Reports of COMSATS Thematic Group on
“Climate Change and Environmental Protection”

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Contents

I. Broad Objectives of TG-CCEP

- **To achieve South-South cooperation by creating linkages among the organizations working in the "climate and environmental sciences" in the developing countries:**
  - **Joint Research Projects**
  - **Experts Exchange**
  - **Knowledge Sharing**
  - **Capacity Building**
    - **Short-term (Training Course, Visiting Scientist Program)**
    - **Long-term (Post graduate Studies; PhD and Master Programs)**
  - **Sharing of Facilities and Resources**

II. Activities of TG-CCEP (2011-2012)

1. Capacity Building

- **2011 CTWF-COMSATS International Training Workshop**
- **2011 international workshop on "Climate Change and Sustainable Management of Water Resources in Asia-Pacific Region" by CIIT**

2. Joint Research Project

- Chinese MOST international collaboration project
- China-Pakistan bilateral project on "Establishment of Earth Science Center in Islamabad"

3. Scientific Interaction with HAII, Thailand

- **Princess Visiting**
- **Joint Research**
- **Capacity Building - Visiting Scholar**

4. Creation of Sub-group on "Green Technology" and the organization of its first meeting at CIIT

1. Capacity Building - CTWF 2011

CTWF-COMSATS Joint Training Workshop on
"Regional Climate Change and Its Impact Assessment"
Sep. 26-29, 2011, Beijing, China

Session:

- ✓ Facts of regional climate changes and the detection techniques
- ✓ Impact of climate change on regional water resources
- ✓ Impact of climate change on agriculture and ecosystem
- ✓ Regional Climate Model and its applications for climate change studies

Including :

5 invited Lectures

23 oral presentations from Participants

1. Capacity Building - CTWF 2011

60 Participants from 14 countries

Including **26** international representatives from Pakistan(8), Thailand(4), Egypt(2), Jordan(2), Mongolia(2), Iran(1), Ghana(1), Sri Lanka(1), Vietnam(1), Malaysia(1), Uganda(1), Nepal(1), and Bangladesh(1)

Domestic Participants: **34**

Opening Ceremony

Oral presentation

Lab Tour - IAP & ICCES





Meeting Outcomes from CTWF2011

- **Further understanding of the facts of past climate change over Asian and African regions**
- **Fully realizing the significant impact of climate change on different sectors, such as extreme climate events (flood/drought) , water resources, ecosystem and crop yield, etc. And developing countries are more vulnerable to the climate change**
- **Agreeing that the international collaboration is needed for coping with the future climate change**

1. *Capacity Building - Training Workshop by CIIT/COMSATS*

International Workshop on "Climate Change and Sustainable Management of Water Resources in Asia-Pacific Region"

- **Time:** **November 22-24, 2011**
- **Venue:** **Islamabad, Pakistan**
- **Organized by:** **COMSATS and CIIT (Islamabad Campus)**
- **Participants:** **Scientists /researchers from 3 member institutions of the ITRG participated in the workshop.**

- The event comprised of 6 invited lectures and 26 presentations.
- About sixty local and foreign participants benefited from the training on these topics from 32 subject-experts belonging to 8 countries, China, Pakistan, Malaysia, Sri Lanka, Iran, Sudan, Germany and Bangladesh

2. Joint Research Project

Basics:

Project title:

"Characteristics and mechanism of the extreme climate events under the climate change background"

- **Domestic participants:**
  - International Center for Climate and Environment Sciences (ICCES)
  - National Meteorological Information Center, China
  - Research Institution of Meteorological Science, Yunnan Province

- **International partnership**
  - COMSATS
  - GCISC/Pakistan; HiCCDRC/Nepal, HAII/Thailand
  - and more..

2. Joint Research Project

Current Status:

- **Project Progress Timeline:**

➢ November 2010	Thematic group discussion
➢ July 2011	First research proposal drafted by ICCES and submitted to MOST,CHINA, with COMSATS' help in identifying potential research collaborators
➢ September 2011	Dr. Tajammul Hussain visited MOST and met with Mr. Cai Zhipng, to show the support from COMSATS to this project
➢ November 2011	Submission of the modified version of proposal, with project been preliminarily approved by MOST
➢ January 2012	Project been formally approved by MOST
➢ April 2012	Budget been approved by MOST, with 3 years project initiated from May, 2012

- **Total budget and duration**
  - ➢ 1 million CNY
  - ➢ 1 May, 2012 – 30 April, 2014

- **Kick-off Meeting will be organized in 2012**

3. Scientific Interaction with HAII, Thailand

- **Princess Maha Chakri Sirindhorn Visited IAP on April 5th, 2012**

Meeting

Visit to ICCES

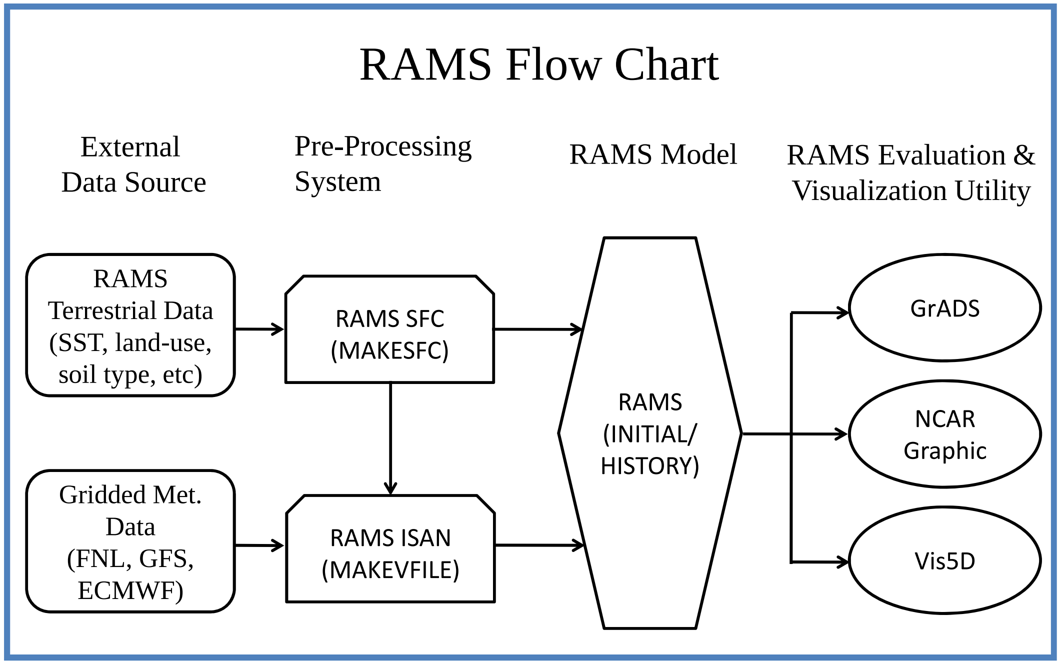
Group Photo

Visit to Information Science Center

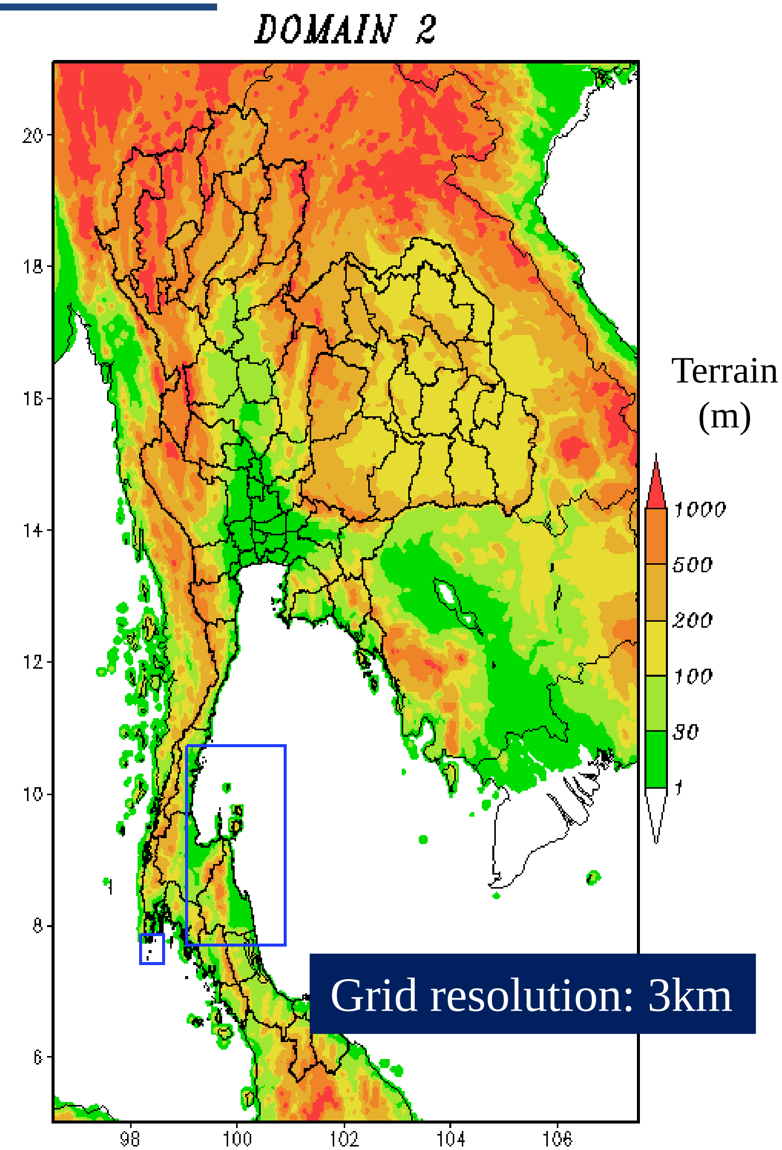
3. Scientific Interaction with HAII, Thailand

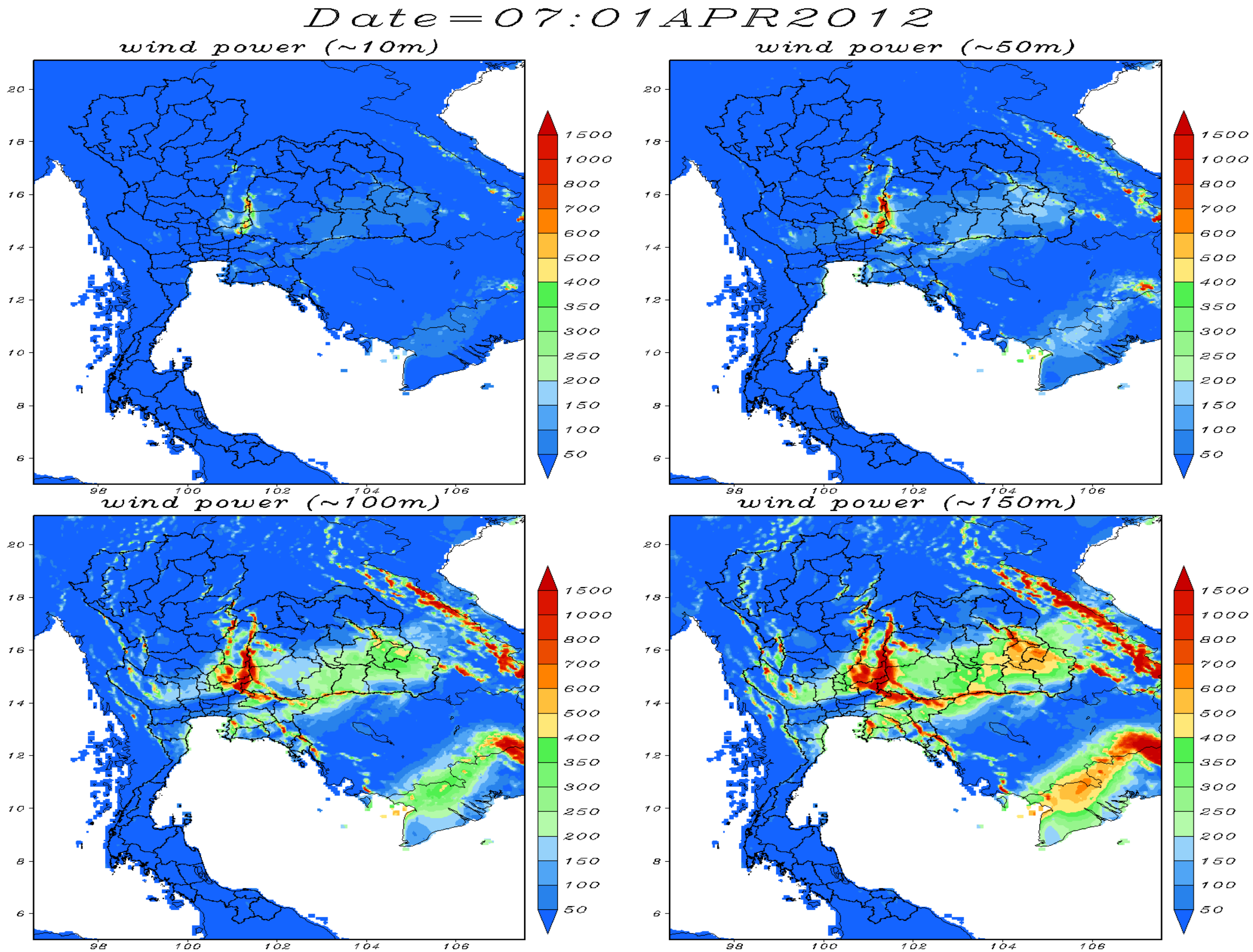
- **Joint Research**
  - **Application of WRF/ RAMS for wind potential assessment**
  - **Seasonal Climate prediction**

Application of the Regional Atmospheric Modeling System (RAMS) in Thailand



A platform [routinely operated at HAII] for weather forecast and wind potential assessment over Thailand



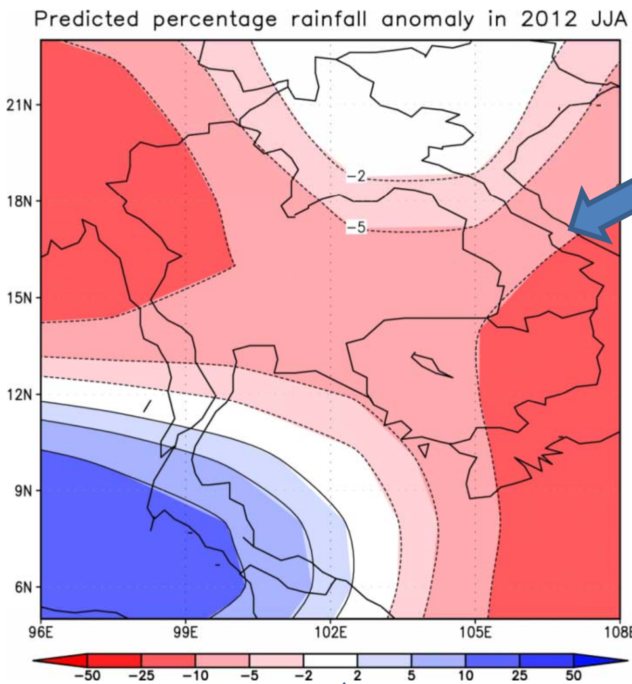


Wind potential assessment (EGAT: The Electricity Generating Authority of Thailand)

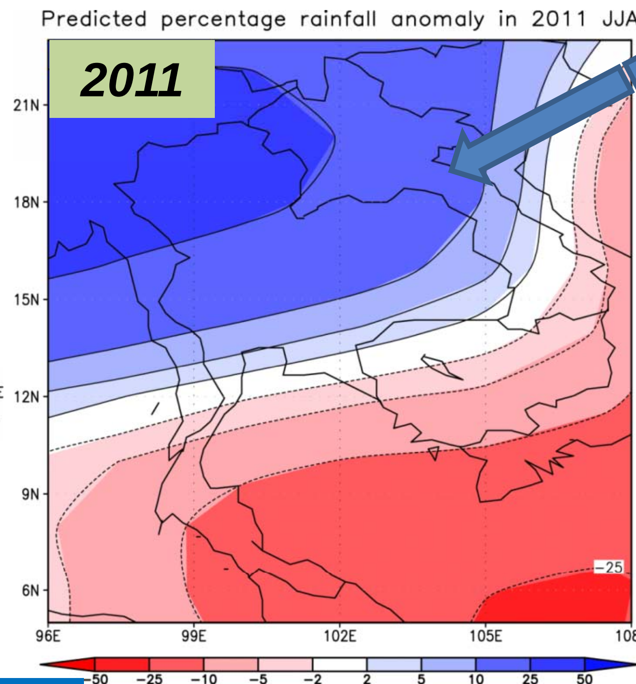
Real-time Prediction of summer rainfall anomalies over Thailand

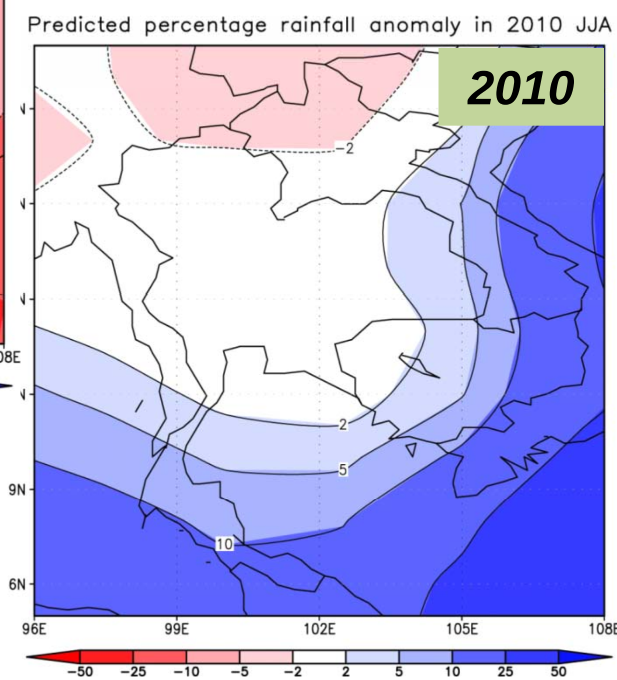
(Currently conducted at IAP/CAS, <u>without model bias correction system</u>)

For the summer of 2012, model prediction shows that the rainfall will be less than normal over most part of Thailand



For the summer of 2011, model prediction shows that the rainfall was more than normal over most part of Thailand





Predicted June-July-August mean rainfall anomalies over Thailand by IAP DCP in the end of March, 2012

Implementation of IAP Seasonal Prediction System at Thailand

- Predict the climate anomalies (Rainfall, Temperature, wind, etc) several months (1-12 months) in advance
- Growing demand for reliable seasonal forecasts

- **Verification** is needed by using station observation data over Thailand
- **Localization**
  - Install at HAII super-computing system with different Computing environment
  - Selection of physical processes parameterization
- **Bias correction system over Thailand**

3. Scientific Interaction with HAII, Thailand

● Capacity Building - Visiting Scholar

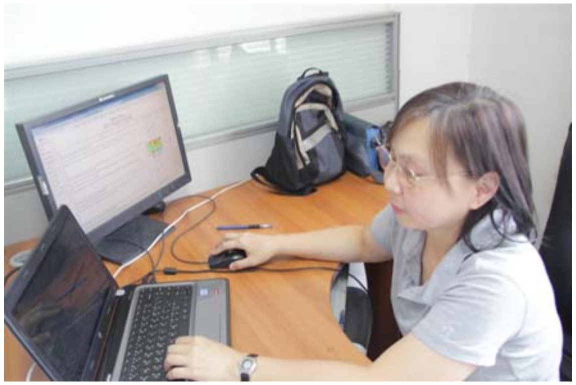
2 staffs from HAII have been visiting IAP for 2 and 4 months respectively to work on the following two topics:

Researchers from HAII

- Ms. Kanoksri Sarinnapakorn (March15-July14, 2011)
- Ms. Aisawan Chankarn (March15-May14, 2011)

Topics for collaboration:

- ***Seasonal climate prediction***
- ***Extreme Climate Events and its possible mechanisms (Part of the joint project from MOST China)***



4. Creation of Sub-Group

Sub-group on "green technology"

- One of the decisions of the foundation meeting of COMSATS' ITRG on 'Climate Change and Environmental Protection' (November 20, 2010, Beijing, China) was the initiation of a separate joint research project in the area of Green Technology under the leadership of COMSATS Institute of Information Technology (CIIT), Abbottabad, Pakistan.

- To follow up the the afore-mentioned decision, the Sub-group on 'Green Technology' (led by CIIT-Abbottabad Campus) was established under COMSATS' ITRG on 'Climate Change and Environmental Protection'.

- The first meeting of the Sub-group was held on **July 26, 2011**, in Abbottabad, Pakistan.

III. Plan for Group Activities of TG-CCEP during 2012-2013

1. **2012 CTWF workshop**
2. **Implementation of Joint research project**
3. **Capacity Building**

1、2012 CTWF workshop

11th CAS-TWAS-WMO Forum on Climate Science

Terrestrial Ecosystems in a Changing World

August 27-30, 2012, Beijing, China

Sponsors:

Chinese Academy of Sciences (CAS)

The Academy of Sciences for the Developing World (TWAS)

World Meteorological Organization (WMO)

1、Theme for CTWF2012

- **<u>Ecosystem structure, functioning, and biodiversity</u>**
  Includes the observation and modeling of the patterns of species distribution and migration, features of ecosystem functioning and biodiversity, ecosystem conservation and adaptation.
- **<u>Biophysical and biogeochemical processes in terrestrial ecosystem</u>**
  Includes the observation and modeling of water, carbon, and nitrogen cycles between vegetation, soil, and atmosphere.

1、Support from COMSATS

- **Helps to recommend:**
  - ➢ **Experts from COMSATS member countries to address the observation facts of change in Ecosystem, and the adaptation policy**
  - ➢ **Young research scientists from COMSATS member countries to attend the meeting for training**

- **Participants from COMSATS member countries are welcome, and ICCES will cover the local expenses for limited number of participants**

Contact Information for CTWF2012

Workshop Website:

http://ctwf.icces.ac.cn/

Contact Information:

CTWF Secretariat

International Center for Climate and Environment Sciences
Institute of Atmospheric Physics
Chinese Academy of Sciences
No.40, Huayanli, Chaoyang District, P.O.Box9804,
Beijing 100029, China

E-mail: ctwf@mail.iap.ac.cn
Tel: +86 10 82995124, Fax: +86 10 82995123

2、Implementation of Approved Joint Project

Project Goals:

- To investigate the characteristics of extreme weather and climate events (including spatial and spatial distribution, amplitude, frequency etc.) using the long-term meteorological observation datasets;

- To explore the possible linkage of extreme climate events between different regions in Asia, and reveal the relationship between South and East Asia monsoon

- To investigate the possible mechanism responsible for the extreme climate events through numerical simulation by climate system models, and further to explore the predictability of extreme events.

Implementation of Joint project

- **Identify collaborator (with help from COMSATS)**
  - Providing Meteorological datasets
  - Having experience in atmospheric science
- **Kick off meeting**
- **Joint research**
  - Short-term visiting
  - Training activity
  - Annual meeting

Collaborators

Thematic Research Group on “Climate Change and Environmental Protection”

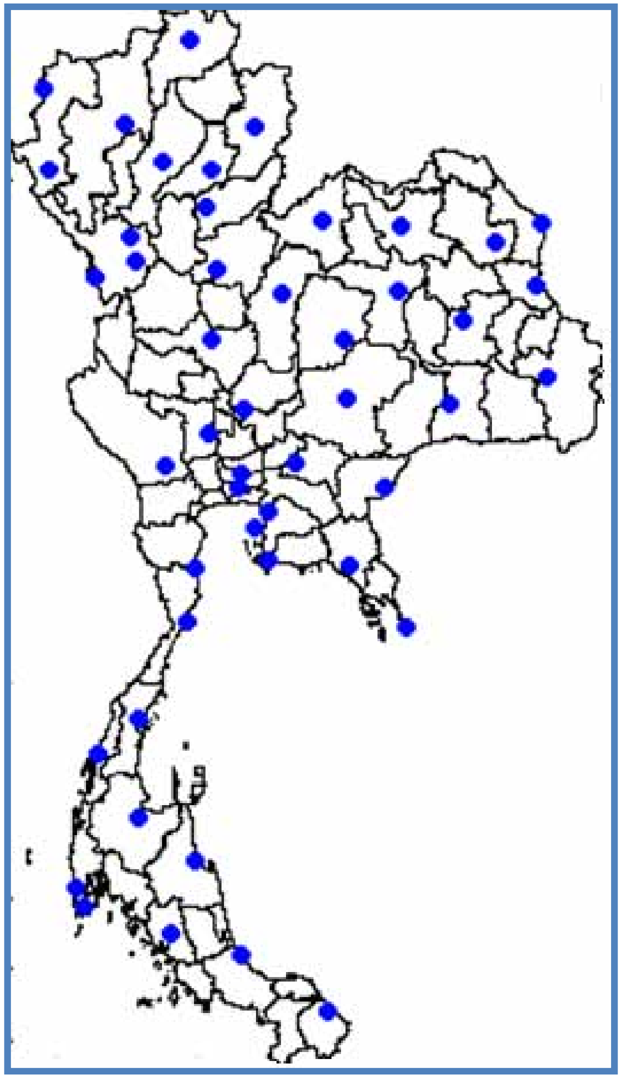
"Characteristics and Mechanism of the Extreme Climate Events under the Climate Change Background"

1. **GCISC/Pakistan**
2. **HiCCDRC/Kathmandu University/Nepal**
3. Sudan Meteorological Authority
4. Zimbabwe Meteorological Service
5. IROST/Iran
6. SPARCO/Pakistan
7. Pakistan Meteorological Department

Other Collaborators:

1. **HAII/Thailand**
2. Jordan, Viet Nam, Ghana, Jamaica, Uganda, Mongolia,
3. And more….

Example: Collaborator from HAII/Thailand



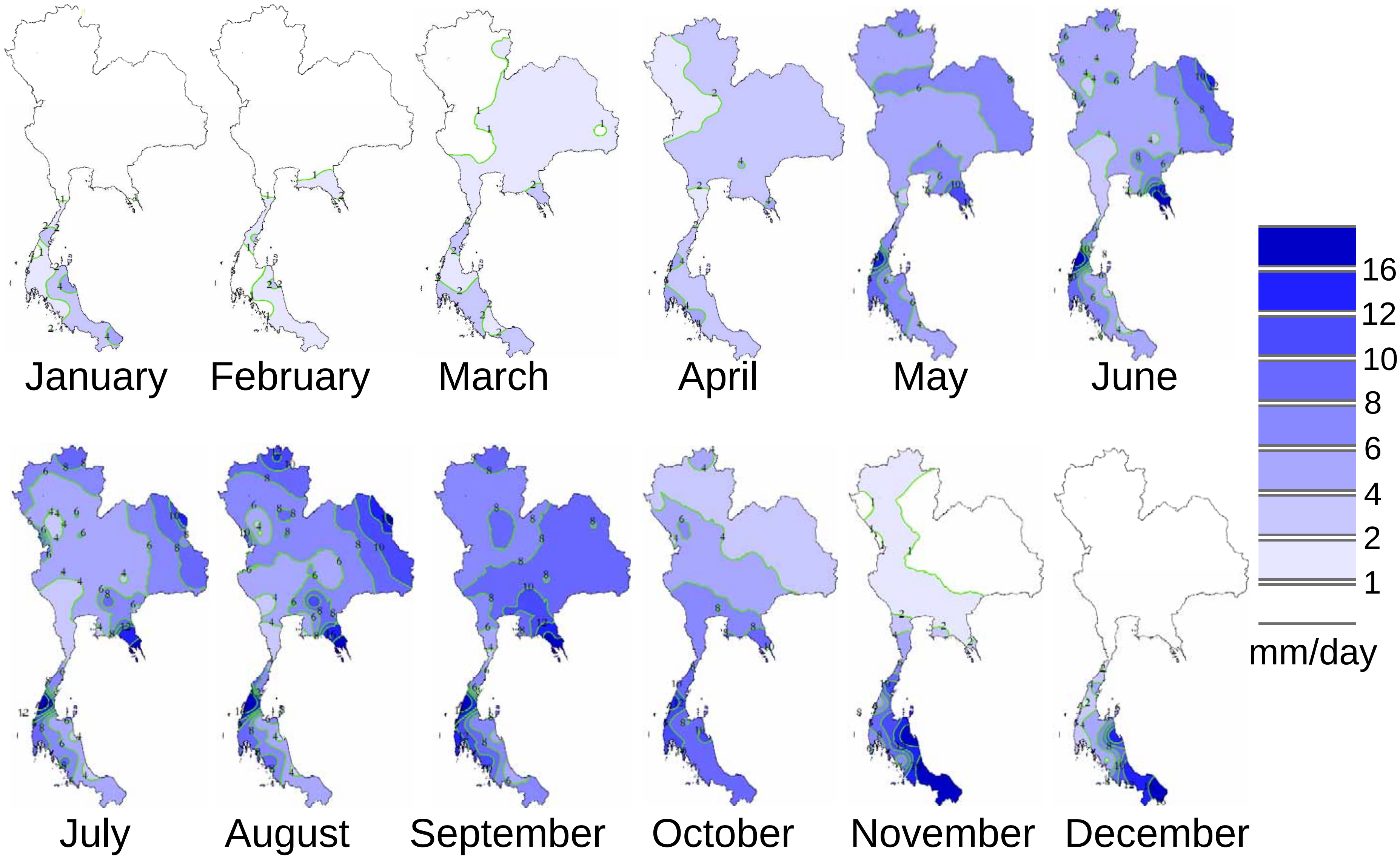
TMD

Precipitation Data

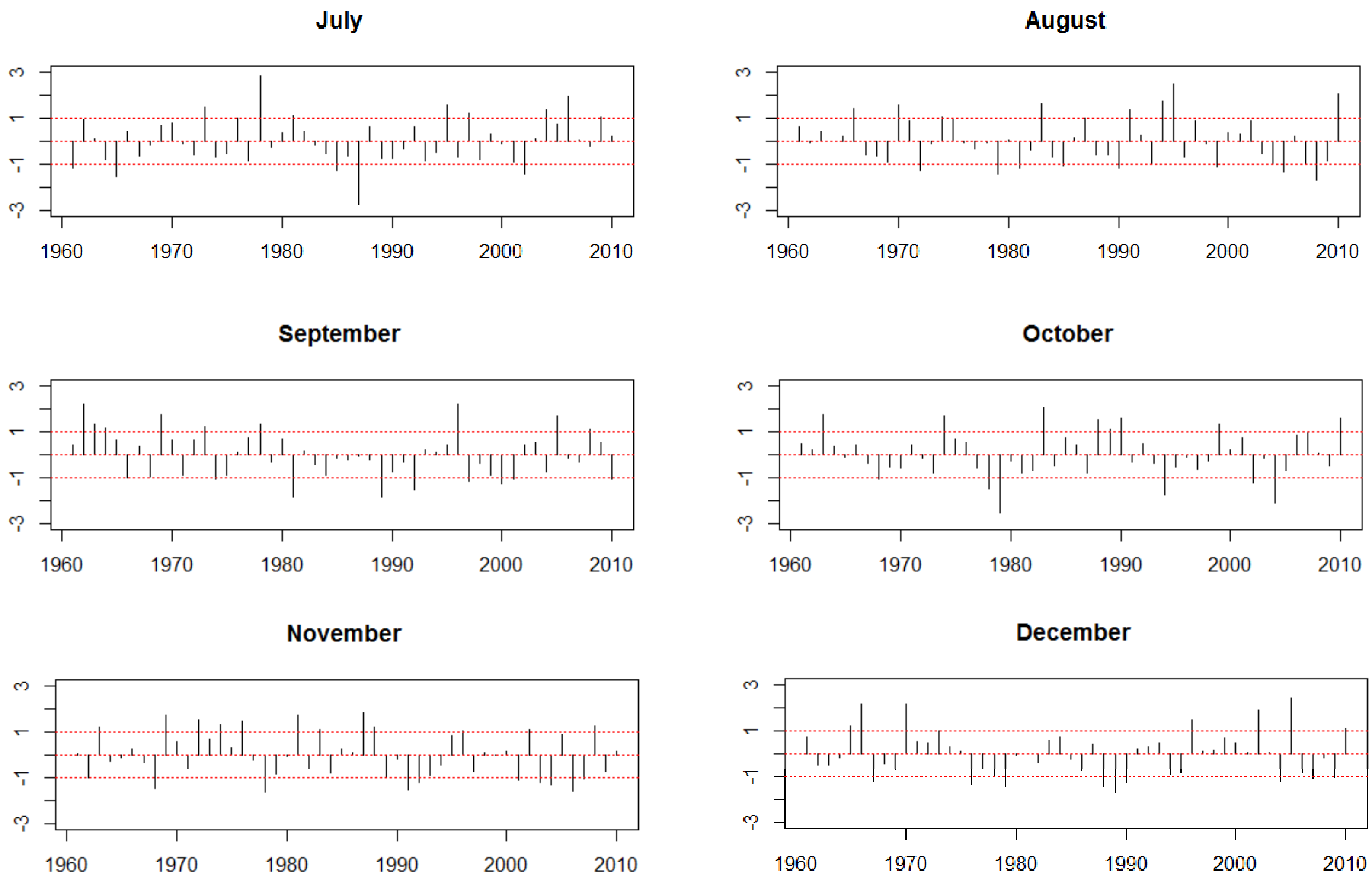
1961-2010

(48 stations)

Monthly precipitation climatology during 1961-2010 (48 stations)



Standardized Anomaly Precipitation 1961-2010



Kick-off Meeting

- **Venue: Beijing, China**
- **Hosts: ICCES, COMSATS**
- **Time: TBD (2012) ?**

- **Potential Participants:**

  Experts on climate sciences from TG-CCEP/COMSATS

- **Goals**
  - **Duty assignment: meteorological data collection, data analysis, etc**
  - **Implementation plan**

3、Capacity Building

- **Joint training workshop**
  - **Organize a training workshop on climate extremes in 2013 (Thailand?)**

    Jointly supports from COMSATS-UNESCO project?
- **Visiting program**
  - **Short-term visiting scholarship to ICCES**
  - **Master/PhD program by CAS**
  - **Postdoc fellowship by CAS-TWAS joint program**

COMMENTS & QUESTIONS?

Thank You !