


Introduction to PRECIS

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Contents

- What, why, who
- The components of PRECIS
- Hardware / Future Developments / Summary

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What is PRECIS?

- Providing **RE**gional **C**limates for **I**mpact **S**tudies
- Regional climate modelling (RCM) system that can be applied to any area of the globe
- Generate detailed climate predictions

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Why develop PRECIS?



- Need of all countries for detailed climate change scenarios to assess vulnerability.
- An easily implemented, PC version of the RCM will enable countries to generate their own national scenarios, promoting capacity building and technology transfer.

Why develop PRECIS?

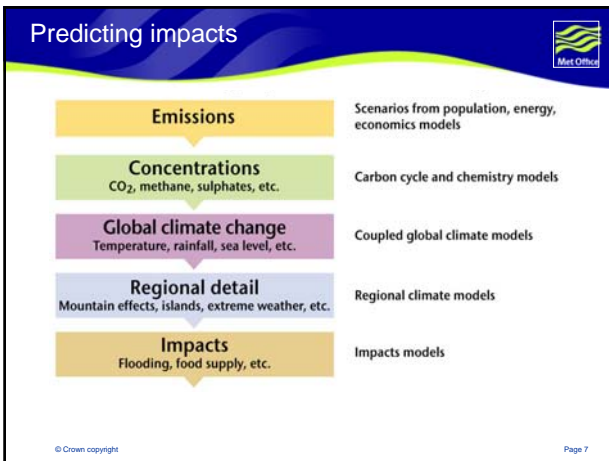


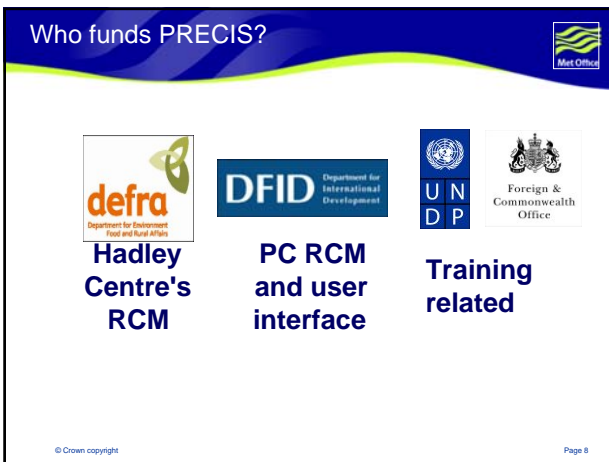
- UNFCCC requirement to assess national vulnerability and plans for adaptation
- UNFCCC requirement to submit National Communications
- Both need estimate of impacts
- Impacts need detailed scenarios of future climate
- Scenarios are best produced locally, using expert knowledge
- UNFCCC requirement on the UK to assist capacity building and technology transfer

Who is PRECIS for?



- Primarily for government scientists from developing countries involved in vulnerability and adaptation studies
 - And anyone else interested in climate research
- A regional model's domain usually encompasses several countries, so it is hoped that neighbouring countries will collaborate on resources and expertise



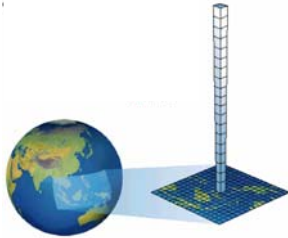


What is a Regional Climate Model?

- Comprehensive physical high resolution (<50km) climate model that covers a limited area of the globe, usually including the atmosphere and land surface components of the climate system, and containing representations of the important processes within the climate system (e.g., cloud, radiation, rainfall, soil hydrology).

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Boundary conditions



Limited area models are driven at the boundaries by GCMs or analyses data.

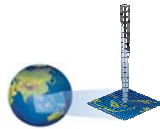
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Page 10

The components of PRECIS



- PC version of latest Hadley Centre RCM
 - resolution 50km (25km for small areas)
- User interface to set up RCM experiments
- Data processing and display software
- Boundary conditions
- Training course and materials
- Support



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Page 11

PRECIS user interface



- Five main functions:
 - Setting up the region:
 - easy-to-use domain specification software
 - interactive land surface editing
 - Emission scenarios selection
 - Period of the run
 - Outputs
 - Run!

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Page 12

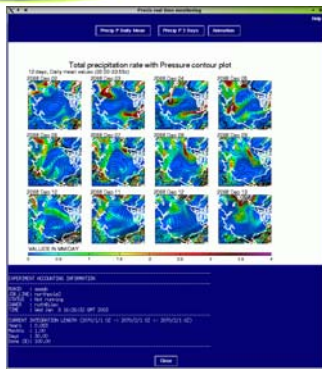
PRECIS user interface



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Page 13

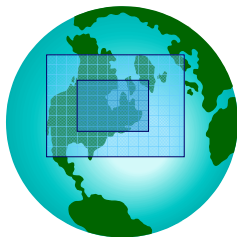
PRECIS user interface



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Page 14

Boundary conditions




- Requests through precis@metoffice.gov.uk
- LBCs generated from source data automatically as a simulation progresses

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Page 15

Hardware requirements



- PC running under the Linux operating system
- Memory : 512MB minimum; 1 GB recommended
- Minimum 60GB disk space + offline storage for archiving data
- Simulation speed proportional to CPU speed


30 year integration, 100x100 grid points
(including interactive sulphur cycle)

- T3E (supercomputer) - 1.5 months (36 Processors)
- PC (Intel P4 3.2 GHz) - 4 months

Without the sulphur cycle the model runs 33% faster

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Training course and supporting material



- Training in the use of PRECIS will focus on:
 - Background science including uncertainties
 - Interpretation of PRECIS results by regional experts
 - Construction of regional climate change scenarios
 - Building capacity in countries/regions using PRECIS
- PRECIS will be supplied with:
 - a handbook covering the background science, system description and the uses and limitations of PRECIS
 - a technical manual explaining technical details about the system and how install and to use it

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Support and follow-up



- Support
 - e-mail (precis@metoffice.gov.uk), phone, post
 - email-based discussion groups
- Web site
 - <http://precis.metoffice.com>
 - news
 - updates
 - datasets
 - resources
- Collaboration/workshops

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PRECIS Future developments



- Continuously upgraded to new processors/new Linux
- Ability to run PRECIS RCM from yet more GCMs
 - cooperation from GCM centres being sought
- No current plans to incorporate other RCMs
 - Intercomparison of results from different RCMs is beneficial
- 25km and 12.5km RCM with ocean component being built

What PRECIS can deliver



- PRECIS can provide:
 - climate scenarios for any region
 - an estimate of uncertainty due to different emissions
 - an estimate of uncertainty due to climate variability
- Data available from PRECIS
 - comprehensive for atmosphere and land-surface
 - grid-scale box average quantities
 - maximum time resolution one hour

Summary: PRECIS



- PRECIS: The Hadley Centre's regional climate modelling system
- Resolution of 50km (25km for small areas)
- Runs on a PC; supplied on a DVD-ROM with sample driving data
- Can be set up by the user over any area of the globe
- Used for vulnerability and adaptation studies and climate research
- Provides the capacity to locally produce scenarios of climate change
