BETWIXT Outputs

BEWIXT has worked with three types of model:

The RainClim software package developed by the University of Newcastle generates rainfall time series for the present day and future time periods up to 2100 for 18 sites in the UK, with time resolutions of 5 minutes and 1 hour. It is available for use by all BKCC academic partners and is being extended to the UK on a 5 km grid.

The weather generator developed by the Climatic Research Unit (CRU) at the University of East Anglia has been used to construct self-consistent daily time series scenarios for the present day and future time periods for eight variables (related to temperature, rainfall, sunshine, wind and moisture) and 10 case-study locations (including Manchester, Glasgow, Bradford and Birmingham). An hourly version of the weather generator, linked to RainClim, is also being produced. All scenario output from the weather generator is publicly available from the BETWIXT web site. The weather generator requires development of a user-friendly interface and appropriate documentation before it can be released publicly. This is the aim of CRU, but was not possible given the resources available within BETWIXT. It is, however, hoped that funds can be found for this work in the future, and any public version will acknowledge the contribution of BKCC and the EPSRC.

The Hadley Centre for Climate Change Research has, for the first time, implemented a parameterisation of urban land surfaces and anthropogenic heat sources in the land-surface scheme of the Hadley Centre Atmospheric General Circulation Model HadAM3. Output from the BETWIXT simulations is not available, but the simulations are described in two technical briefing notes.

Outputs available from the public web site http://www.cru.uea.ac.uk/cru/projects/betwixt/

BETWIXT technical briefing notes

These briefing notes are suitable for a broad audience, including stakeholders, as well as academic users.

- There are currently six notes covering:
    1. Description of the CRU daily weather generator
    2. Description of the RainClim model
    3. Outline of the Hadley Centre urban area simulations
    4. Evaluation of the performance of the CRU daily weather generator, i.e., the ability to reproduce present-day mean climate, and temperature and rainfall extremes
    5. Evaluation of present-day winds and climate changes from the Hadley Centre regional climate model
    6. Analysis of the Hadley Centre urban area simulations, i.e., analysis of the relative impacts of radiative forcing, landscape effects and local heat sources on simulated climate change in urban areas
- Others are in preparation, including a description of the daily weather generator scenarios, the CRU hourly weather generator and analysis of temperature profiles across the Manchester area.

Daily output from the CRU weather generator

Daily time-series output and summary output from the CRU weather generator can be downloaded from ***http://www.cru.uea.ac.uk/cru/projects/betwixt/cruwg_daily/***. Output is available for 10 stations (e.g., Manchester and Birmingham), for four time periods (the '1970s' present-day baseline period, the '2020s', '2050s' and '2080s') and for four greenhouse gas emissions scenarios (the Low, Medium-Low, Medium-High and High emissions scenarios, as used by UKCIP02). As well as time-series output, summary output for temperature and rainfall statistics, other variables and extremes (e.g., number of hot days and maximum number of consecutive dry days) is available in both figure and Excel spreadsheet format. Hourly output for a limited number of stations will be available later this year.

All the output and figures available from this part of the web site are available for public use, provided that the BETWIXT project is duly acknowledged. Users are also encouraged to inform the BETWIXT co-ordinator about any use of the data or figures outside the BKCC programme (and a number of people have already done this, indicating that the BKCC scenarios are providing a useful UK resource).

Output available from restricted sections of the BETWIXT web site

The RainClim software package

The RainClim software package can be downloaded from a password protected section of the BETWIXT web site, once users have returned a completed licence form to Chris Kilsby at the University of Newcastle. The licence form can be publicly viewed at http://www.cru.uea.ac.uk/cru/projects/betwixt/rainclim_licence.pdf and states that 'RainClim is distributed on a limited basis to research, education and certain industry institutions within the BKCC consortium for the purpose of pursuing scientific research and educational activities and for not other purposes including, but not limited to, commercial purposes'. It is, however, intended to make some RainClim output for the BKCC case-study sites available from the BETWIXT public web site. All queries about RainClim should be addressed to Chris Kilsby.

Observed station data from the British Atmospheric Data Centre (BADC)

Permission has been given for daily and hourly datasets obtained through the BADC to be made available from a password protected section of the BETWIXT web site. These datasets have been used to construct and evaluate the CRU weather generator (10 stations and 8 variables) and RainClim (rainfall for 18 stations). Because these data have been provided by the BADC, they are only available for use by bona fide academic researchers working on BKCC projects. All users must sign a terms and conditions form, which includes a declaration that the UK Met. Office Conditions of Use have been read and understood.

Maintaining the BETWIXT web sites

It is intended to maintain the BETWIXT public and restricted-section web sites for a period of at least two years after the end of BETWIXT in March 2006.

Clare Goodess
20 May 2005