

8th AWC/ICG meeting in Seoul

**AWCI Drought Working Group
Capacity Building Activities
2011-2012**

Co-chairs

Ichiro Kaihotsu (Hiroshima University)

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Purposes of AWCI Drought Working Group

- P1. To build up a drought monitoring and researching network of member Asian countries
- P2. To share and improve the drought monitoring data/capability in various Asian countries
- P3. To make a collaboration with the demonstration projects studying climate change
- P4. To help developing the early warning system of drought hazard in member countries.

Present situation

P1: Making efforts to build up the monitoring and network and a data bank from 2006 to 2009 (soil moisture, soil physical parameters, etc)

P2: Providing the routine soil moisture data (Filling the data gaps)

P3: Planning to move forward with practical approach

P4: Making efforts to show the early warning system of drought

What were/are we doing in 2010 and 2011?

- Building up drought monitoring/ research network and a data bank for the collected data from 2006 to 2009 of member Asian countries for AWCI
- Holding “Asia Drought WS” in Tokyo in October, 2010 and publishing a data book of the WS of APN
- Providing and sharing the soil moisture and other meteorological data of the ground-based and satellite monitoring
- Making a validation of AMSR-E soil moisture measurement algorithm using the in situ soil moisture data of Data bank

What were/are we doing in 2010 and 2011?

- Analyzing the obtained soil moisture and other data from a view point of drought study in cc
- Reviewing demonstration projects related to climate change and water quality to step in their adaptation activities
- Numerical model studies
- Studying the definitions of drought and supporting in situ drought monitoring

Monitoring and research network

Drought monitoring network

- Ongoing monitoring sites (in cooperation with CEOP)
Mongolia, China, Vietnam, Indonesia, Bangladesh, Pakistan, Tsukuba (Japan), and Thailand
- Future potential sites (Need more investigation, discussion, and money): Hanoi (Viet Nam), Setouchi (Japan), West/East-Thailand, Central-Bangladesh
- Drought research network
- Plan for building up “Network of Asian Drought Research” with related researchers and/or organizations

Drought Database

Soil Moisture (SM) and Soil Temperature (ST) data

- **Mongolia:** CEOP reference sites (SM and ST at 4 depths of many station) in Mongolia since 2001, NAMHEM SM data (every 5 cm, surface to 1m depth) of 30 stations.
- **China:** Shanxi Province, 108 stations, Met and ST data 6hour, SM per 10 days, 3 layers (2006-2009)
- **Pakistan:** Soil moisture data for 4 stations (ten day SM data at every 10cm from surface to 1m depth) 2002- 2006
- **Bangladesh:** 9 soil moisture stations (weekly SM data at the 5 depths in 2007)

Drought Database

- **Vietnam:** Binh Thuan Province: (100° N – 110° N, 107° E-108° E) 3 Surface Stations (Phan Thiet, Phú Quý, La Gi); P, T, R, RH, 4 times/day ; One Soil Temp station (Phan Thiet), 4 times/day ; no soil moisture (daily in 2008 and 2009)

Meteorological data

- CEOP reference site data

Satellite data in Mongolia, Thailand, China, Viet Nam, and Bangladesh

- AMSR-E SM, MODIS data/CEOP reference site from 2006-09

You can get and use these data for research/operation on request except the CEOP data.

What should we do in 2011?

- Building drought monitoring and researching network of member Asian countries for AWCI
- Providing and sharing SM and Met data of ground-based and satellite monitoring
- Analyzing the obtained SM and other data for CC/drought study
- Reviewing demonstration projects related to CC and water quality to step into the adaptation activities
- An international workshop and/or a training course
- Database
- An activity report of AWCI/GEOSS drought working group activities

APN CAPaBLE Project for FY 2011

Title of project:

Drought monitoring system development by integrating in-situ data, satellite data and numerical model output

Proponent's Name and Title:

Ichiro Kaihotsu Dr./Professor
(Hiroshima University)

Project Award: US\$ 40,000 (Year 2: FY 2011)

Objectives

- To share and improve the drought monitoring capability in various Asian countries such as Bangladesh, China, Nepal, Mongolia, Philippines, Pakistan, Thailand, and Vietnam.
- To set up a drought monitoring and research network in related Asian countries.
- To help developing the early warning system of drought hazard in related countries.

Expected Outcomes

- A workshop on drought monitoring, assessment and studying in monsoon Asia
- A training course for young scientists to monitor water cycle elements; to integrate data; and to use NWP products in operational drought forecasting and research
- Establishment of Database
- Early warning system of Drought
- An activity report

New Proposal in Process

- Title:
“Impact of Climate Change on Glacier Melting and Water Cycle Variability in Asian River Basins”
- Proponent: Dr. Ghulam Rasul
- Duration 2 years
- Cost \$150,000
- Passed the first stage
- Submission Deadline of detailed Proposal is 14 October

Objectives

1. Development of Climate projections on the finest possible temporal and spatial resolution (<10km at 5 year interval) for glacierized mountains of Asia.
2. Application of Water and Energy Budget Distributed Hydrol. Model with snow and glaciers (WEB-DHM-S) component.
3. Assessment of Glacier melt and Hydrological regime shift in the light of Climate Change scenarios.
4. Capacity building of professional in hydrological modelling
5. Assessment of Water Cycle variability and development of drought early warning system.

Expected Outcomes

- Future Projections of temperature and precipitation using GCM20 output for participating countries;
- Flood/Drought Climatology and climate variability as well as identification of drought vulnerable areas;
- Drought Early Warning mechanism;
- Capacity building of professionals and institutions; and Project report at the conclusion, publications.

**A Training course of APN CAPaBLE
PROJECT of CBA2011-02CMY-Kaihotsu
for Drought studies in Tokyo or Hiroshima
in January, 2012**

Thank You

For

**Your Kind
Attention!**