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Open Swiss Downscaling Initiative (openSWIDI)

Introduction

Impact modeling studies require downscaled climate model data in order to link the climate models to the impact modeling systems. The statistical downscaling methods have to bridge the spatio-temporal gap between either global circulation models (GCMs) or dynamically downscaled GCMs by means of a regional climate models (RCMs) and the impact models. A variety of statistical downscaling methods have been developed (see e.g. Maraun et al., 2011). A common classification scheme groups the methods into perfect prognosis, model output statistics and weather generator approaches. Most often, statistical downscaling methods are an intermediate modeling chain step followed by an impact model. Thus, the downscaling methods should be implemented in a way that allows a sound evaluation of the impacts. It is therefore essential that the validation of the whole impact modeling system is done in an integrative way, i.e. the downscaling methods are validated in conjunction with the impact models (Fowler and Wilby, 2007). Recently, the CH2011 climate scenarios have been published. These scenarios provide an easy access for impact modellers but they all require the use of the delta change approach which does not account for changes in the spatio-temporal variability. The project openSWIDI aims to apply further downscaling methods that account for changes in the spatio-temporal variability and to validate them in an integrative manner. The project is designed in a participatory way. Thus, whoever wants to provide downscaled climate scenarios to the project can do so. The following sections present the aims of the project in more detail, explain the project structure including the participatory approach and introduce the current participants. Please note that the access to the module tabs is restricted to project partners.

In case you are interested in more information or you want to join the project, feel free to contact us.

Aim

openSWIDI aims

- to produce new statistically downscaled climate scenarios that can easily be applied to impact models,
- to perform an integral validation including the impact target variables,
- to assess the uncertainty introduced by multiple statistical downscaling and impact models, and
- to follow a participatory approach.

These aims are highly relevant with respect to providing the impact modeling community with a variety of readily applicable downscaled climate scenarios, testing the performance of the downscaling methods and going towards a more comprehensive assessment of the uncertainty propagation along the impact modeling chain. The work requires the knowledge about the whole impact modeling chain. Therefore, the participatory approach is necessary in order to bundle existing knowledge of various research groups.

Project structure

Fig. 1 depicts the project structure. Module 1 defines all the necessary procedures in order to make the scenarios as comparable as possible. This includes the definition of a common set of variables, spatial reference and temporal reference as well as the definition of a data format. Based on these preliminaries, the different project partner can work on the downscaling method more or less independently (Modules 2.1, Modules 2.2, Modules 2.x). The project structure is such that new partners can join openSWIDI also after the project has started. At the end of each Module 2.x, the scenario data have to be provided to the common database in order that the validation Module 3 can make use of the data.

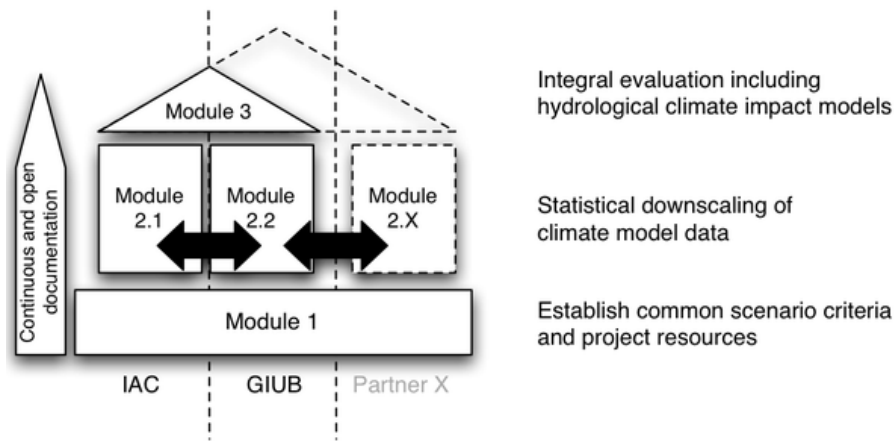


Fig. 1: Scheme of the project

structure of openSWIDI

Contact / Project partners

Current partners interested in the project:

- **Ole Rössler**

Oeschger Centre for Climate Change Research
Hydrology Research Group
Institute of Geography
University of Bern
Hallerstrasse 12
3012 Bern

E-Mail: ole.roessler@giub.unibe.ch
Phone: +41 (0) 31 631 80 17

- **Thomas Bosshard**

Institute for Atmospheric and Climate Sciences
ETH Zurich
Universitätsstrasse 16
8092 Zurich

E-Mail: thomas.bosshard@env.ethz.ch
Phone: +41 (0)44 632 78 18

-- ThomasBosshard - 17 Nov 2011

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