AWCI Training Course on Improved Bias Correction and Downscaling Techniques for Climate Change Assessment including Drought Indices

Training Course Design

The University of Tokyo
18 – 20 June 2013

Petra Koudelova

Objectives of the Training Course

"Impact of Climate Change on Glacier Melting and Water Cycle Variability in Asian River Basins"

- APN CAPaBLE Project
- Dr. Ghulam Rasul, Pakistan Meteorological Department (PMD)

1. **Capacity Building**

2. **Preliminary Climate Change Impact Analysis in participating basins**

Objectives of the Training Course

- **Capacity Building**
  - Improved methods and tools necessary for processing climate model projections of future meteorological variables to be usable for assessment of climate change impacts on water resources
  - Application of the processed GCM output as forcing data to run WEB-DHM in their AWCI basin
  - Generation of drought indices from the WEB-DHM output for historical and future periods and their analysis.

- **Preliminary Climate Change Impact Analysis in participating basins**
  - The results obtained during the training course are expected to be usable for regional analysis of climate change impacts on water resources, in particular droughts.

Three Parts of the Course

1. GCM Selection, Rainfall Bias Correction, and Downscaling -> Rainfall data preparation for a hydrological model, visual analysis of the corrected data

2. Running the hydrological model (WEB-DHM) -> Output for Drought Indices

3. Generating Drought Indices from the WEB-DHM Output and Analysis

Timeline

DAY 1
Tuesday 18 June

→

Model selection,
Bias Correction,
Downscaling

DAY 2
Wednesday 19 June

→

WEB-DHM,

Drought Indices

DAY 3
Thursday 20 June

→

Drought Indices,

Wrapping up

Structure

- **Expert Presentations and Lectures**

- **Hands-on Exercises**

- Demonstration of In-situ data quality assurance system

- Certificate Ceremony

- Visit to the DIAS core system

Data to be used

- Participants from countries, for which WEB-DHM has been developed earlier and long-term precipitation data submitted will use data run WEB-DHM of these basins

- Others will use Japan Tone river basin data

The University of Tokyo Team

- Prof. Toshio Koike
- Dr. Mohamed Rasmy
- Dr. Patricia Ann Jaranilla Sanchez
- Dr. Asif Mumtaz Bhatti
- Dr. Maheswor Shrestha
- Ms. Cho Thanda Nyunt
- Mr. Katsunori Tamagawa
- Dr. Petra Koudelova (myself)

- **Guest Speakers**

Participant Survey: total **22** participants

- *Research Focus:*
  - Climate Change/Meteorology: **9** participants
  - Hydrology/Water Resources: **13** participants (**2** Droughts)
- *Expectations – to learn:*
  - Bias correction and downscaling
  - Drought indices
  - WEB-DHM… *Apologies, the course is not designed to teach WEB-DHM*
- *Involvement in AWCI:* **8** participants
- *Involvement in any CCA study:* **15** participants
- *Experience with the methods:*
  - Bias Correction, Downscaling: **8** participants
  - Drought: **4** participants
  - No experience: **12** participants
- *Familiarity with the basin:* **12** participants

Participant Survey: total **22** participants

- *Windows:*   **4.72**
- *Excel:*   **4.72**
- *Text Editor:*   **3.91**
- *GIS:*   **3.55**
- *Linux:*   **3.0**
- *Fortran:*   **3.0**

1= never heard of it;

2=not familiar but heard or read of its existence

3=familiar and have seen someone else use it at least once before

4= very familiar and I have used it more than once before

5=proficient, I use it almost every day

Let's Begin…