



## **International Workshop**

**Development of near-term climate scenarios (2020-2035) for vulnerable watersheds to climatic variability at the interannual, decadal and climate change time scales**

**La Serena, 3-8 August 2014**

**PRELIMINARY AGENDA (11 June 2014)**

**[Access](#) the MWAR-LAC Activity webpage for last-minute updates**



**General Objective:** The objective of this activity is to develop probabilistic scenarios for near-term climatic conditions for vulnerable pilot watersheds in Latin America, based on a historical analysis of climatic variability, combined with an assessment of current and projected sensitivity to climate change. Linked to decision support models, such as WEAP, these near-term climatic scenarios will inform about possible future vulnerabilities in the water supply in these water-stressed environments.

**Specific Objectives:**

Specifically, the workshop contributes to:

- a) capacity building of early-career professionals on the application of Near Term Climate Change Scenario Analysis for applications in hydrology and drought vulnerability analysis;
- b) training on the available open source software options (R-scripts and Python);
- c) increase the number of specialists in the region that are trained in the methodology;
- d) generate a set of preliminary pilot basin case studies in the region that applied the methodology; and
- e) determine the vulnerability of inter-annual and decadal variability, as well as climate change impact on water resources in pilot basins in the region.

**Requirements:** The participants to this workshop are required to comply with the following requirements in order to be eligible to participate in the workshop:

- Basic knowledge of hydrology, hydrological frequency analysis and statistics.
- Experience with managing programs for data analysis that use the command line (R, Matlab, Python or equivalent).
- Have access to a national dataset of historical daily precipitation records. As a minimum, it is required to count with data from at least 75% of the available measuring stations existing in the country, managed by national climatic or hydrological institutes.
- Have the datasets formatted in the right format required for analysis during the workshop.

**Expected results:**

- Tools provided to pilot countries to identify climatic variability on different timescales to be coupled with hydrological models
- Participants gained experience through one or more case studies on the application of the software provided to develop climate scenarios at near-term timescales (2020-2035)
- The participants count with a first version of these scenarios for one pilot basin in their country
- A work plan defined for follow-up action and coupling of the climate scenarios with hydrological models



### **Invited Participants:**

Representatives of Peru, Colombia and Bolivia to be identified through the IHP National Committees, as well as partners of the MWAR-LAC project.

### **Programme of the Workshop:**

#### **Monday 4 August: Introduction to the methodology**

Time	Activity	Responsible
08:45-09:15	Inscription of participants	Organizers
09:15-09:45	Opening session, UNESCO-CAZALAC	
09:45-10:30	Presentation MWAR-LAC	Koen Verbist
10:30-10:45	Coffee	
10:45-11:30	Presentation of the participants	
11:30-11:45	Distribution of teaching materials	
11:45-13:00	Introduction to the framework for the simulation of regional decadal variability for agricultural and other applications <sup>1</sup>	Koen Verbist/ Gabriel Rodriguez
13:00-14:30	Lunch	
14:30-16:00	Overview of the SimGen Package <sup>2</sup>	Gabriel Rodriguez/ Koen Verbist
16:00-16:30	Coffee	
16:30-18:00	Installation of Virtual Machine, Python, R	Gabriel Rodriguez

#### **Tuesday 5 August: Training on the use of the methodology using a case study**

Time	Activity	Responsible
09:00-10:30	A case study of SimGen: Demonstration of application in Argentina and Uruguay <sup>3</sup>	Gabriel Rodriguez
10:30-10:45	Coffee	
10:45-13:00	Guided practical exercise: Application of SimGen to station data in Argentina	Gabriel Rodriguez
13:00-14:30	Lunch	
14:30-16:00	Guided practical exercise: Application of SimGen to station data in Argentina	Gabriel Rodriguez
16:00-16:30	Coffee	
16:30-18:00	Guided practical exercise: Application of SimGen to station data in Argentina	Gabriel Rodriguez

**Wednesday 6 August: Individual work of the participants on their national data bases and with supervision of instructors**

Time	Activity	Responsible
09:00-10:30	Application of Simgen to pilot case studies in LAC. Step 1: Station Data input and Decomposition	Gabriel Rodriguez/ Koen Verbist
10:30-10:45	Café	
10:45-13:00	Step 2: Decomposing Regional Annual-to-Decadal Variability	Gabriel Rodriguez/ Koen Verbist
13:00-14:30	Lunch	
14:30.-16:00	Step 3: Decomposing Subannual Variations	Gabriel Rodriguez/ Koen Verbist
16:00-16:30	Café	
16:30-18:00	Step 3: Decomposing Subannual Variations	Gabriel Rodriguez/ Koen Verbist

**Thursday 7 August: Individual work of the participants on their national data bases and with supervision of instructors**

Time	Activity	Responsible
09:00-10:30	Step 4: Downscaling of the regional climate change trend	Gabriel Rodriguez/ Koen Verbist
10:30-10:45	Coffee	
10:45-13:00	Step 5 : Simulation and Model Checking	Gabriel Rodriguez/ Koen Verbist
13:00-14:30	Lunch	
14:30.-16:00	Comparison of results	
16:00-16:30	Coffee	
16:30-17:30	Conclusions and Roadmap for further activities	
17:30-18:00	Closing Remarks	UNESCO-CAZALAC

**Friday 8 August: Return flights of Participants**



## Reference Material

- (1) Greene, A.M., M. Hellmuth, and J.W. Hansen. 2012a. A framework for the simulation of regional decadal variability for agricultural and other applications. CCAFS Report. International Research Institute for Climate and Society.
- (2) Greene, A.M. 2012. The simgen software package: User guide and notes. International Research Institute for Climate and Society.
- (3) Greene, A.M., M. Hellmuth, and T. Lumsden. 2012b. Stochastic decadal climate simulations for the Berg and Breede Water Management Areas, Western Cape province, South Africa. Water Resour Res 48:W06504



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