ClimateImpactsOnline: A web platform presenting regional climate and impact information for Germany

Abstract: Climate services providing reliable regional climate information have recently become of rising importance. As a solution, we have developed an internet portal that is easy to use and combines interesting information about climate impacts in Germany.

INTRODUCTION

One of the key tasks is to present the current state-of-the-art of climate science to the public. This gives rise to the challenge that the complex information must be presented such that it is commonly understood. Besides providing climate information globally, regional climate impact information becomes of increasing interest for local decision making regarding awareness building and adaptation options.

For the region Germany, numerous individual studies on climate change have been prepared by various institutions, differing in terms of their aim, region and time period of interest. Thus, our goal is to provide a synthesized, coherent view on for different sectors (climate, hydrology, agriculture, forest, energy, tourism, and health), in particular targeted at German public authority requirements [1].

THE MODEL CHAIN

We use an established model chain consisting of individual simulation models that are specifically tuned to each other, having been interconnected in past studies and projects (see [2], [3], and [4]):

- **STARS** - STatistical Analog Resampling Scheme (climate sector)
- **SWIM** - Soil and Water Integrated Model (water and agricultural sector)
- **IRMA** - Integrated Regional Model Assessment (agricultural sector)
- **4C - FORESEE - FORESt** Ecosystems in a changing Environment (forest sector)

THE STATISTICAL CLIMATE MODEL STARS

The STARS model [5] calculates regional climate projections of daily meteorological variables for the next 40 to 100 years. The model uses historical observations from weather stations and a prescribed future trend of a meteorological variable in order to assemble a new meteorological data set that fulfills the trend prescription.

CLIMATE AND CLIMATE IMPACT DATA

The climate and impact variables are available on a decadal time resolution for the period from 1901 to 2100, combining observed data and future projections, interpolated from the station positions to a grid and mapped to administrative units (national, federal state, district).

CURRENT DEVELOPMENTS

We executed a multi-phase evaluation process based on public authorities presentations, an online questionnaire and web portal email feedback. Based on this, we are currently improving the portal in the following directions:

- image labeling (provenance issues)
- inclusion of a second time averaging (30 y.)
- new representations (gauge maps, Walter diagrams, monthly diagrams)
- bandwidth information.

THE WEB PORTAL

The climate and impact variables are available for different sectors (climate, hydrology, agriculture, forest, energy, tourism, and health).

FUTURE WORK

For 2014, we plan to (1) integrate the CORDEX runs, (2) improve our statistical climate model with respect to trend statistics and others, (3) extend the agricultural, energy and tourism sectors, and (4) extend the approach to other countries/regions.

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REFERENCES


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