

CLIK hands-on (PART I):  
**introduction and structure**  
(<http://clik.apcc21.org>)

Yun-Young Lee  
7 June 2017

# Climate/weather related disasters

5. Jan. 13 — Flooding in the capital



**Flood**



**Strong wind**



**Indonesia landslide: 20 dead and dozens still missing**

14 December 2014 | Asia

**Landslide**



Rescuers, including local residents, are still hoping to find survivors

# 2015 Drought in Thailand

≡ TIME | World

SEARCH SIGN IN SUBS



THAILAND

## Thailand is Suffering From The Worst Drought in Decades

Helen Regan  
Jul 16, 2015



Thailand is experiencing the worst drought in decades, with seven out of 67 provinces affected and water rationing taking place in almost a third of the country.

Thailand's Irrigation Department said that the amount of usable water in dams across the country, except in the West, have **dwindled** to below 10 percent and in the capital Bangkok tap water production

<http://time.com/3960462/thailand-drought/>

<http://monsoon.yale.edu/thailand-drought-leaves-lasting-effects-even-as-rainy-season-begins/>



Water reserves run low in Thailand's Lamtakong Dam.



Dario Pignatelli | Bloomberg | Getty Images

Farmer Pramote Kongburi inspects his dried rice field in Praek Siracha, Chainat province, Thailand, on July 3, 2015.

# 2015 Drought in Thailand :during prolonged El Nino

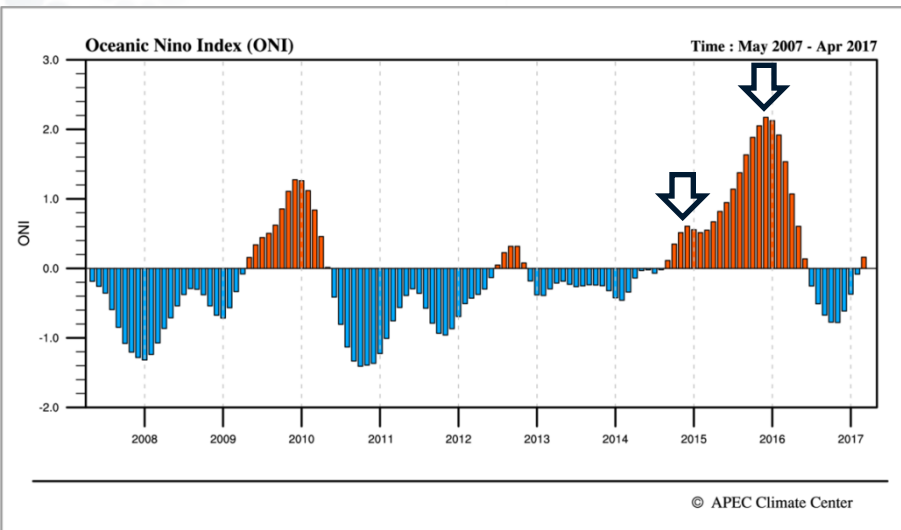
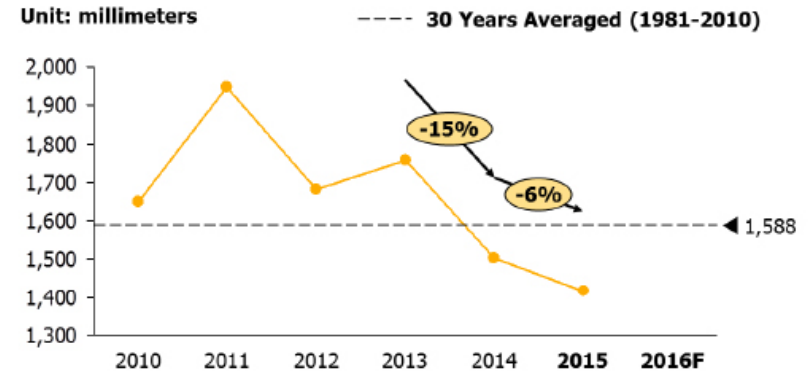
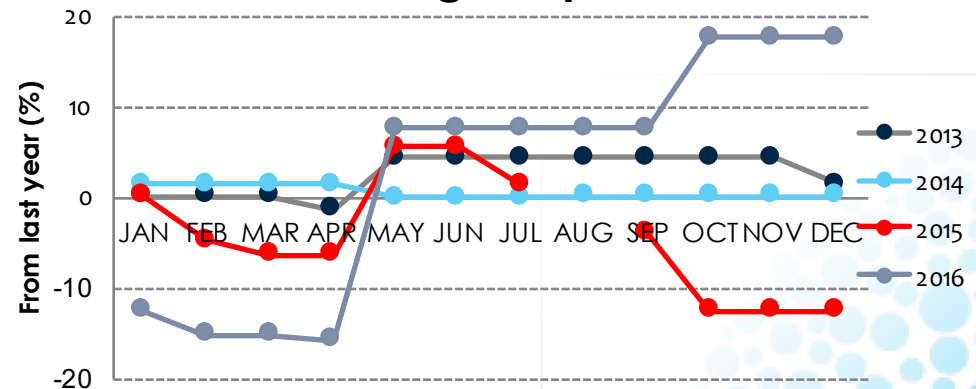


Figure 1: Cumulated rainfall in Thailand between 2010 and 2015



## Rice: Change in production



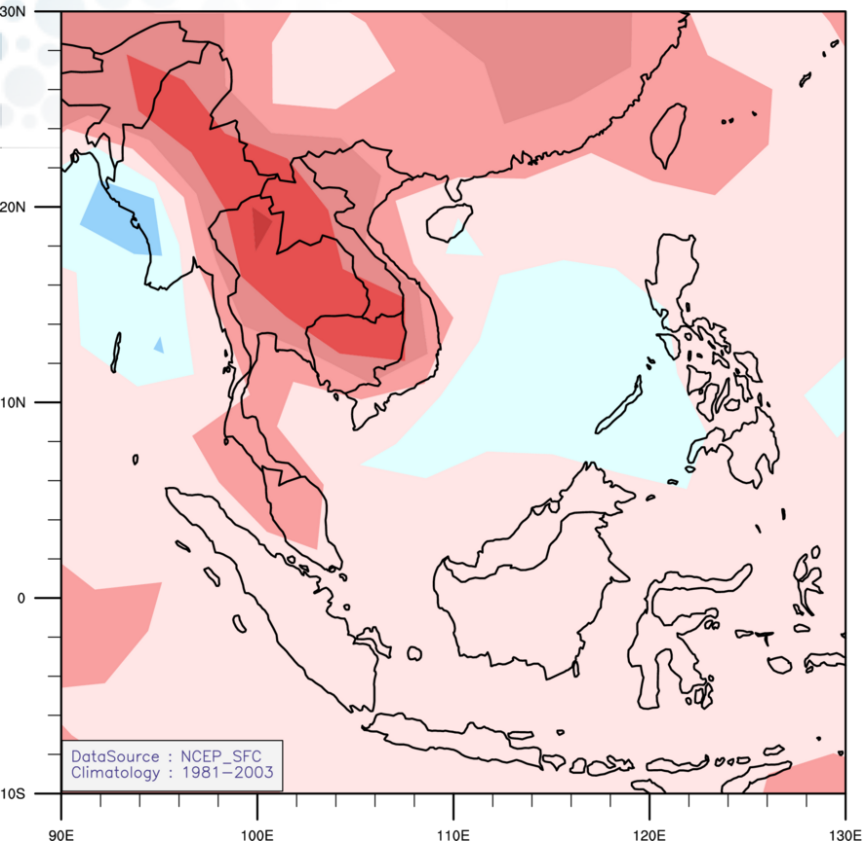
Source: USDA World Agricultural Production

# Southeast Asia: Temp. & Prec. (2016Apr)

## Surface Air Temperature Anomaly

Apr 2016

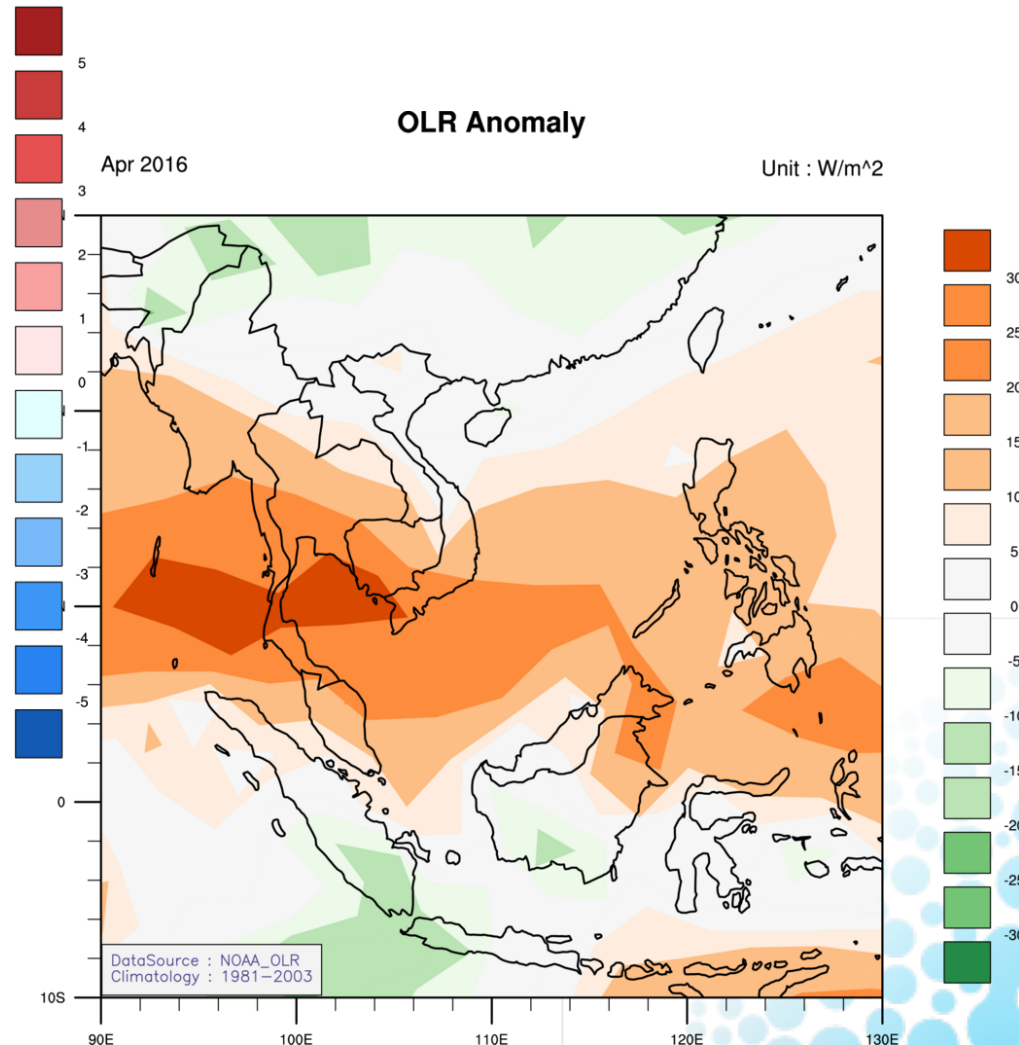
Unit : °C



## OLR Anomaly

Apr 2016

Unit : W/m<sup>2</sup>



# 2016 Drought in Southeast Asia

## Cambodia faces severe and prolonged drought

POSTED ON: March 23, 2016 | CAMBODIA - CURRENT AFFAIRS - FEATURED | By: Daniel Besant

**Experts say that this year's drought will be worse than in 2015, with soaring temperatures and a delayed monsoon season likely**

Cambodia is officially in a drought, and the conditions could last longer and be more severe than last year, when monsoon rains did not fall until July.



On the banks of the Mekong River in Cambodia's Kandal Province. Photo: EPA/Mak Remissa

"Based on our monitoring, drought is expected to last through the end of the year in Cambodia," said the Mekong River Commission's (MRC) Secretary General. "The current drought in Cambodia is likely to be getting worse in coming months."

Last year, according to the MRC, the monsoon season was delayed until July. A similar delay is expected this year.

Schools face water shortages and government says entire nation is affected as rainy season is forecast to be delayed by months



7 photos: Children are among hardest hit by El Nino-related drought in Cambodia

# Mekong River Crisis: Water Conflicts

## China and the Mekong Delta: Water Savior or Water Tyrant?

Don't be fooled by reports about China discharging water to alleviate drought along the Mekong.

By Margaret Zhou

March 23, 2016



1.0k Shares

The Mekong Delta is facing its worst drought in recent history, causing food and water shortages for over half a million people. The Chinese government headlines amidst the disaster for its release of water from upstream dams within a briefing that China "hopes it can b



Image Credit: [Hau Giang, Vietnam Image via Thoai / Shutterstock.com](#)

## Government welcomes drought relief measures by China

17 Mar 2016 , [The Cambodia Daily](#)

Government officials on Wednesday applauded China's decision to take emergency measures to counter the impact of a regional drought by releasing water into the Mekong River from the Jinghong Hydropower Station in China's southwestern Yunnan province. ...

Khy Sovuthy

<https://www.cambodiadaily.com/news/government-welcomes-drought-relief-measures-by-china-110018/>

Categories: [Disasters and disaster management](#), [Drought](#), [Environmental & Natural Resources Management](#)

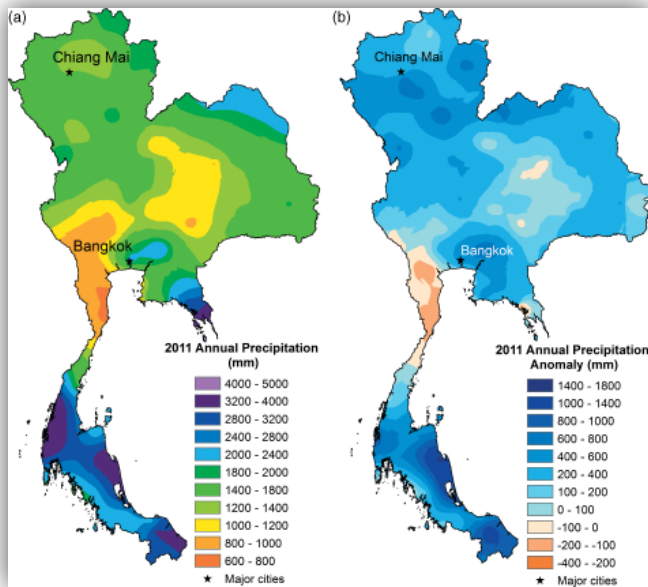
Tag: [Jinghong Hydropower Station](#)

# 2011 Flood in Thailand : heavy monsoon rain

## Worst Flooding in Decades Swamps Thailand

ALAN TAYLOR | OCT 12, 2011 | 37 PHOTOS | IN FOCUS

Heavy monsoon rains have been drenching Southeast Asia since mid-July, causing mudslides and widespread flooding along the Mekong River. Parts of Thailand are now experiencing the worst floods in half a century, as water inundates villages, historic temples, farms, and factories. At least 281 people have been killed in Thailand, and another 200 in neighboring Cambodia. Rescue workers are scrambling to prevent a humanitarian disaster, and Thailand's prime minister is warning businesses not to use the flooding as an excuse to raise prices. About 8.2 million people in 60 of Thailand's 77 provinces have been affected by the flooding, and economic losses are so far estimated to top \$2 billion. Collected here are recent images of the crisis in Thailand as some 10 million residents in Bangkok keep a wary eye on the approaching surge of floodwater, due to reach the capital in a few days.



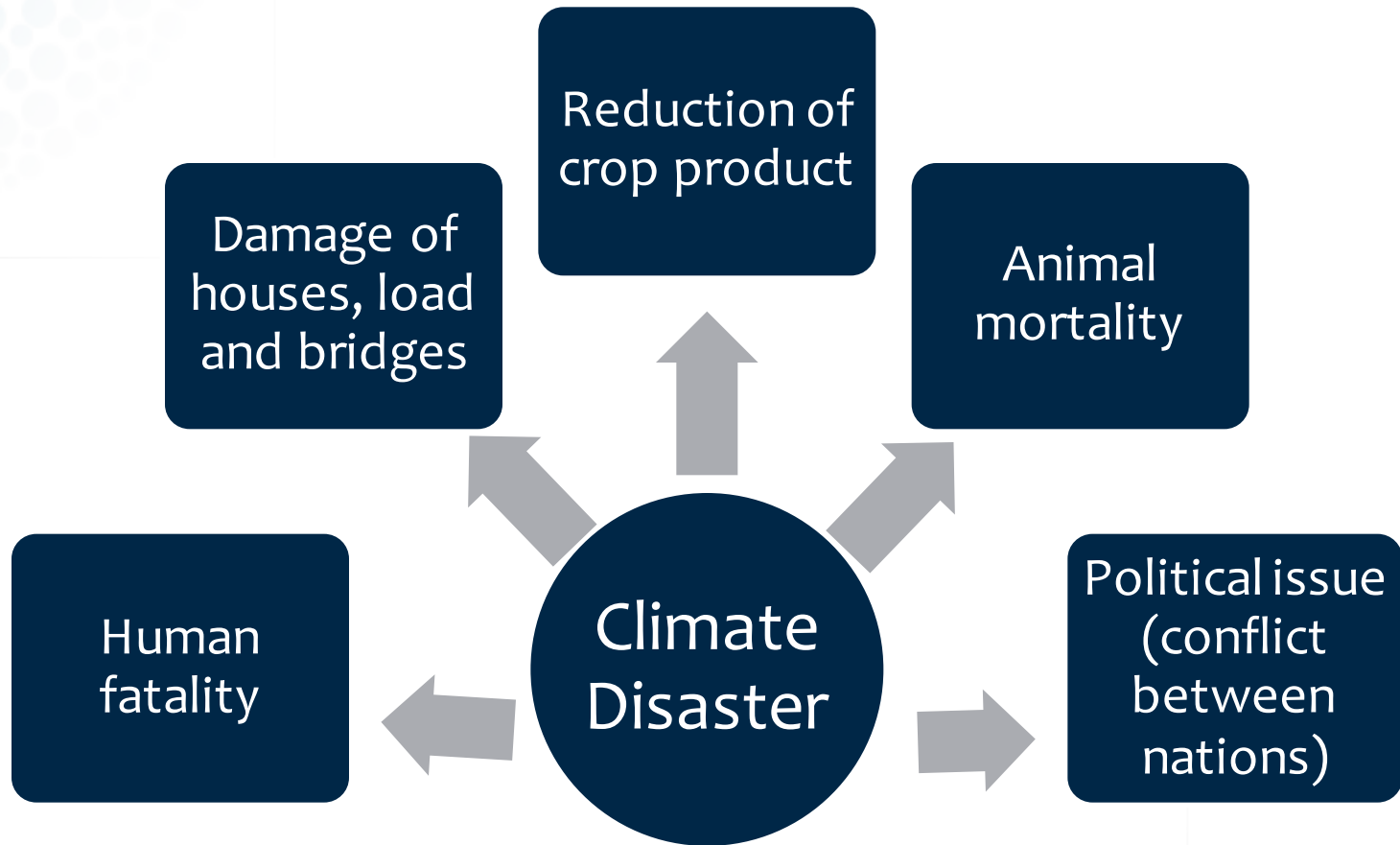
### Weather

[Volume 68, Issue 9](#), pages 233-237, 27 AUG 2013 DOI: 10.1002/wea.2133



<https://www.theatlantic.com/photo/2011/10/worst-flooding-in-decades-swamps-thailand/100168/>

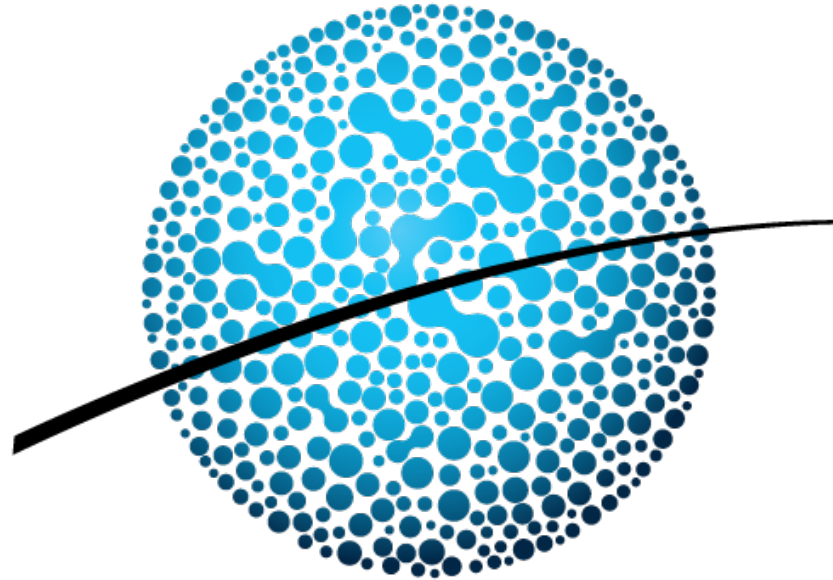
# Importance of “Accurate” prediction



**ACCURATE climate prediction** optimized to your region (village) will make early warning possible and reduce economic and human losses in Southeast Asia.

# High-end climate information service center

: operating MME climate prediction system utilizing state-of-the-art GCMs



**APCC**  
APEC CLIMATE CENTER

# APCC mission

The mission of APCC is to enhance **the socio-economic well-being of member economies** by utilizing ***up-to-date scientific knowledge*** and applying ***innovative climate prediction techniques*** through



## Climate Prediction

APCC produces value-added, reliable, and real-time climate prediction information and provides the APEC region with it.



## Interdisciplinary Research

APCC leads in the development of interdisciplinary research and application techniques at the climate-environment-society nexus.



## Climate Information Services

APCC strives to be a key climate database center to distribute climate data, information products, and related tools.



## International Cooperation

APCC guides developing countries from the APEC region toward building their own capacity to produce reliable climate prediction information.

# **CLIK**

## CLimate Information ToolKit

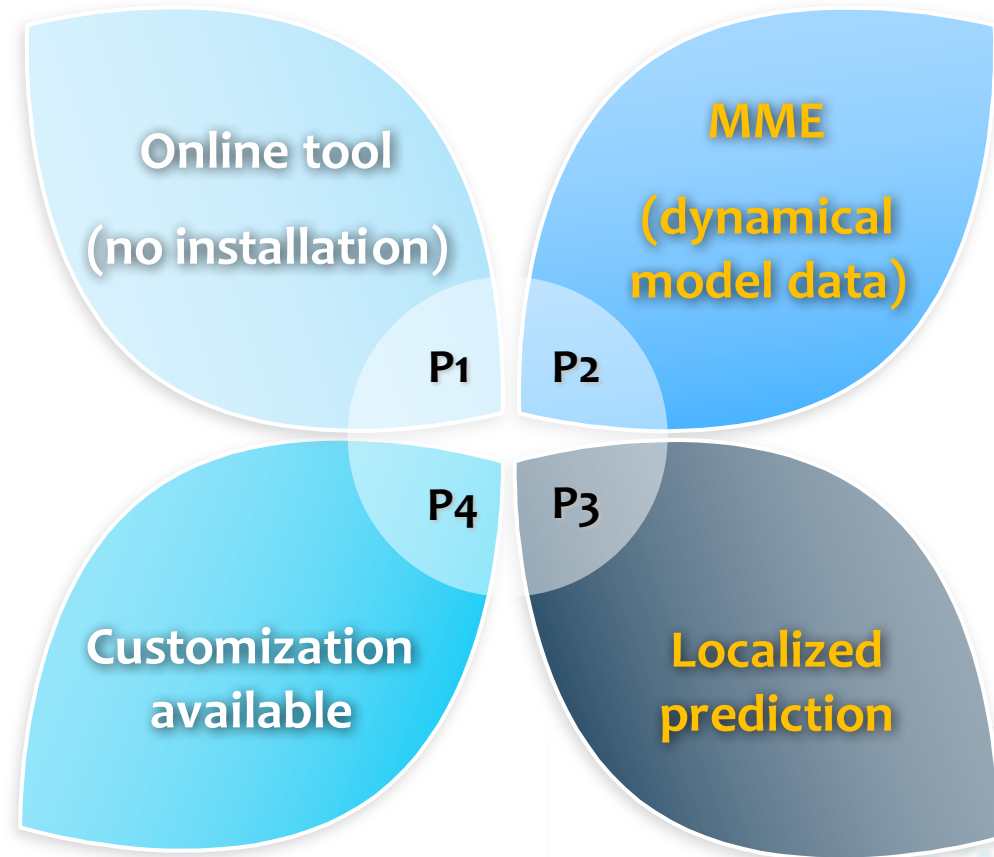
<http://clik.apcc21.org>



# Climate Information Toolkit

CLIK was developed and updated based on the analysis of potential users: their **status** and **needs**.

1. Limitation of manpower and computing resources
2. Desire for utilizing **dynamical forecast data**
3. Direct benefit on **regional community**
4. Thirsty for Capacity building: Interests in learning science and technology and high satisfaction when participating in the model developing process



➔ Target users are, but are **not limited to NMHS staffs** of developing countries having basic understanding of climate and meteorology.

# CLIK (CLimate Information ToolKit)

: online prediction tool

For those **who wants to play with model data,**

- ▶ To allow **user manipulation of multi-model ensemble prediction** in producing his/her own forecast

**MME Prediction**  
with different model  
combination

**CLIK**

**Downscaling:**  
Simulated large scale  
pattern to station  
matching

- ▶ To provide **statistical downscaling** capability using multi model prediction

**Output:** **3-months mean (seasonal)** forecast & verification score

# CLIK (CLimate Information ToolKit)

: online prediction tool

For those **who wants to play with model data,**

- ▶ To allow **user manipulation of multi-model ensemble prediction** in producing his/her own forecast

**MME Prediction**  
with different model  
combination

**CLIK**

**Downscaling:**  
Simulated large scale  
pattern to station  
matching

- ▶ To provide **statistical downscaling** capability using multi model prediction

➔ Facilitate the cooperation in the exchange of information and services so that users are able to **cope with climate related disasters**

# Development

## 2008

- The CLimate Information ToolKit(CLIK) version 1.0 was developed.
  - Deterministic Multi-Model Ensemble (DMME) prediction

## 2009-2010

- CLIK version 2.0
  - Probabilistic Multi-Model Ensemble (PMME)
  - Statistical Downscaling

## 2011-2013

- Clustering Computation  
Enhancing Internal Algorithm

## 2014

- CLIK v3.0 with New Web Framework (New CLIK)
  - Enhancement of User Interface & Performance
  - Database optimization, Lightweight Map, etc.

**CLIK**

# CLIK 3.0: Internals

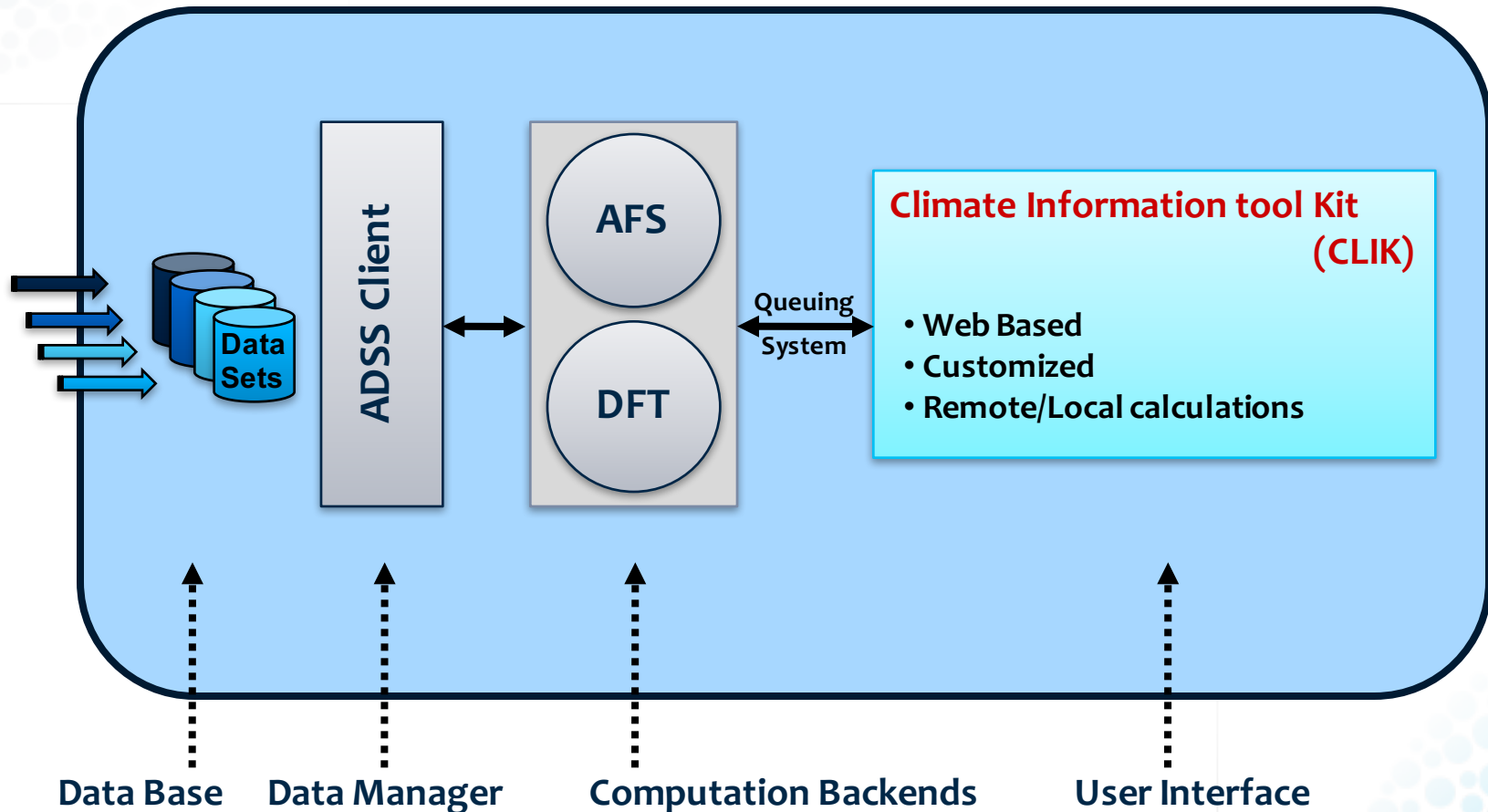
- **The Customized Climate Information Service**
- **Be able to produce and utilize the climate information data by CLIK with **only a computer and an internet connection.****
- **Based on Java and HTML with NCAR Command Language (NCL)**
- **Existing NCL, Fortran Code can be reused with Java Container**
- **Standard Web technology (HTML/JSP)**
- **CLIK 3.0 leverages on the robust functionality of previous product releases but at around 10 times the performance**

<http://clik.apcc21.org>

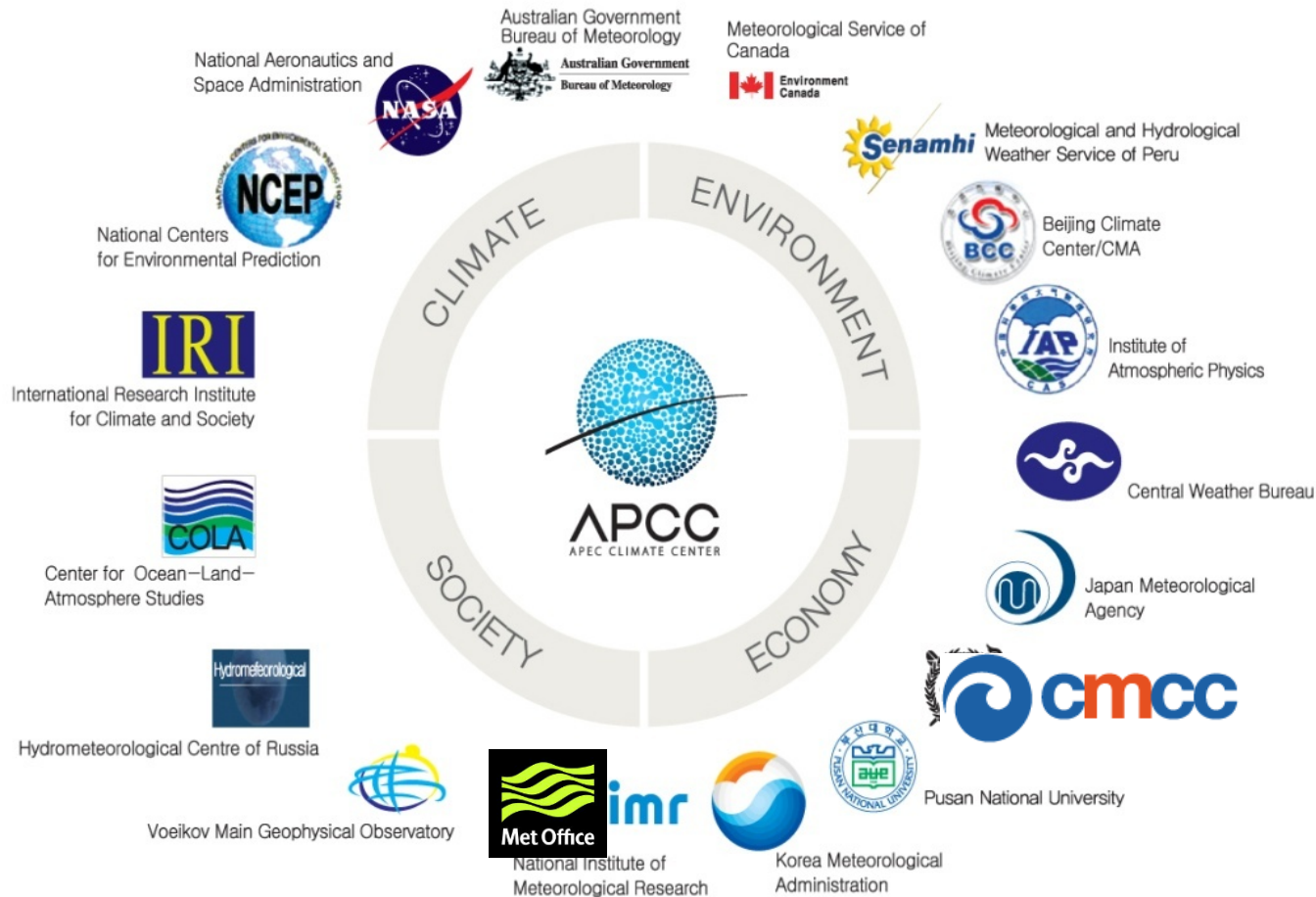
<https://www.youtube.com/watch?v=5CNPoX1fIXY>

# CLIK: process diagram

## APCC Climate Application System



# APCC: data collection



- Collection of Dynamic ensemble seasonal prediction data from NMHS and research institutes (16 operations/institutions from 10 countries)

# List of available models

## DATA SOURCES

Nation	Organization	Acronym
Australia	Bureau of Meteorology	BoM
Canada	Meteorological Service of Canada	MSC
China	National Climate Center, CMA	NCC
	Institute of Atmospheric Physics	IAP
Chinese Taipei	Central Weather Bureau	CWB
Italy	Centro Euro-Mediterraneo sui Cambiamenti Climatici	CMCC
Japan	Japan Meteorological Agency	JMA
Korea	Korea Meteorological Administration	KMA
	Pusan National University	PNU
	National Institute of Meteorological Research	NIMR
Peru	Servicio Nacional de Meteorología e Hidrología	SENAMHI
Russia	Hydrometeorological Research Centre of Russian Federation	HMC
	Voeikov Main Geophysical Observatory	MGO
UK	Met Office	Met Office
USA	International Research Institute for Climate & Society	IRI
	Center for Ocean-Land-Atmosphere Studies	COLA
	National Centers for Environmental Prediction, NOAA	NCEP
	National Aeronautics and Space Administration	NASA

For those **who wants to play with model data,**

- ▶ To allow **user manipulation of multi-model ensemble prediction** in producing his/her own forecast

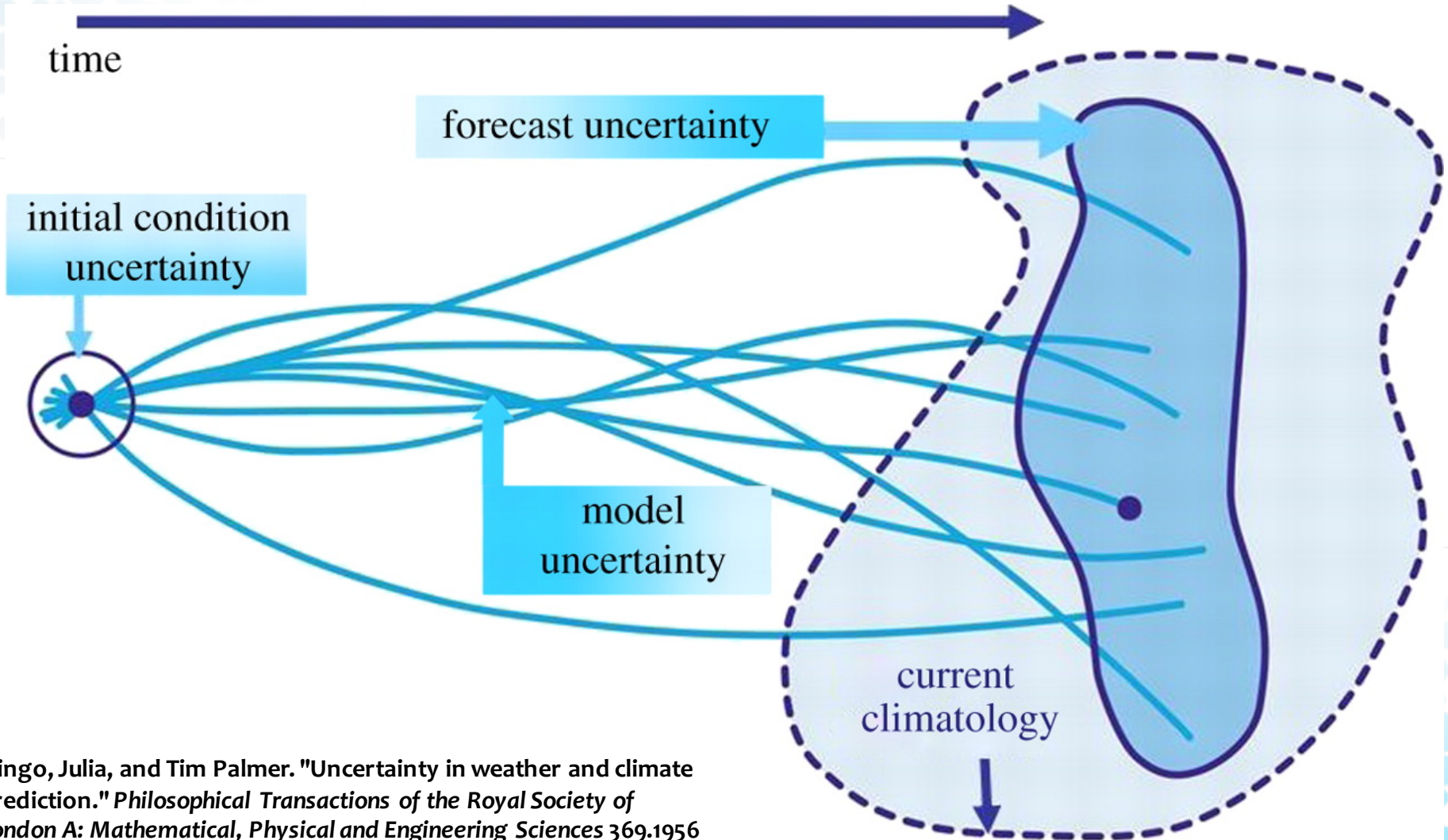
**MME Prediction**  
with different model  
combination

**CLIK**

**Downscaling:**  
Simulated large scale  
pattern to station  
matching

- ▶ To provide **statistical downscaling** capability using multi model prediction

# Uncertainty in climate prediction



Slingo, Julia, and Tim Palmer. "Uncertainty in weather and climate prediction." *Philosophical Transactions of the Royal Society of London A: Mathematical, Physical and Engineering Sciences* 369.1956 (2011): 4751-4767.

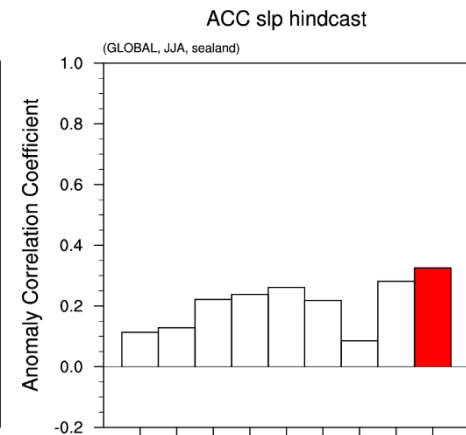
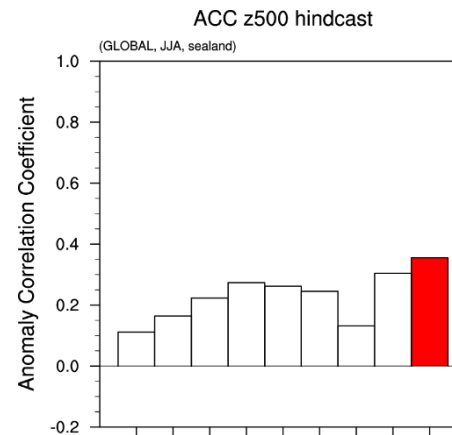
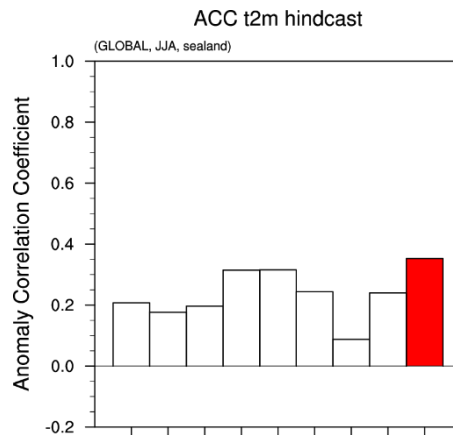
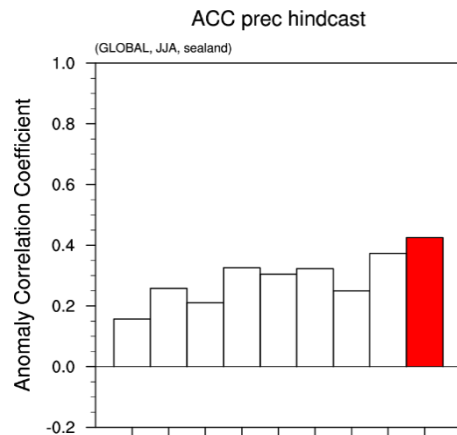
# Why MME?

- Climate predictions have huge *uncertainty!*

**NO perfect GCM**

**NOT the same with NATURE**

- ➔ multi-institutional multi-model ensemble approach to minimize the uncertainty
- ➔ multi-model ensemble (MME) approach yields superior forecasts compared to any single model.



# PREDICTION\_methodology

Deterministic

Multi-Model  
Ensemble  
(MME)

Probabilistic

SCM

GAUS

## Simple Composite Method:

Average of individual forecast with equal weighting

$$P = \frac{1}{M} \sum_i F_i'$$

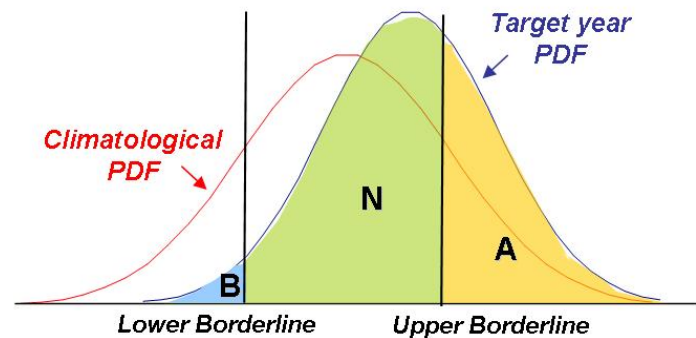
A parametric **Gaussian fitting method** for the estimation of tercile-based categorical probabilities; forecast probability of each category is estimated as a portion of the forecast PDF (Probability Density Function) with respect to the historical one.

# Probabilistic MME Scheme(GAUS)

A parametric **Gaussian fitting method** for the estimation of tercile-based categorical probabilities; forecast probability of each category is estimated as a portion of the forecast PDF(Probability Density Function) with respect to the historical one.

## Forecast probability

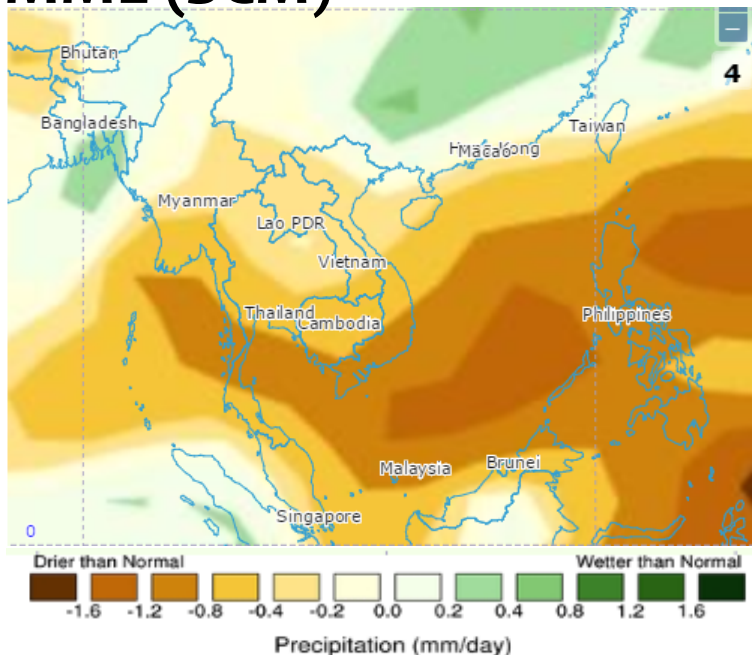
- A** Probability of Above-normal
- N** Probability of Near-normal
- B** Probability of Below-normal



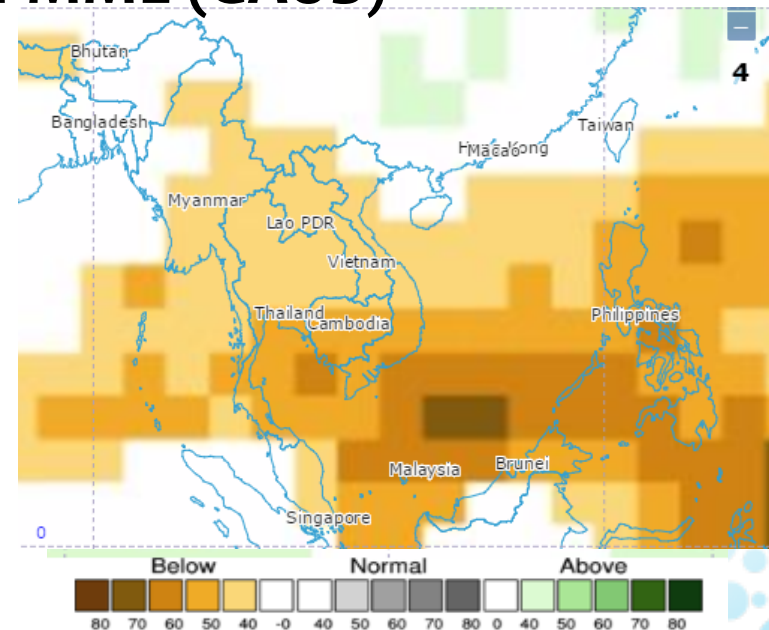
# PREDICTION\_product

<b>Lead Month</b> <input checked="" type="radio"/> 3Month	<b>When</b> Year <input type="text" value="2015"/> Season <input checked="" type="text" value="MJJ"/>
<b>Variables</b> <input checked="" type="radio"/> PREC <input type="radio"/> T850	<b>Model</b> <input type="checkbox"/> ALL <input checked="" type="checkbox"/> APCC <input checked="" type="checkbox"/> BCC <input checked="" type="checkbox"/> CMCC <input checked="" type="checkbox"/> COLA <input checked="" type="checkbox"/> CWB <input checked="" type="checkbox"/> HMC <input checked="" type="checkbox"/> IRIF <input checked="" type="checkbox"/> IRI_CA <input checked="" type="checkbox"/> MGO <input checked="" type="checkbox"/> MSC_CANCM3 <input checked="" type="checkbox"/> MSC_CANCM4 <input checked="" type="checkbox"/> NASA <input checked="" type="checkbox"/> NCEP <input checked="" type="checkbox"/> PNU <input checked="" type="checkbox"/> POAMA

## DMME (SCM)



## PMME (GAUS)

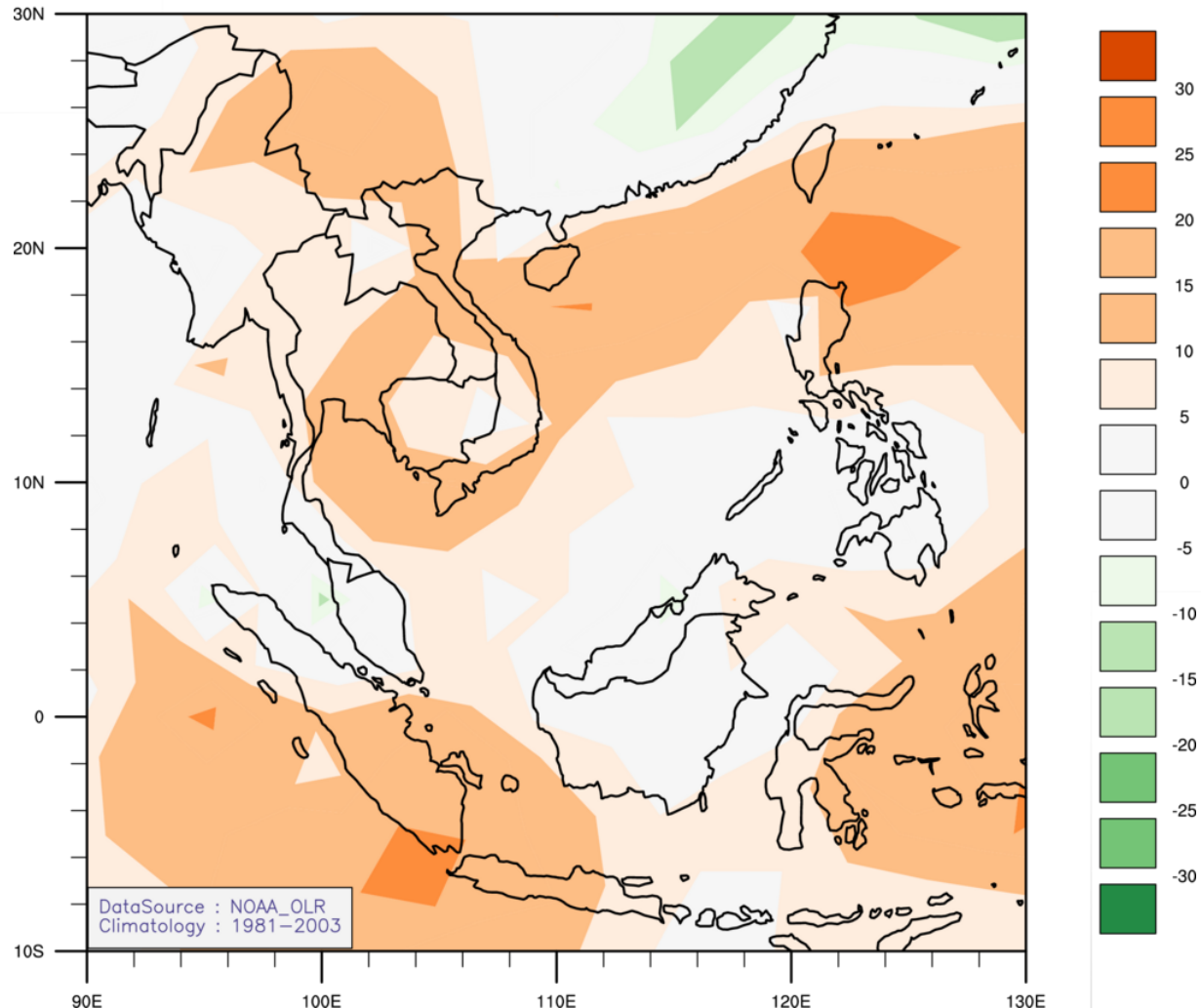


# 2015 MJJ Drought

## OLR Anomaly

May 1 2015 - Jul 12 2015

Unit : W/m<sup>2</sup>



# PREDICTION\_verification\_score

## Success Rate

the fraction or percentage of success among a number of attempts.

CLIK provides a simple success rate as DMME verification score.

F \ O	AN	NN	BN
AN	1	4	9
NN	2	3	4
BN	2	6	3

= 7/34 ~ 0.20

~0.33 : Poor skill region

0.33~0.66 : Reasonable skill region

0.66~ : High skill region

## Heidke Skill Score (HSS)

For the verification of categorical probabilistic forecast

Measuring the fractional improvement of the forecast over the standard forecast

F \ O	Yes	No
Yes	Hit (H)	False Alarm (F)
No	Miss (M)	Correct Rejection (C)

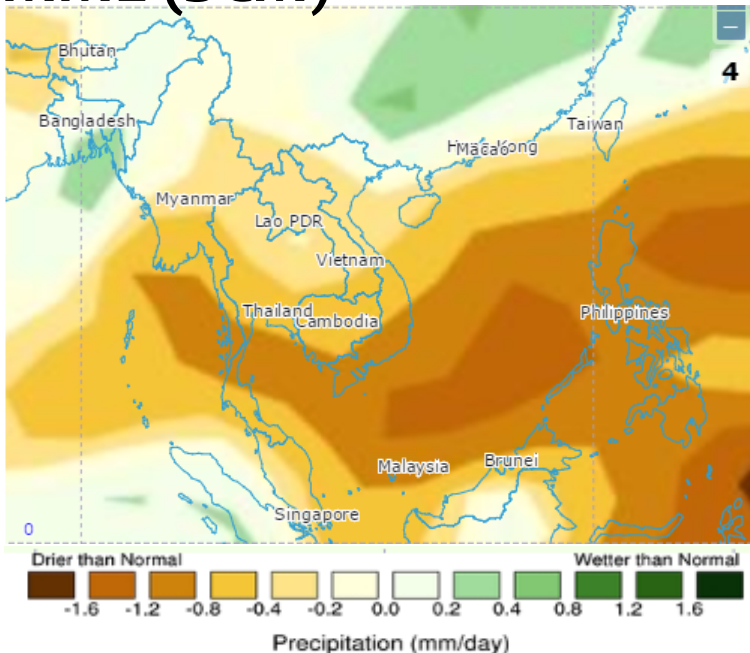
$$HSS = \frac{\text{score} - \text{score by chance}}{\text{perfect score} - \text{score by chance}}$$

$$\frac{\{(h+c)/n - [(h+f)(h+m) + (f+c)(m+c)]/n^2\}}{\{1 - [(h+f)(h+m) + (f+c)(m+c)]/n^2\}}$$

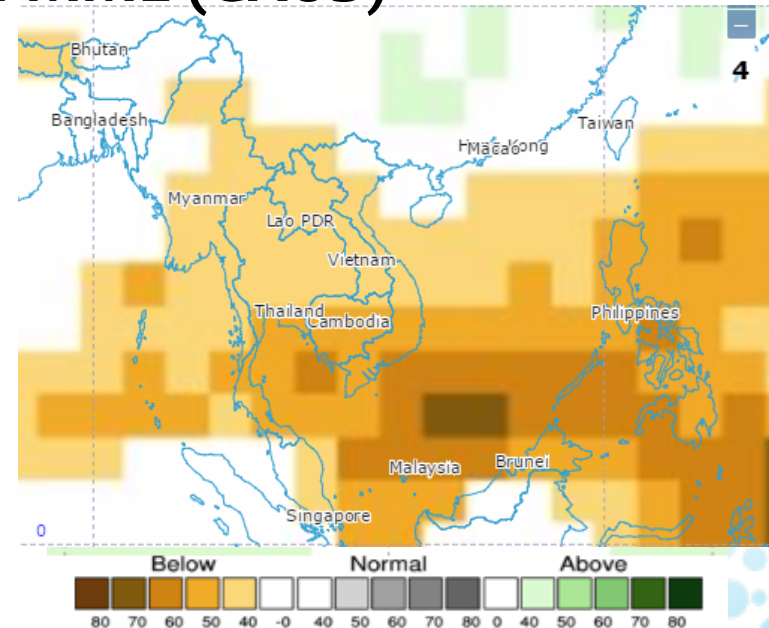
# PREDICTION\_product

<b>Lead Month</b> <input checked="" type="radio"/> 3Month	<b>When</b> Year <input type="text" value="2015"/> Season <input checked="" type="text" value="MJJ"/>
<b>Variables</b> <input checked="" type="radio"/> PREC <input type="radio"/> T850	<b>Model</b> <input type="checkbox"/> ALL <input checked="" type="checkbox"/> APCC <input checked="" type="checkbox"/> BCC <input checked="" type="checkbox"/> CMCC <input checked="" type="checkbox"/> COLA <input checked="" type="checkbox"/> CWB <input checked="" type="checkbox"/> HMC <input checked="" type="checkbox"/> IRIF <input checked="" type="checkbox"/> IRI_CA <input checked="" type="checkbox"/> MGO <input checked="" type="checkbox"/> MSC_CANCM3 <input checked="" type="checkbox"/> MSC_CANCM4 <input checked="" type="checkbox"/> NASA <input checked="" type="checkbox"/> NCEP <input checked="" type="checkbox"/> PNU <input checked="" type="checkbox"/> POAMA

## DMME (SCM)



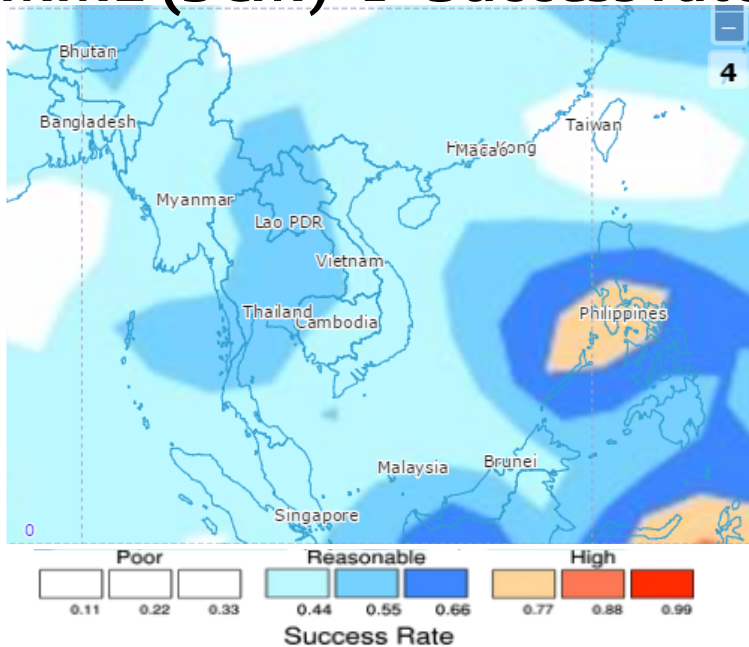
## PMME (GAUS)



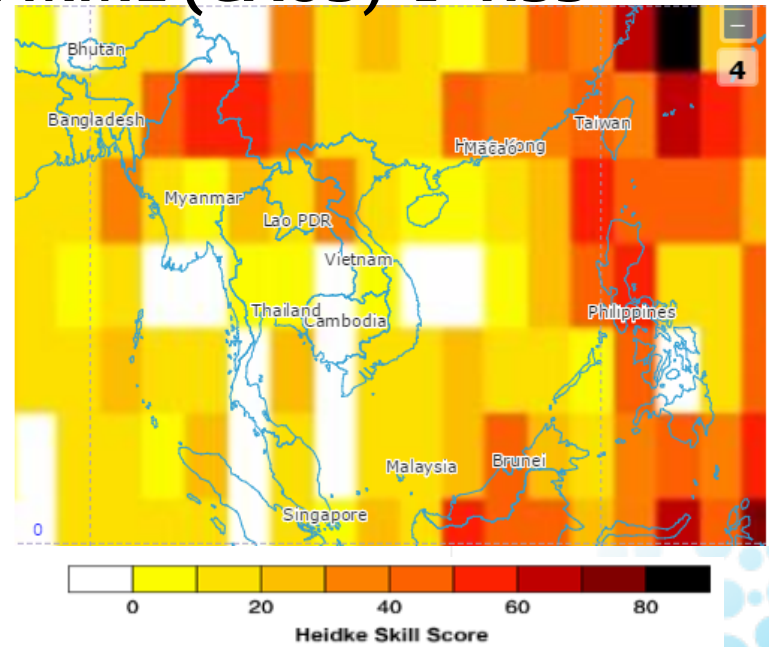
# PREDICTION\_product

<b>Lead Month</b> <input checked="" type="radio"/> 3Month	<b>When</b> Year <input type="text" value="2015"/> Season <input checked="" type="text" value="MJJ"/>
<b>Variables</b> <input checked="" type="radio"/> PREC <input type="radio"/> T850	<b>Model</b> <input type="checkbox"/> ALL <input checked="" type="checkbox"/> APCC <input checked="" type="checkbox"/> BCC <input checked="" type="checkbox"/> CMCC <input checked="" type="checkbox"/> COLA <input checked="" type="checkbox"/> CWB <input checked="" type="checkbox"/> HMC <input checked="" type="checkbox"/> IRIF <input checked="" type="checkbox"/> IRI_CA <input checked="" type="checkbox"/> MGO <input checked="" type="checkbox"/> MSC_CANCM3 <input checked="" type="checkbox"/> MSC_CANCM4 <input checked="" type="checkbox"/> NASA <input checked="" type="checkbox"/> NCEP <input checked="" type="checkbox"/> PNU <input checked="" type="checkbox"/> POAMA

DMME (SCM) → Success rate



PMME (GAUS) → HSS



For those **who wants to play with model data,**

- ▶ To allow **user manipulation of multi-model ensemble prediction** in producing his/her own forecast

**MME Prediction**  
with different model  
combination

**CLIK**

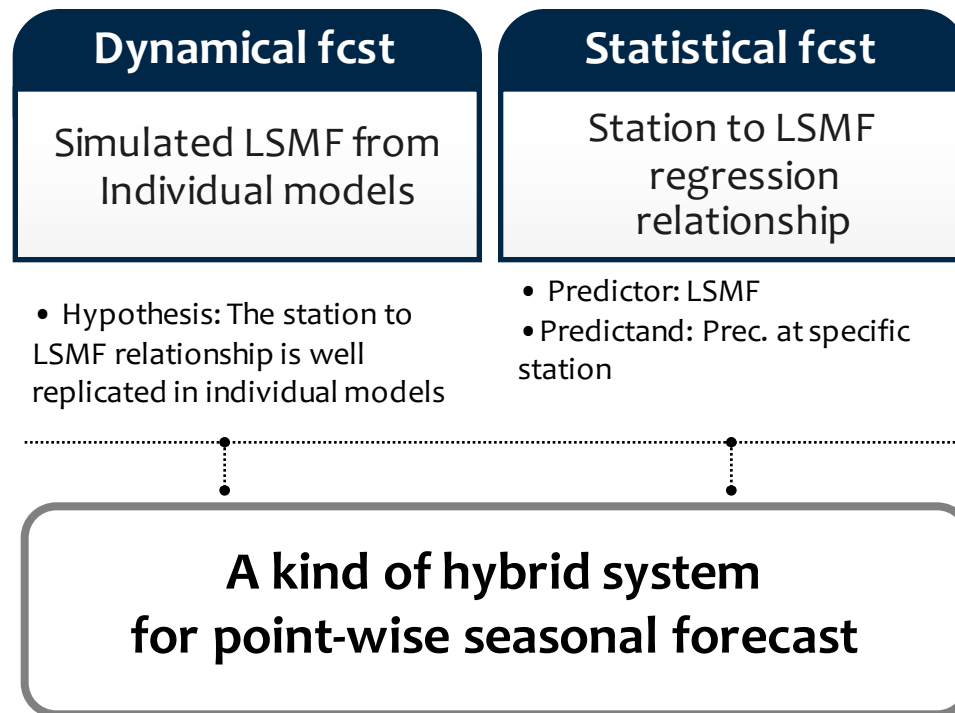
**Downscaling:**  
Simulated large scale  
pattern to station  
matching

- ▶ To provide **statistical downscaling** capability using multi model prediction

# CLIK downscaling

## ➡ A way to localize existing coarse climate information

CLIK downscaling is mainly based on station to Large Scale Meteorological Field (LSMF) relationship. ( $Y = a \cdot X + b$ ) By utilizing the simulated LSMF (X, predictor), CLIK estimates seasonal mean precipitation/temperature (Y, predictand) at specific station.



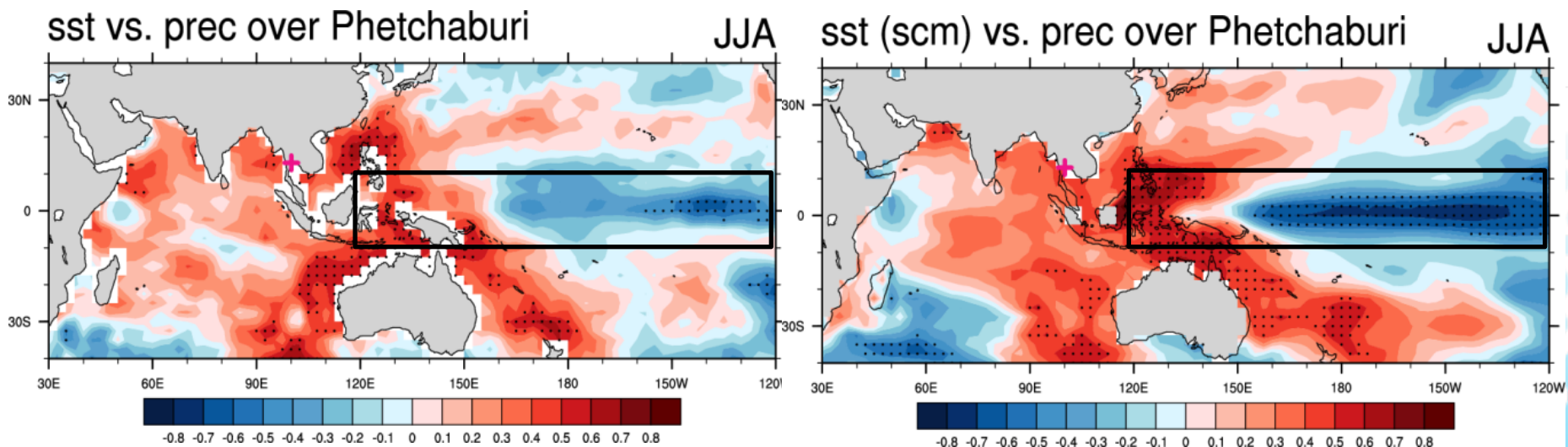
# CLIK downscaling

## ➡ A way to localize existing coarse climate information

CLIK downscaling is mainly based on station to Large Scale Meteorological Field (LSMF) relationship. ( $Y = a * X + b$ ) By utilizing the simulated LSMF (X, predictor), CLIK estimates seasonal mean precipitation/temperature (Y, predictand) at specific station.

## Empirical relationship: LSMP ~ local station rainfall

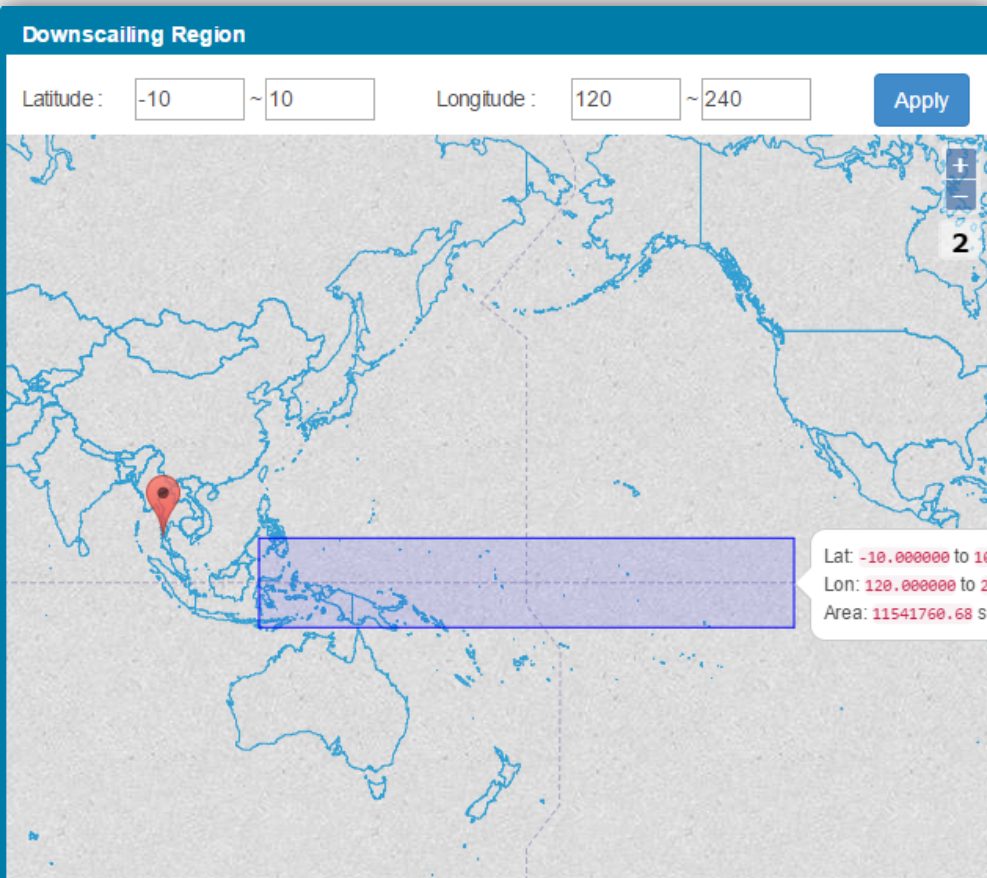
**LSMP (model) → Local station rainfall**



# CLIK downscaling

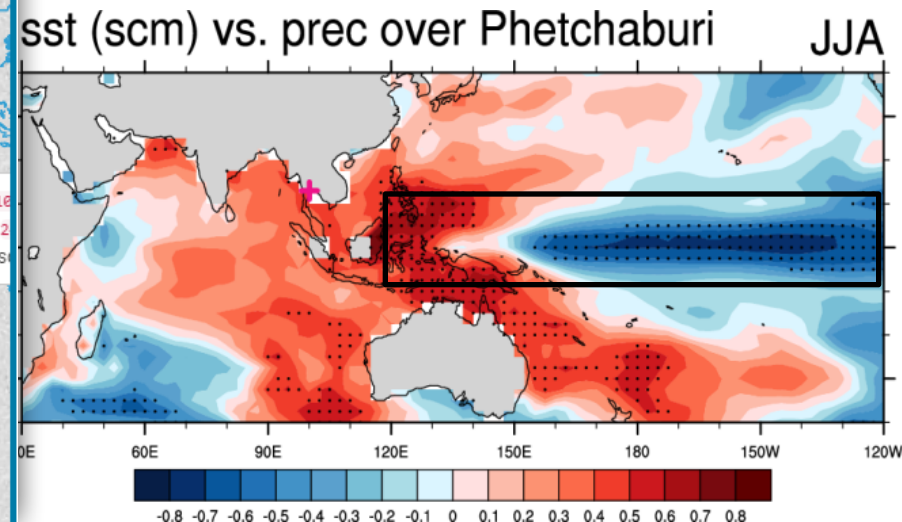
## ➡ A way to localize existing coarse climate information

CLIK downscaling is mainly based on station to Large Scale Meteorological Field (LSMF) relationship. ( $Y = a * X + b$ ) By utilizing the simulated LSMF (X, predictor), CLIK estimates seasonal mean precipitation/temperature (Y, predictand) at specific station.



~ local station rainfall

local station rainfall



# CLIK downscaling: results

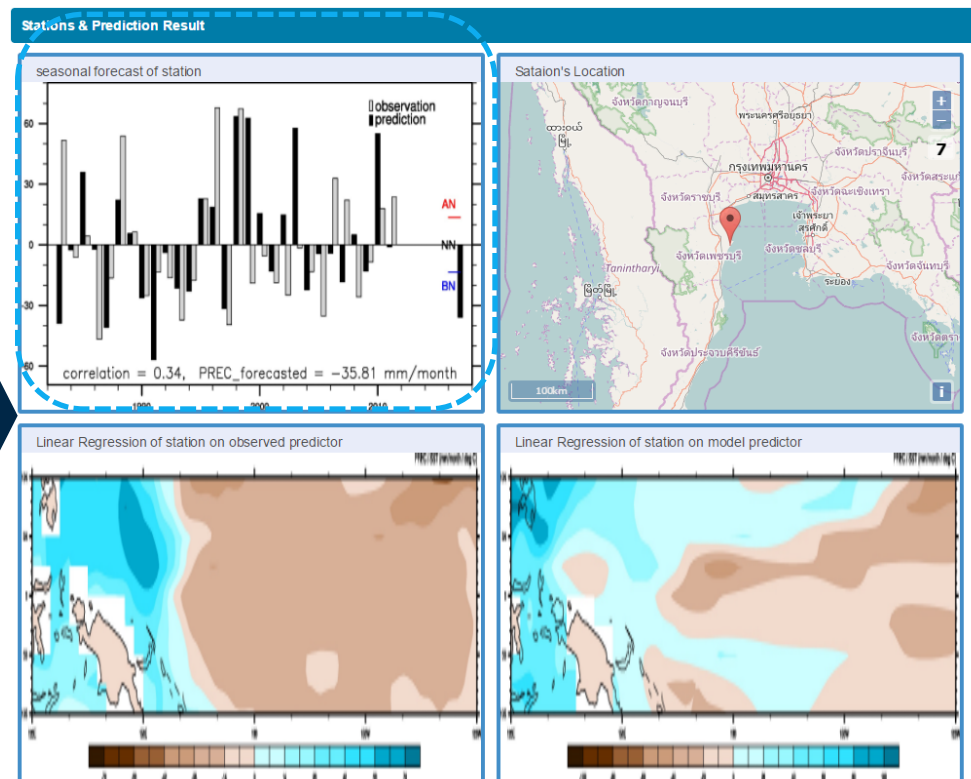
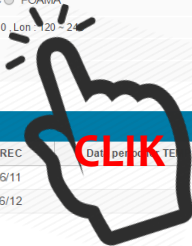
**Details**

PREDICTAND		PREDICTOR	
YEAR/SEASON	2017 / 6	Training Period	1983 / 2011
PREDICTAND	PREC	VARIABLE	SST
DATA SET	Thailand	MODELS	APCC POAMA
REGION	3 Stations	REGION	Lat: -10 ~ 10 Lon: 20 ~ 2
SIGNIFICANCE LEVEL	5%		
MINIMUM PATTERN SCORE	0.1		

List up hopeful & good result stations only

**Selected Stations**

Station ID	Result	Name	Data period for PREC	Correlation
465201	Good	Phetchaburi	1982/1 ~ 2016/11	0.342185
568501	Hopeful	Songkhla	1982/1 ~ 2016/12	-0.264909



Historical station time series & Historical downscaled time series (hindcast) for individual models

Correlation coefficient skill  
**Deterministic forecast value (anomalies)**  
with **tercile range** from historical observation

No integration (no merging) of models

New Downscale

# **CLIK**

## CLimate Information ToolKit

<http://clik.apcc21.org>



# CLIK - main page



Prediction Downscale My Page

Register Login

## Background

The CLimate Information ToolKit version 1.0 (CLIK1.0) was developed in line with APCC's mission of empowering users to maximize the use of climate information and forecasts. The CLIK system provides customized multi-model ensemble (MME) prediction with verification. It also has a statistical downscaling tool which conducts predictor variable pre-screening, basic diagnostic testing, and graphing of climate data from January 2008 onwards. More than 1,200 registered users enjoy the service and about 7,500 predictions have been generated based on the users' request since 2008. Building on the success of CLIK 1.0, new features such as inclusion of other MME methods, improving the downscaling function, enhancing performance, and supporting multiplatform use have been added in the updated version CLIK 2.0 based on user feedback. The product is continuously being improved as APCC responds to the climate information needs of APEC member economies and users worldwide.

## Product Description

CLIK aids users in retrieving and using climate prediction data and information available from APCC data servers in a user-friendly manner. Climate forecasters, disaster managers, water resource managers, researchers, and other users anywhere in the world can use this service to generate customized climate predictions on seasonal to inter-annual timescales for their region of interest. The tool has an immense potential to contribute to early warning and management of climate-related disasters and resource management, particularly in developing countries.

The data processing engines powering CLIK at the backend are built on the NCAR Command Language (NCL), a powerful suite of libraries for climate data manipulation and visualization. The web interface of CLIK 1.0 and CLIK 2.0 was built on the web framework Ruby on Rails (RoR). RoR provided simplicity and productivity to the developers but resulted in heavy use of computing resources and raised software incompatibility problems. To resolve these performance and incompatibility issues, we have designed and developed a faster, lighter CLIK 3.0 based on Java and pure HTML with NCL. The main motivation for the new developments is to make the product more useful to developing countries.

CLIK 3.0 leverages on the robust fun

### User Interface:

- Modern layout and more use
- Higher resolution maps with
- Side-by-side viewing of pred
- Simultaneous panning of pre
- Layered prediction and verifi

### Performance:

- Cleaner user interface that re
- Web display is up to five time
- Climate information processi
- Database access is up to 13
- Reduction of downscaling st

Future product development plans in

## User Manual

PDF

Contact Information

If you have any questions or feedback regarding APCC CLIK, please contact the Climate Informatics and Application Team ([clik@apcc21.org](mailto:clik@apcc21.org))

Data Sources

Please refer to [\[DATA SOURCES\]](#)

Terms of Data Use

Please refer to [\[TERMS OF DATA USE\]](#)

✓ User can see the information about the **CLIK background, product description, user manual** and so forth.

# CLIK - "Prediction"



Prediction Downscale My Page

Logout Edit

## Predict

### Lead Month

3Month

### When

Year  Season

### Methods

Deterministic  Probabilistic

### Variables

PREC  T850

### Model

- ALL
- APCC  CMCC  COLA  CWB
- HMC  IRI\_CA  MGO  MSC
- NASA  NCEP  PNU  POAMA

✓ User can produce the **customized MME climate forecast**, then view the result figure map and download corresponding data.

Predict & Verify

## Result

SingleMap  BindingMap

Move Center

Download



# CLIK - “Downscale”



Prediction **Downscale** My Page

Logout Edit

## Select Dataset / Station

### Datasets

Dataset Name	Countries	Total Stations	Period(prec)	Period(temp)	Public
MCDW(Monthly Climatic Data for th...	The World	6463	1998 ~ 2014	1998 ~ 2014	PUBLIC
Imsi		0	N/A	N/A	dolkong400
GHCN	GHCN	3707	1950 ~ 2009	N/A	PUBLIC
Aphrodite data interploated to Mons...	Afghanistan, Bangladesh, Brunei D...	4918	1961 ~ 2004	N/A	PUBLIC
Korea 60 Stations	Korea, Republic of	60	1973 ~ 2008	1973 ~ 2006	PUBLIC
NewCLIK dataset		0	N/A	N/A	dolkong400

Create

Edit

Remove



✓ User can upload their own regional station data and make a **downscaled forecast**

# CLIK - "My Page"



Prediction Downscale **My Page**

Logout Edit

## My Page

Jobs				System Status		
JOB ID	TYPE	STATE	RESULT DATA	CREATED	UPDATED	
Last Updated At: 14:19:22 (auto refresh at about every 60 seconds) <span style="float: right;">Auto Refresh <input checked="" type="checkbox"/></span>						
10 records per page						Search: <input type="text"/>
4839	Prediction	success	<a href="#">download</a>	2016-08-31 13:08:07	2016-08-31 13:22:59	
4838	Prediction	success	<a href="#">download</a>	2016-08-31 11:25:42	2016-08-31 11:45:43	
4837	Prediction	success	<a href="#">download</a>	2016-08-31 10:35:47	2016-08-31 10:57:02	
3931	Prediction	success	<a href="#">download</a>	2016-05-23 19:11:14	2016-05-23 19:12:48	
3930	Prediction	success	<a href="#">download</a>	2016-05-23 17:08:30	2016-05-23 17:19:10	
3929	Prediction	success	<a href="#">download</a>	2016-05-23 17:04:11	2016-05-23 17:04:51	
3864	Prediction	success	<a href="#">download</a>	2016-05-13 15:40:26	2016-05-13 15:41:08	
3851	Prediction	fail		2016-05-13 11:16:03	2016-05-13 11:16:07	
3850	Prediction	fail		2016-05-13 10:39:59	2016-05-13 10:40:30	
3822	Prediction	fail		2016-04-01 16:56:12	2016-04-01 16:56:21	

✓ Users can find the **list of jobs requested**, identify the status of jobs, and download result data of successful jobs.

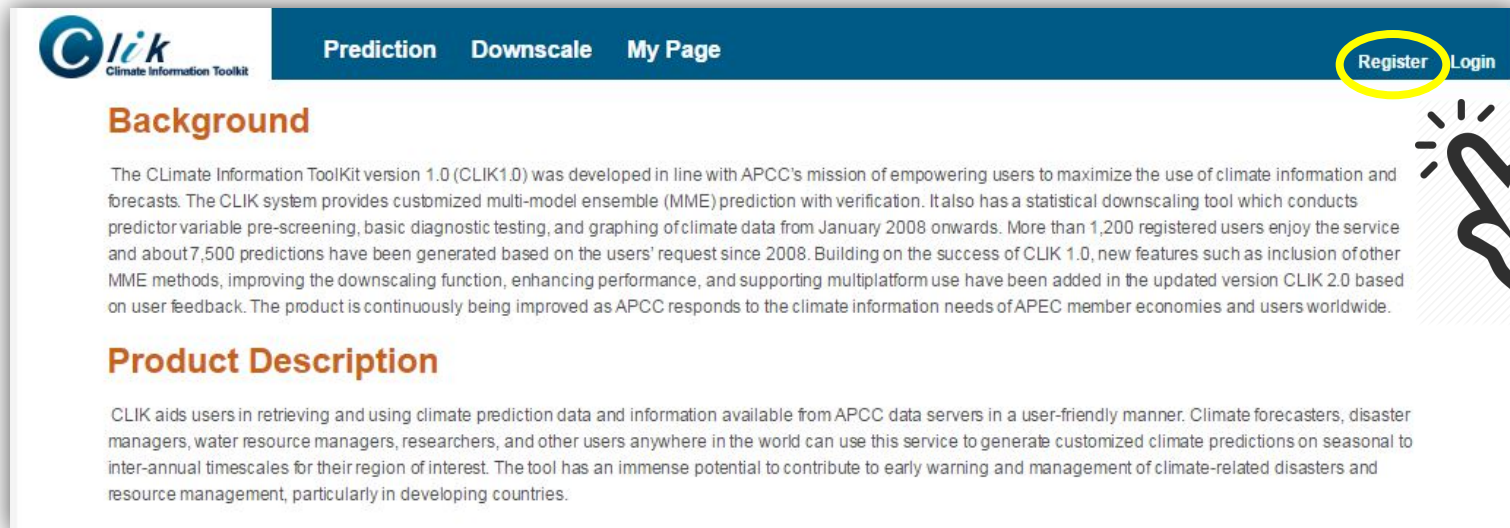
# CLIK

<http://clik.apcc21.org>



# CLIK - Getting Started

- **Creating your account**



The screenshot displays the CLIK website interface. At the top left is the CLIK logo, labeled "Climate Information Toolkit". The navigation bar includes "Prediction", "Downscale", and "My Page". The "Register" and "Login" links are circled in yellow. The main content area features a "Background" section with a paragraph of text and a "Product Description" section with another paragraph. A hand icon pointing to the "CLIK" text is overlaid on the right side of the screenshot.

**CLIK** Climate Information Toolkit

Prediction Downscale My Page Register Login

## Background

The CLimate Information ToolKit version 1.0 (CLIK1.0) was developed in line with APCC's mission of empowering users to maximize the use of climate information and forecasts. The CLIK system provides customized multi-model ensemble (MME) prediction with verification. It also has a statistical downscaling tool which conducts predictor variable pre-screening, basic diagnostic testing, and graphing of climate data from January 2008 onwards. More than 1,200 registered users enjoy the service and about 7,500 predictions have been generated based on the users' request since 2008. Building on the success of CLIK 1.0, new features such as inclusion of other MME methods, improving the downscaling function, enhancing performance, and supporting multiplatform use have been added in the updated version CLIK 2.0 based on user feedback. The product is continuously being improved as APCC responds to the climate information needs of APEC member economies and users worldwide.

## Product Description

CLIK aids users in retrieving and using climate prediction data and information available from APCC data servers in a user-friendly manner. Climate forecasters, disaster managers, water resource managers, researchers, and other users anywhere in the world can use this service to generate customized climate predictions on seasonal to inter-annual timescales for their region of interest. The tool has an immense potential to contribute to early warning and management of climate-related disasters and resource management, particularly in developing countries.

# CLIK - Getting Started

- **Creating your account**

The screenshot shows the APCC Single Sign On System registration page. It features the APCC logo (APEC Climate Center) and the title 'APCC Single Sign On System'. The page contains two sections for reading and agreeing to terms, followed by a registration form and an 'apply' button. Red annotations highlight key steps: '1' points to the first agreement, '2' to the second agreement, '3' to the registration form fields, and '4' to the 'apply' button. A hand icon with the word 'CLIK' points to the button.

**APCC**  
APEC CLIMATE CENTER

APCC Single Sign On System

Agreement of Getting Personal Information

Agreement to collecting personal information  
(APEC Climate Center)

Purposes for collecting personal information  
We collect and use the information that you provide for the following purposes:  
To provide customized information;  
To manage website usership, such as maintaining a membership database, member identification, and transmitting announcements; and  
To gauge and improve the effectiveness of the website and services

**1**  I read the contents and I Agree

Agreement of Registering for APCC Website / CLIK / ADSS

PRIVACY POLICY  
(APEC Climate Center)

Purposes for collecting and using personal information  
We collect and use information that you provide  
To provide customized information;  
To manage website usership, such as maintaining a membership database, member identification, and transmitting announcements; and  
To gauge and improve the effectiveness of the website and services  
To improve your interaction with the site or service

**2**  I read the contents and I Agree

- Check your name and E-mail for uniqueness property

<b>3</b>	First Name	<input type="text"/>
	Last Name	<input type="text"/>
	E-mail	<input type="text"/>

**4**

**CLIK**

# CLIK - Getting Started

- **Creating your account**

**APCC**  
APEC CLIMATE CENTER

## APCC Single Sign On System

You have already registered one of our site, but we integrate our site (APCC website / CLIK / ADSS) recently.  
Please check our new Single Sing On Service and Re-register our new Service. There are your old registered information below :

**Your Registered Information**

Site	E-mail	ID
APCC WebSite	Not Registered	
CLIK	Not Registered	
ADSS	Not Registered	

By checking the button, then you can re-register our sites NOW

APCC  CLIK  ADSS

**apply**



# CLIK - Getting Started

- **Creating your account**

✓ Please fill in the blanks!

Register info

*ID	<input type="text"/>	<input type="button" value="ID Check"/>
*First Name	<input type="text" value="Alex"/>	
*First Name	<input type="text" value="Lee"/>	
*E-mail	<input type="text" value="yyalexlee@gmail.com"/>	
*Country	<input type="text" value="select"/>	
Institution	<input type="text"/>	
Department	<input type="text"/>	
Position	<input type="text"/>	
Tag	<input type="text"/>	
*Password	<input type="text"/>	
*Re-Password	<input type="text"/>	
* Do you want to receive mail?	<input checked="" type="radio"/> YES <input type="radio"/> NO	
Register Site	APCC <input checked="" type="checkbox"/> CLIK <input checked="" type="checkbox"/> ADSS <input checked="" type="checkbox"/>	

Other info

CLIK

Time Zone	<input type="text"/>
purpose	<input type="text"/>
Sub email	<input checked="" type="radio"/> YES <input type="radio"/> NO

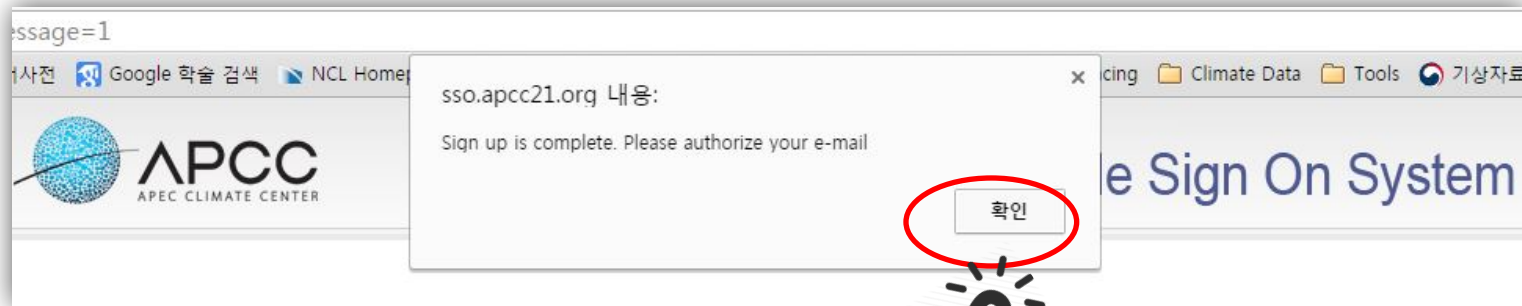
ADSS

purpose	<input type="text"/>
---------	----------------------



# CLIK - Getting Started

- **Creating your account**



# CLIK - Getting Started

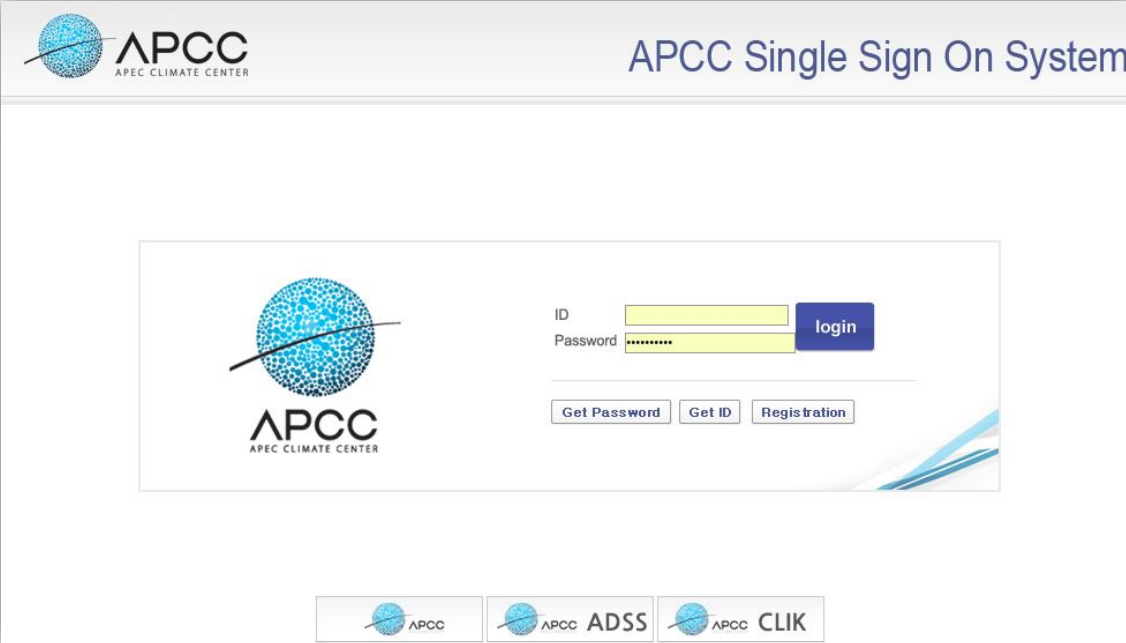
- **Creating your account**



✓ Please **activate your account** by clicking the LINK in the e-mail sent you.

# CLIK - Getting Started

- **Creating your account**



The screenshot shows the APCC Single Sign On System login page. At the top left is the APCC logo (APEC Climate Center). At the top right is the text "APCC Single Sign On System". The main content area features a large APCC logo on the left and a login form on the right. The login form has two input fields: "ID" and "Password". The "ID" field is empty, and the "Password" field contains several dots. To the right of the "Password" field is a blue "login" button. Below the login form are three buttons: "Get Password", "Get ID", and "Registration". At the bottom of the page, there are three small logos: APCC, APCC ADSS, and APCC CLIK.

- ✓ Please **log in** with your ID and password.
- ✓ Finally, you guys are **READY** to play with the CLIK system!



Thank you.