrow
- Share the experience of operating climate information

# *Outline of the Training Seminar*

- JMA Ensemble Prediction System for Long-range Forecast
- Atmospheric Circulation Analysis for Seasonal Forecasting
- Seasonal Forecasting and related TCC products
- Introduction of making Guidance and selecting Predictors
- Methods of Forecast Verification
- Exercises for Guidance including Verification
- Quick Tutorial for Statistical Analysis by the ITACS
- Presentations by participants and Q&A

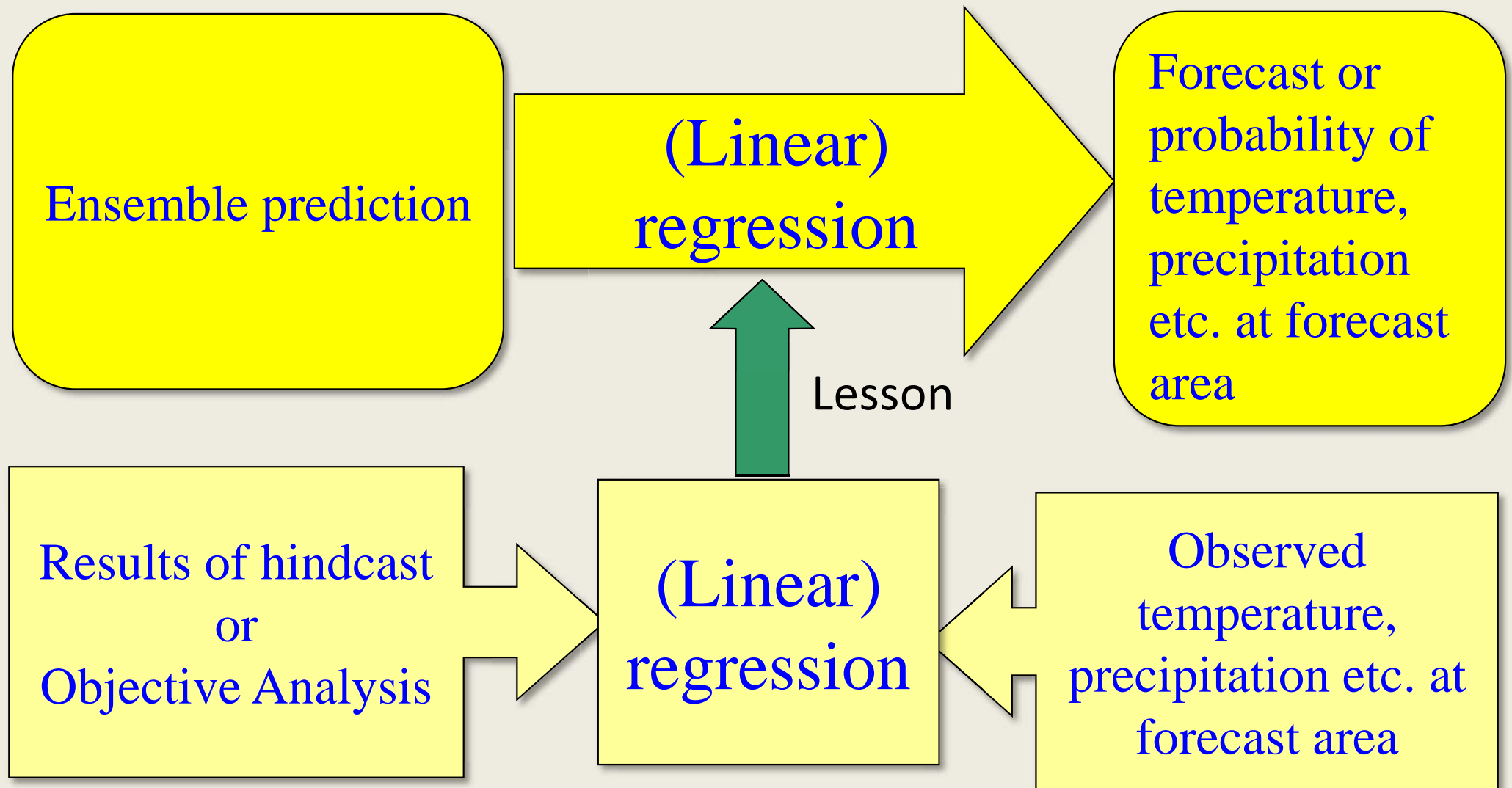
## *Method of Downscaling*

- From global to regional/local scale
  - Downscaling by Regional model  
(Dynamical downscaling)
  - Downscaling by Statistical method
  - Statistical guidance to forecasters



Statistical procedure should be important even if you use dynamical downscaling.

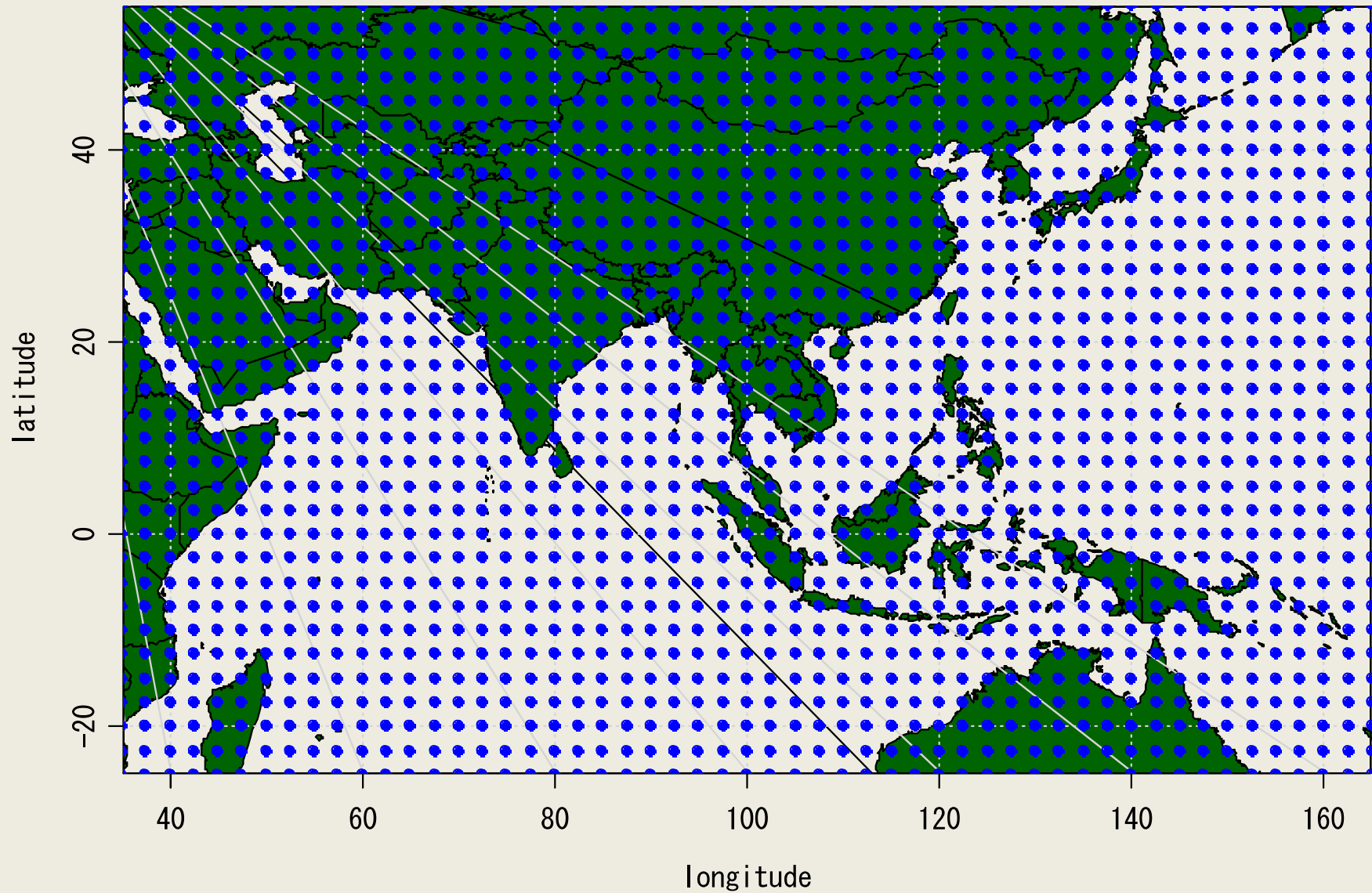
# Outline of Statistical downscaling



We use the word “guidance” instead of “statistical downscaling” in this seminar



## *2.5\*2.5 latitude-longitude grids for our seasonal model*



# TCC Homepage

Microsoft Internet Explorer window showing the Tokyo Climate Center homepage. The address bar displays <http://ds.data.jma.go.jp/tcc/tcc/index.html>.

The page header includes the Japan Meteorological Agency logo and the text "Welcome to Tokyo Climate Center". Navigation links include "TCC home", "About TCC", "Site Map", and "Contact us".

The main navigation menu includes: Home, World Climate, Climate System Monitoring, El Niño Monitoring, NWP Model Prediction, Global Warming, Climate in Japan, Training Module, and News Archive.

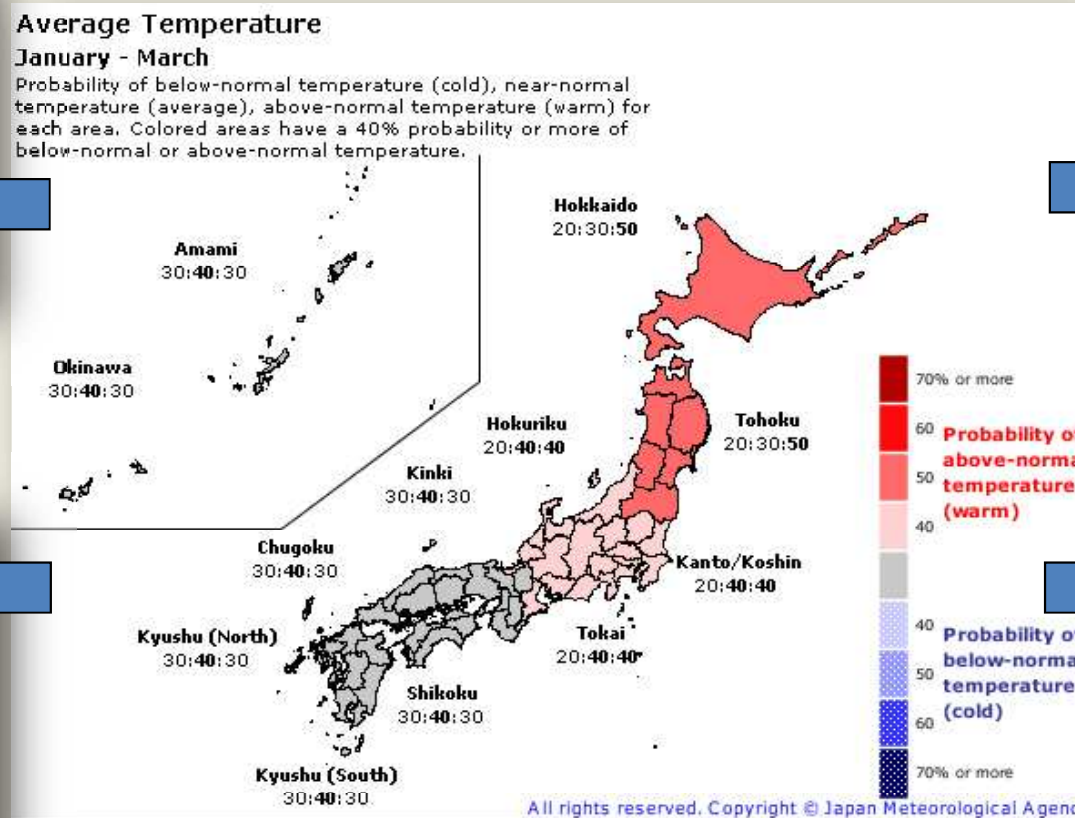
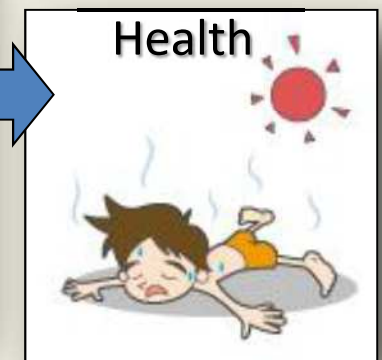
Key sections on the page include:

- World Climate:** GPC Long-range forecast (LRF) Products, TCC News (latest issue), Monthly Highlights on Climate System (latest issue).
- What's New:** A list of news items with dates and "NEW" tags, such as "27 May 2010 NEW TCC News" and "14 May 2010 NEW Updated Information: Global Average Surface Temperature".
- Climate in Japan:** A list of partner organizations including the Asian Disaster Reduction Center, Severe Weather Information Center, and World Weather Information Service.

Blue callout bubbles highlight the following areas:

- world climate
- climate system monitoring
- el Niño monitoring
- NWP model prediction
- climate in Japan
- global warming

# Seasonal Prediction Products - 1

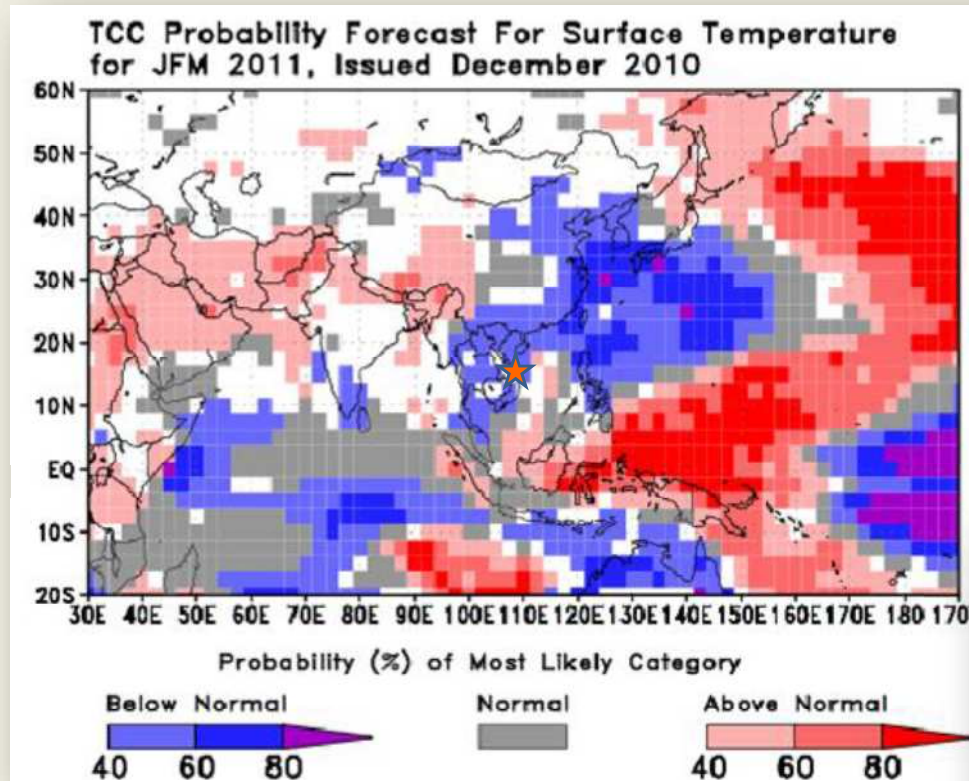


Probability of below-normal, near-normal and above-normal three-month mean temperature from January to March 2011 for each area for Japan

<http://www.jma.go.jp/en/longfcst/>

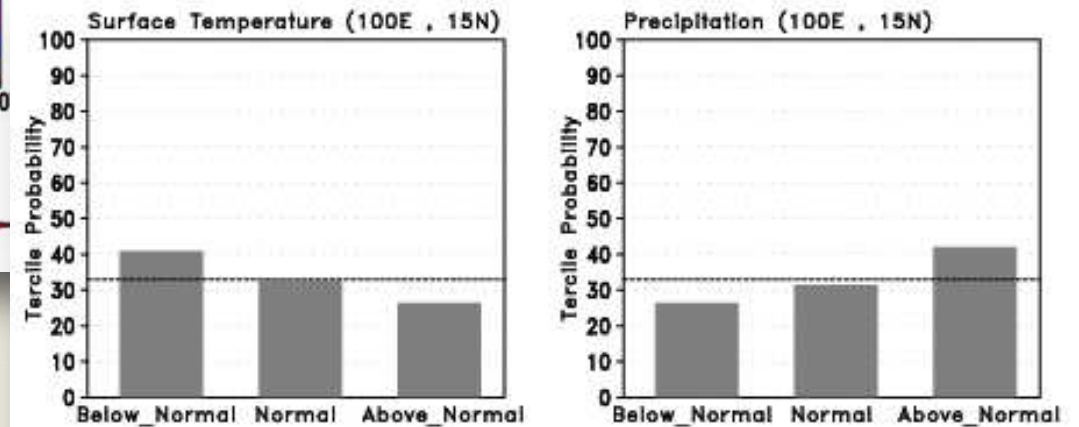


## Seasonal Prediction Products - 2



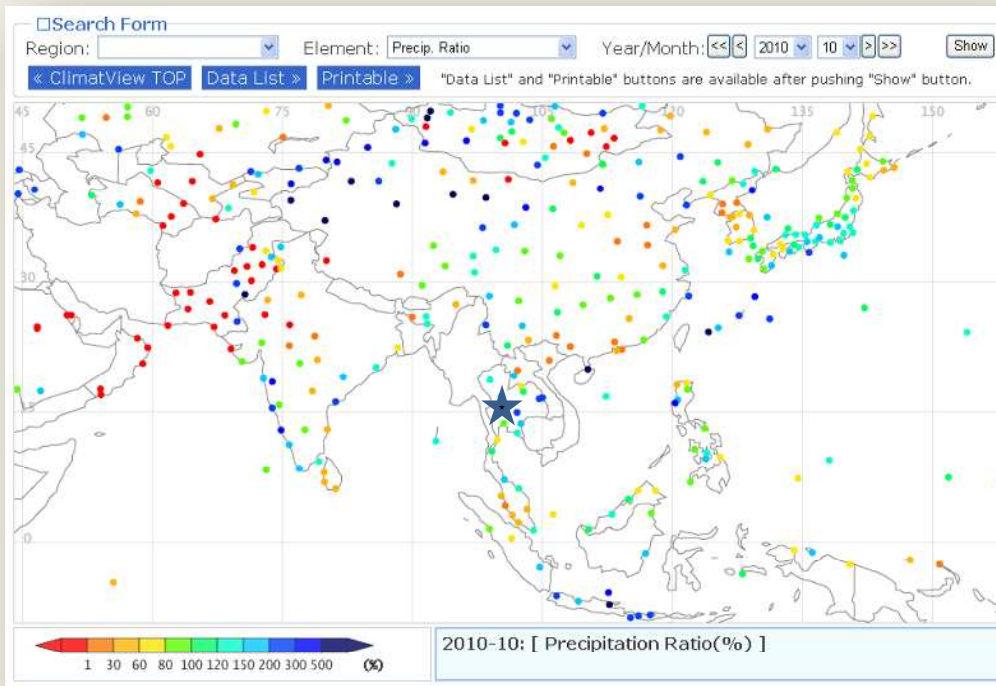
White blocks indicate “low predictability”

Grid interval: 2.5 degrees

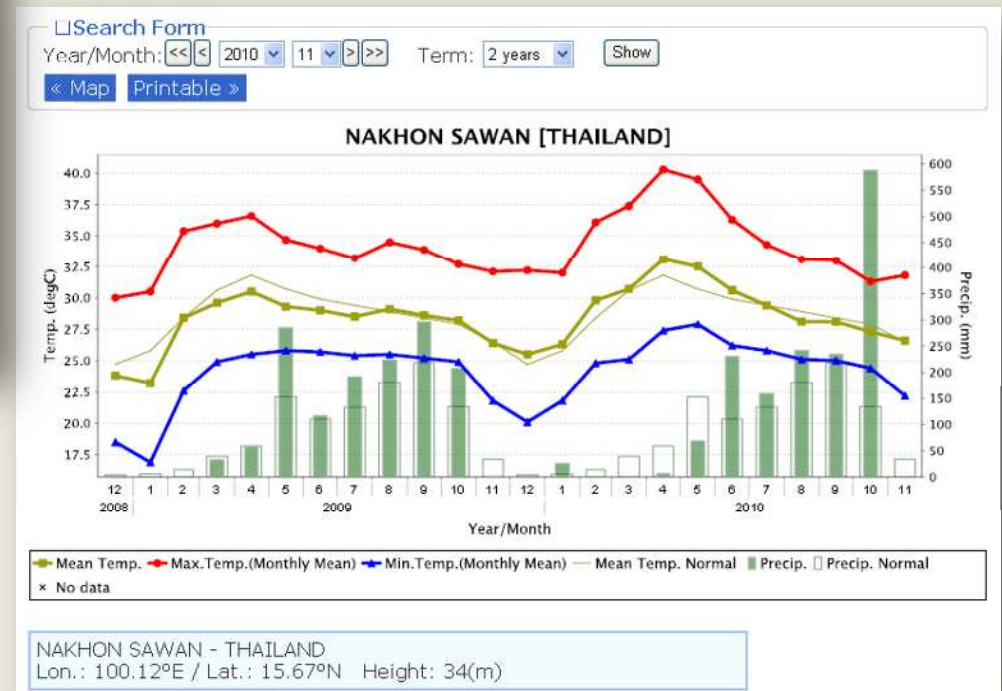


TCC issues probabilistic prediction products for 3-month-averaged surface air temperature and total precipitation amounts with verification products every month for upcoming three months.

# Observations and Monitoring - 1



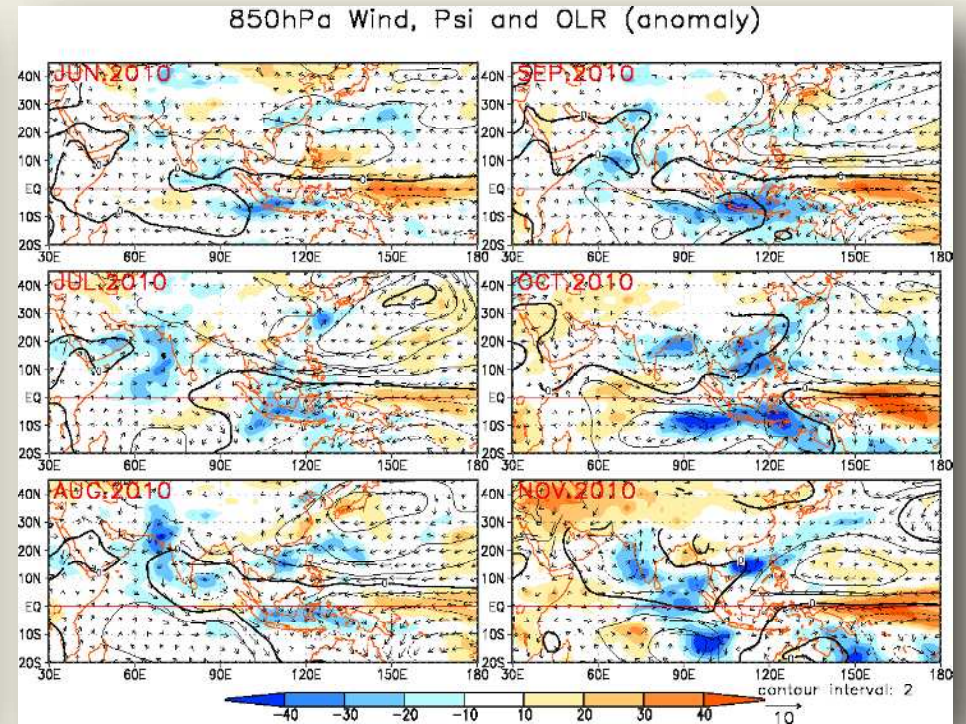
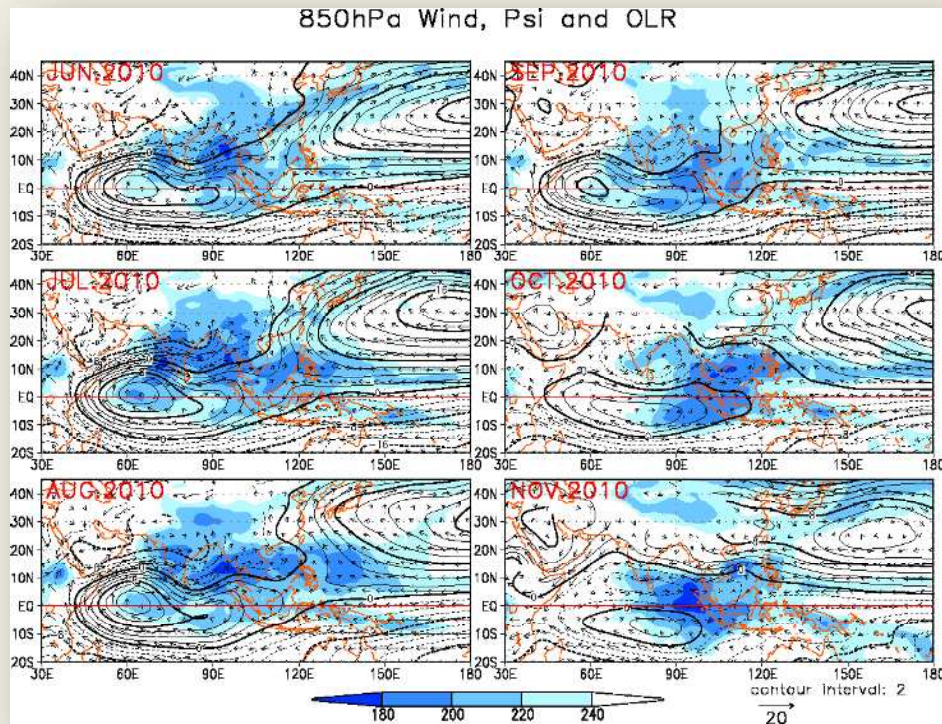
**ClimatView: Tool to view monthly climate data around the world from 1982**



**Monthly high, mean and low temperature and monthly precipitation from Dec. 2008 to Nov. 2010 at Nakhon Sawan (Thailand)**



## Observations and Monitoring - 2

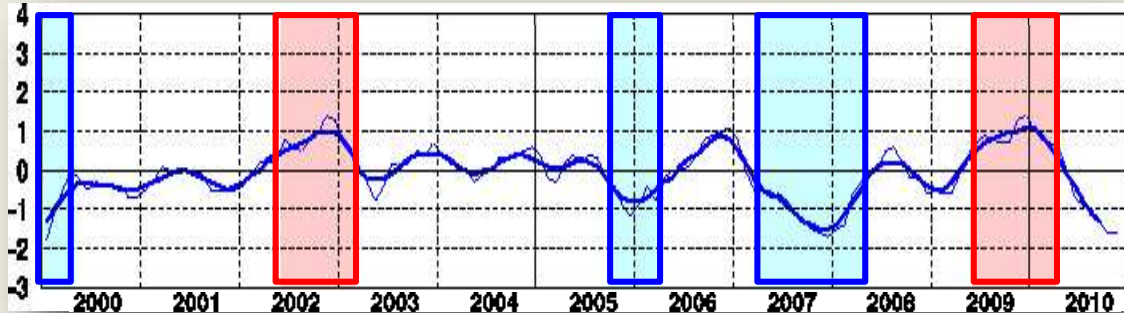


For monitoring Asian Monsoon, TCC provides monthly mean and anomaly of Stream Function, Wind and OLR in the 850hPa height field.

# El Niño Monitoring and Outlook



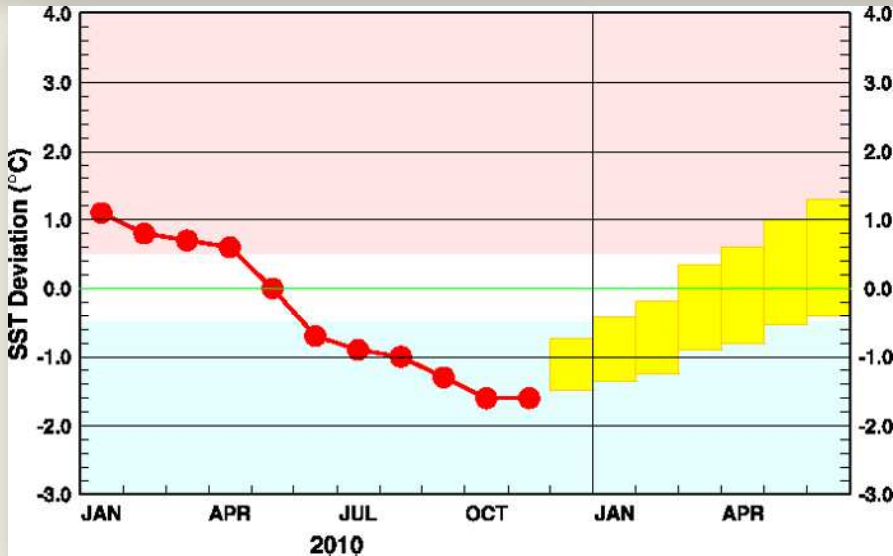
JMA's El Niño Monitoring Area (NINO.3)



Time series of sea surface temperature deviations from the climatological mean based on a sliding 30-year period for NINO.3

El Niño

La Niña

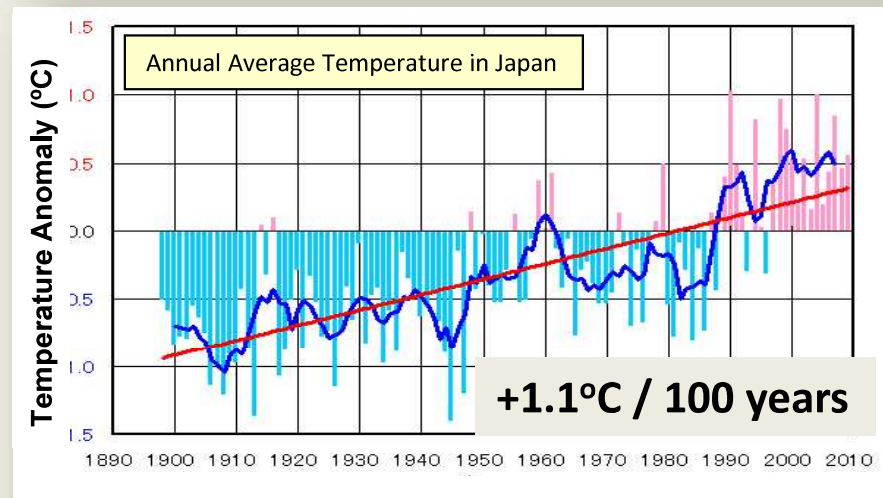
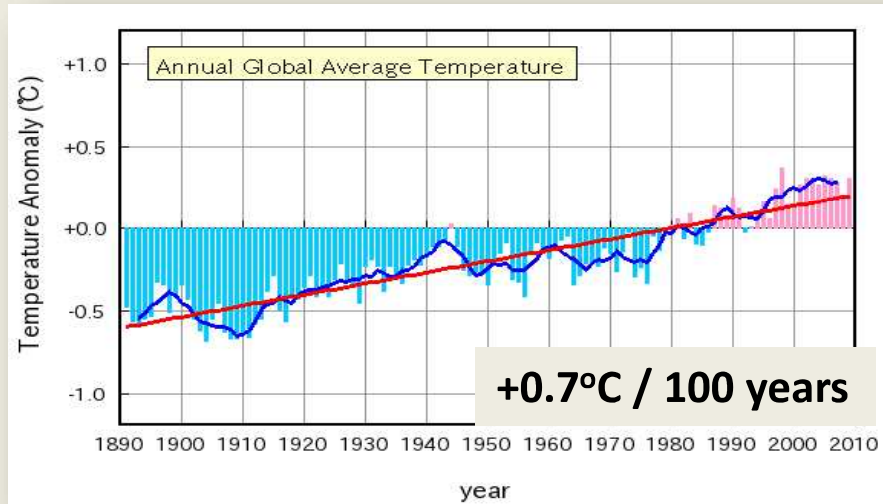


Outlook of sea surface temperature anomalies for NINO.3 until June 2011

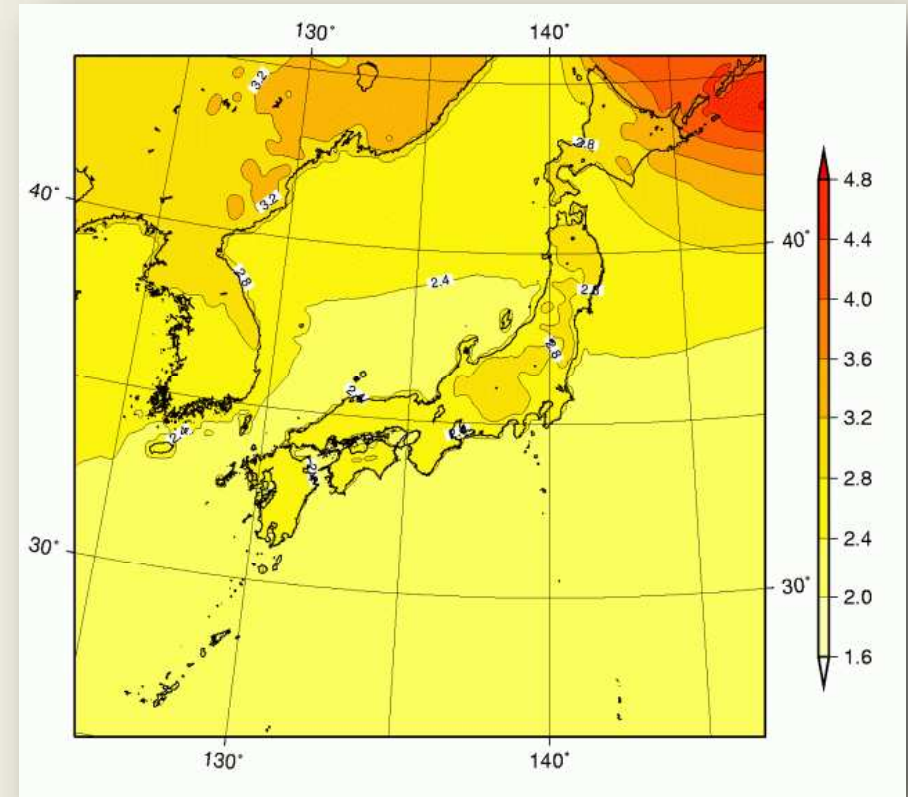


# Global Warming Monitoring and Projection

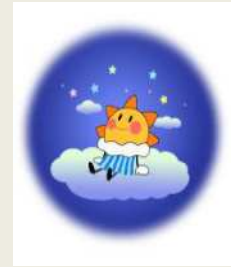
## -Surface Temperature-



Annual anomalies of surface temperature averaged over the globe and Japan (Base period for the normal: 1971 - 2000)



Result of experimental numerical projections of future climate using a regional climate model developed by the JMA's Meteorological Research Institute. It shows difference in temperature between 2081-2100 and 1981-2000 averages. (IPCC's A2 scenario)



***Please feel free to ask us  
if you have any questions***



HARERUN : Mascot of JMA