

The New Zealand Version of SimCLIM

CLIMPACTS

Open-Framework System



by

Richard Warrick

International Global Change Institute

University of Waikato

<http://www.waikato.ac.nz/igci/>

The New Zealand Version of SimCLIM

CLIMPACTS

Open-Framework System



Developed by:

The International Global Change Institute (IGCI), University of Waikato

In collaboration with:

National Institute of Water and Atmospheric Research (NIWA)



And distributed by:

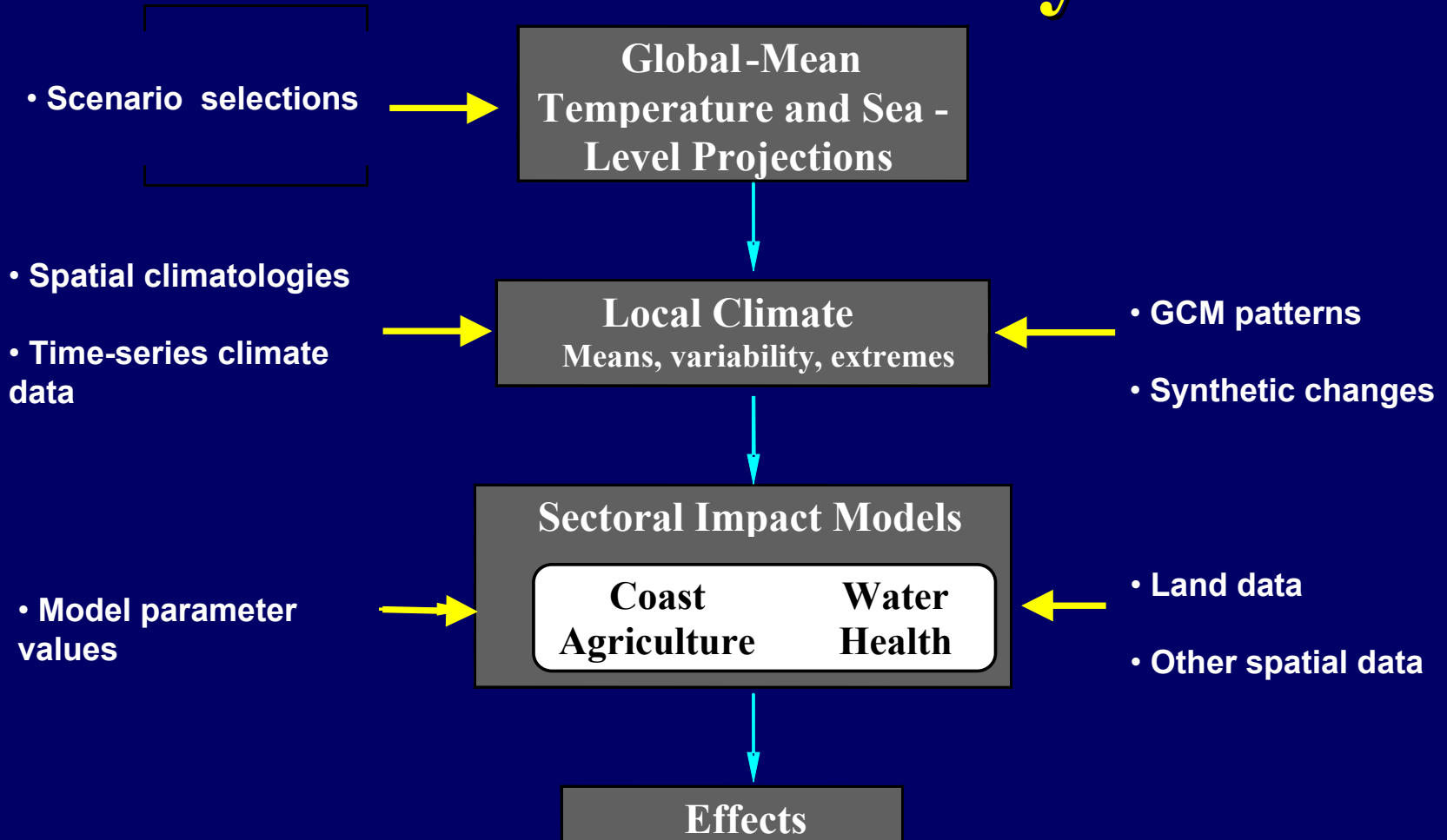
CLIMsystems LTD





Core Structure

The CLIMPACTS System



IGCI

- Integrated model system
- Tools for analysis
- Graphical user interface

NIWA

- Climate change scenarios
- Observational data
- Weather generators

AG RESEARCH

- Subtropical grass models
- Pasture production

LANDCARE

- Land / soils data
- Soil carbon models

CLIMPACTS MODEL SYSTEM

HORT-RESEARCH

- fruit crops models

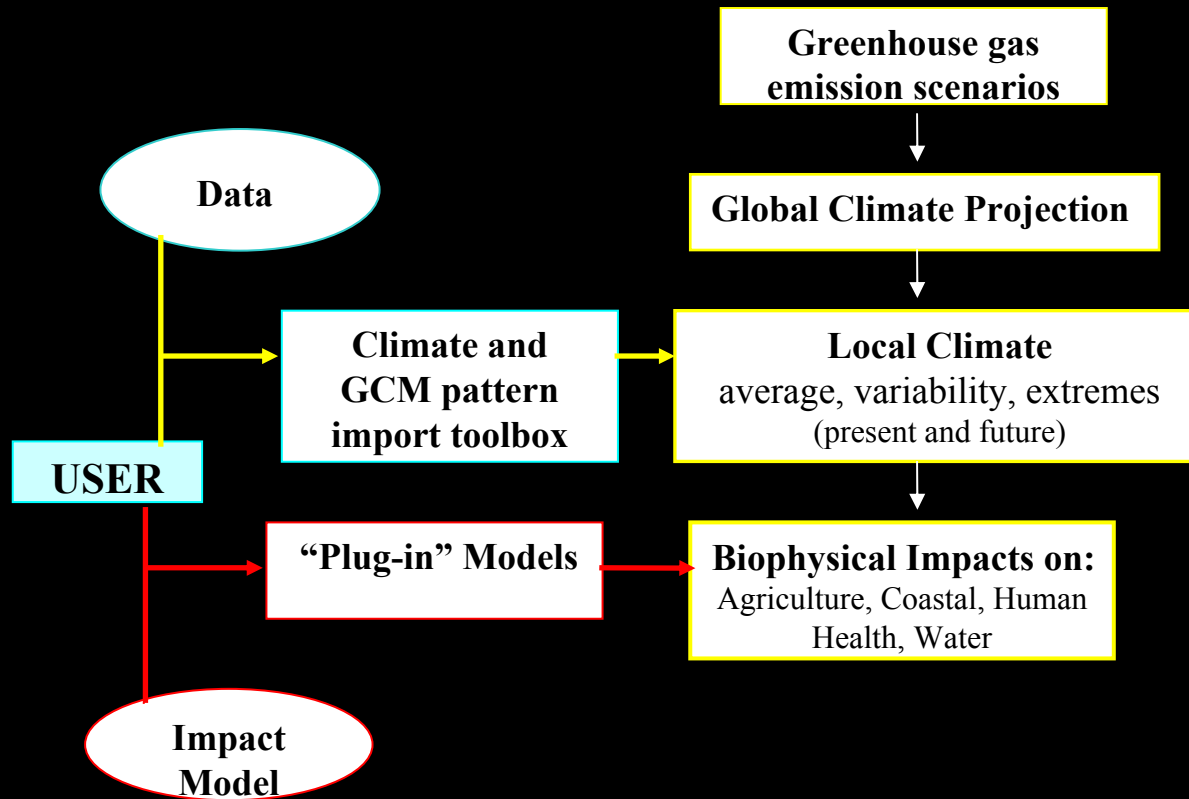
CROP & FOOD

- Arable crops models

SEMS, Uni Auckland

- Spatial climatologies
- Interpolations

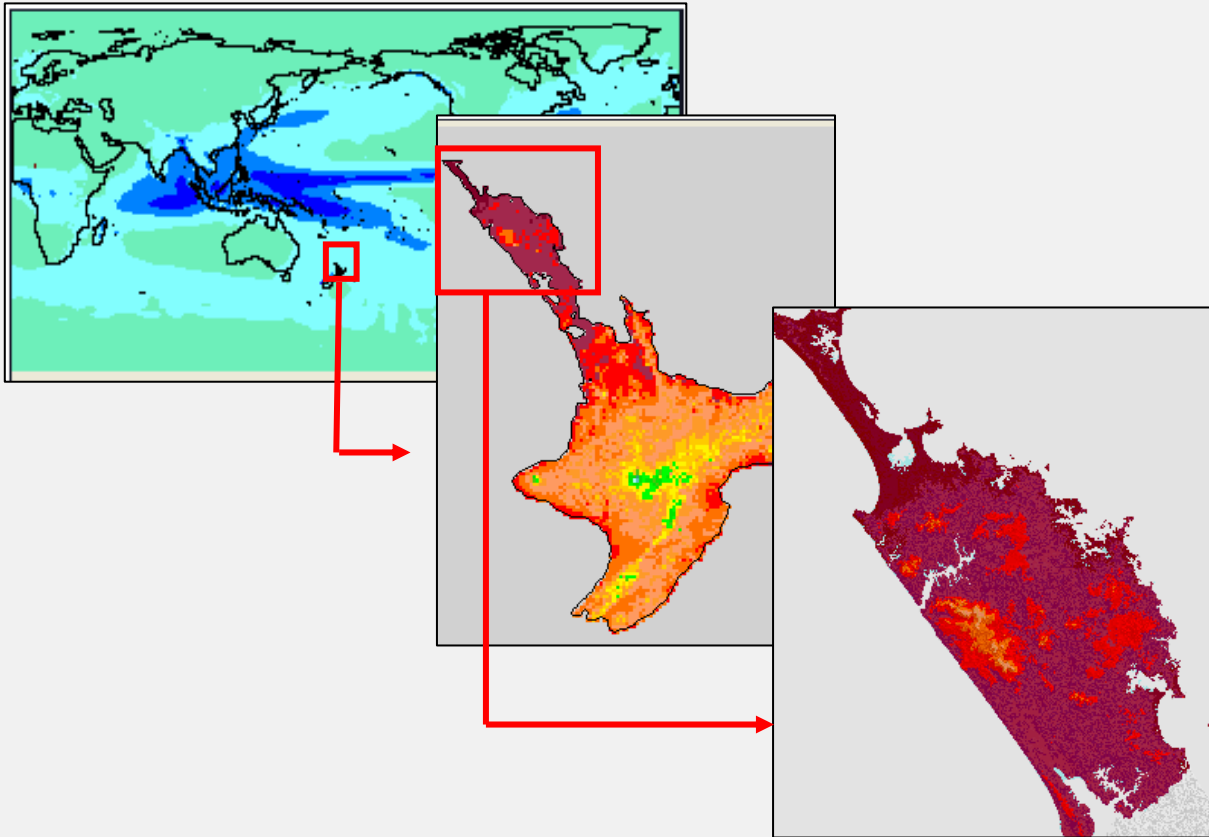
CLIMPACTS Open-Framework Structure



Multi-scale, open-framework system

Spatial hierarchy

+ Global



-
-
-

Add region

Add country

Add area

Add province/state

Add local area

Add baseline climate

Add GCM pattern

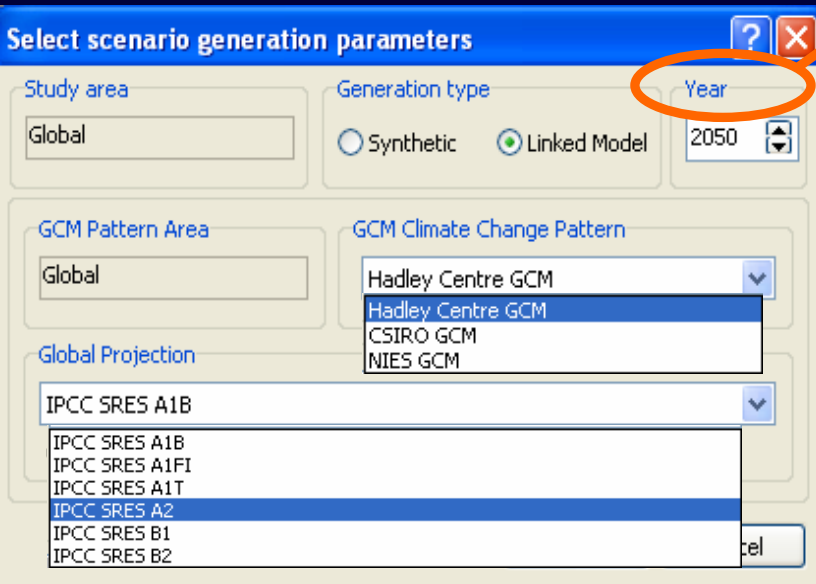
Add image file

Remove

Constructing Climate Change Scenarios

1990 brings up baseline climate

Scenario years up to 2100



Select scenario generation parameters

Study area: Global

Generation type: Synthetic Linked Model

Year: 2050

GCM Pattern Area: Global

GCM Climate Change Pattern: Hadley Centre GCM (selected), Hadley Centre GCM, CSIRO GCM, NIES GCM

Global Projection: IPCC SRES A1B (selected), IPCC SRES A1B, IPCC SRES A1FI, IPCC SRES A1T, IPCC SRES A2, IPCC SRES B1, IPCC SRES B2

Cancel

Constructing Climate Change Scenarios

Key uncertainties:

- Regional variations
- Emission scenario
- Climate sensitivity

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Generation type: Synthetic Linked Model

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GCM Pattern Area: Global

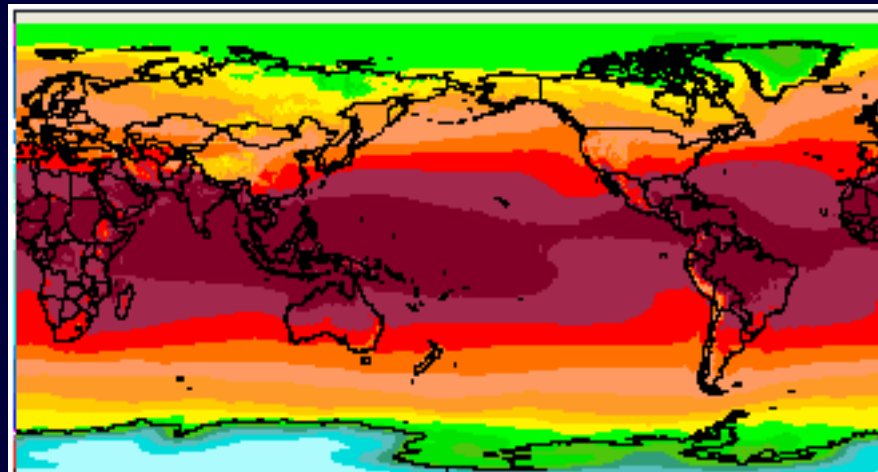
GCM Climate Change Pattern: **GCM Climate Change Pattern**

Global Projection: IPCC SRES A1B

Hadley Centre GCM
Hadley Centre GCM
CSIRO GCM
NIES GCM

IPCC SRES A1B
IPCC SRES A1B
IPCC SRES A1FI
IPCC SRES A1T
IPCC SRES A2
IPCC SRES B1
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Cancel



Constructing Climate Change Scenarios

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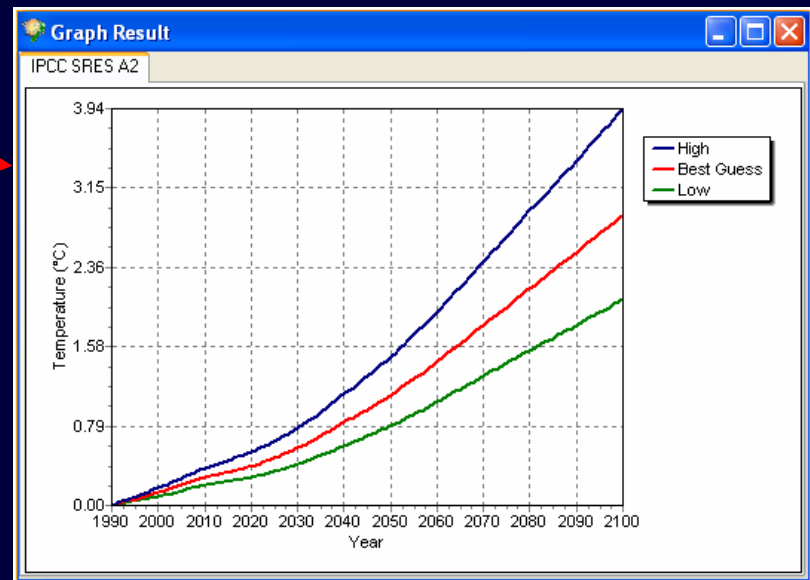
GCM Pattern Area: Global

GCM Climate Change Pattern: Hadley Centre GCM

Global Projection

IPCC SRES A1B

IPCC SRES A1B
IPCC SRES A1FI
IPCC SRES A1T
IPCC SRES A2
IPCC SRES B1
IPCC SRES B2



Constructing Climate Change Scenarios

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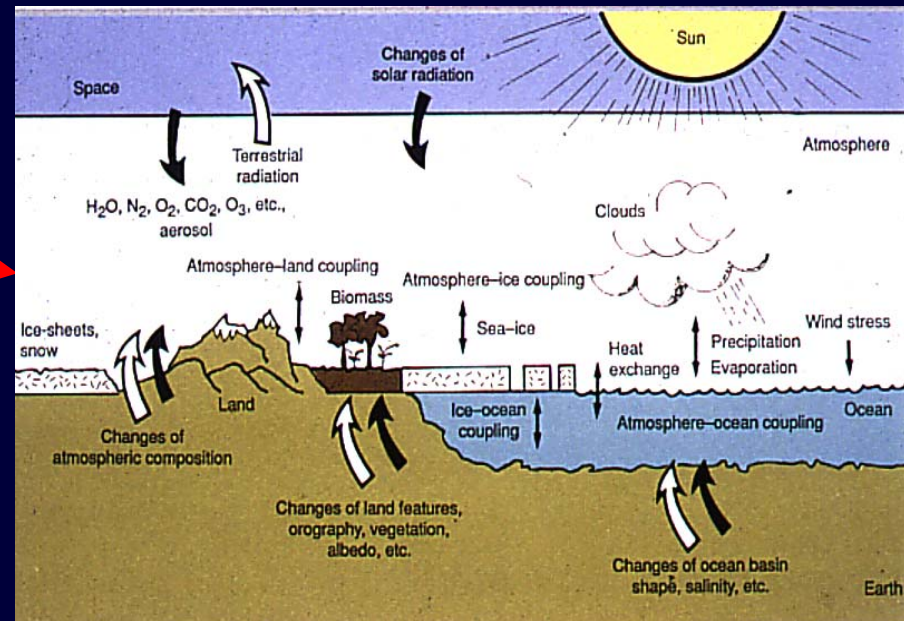
GCM Climate Change Pattern: Hadley Centre GCM

Global Projection: IPCC SRES A1B

Climate Sensitivity: Low Mid High

OK Cancel

Climate feedbacks



CLIMPACTS can be used to:

- **Describe baseline climates**
- **Examine current climate variability and extremes**
- **Assess risks – present and future**
- **Investigate adaptation – present and future**
- **Create climate change scenarios**
- **Conduct sensitivity analyses**
- **Examine sectoral impacts**
- **Examine uncertainties**
- **Facilitate integrated impact analyses**

Advantages of the CLIMPACTS modelling approach

- quick running and flexible
- spatial and temporal analyses
- multi-scale - national, regional, sites
- training, heuristic uses
- easily updated

Accessing the System and Data



The CLIMFACTS Open-Framework System can be licensed from:

- CLIMsystems Ltd at: <http://www.climsystems.com>

The system comes with:

- National-scale spatial climatologies, provided by NIWA
- Regional spatial climatologies, provided by LENZ
- Downscaled climate change GCM patterns, provided by NIWA

Additional site time-series data can be licensed from NIWA at:

CLIFLO at: <http://cliflo.niwa.co.nz/>