

Summary of actions and decisions from the EPSRC/UKCIP climate scenarios workshop, Norwich, 22 May 2003

Presentations

Presentations on the climate scenarios project made by CRU and WRSRL are available from the project web site.

The presentations made on the other projects in the initiative will be available from the BKCC intranet.

Project web site

A project web site will be set up shortly – with a link to the BKCC intranet when it is set up at the end of June. All project deliverables, together with background information about the project etc., will be available from the web site. The possibility of setting up a web-based bulletin board was discussed, but it was agreed that it would be more appropriate to discuss climate scenario-related issues on the central bulletin board to be set up by UKCIP.

Scenario construction and the cascade of uncertainty

Links to suitable background material on climate modelling and scenario construction, e.g., the IPCC synthesis report, will be made available from the project web site.

A limited range of uncertainties will be addressed by the scenarios constructed in this project: they will cover the four UKCIP02 emissions scenarios, but will primarily be based on the Hadley Centre models. Levels of confidence will be assigned to the scenarios where possible (as was done in UKCIP02). Quantitative results from model validation studies will be reported and will encompass extreme events. A wider range of uncertainties will be addressed in the CRANIUM project and these scenarios will also be available to all projects in the initiative.

Issues relating to socio-economic scenarios will be discussed at the Integrating Framework meeting on 4 July.

Modelling approaches

Documents describing (1) the CRU weather generators, (2) the GNSRP model to be developed by WRSRL, and (3) the experimental design of the urban heat island simulations to be undertaken by the Hadley Centre, will be written and made available from the project web site.

Meteorological data

CRU will obtain hourly/daily temperature, precipitation, vapour pressure/relative humidity, sunshine and wind data for the case-study locations from the BADC. WRSRL will obtain hourly precipitation data for two stations in each of the nine UK rainfall regions. CRU will check whether it is possible for the licensing/data distribution to be done centrally for the initiative.

The best records tend to come from airport locations. Consideration will, however, be given to the representativeness of the sites used and guidance provided. Although detailed analyses will not be possible within the constraints of the project, CRU will

draw on previous work (e.g., by Rob Wilby for London) and the Hadley Centre urban heat island modelling work. If appropriate data are available, some comparisons across an urban transect (e.g., Manchester) will be undertaken.

Rob Wilby will investigate whether it is possible for partners in the initiative to have access to the high-resolution Environment Agency rainfall data sets.

Sample weather generator output

Sample daily output from the CRU weather generator and GNSRP will be available at the end of June. Sub-daily sample output will be provided by the end of the year.

Case-study locations for the CRU scenarios

The CRU weather generators require hourly/daily station data for calibration and validation. A list of potential case-study locations for which data should be available from the BADC was discussed during the workshop. It was agreed that CRU will construct scenarios for the following eight case-study locations:

1. Manchester Ringway
2. Heathrow
3. Abbotsinch
4. Elmdon
5. Herstmonceaux
6. St Mawgan or Yeovilton
7. Hembsy
8. Leeds/Bradford.

Scenarios may also be constructed for Eskdalemuir.

Ongoing advice and guidance

The project members will provide ongoing advice and guidance on climate scenario construction and use. The integrating framework meetings will provide opportunities for further interaction with other projects in the initiative. CRU also has travel money to visit each project on one occasion over the three years duration of the initiative.

Clare Goodess

1 June 2003

Appendix – summary of project break-out sessions

ASCCUE

Sites: Greater Manchester and Lewes

Spatial variation important

Hourly: mean temperature; precipitation (15 minute better); PET

Daily: diurnal temperature range

Wind speed not useful without direction

Probability important

Ground moisture

Others identified in powerpoint presentation

AUDACIOUS

Sites: Birmingham (Elmdon); Manchester (Ringway); Glasgow (Abbotsinch); Leeds/Bradford; London (Heathrow)

Time resolution: [NS – 1 hour] down to 15 minute. 5 minute desirable. Must be validated.

Extremes: Return periods – 1/2/30 years. Design standards – 100/200 years.

Uncertainties and ensembles – 4 as specified.

GENESIS

(1) Run the real data through the model and also the weather generator data to test robustness of the model. (2) Run the model with future data.

Wind direction? (mean/gust) – possibly better doing own wind generation.

Hemsby; Ringway; Heathrow; Yeovilton/St Mawgan; Elmdon; Abbotsinch (Herstmonceaux or Lewes?)

100 year time series; 2020s, 2050s, 2080s

Historic Futures

Output: ASCII, CSV

Variables: wind direction/when raining; driving rain (methodology available); joint probability (wind and rain)

Time period: DR = 1 year times x; drying = up to 1 year

Case study location: Abbotsinch; Herstmonceaux/Yeovilton – wait until 12 June

CRANIUM

A break-out session was not held for CRANIUM as CRU and WRSRL are both directly involved in this project and scenario needs were discussed at the start-up meeting on 6 May.