How can CORDEX enhance assessments of climate change impacts and adaptation?

Timothy Carter

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Climate Change Programme

Outline

- **Priorities for IAV research**
- Demand for climate information
- Added value of downscaling
- Framing uncertainties
- Conclusions

What's this IAV anyway?

Climate Change Impacts, Adaptation and Vulnerability

but not everyone agrees ......

IAV

The evolution of risk assessment as applied to climate change, particularly adaptation, since the establishment of the IPCC in 1988

Assessment	Policy Question	Stage of Risk Assessment	Methodological Approaches	Scenario Requirement	Years
First generation	Is climate change a problem?	Scoping the question, risk identification	Sensitivity analysis	Incremental scenarios for primary climate variables	1988–1992
Second generation	What are the potential impacts of unmanaged climate change?	Risk analysis	Scenario-driven impact assessment	Climate model derived scenarios for multiple variables at global and regional scale	1988–2001
Third generation	How do we effectively adapt to climate change?	Risk evaluation	Risk assessment Vulnerability assessment	Model derived scenarios for many variables, consistent with other scenarios, integration at a range of scales	1995–2007
Fourth generation	Which adaptation options are the most effective?	Risk management	Risk management Mainstreaming adaptation	Dynamic scenarios of climate and other key drivers, conditional probabilities	2001 ongoing
Fifth generation	Are we seeing the benefits?	Implementation and monitoring	Implementation, monitoring and review	Updating scenarios through observation and learning by doing	2007 ongoing

IPCC, Intergovernmental Panel on Climate Change.

Source: Jones and Preston (2011)

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Some key motivations of users in requesting climate information

- Obtaining general information about climate change – major messages at various scales
- Obtaining information tailored to user requirements and adaptation decision-making
- Communicating uncertainties in future projections
- Ensuring comparability across assessments for co-ordinating integrated responses
- Reconciling projections with recent trends and with planning/policy scenarios
- Addressing changes in frequency and magnitude of extreme weather events

Who are the IAV community?

- **Empiricists**
  - Observed impacts (long-term/extreme events); observed adaptation (reactive and anticipatory; to averages/extremes; maladaptation)
- **Impact modellers**
  - Disciplinary/process focus (and ESMs); disciplinary/applied focus; inter disciplinary/applied focus; integrated assessment; global to local
- **Experimentalists**
  - Gas enrichment; controlled climate; materials; land use management
- **Vulnerability assessors**
  - Mapping indices/indicators; local (household) to global
- **Adaptation researchers**
  - Adaptation processes; adaptation practices; management for adaptation and mitigation; development of analytical methods, tools and metrics
- **Adaptation policy analysts**
  - Governance; coherence; integration; mitigation/adaptation; emergency planning; implementation
- **Well, that's just a sample!**

How many of these can make use of downscaled climate projections?

- Empiricists
  - Qualitatively; could help to frame studies (e.g. surveys, questionnaires)
- Impact modellers
  - High demand, though not all merited; impacts of extreme weather; variability change; differential impacts over varied terrain
- Experimentalists
  - Little use except perhaps qualitatively for experimental design
- Vulnerability assessors
  - Can offer added value for quantifying certain indicators
- Adaptation researchers
  - Informing about climate risk; identification and appraisal of adaptation measures
- Adaptation policy analysts
  - Awareness raising of future regional climate, including extremes

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What more does downscaling offer?

Conditional on the global projection downscaled:

- Finer-scale spatial resolution
- More realistic physical representation of local climate
- Improved resolution of extreme weather events
- [Maybe] enhanced realism in estimates of future climate

Note: Downscaling also throws up issues concerning the quality of "non-climate" information required at the same spatial scale (e.g. social, economic, land use, other environmental stresses)

Methods of regional climate change scenario construction, listed in the order of increasing complexity and resource demand (*example adaptation activities in parentheses*) #1

	Method (application)	Advantages	Disadvantages
1	Sensitivity analysis *Resource management, Sectoral*	1. Easy to apply; 2. Requires no future climate change information;3. Shows most important variables/ system thresholds; 4 Allows comparison between studies.	1. Provides no insight into the likelihood of associated impacts unless benchmarked to other scenarios; 2. Impact model uncertainty seldom reported or unknown.
2	Change factors *Most adaptation activities*	1. Easy to apply; 2. Can handle probabilistic climate model output	1. Perturbs only baseline mean and variance; 2. Limited availability of scenarios for 2020s.
3	Climate analogues *Communication, Institutional, Sectoral*	1. Easy to apply; 2. Requires no future climate change information; 3. Reveals multi-sector impacts/vulnerability to past. climate conditions or extreme events, such as a flood or drought episode.	1. Assumes that the same socio-economic or environmental responses recur under similar climate conditions; 2. Requires data on confounding factors such as population growth, technological advance, conflict.
4	Trend extrapolation *New infrastructure (coastal)*	1. Easy to apply; 2.Reflects local conditions; 3. Uses recent patterns of climate variability and change; 4. Instrumented series can be extended through environmental reconstruction; 5. Tools freely available.	1. Typically assumes linear change; 2. Trends (sign and magnitude) are sensitive to the choice/length of record; 3. Assumes underlying climatology of a region is unchanged; 4. Needs high quality observational data for calibration; 5. Confounding factors can cause false trends.
5	Pattern-scaling *Institutional, Sectoral*	1. Modest computational demand; 2. Allows analysis of GCM and emissions uncertainty; 3. Shows regional and transient patterns of climate change; 4. Tools freely available.	1. Assumes climate change pattern for 2080s maps to earlier periods; 2. Assumes linear relationship with global mean temperatures; 3. Coarse spatial resolution.

Source: Wilby et al. (2009)

Methods of regional climate change scenario construction, listed in the order of increasing complexity and resource demand (*example adaptation activities in parentheses*) #2

	Method (application)	Advantages	Disadvantages
6	Weather generators *Resource management, Retrofitting, Behavioural*	1. Modest computational demand; 2. Provides daily or sub-daily meteorological variables; 3. Preserves relationships between weather variables; 4. Already in widespread use for simulating present climate; 5. Tools freely available.	1. Needs high quality observational data for calibration and verification; 2. Assumes a constant relationship between large-scale circulation patterns and local weather; 3. Scenarios are sensitive to choice of predictors and quality of GCM output; 4. Scenarios are typically time-slice rather than transient.
7	Empirical downscaling *New infrastructure, Resource management, Behavioural*	1. Modest computational demand; 2. Provides transient daily variables; 3. Reflects local conditions; 4. Can provide scenarios for exotic variables (e.g., urban heat island, air quality); 5. Tools freely available.	1. Requires high quality observational data for calibration and verification; 2. Assumes a constant relationship between large-scale circulation patterns and local weather; 3. Scenarios are sensitive to choice of forcing factors and host GCM; 4. Choice of host GCM constrained by archived outputs.
8	Dynamical downscaling *New infrastructure, Resource management, Behavioural, Communication*	1. Maps regional climate scenarios at 20-50km resolution; 2. Reflects underlying land-surface controls and feedbacks; 3. Preserves relationships between weather variables; 4. Ensemble experiments are becoming available for uncertainty analysis.	1. Computational and technical demand high; 2. Scenarios are sensitive to choice of host GCM; 3. Requires high quality observational data for model verification; 4. Scenarios are typically time-slice rather than transient; 5. Limited availability of scenarios for 2020s.
9	Coupled AO/GCMs *Communication, Financial*	1. Forecasts of global mean and regional temperature changes for the 2020s; 2. Reflects dominant earth system processes and feedbacks affecting global climate; 3 Ensemble experiments are becoming available for uncertainty analysis.	1. Computational and technical demand high (supercomputing); 2. Scenarios are sensitive to initial conditions (sea surface temperatures) and external factors (such as volcanic eruptions); 3. Scenarios are sensitive to choice of host GCM; 4. Coarse spatial resolution.

Source: Wilby et al. (2009)

Downscaling lessons for hydrology

1. **What more (if anything) can be learnt from downscaling method comparison studies?**
   - Little more from intercomparison studies; recommend "sensitivity" step to determine key climate variables and most appropriate downscaling method CORDEX?
2. **Can dynamical downscaling contribute advantages that can not be conferred by statistical downscaling?**
   - Yes. Regional climate change signals can differ from GCMs, particularly in regions with complex orography; improved simulation of higher moment climate statistics
3. **Can realistic climate change scenarios be produced from dynamically downscaled output for periods outside the time period of simulation using methods such as pattern scaling?**
   - Yes for temperature; maybe for other variables; but transient runs now common
4. **What new methods can be used together with downscaling to assess uncertainties in hydrological response?**
   - Probabilistic methods offer promise of more robust treatment of uncertainties
5. **How can downscaling methods be better utilized within the hydrological impacts community?**
   - Comparison of offline or coupled online hydrological modelling (with feedbacks); testing if hydrological models are "fit for purpose" for assessing climate change impacts

Fowler et al. (2007)

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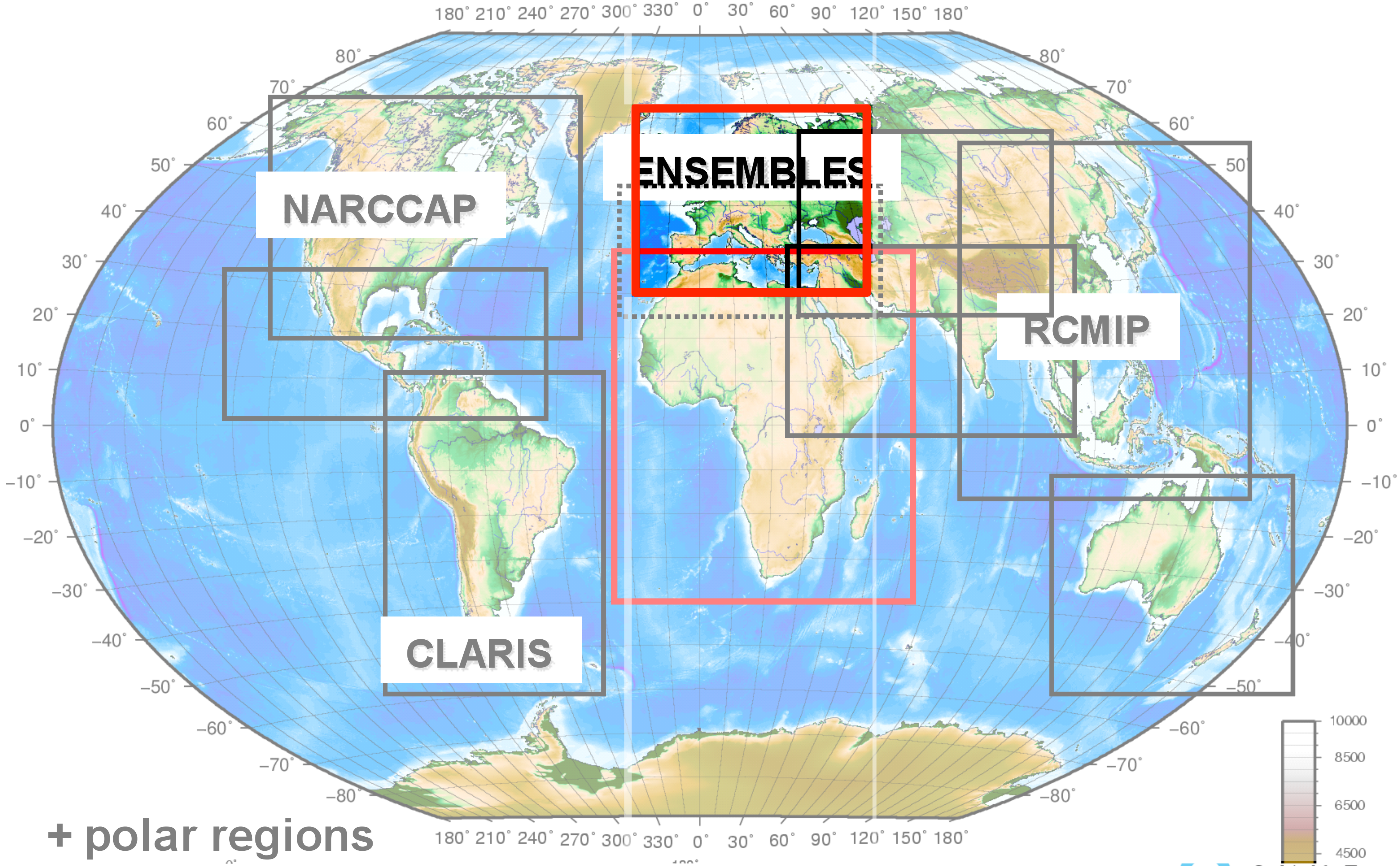
WCRP CORDEX Downscaling domains
(Coordinated Regional Downscaling Experiment)



+ polar regions

Source: Colin Jones, 2010

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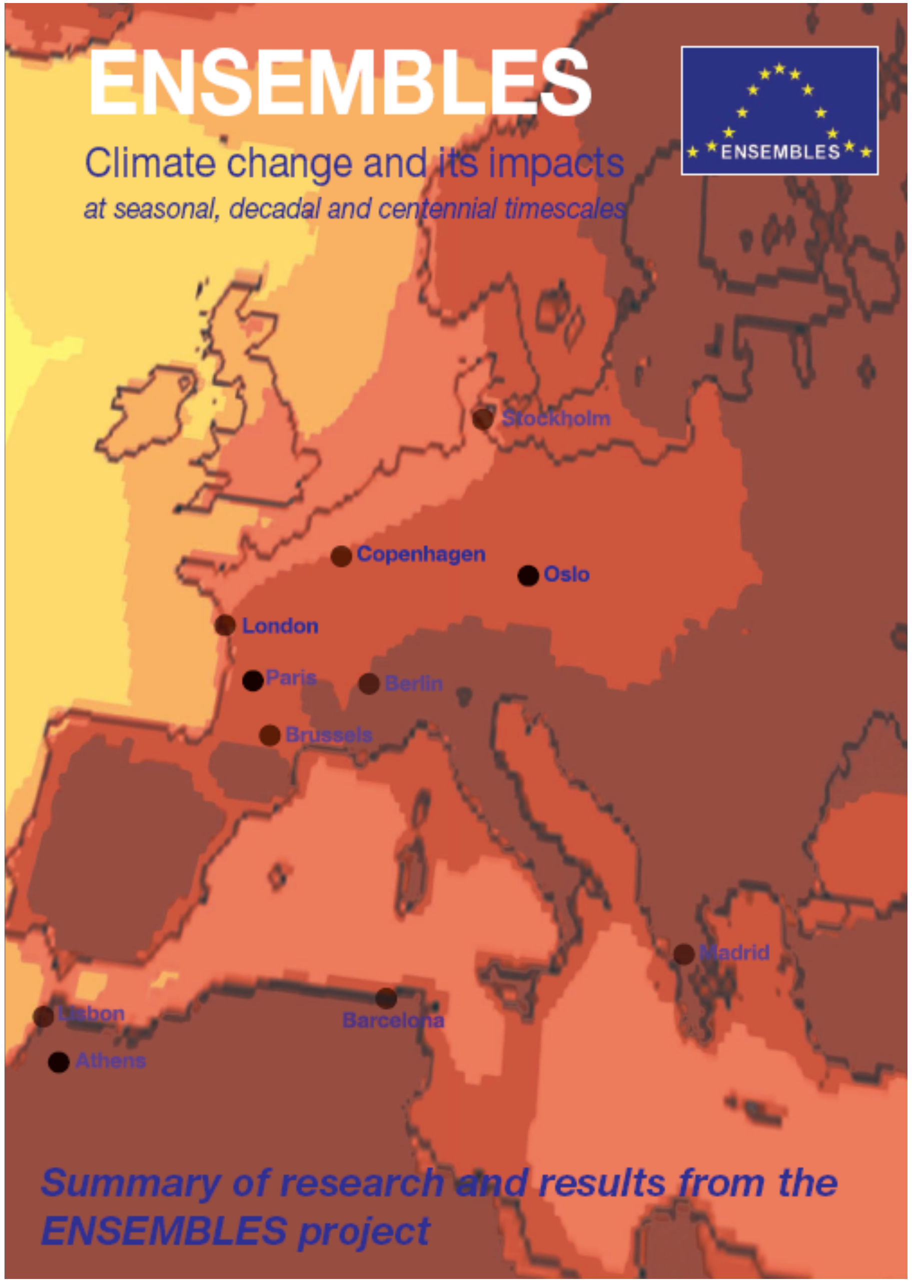
ENSEMBLES
Climate change and its impacts
at seasonal, decadal and centennial timescales
ENSEMBLES
Stockholm
Copenhagen
Oslo
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Berlin
Brussels
Madrid
Lisbon
Barcelona
Athens
Summary of research and results from the ENSEMBLES project

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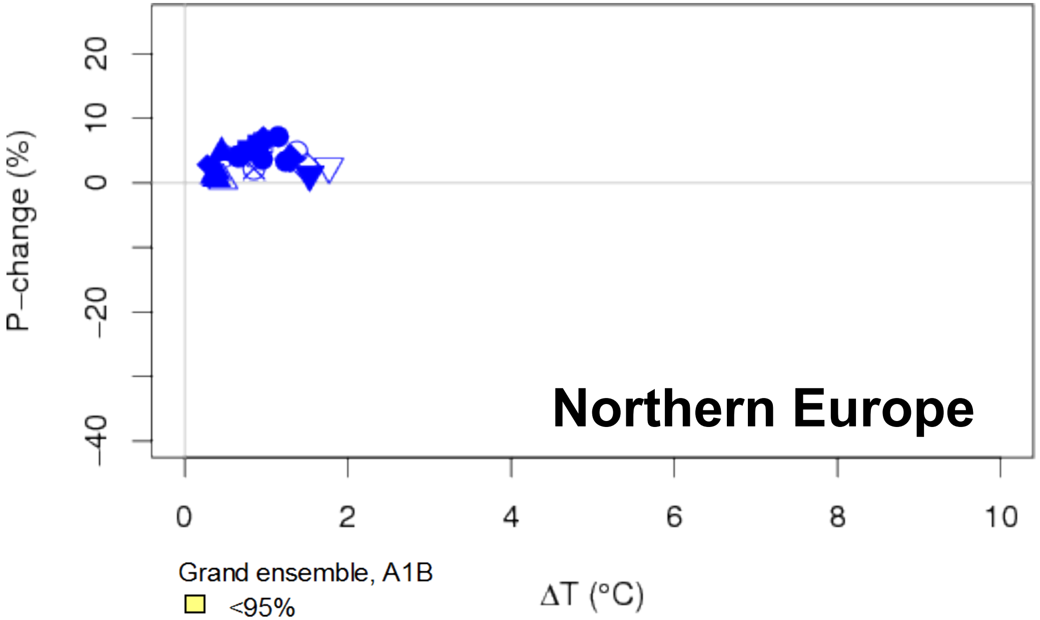
What new long-term climate information does ENSEMBLES offer impact analysts?

RCM and GCM projections (Giorgi regions)

John Caesar (Met Office), Stefan Fronzek (SYKE), Ines Hoeschel (FUB), Philip Lorenz (MPI), Aurore Voldoire (CNRM)



Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

Grand ensemble, A1B
- <95%
- <75%
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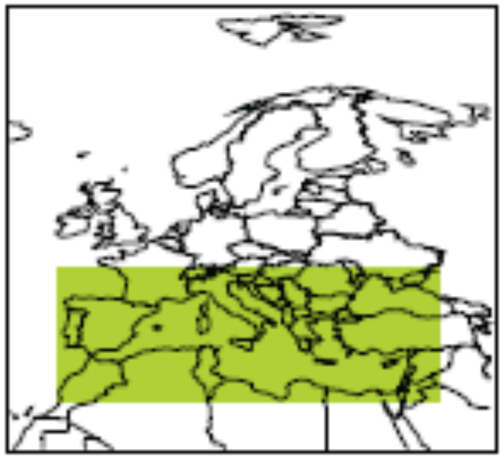
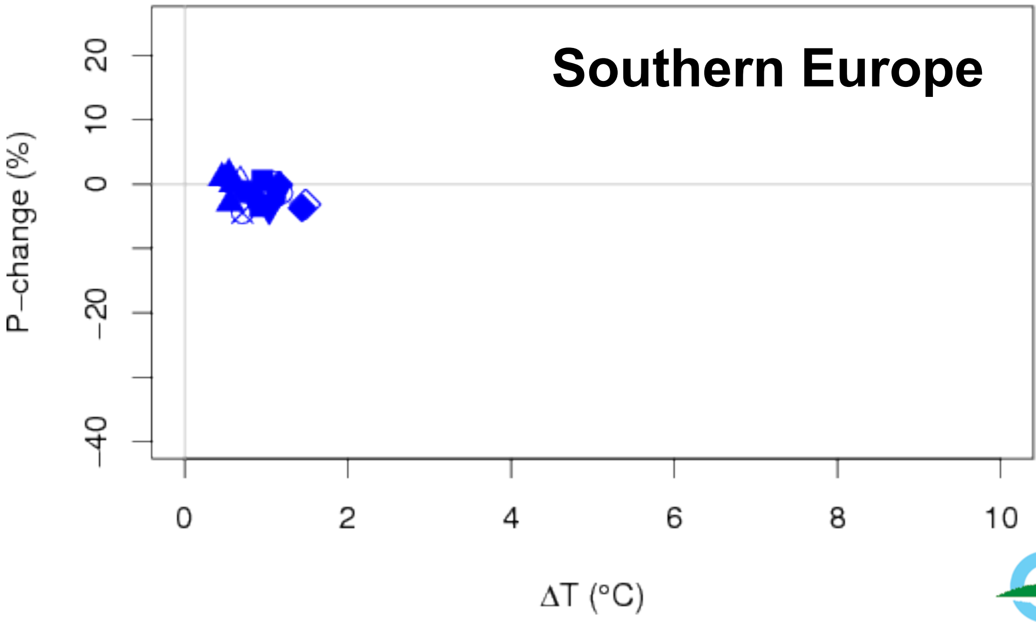
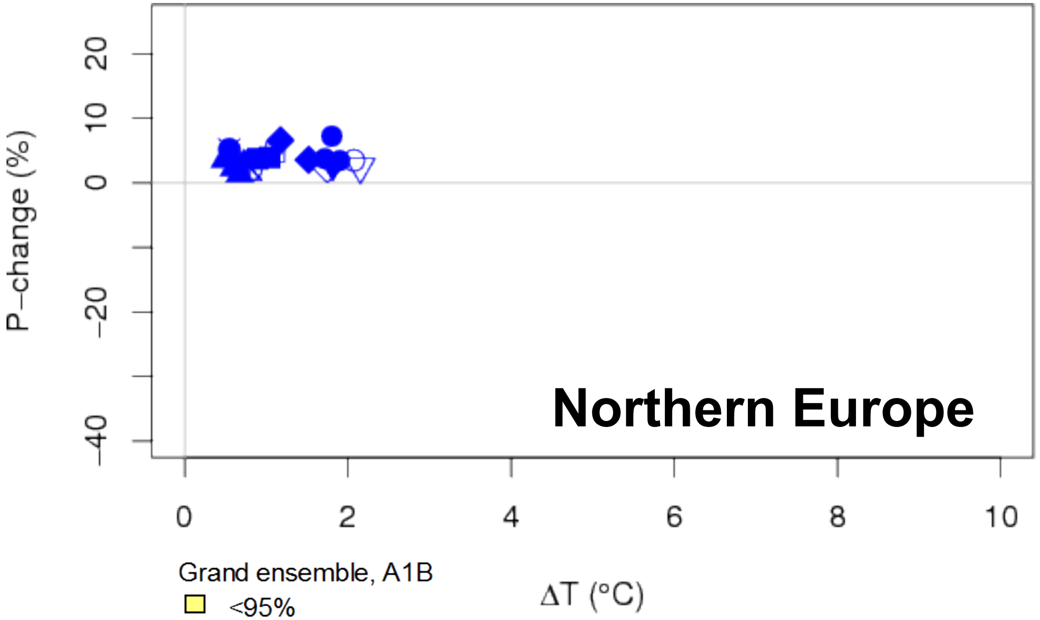
2000-2020

Solid blue symbols: RCMs Open blue symbols: driving GCMs, A1B







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2010-2030

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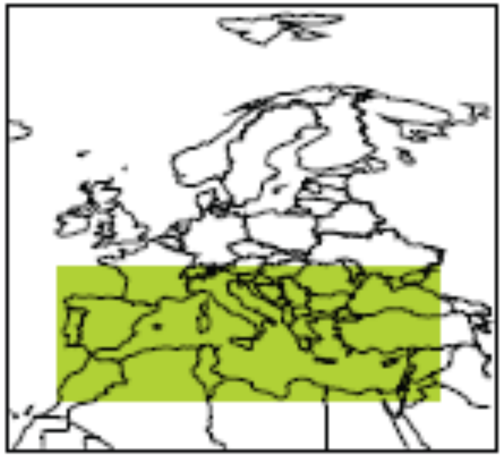

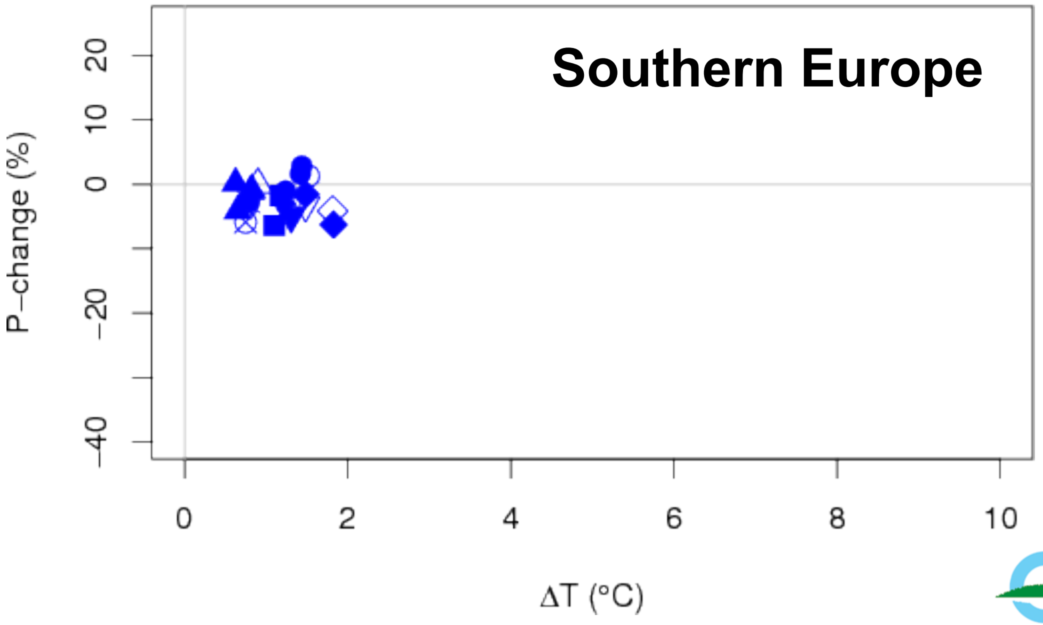

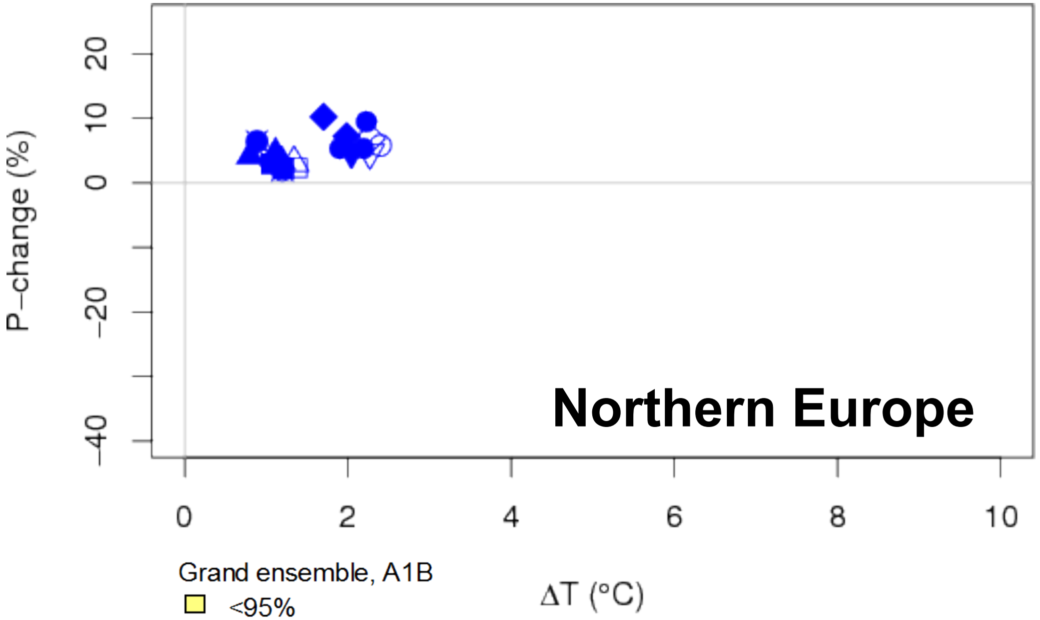

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2020-2040

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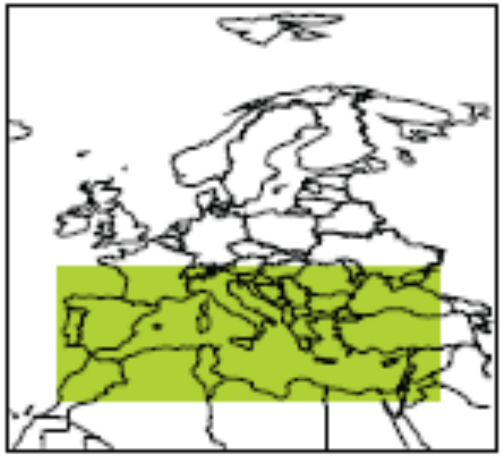

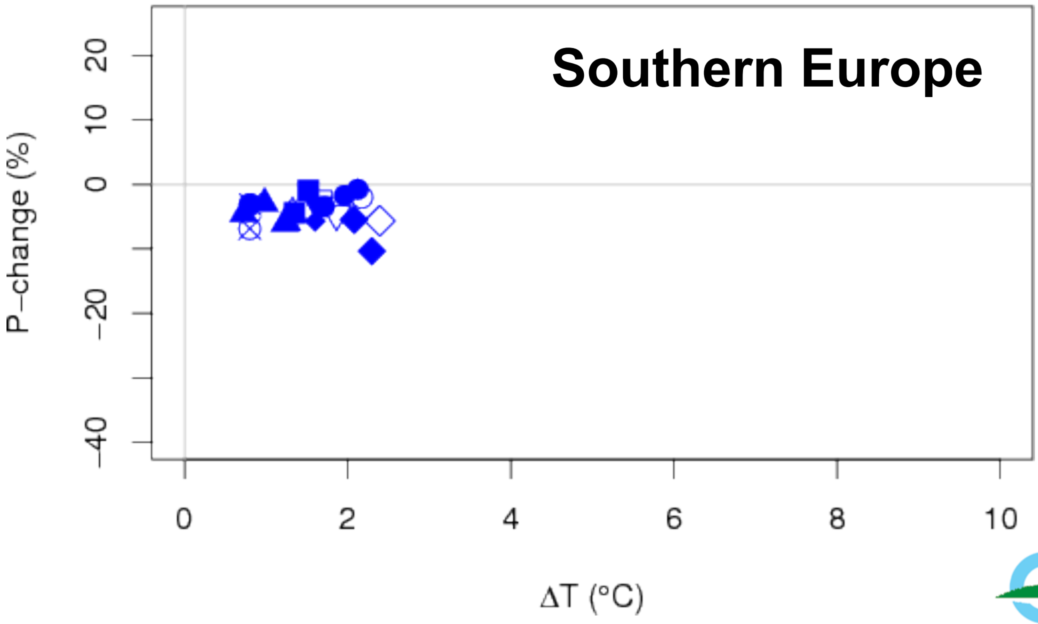

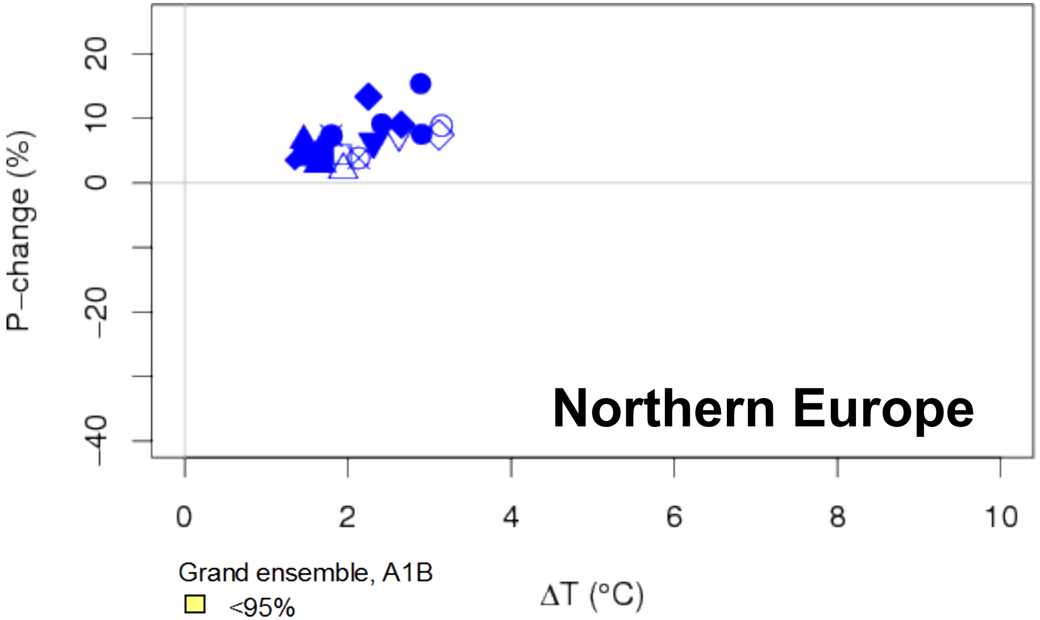

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2030-2050

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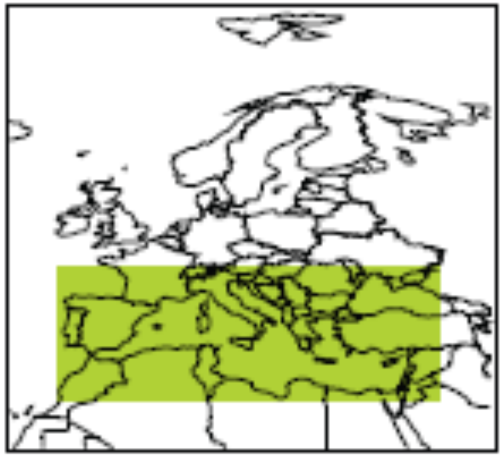

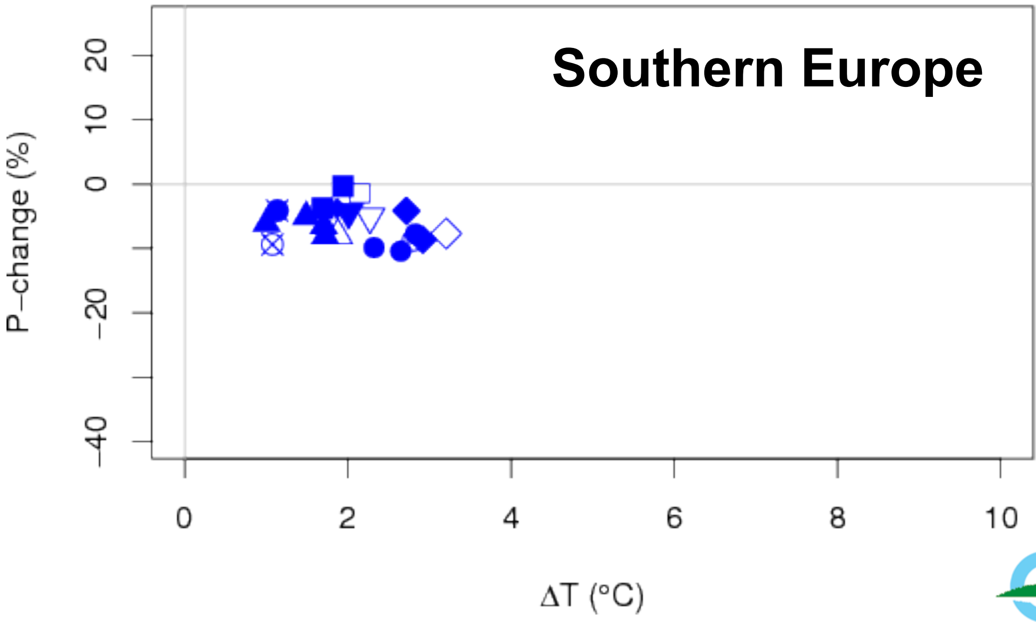

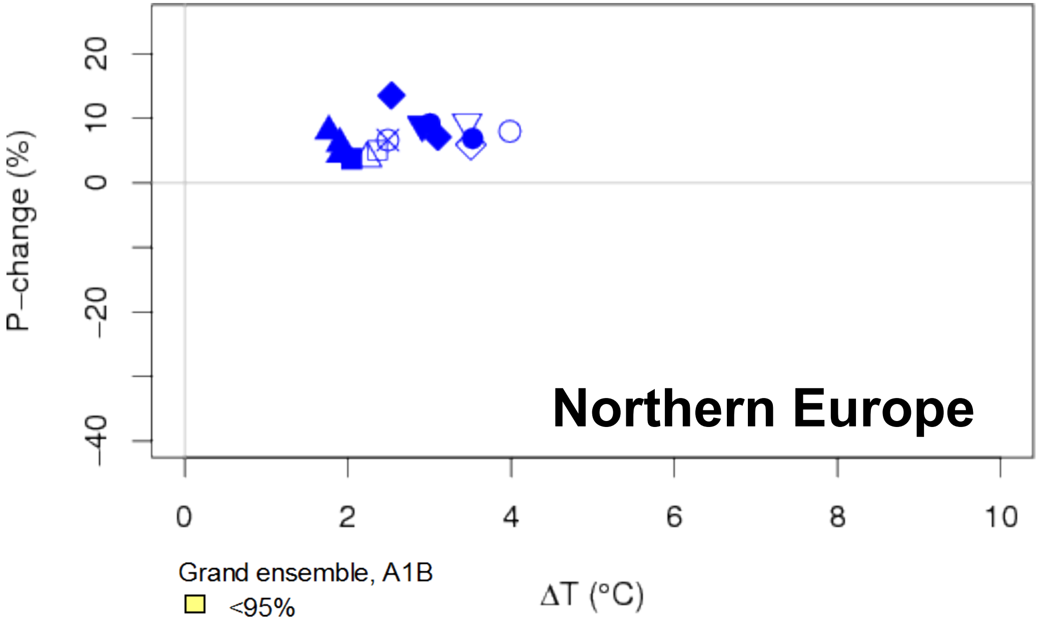

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2040-2060

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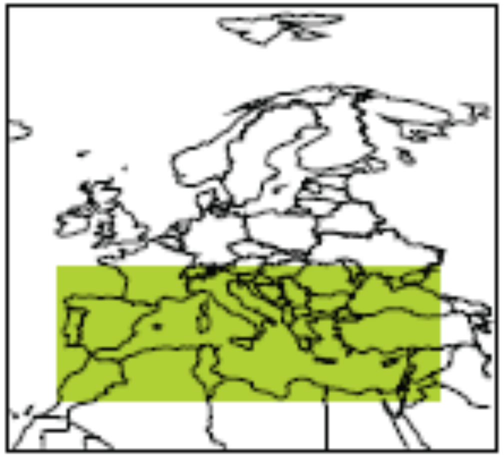

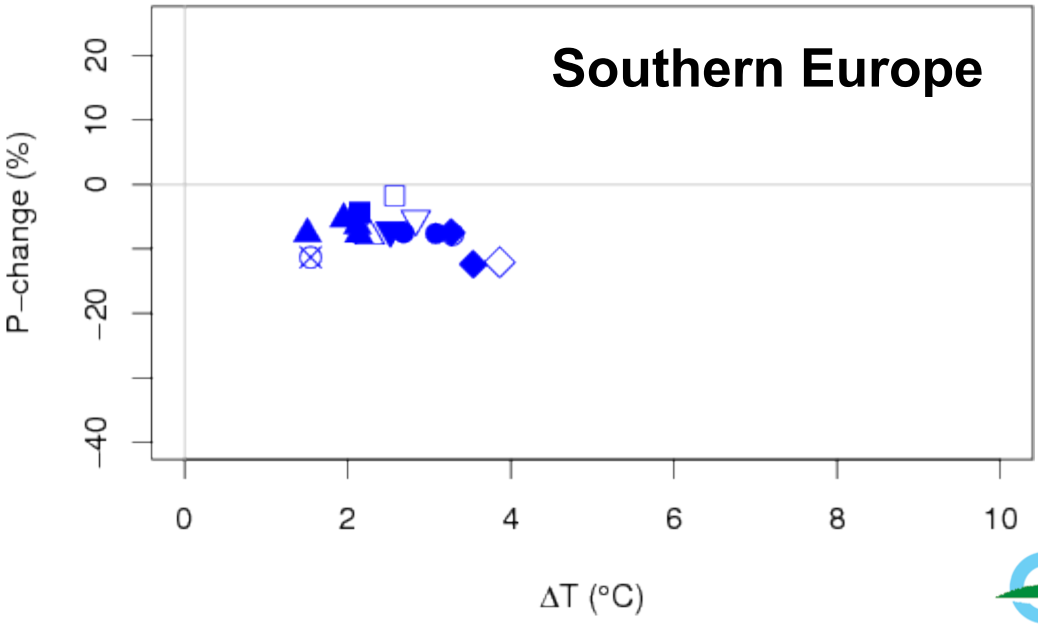

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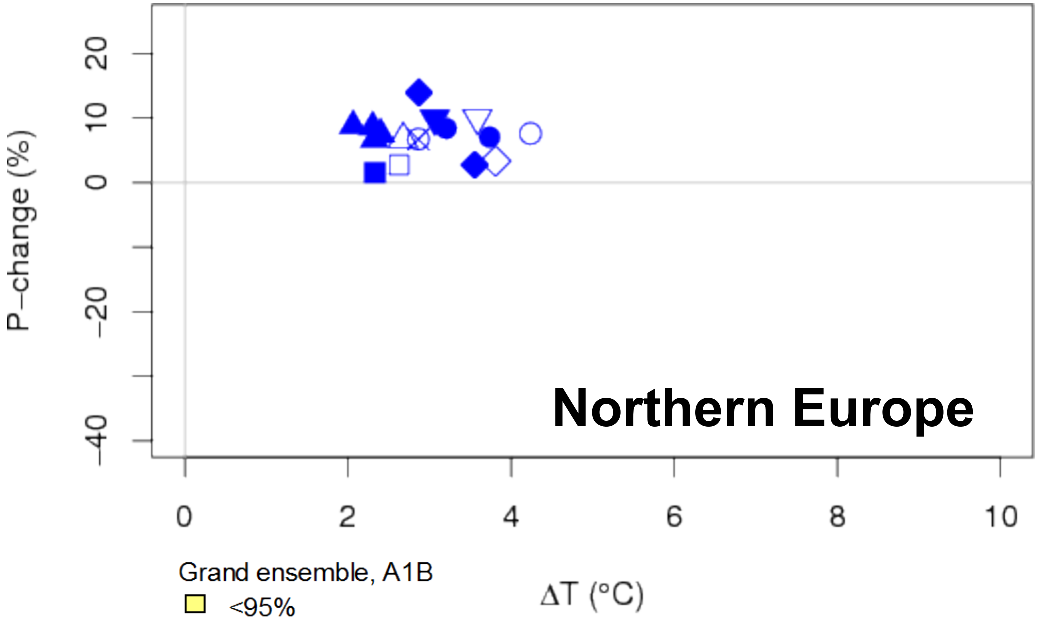

Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

Grand ensemble, A1B
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<25%

2050-2070

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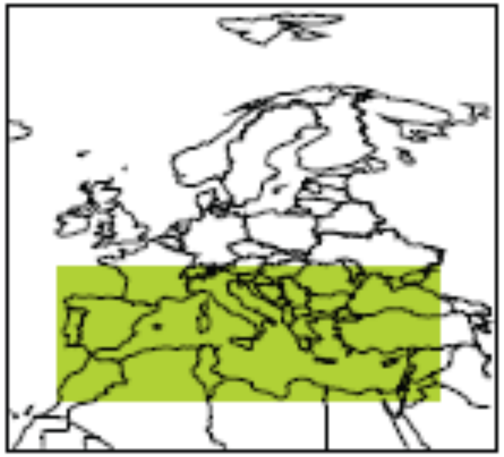

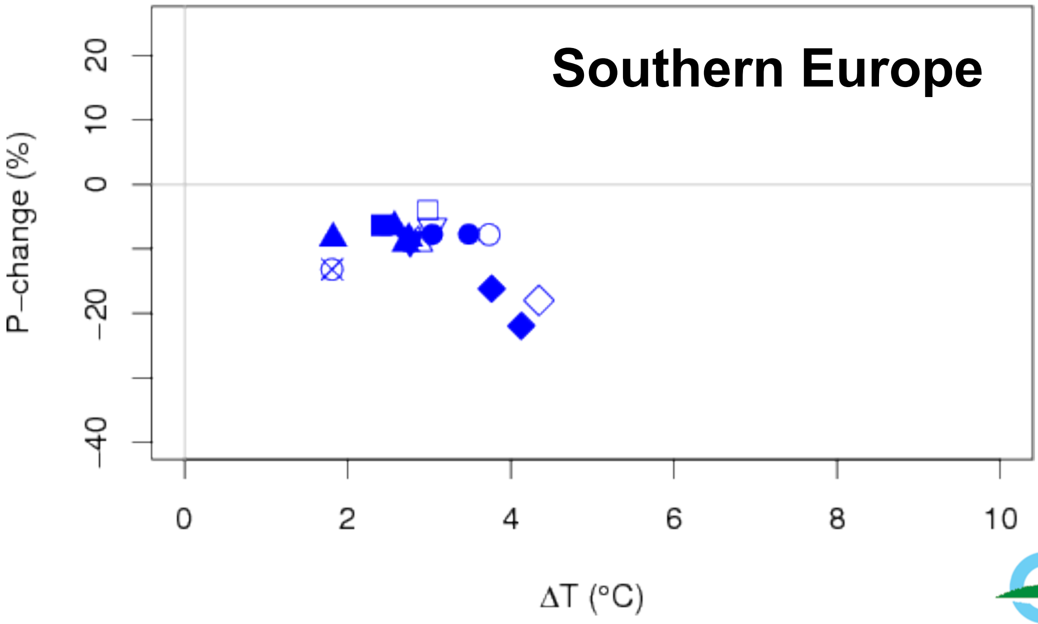

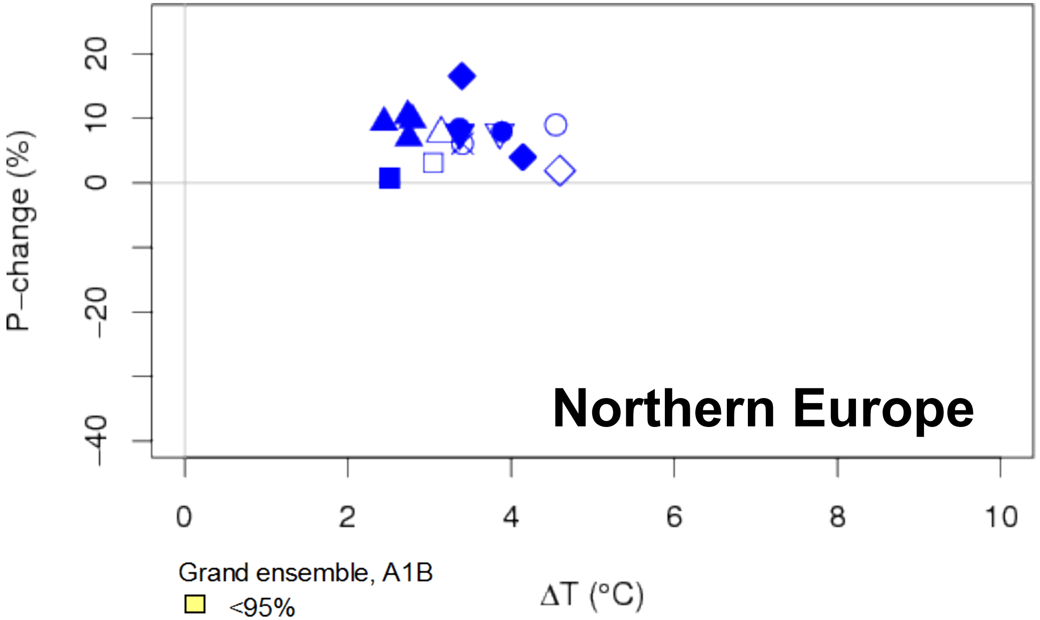

Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

2060-2080

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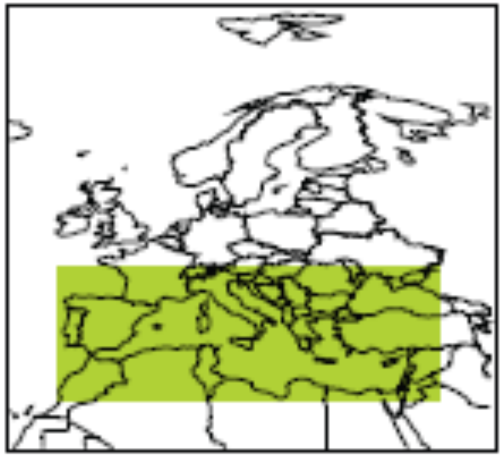

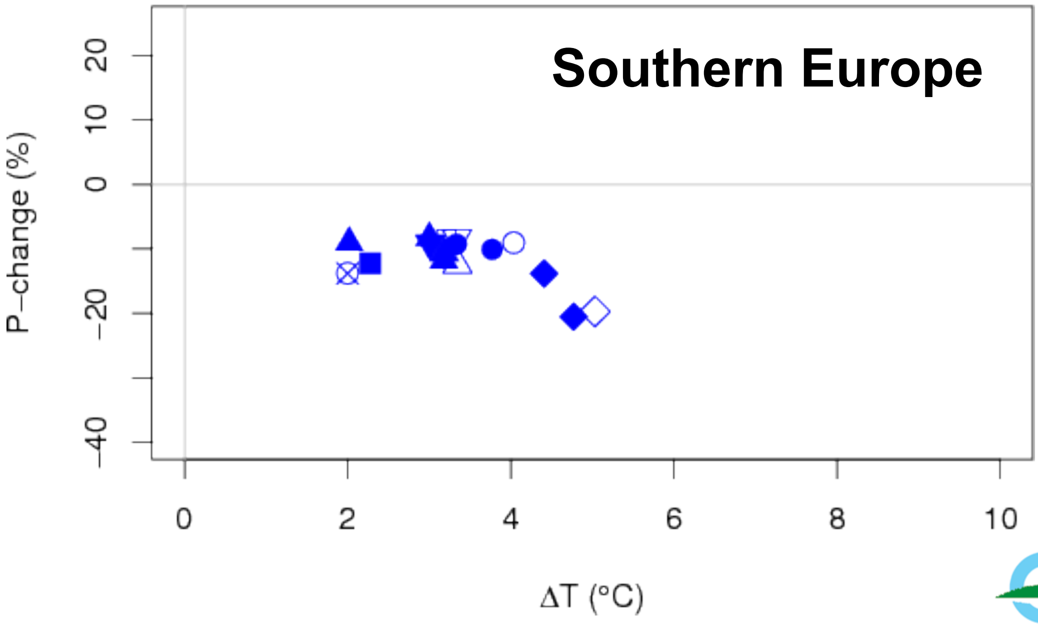

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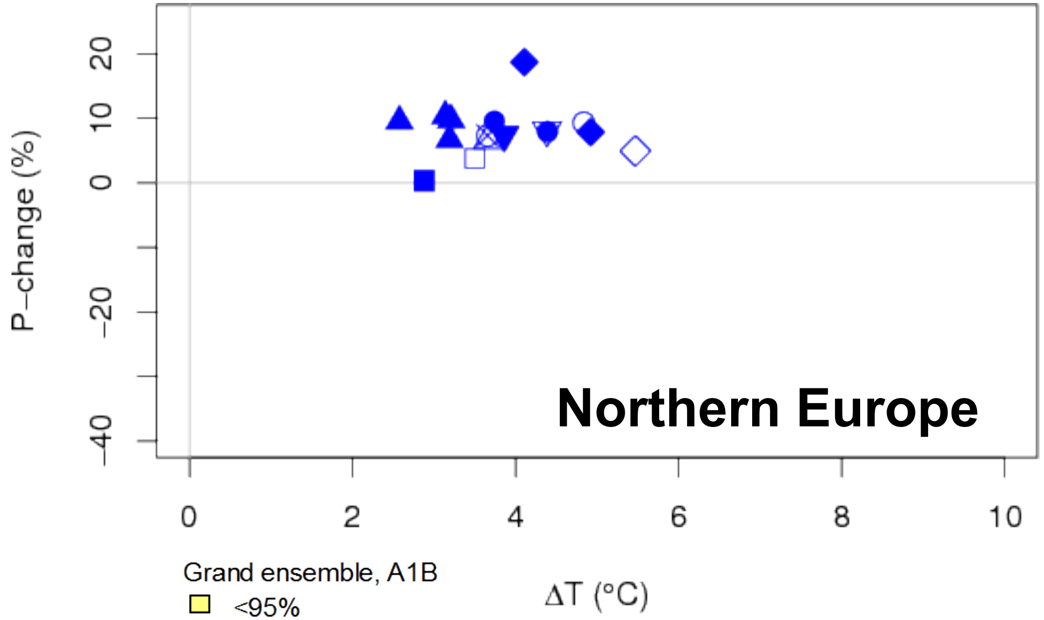

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2070-2090

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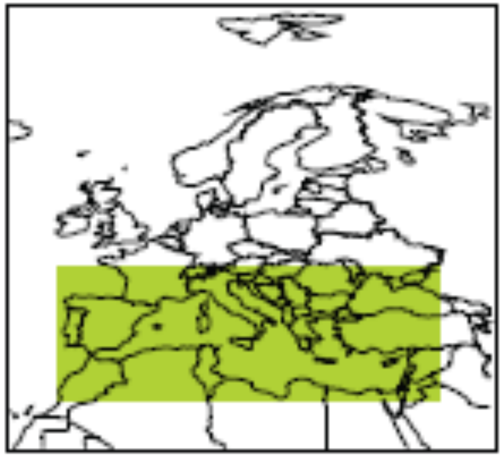

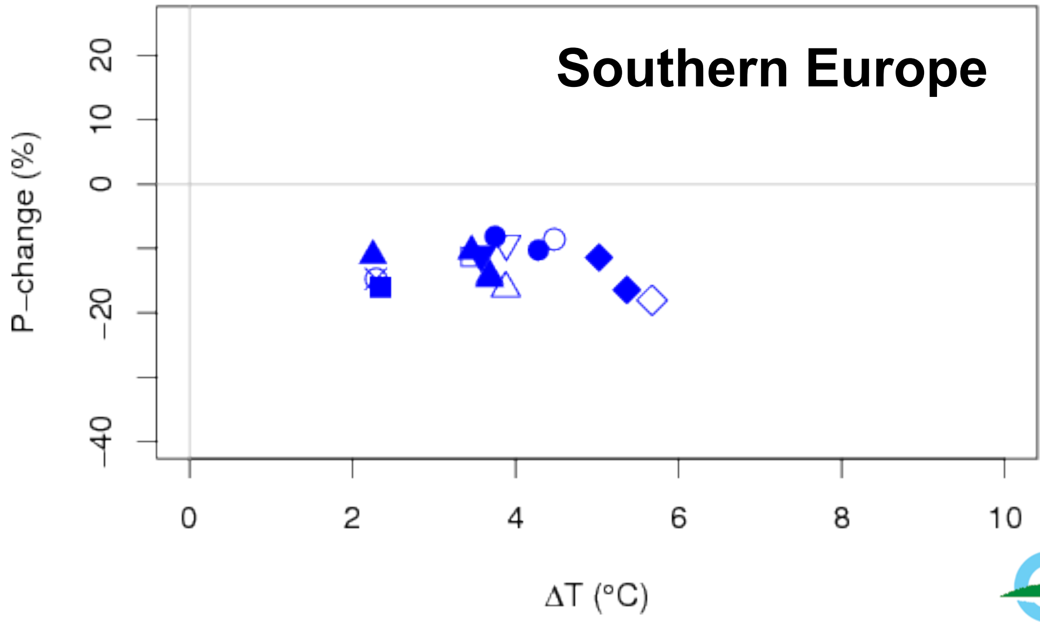

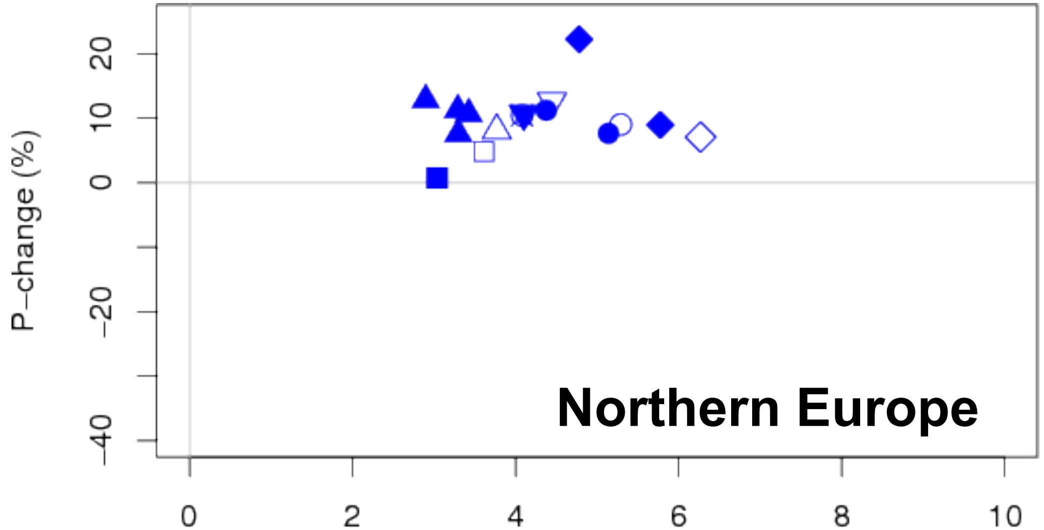

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ΔT (°C)

2080-2100

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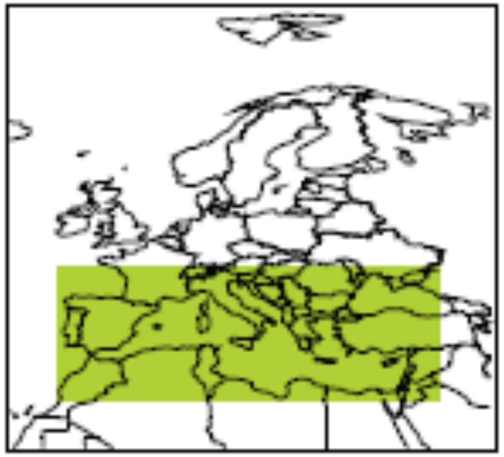

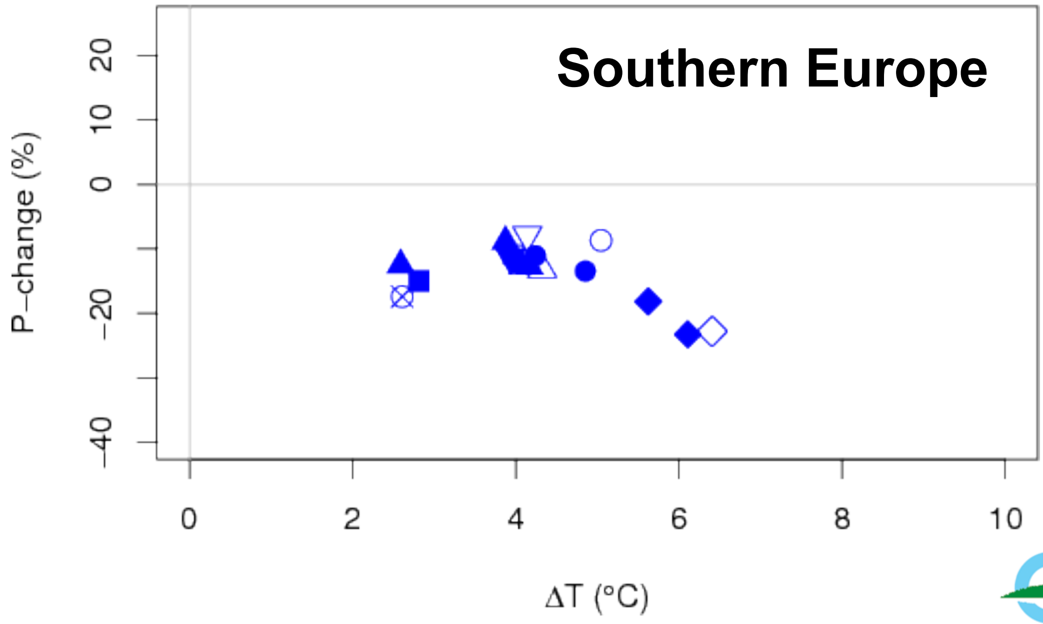

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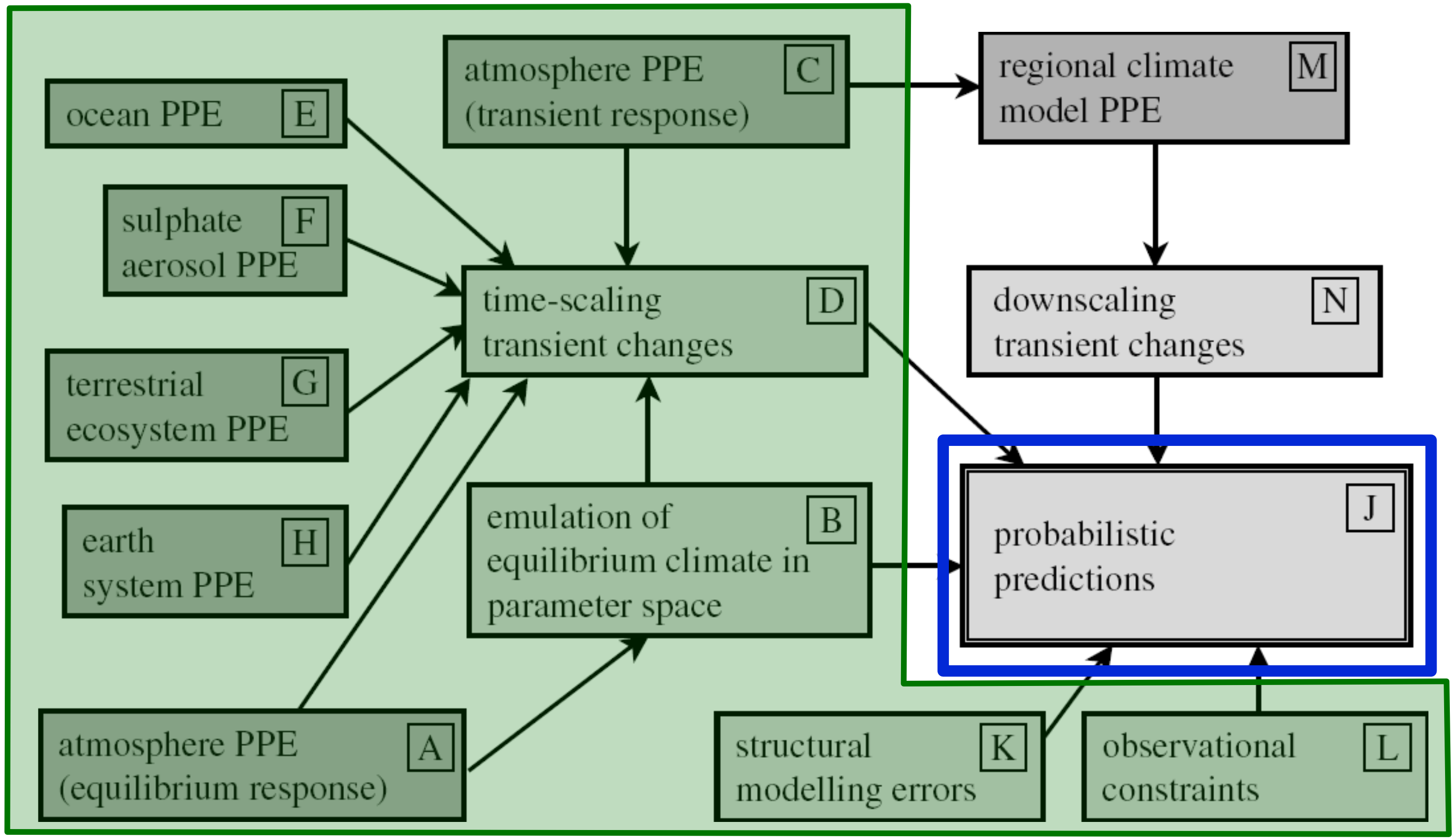
What new long-term climate information does ENSEMBLES offer impact analysts?

"Grand ensemble" PDFs (sampling multiple uncertainties)

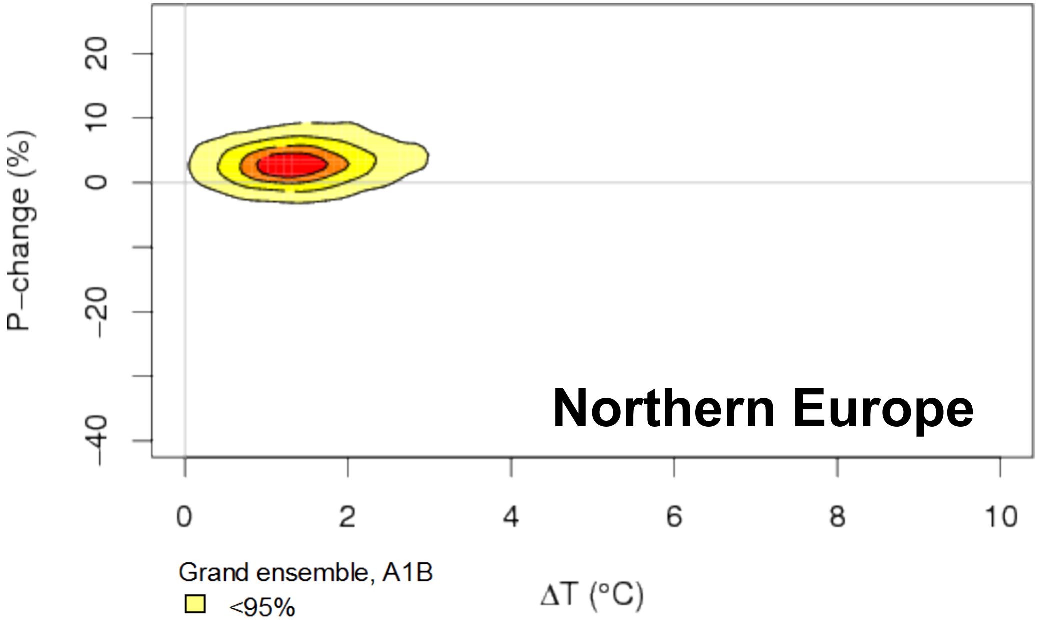
Glen Harris (Met Office), Stefan Fronzek (SYKE)

Decomposing the UKCP09 methodology used in creating probabilistic projections for Europe ("grand ensemble")



Global analysis ("grand ensemble")

Based on: Murphy et al. (2007)



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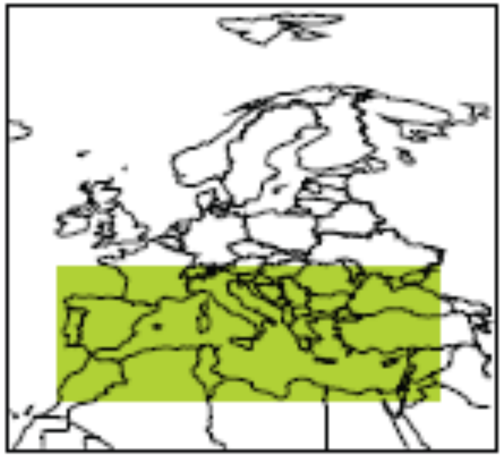

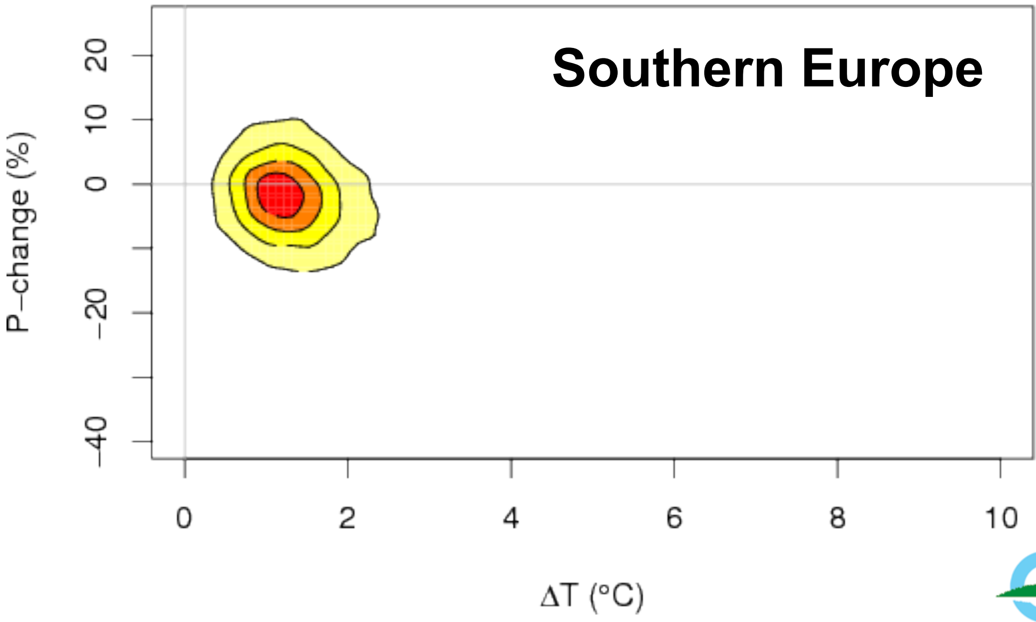

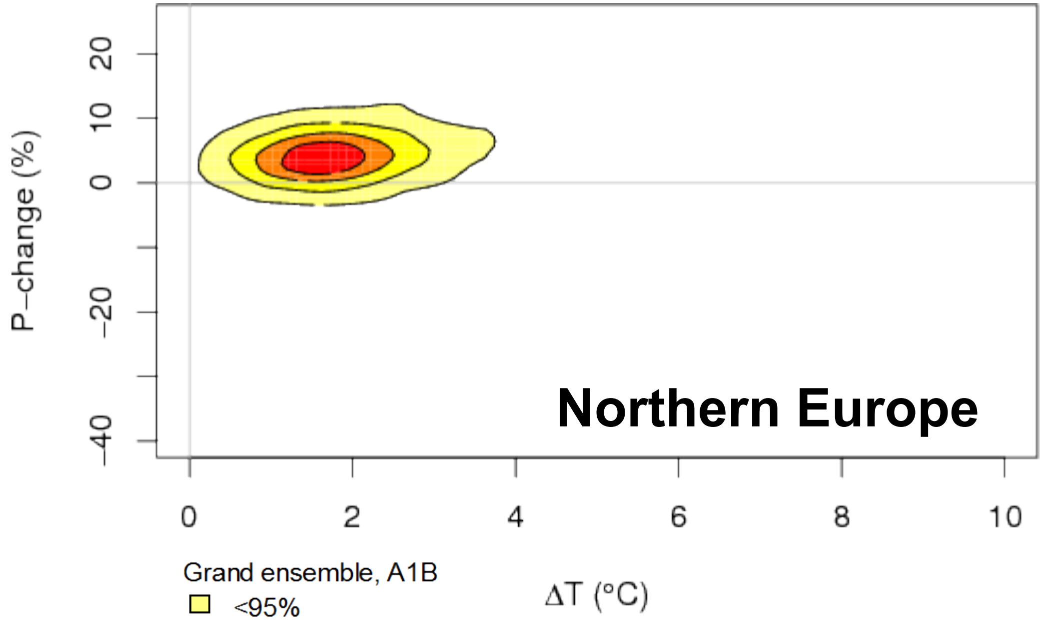

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2010-2030

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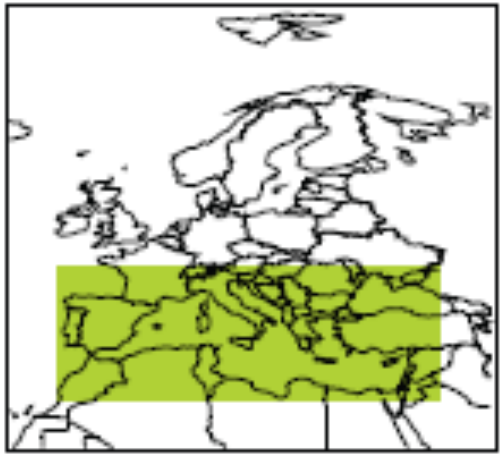

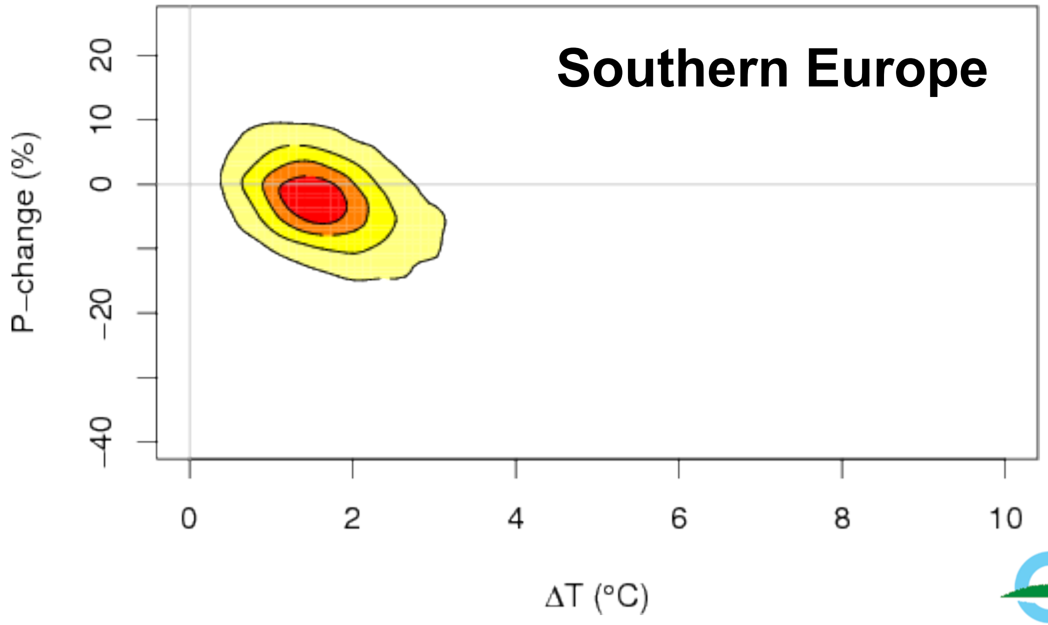

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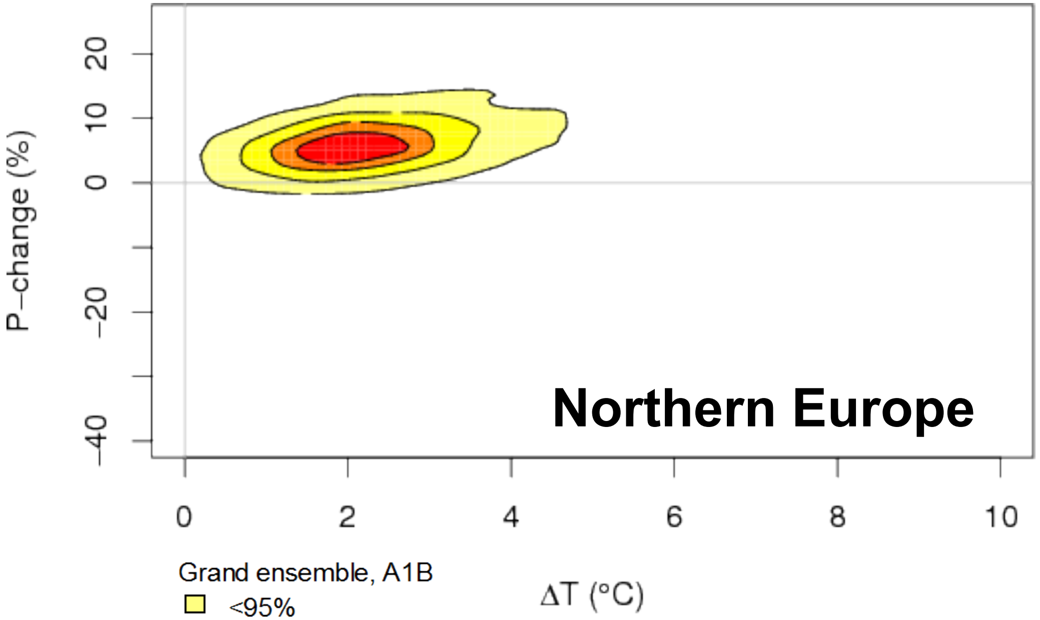

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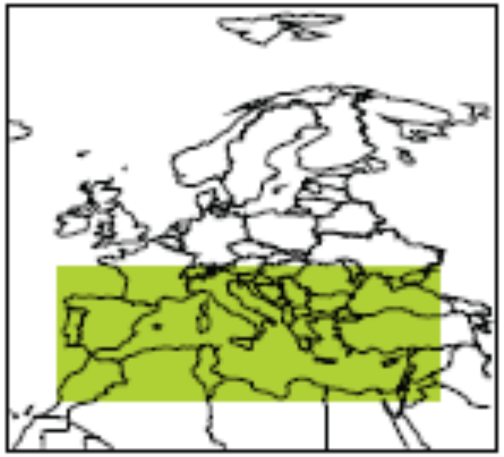
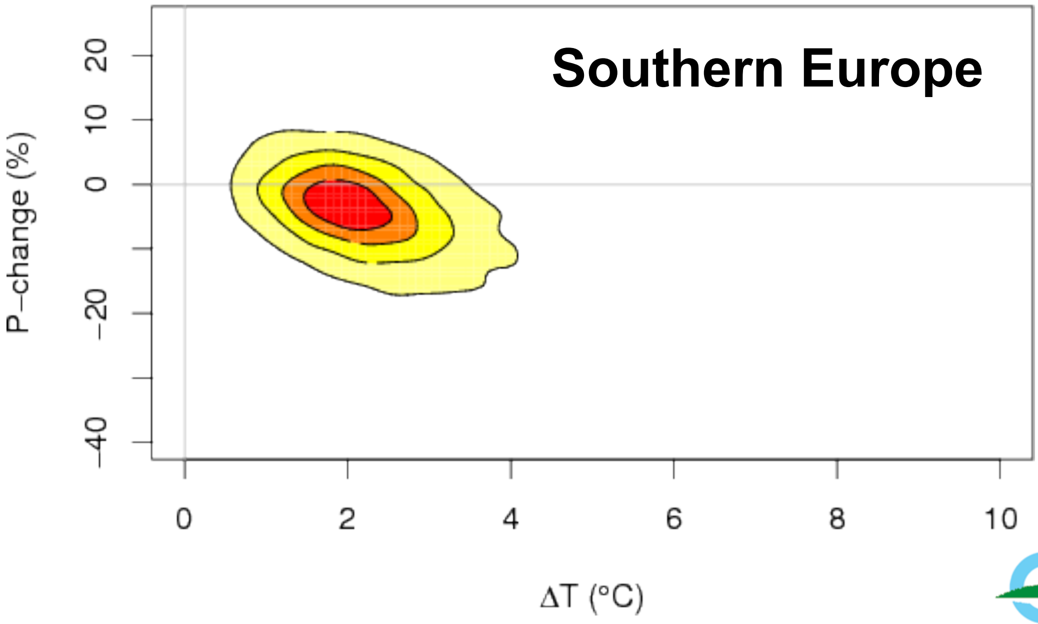
2020-2040





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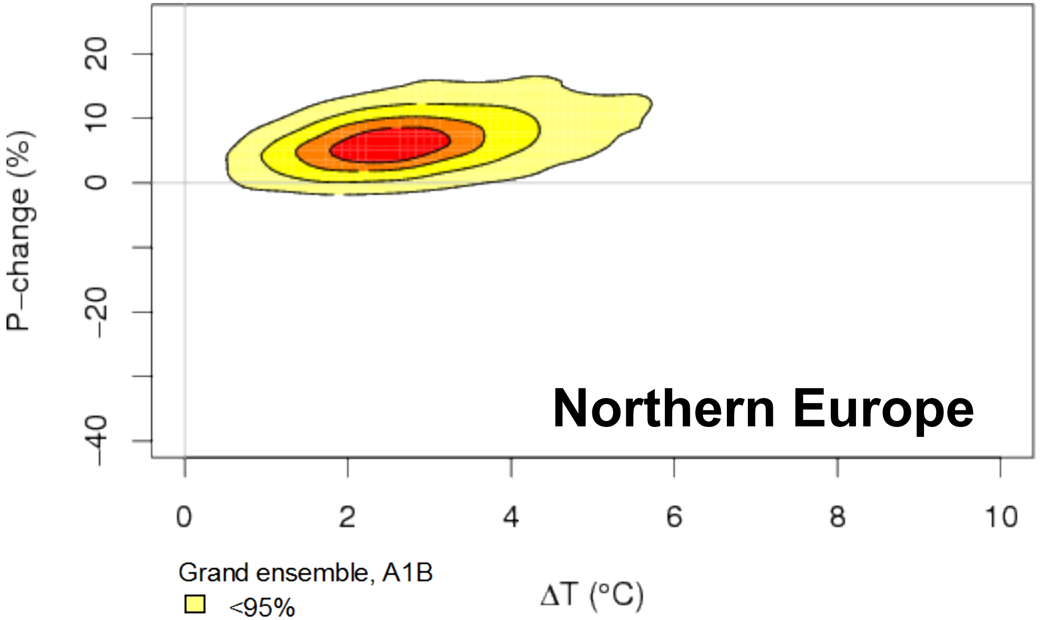

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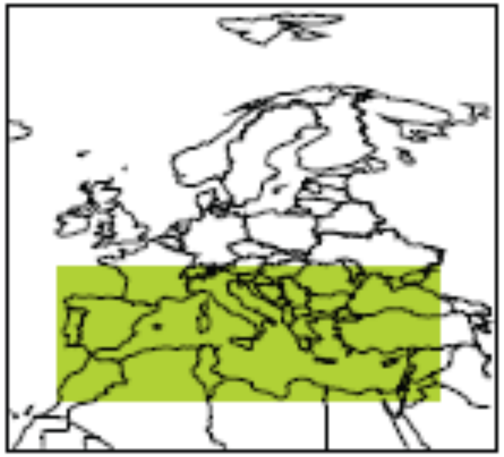

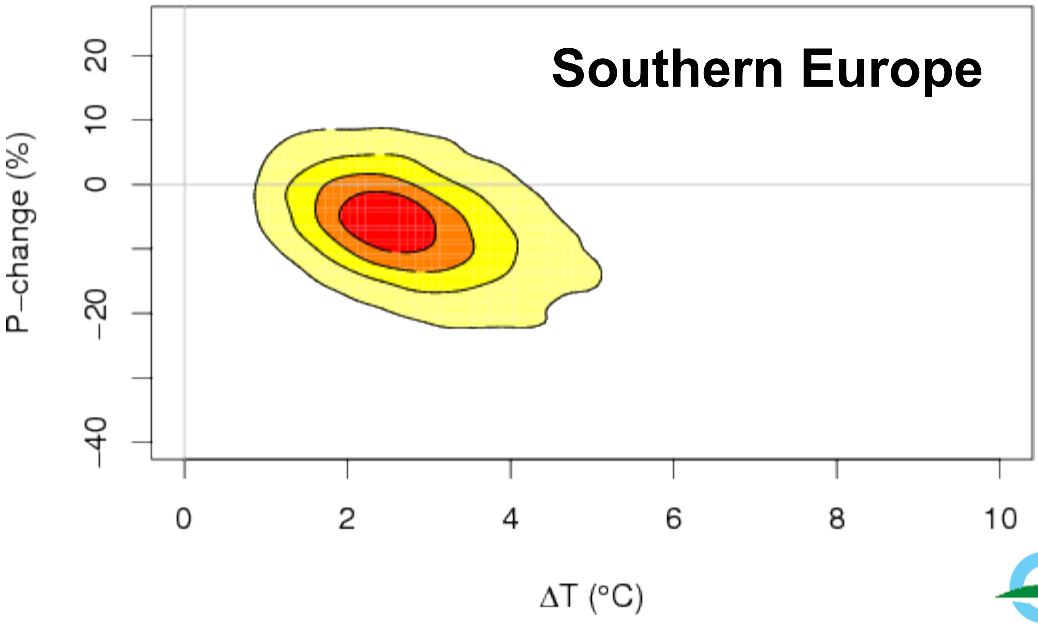

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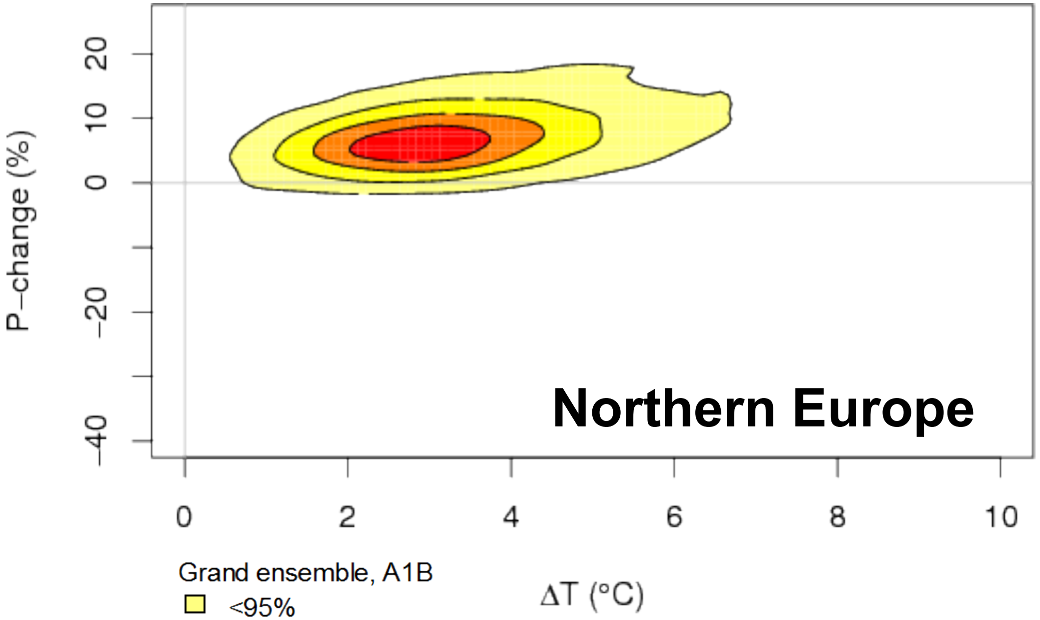
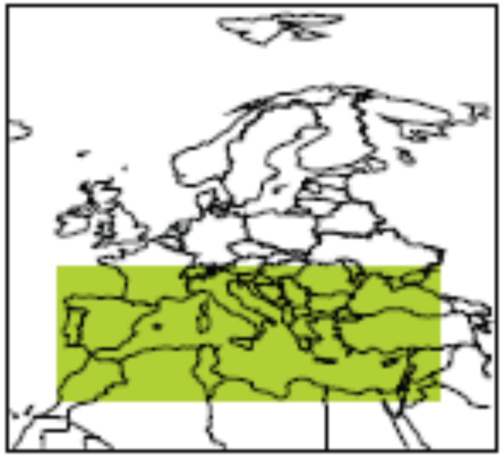


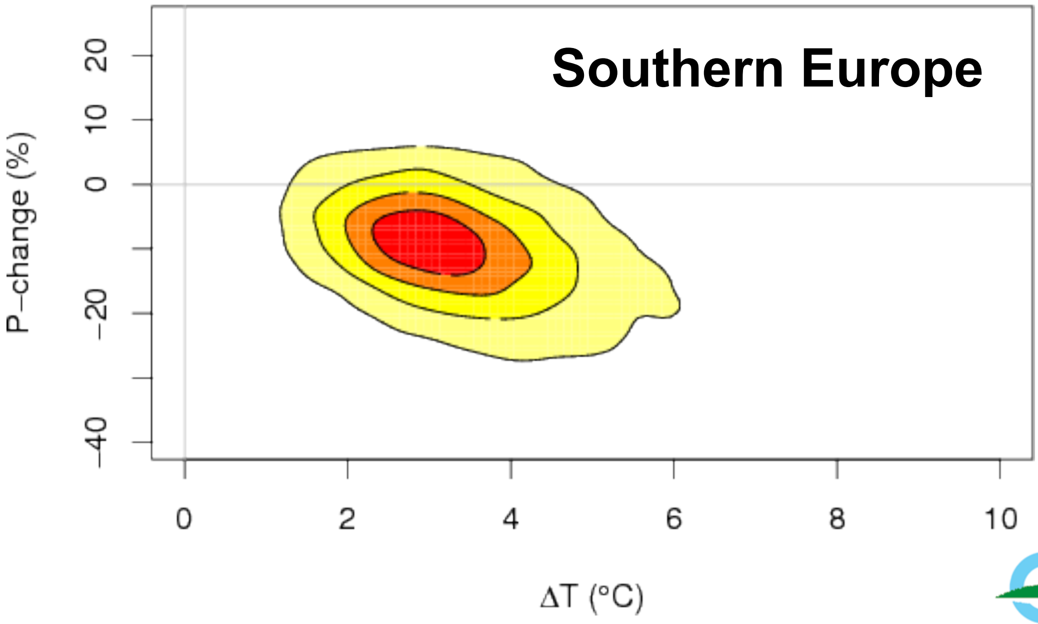
Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

Grand ensemble, A1B
- <95%
- <75%
- <50%
- <25%

2040-2060

Solid blue symbols: RCMs □ Open blue symbols: driving GCMs, A1B





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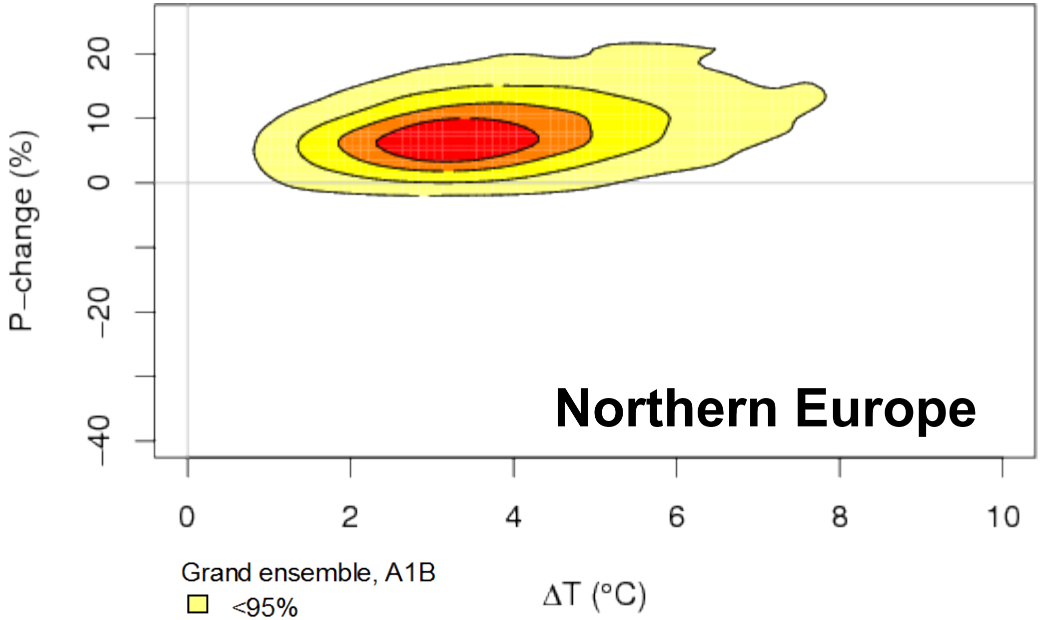

Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

Grand ensemble, A1B
<95%
<75%
<50%
<25%

2050-2070

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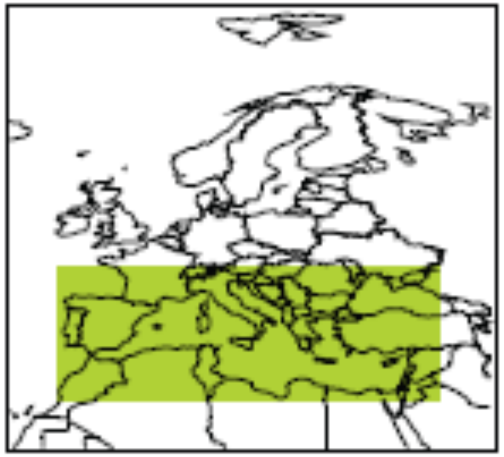

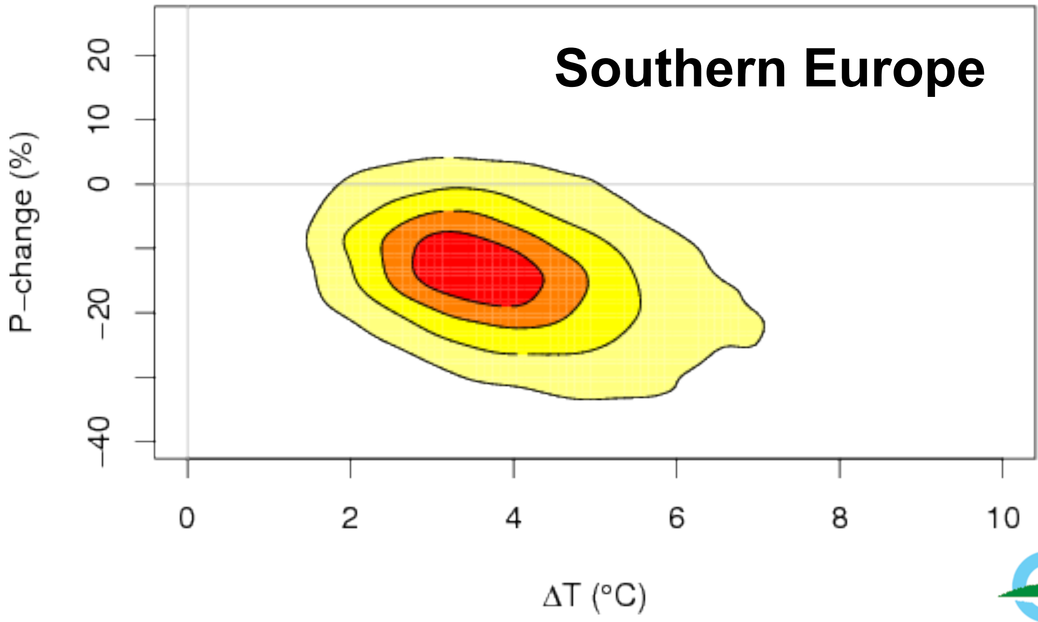

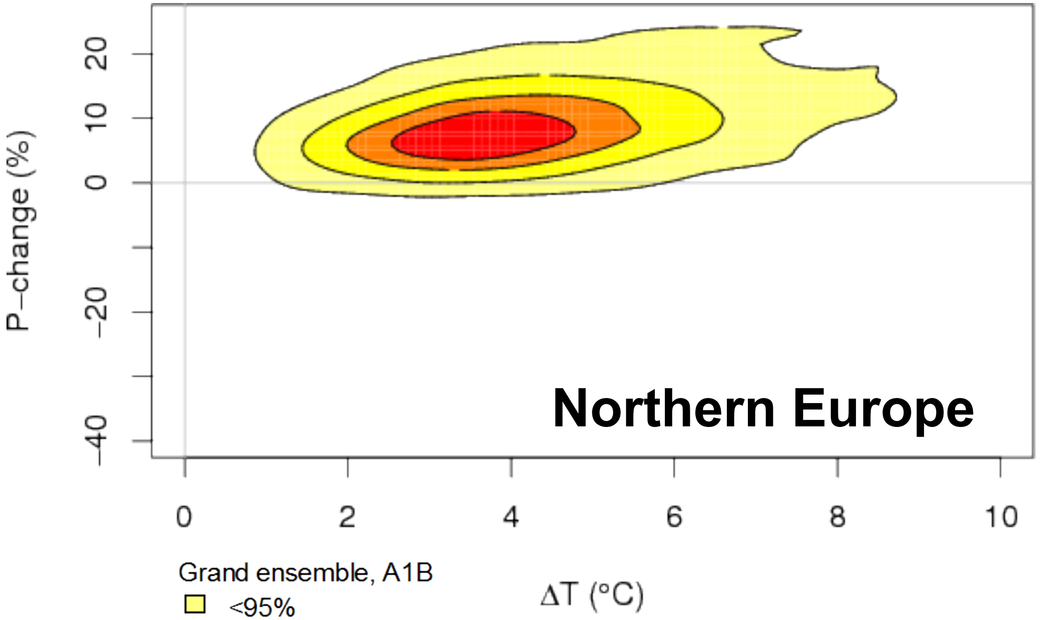

Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

Grand ensemble, A1B
- <95%
- <75%
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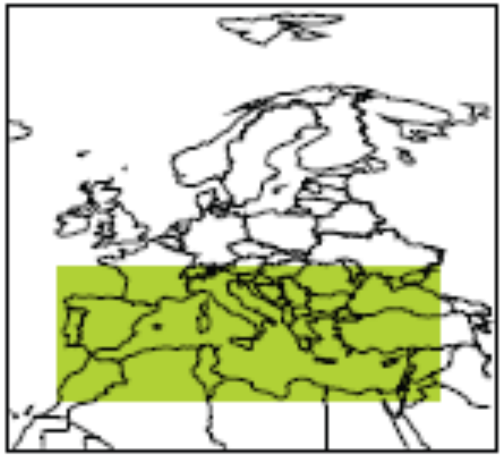
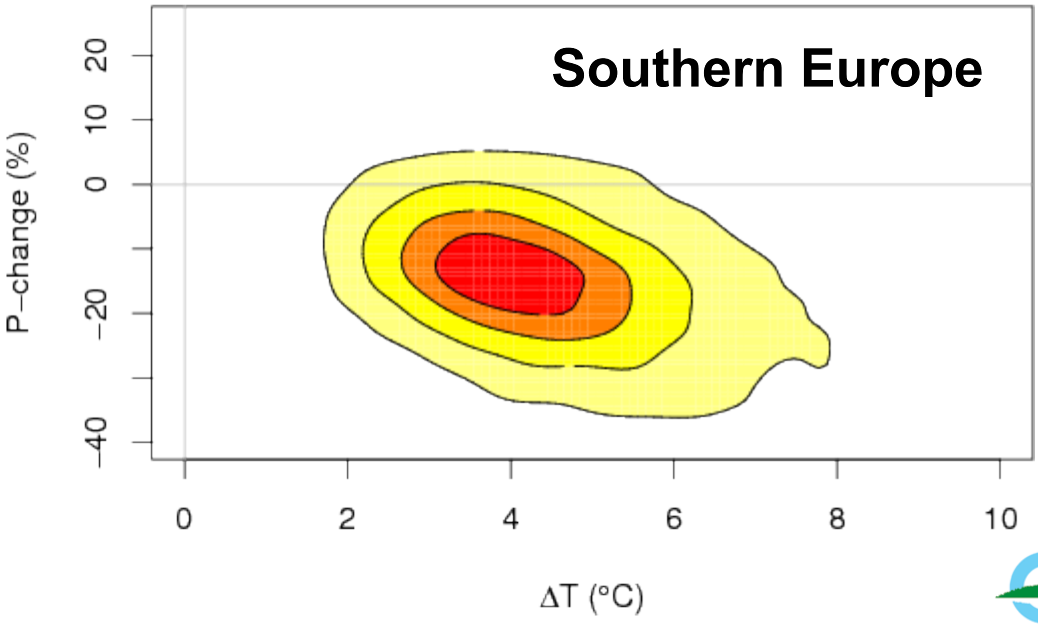
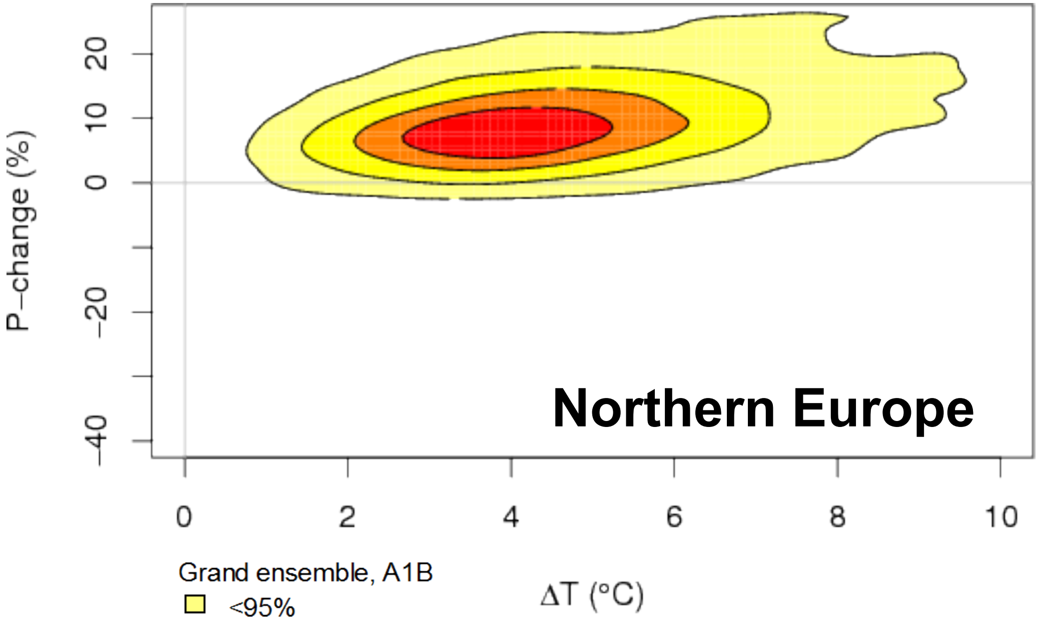
- <25%

2060-2080

Solid blue symbols: RCMs Open blue symbols: driving GCMs, A1B







Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

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2070-2090

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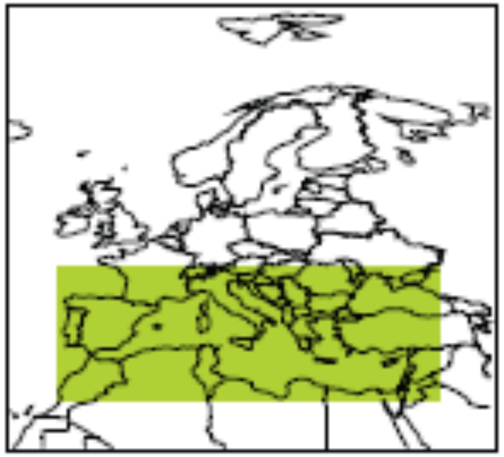

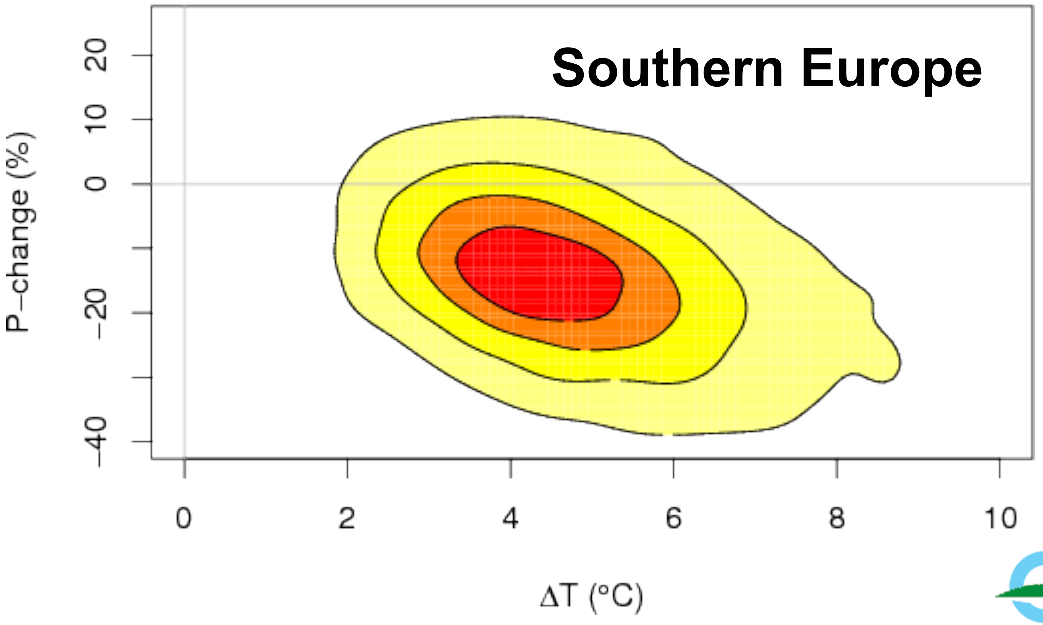

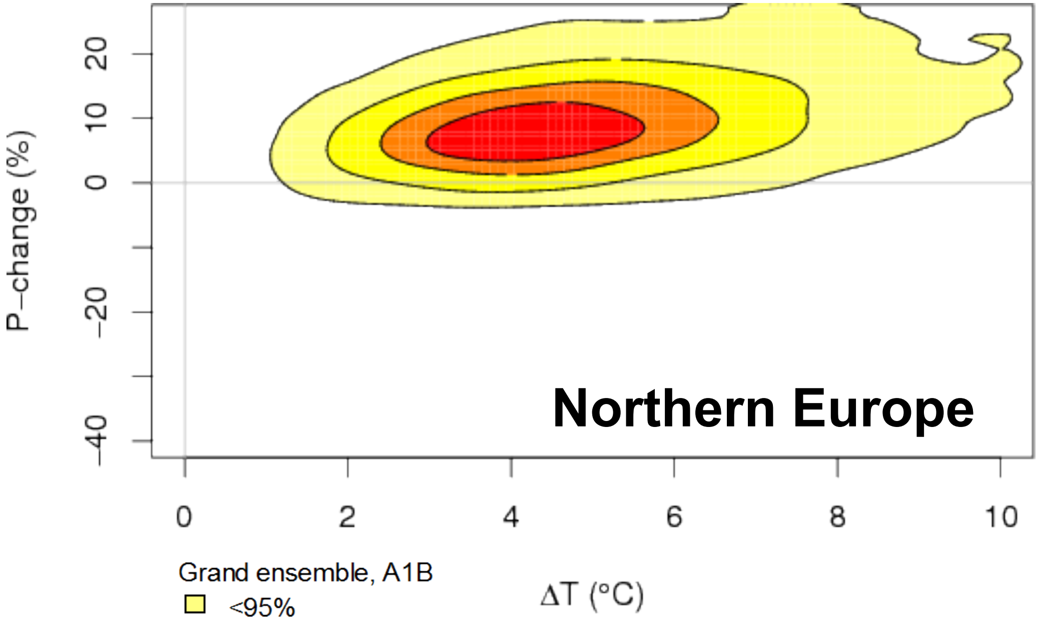

Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

Grand ensemble, A1B
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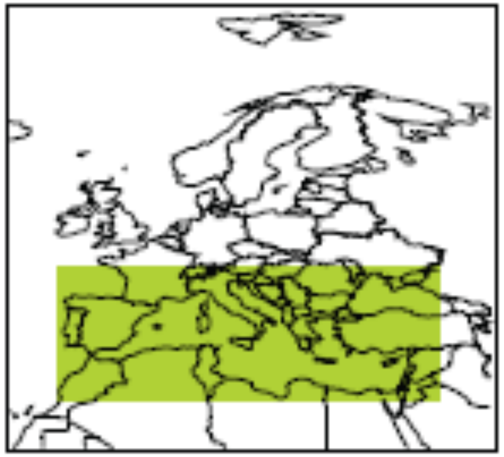
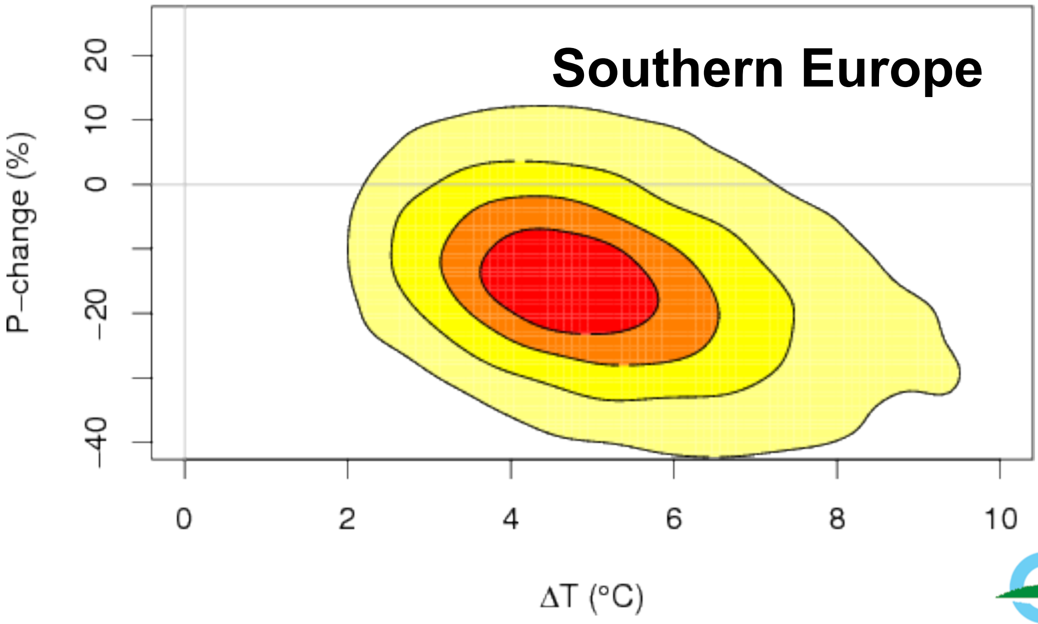
2080-2100

Solid blue symbols: RCMs Open blue symbols: driving GCMs, A1B





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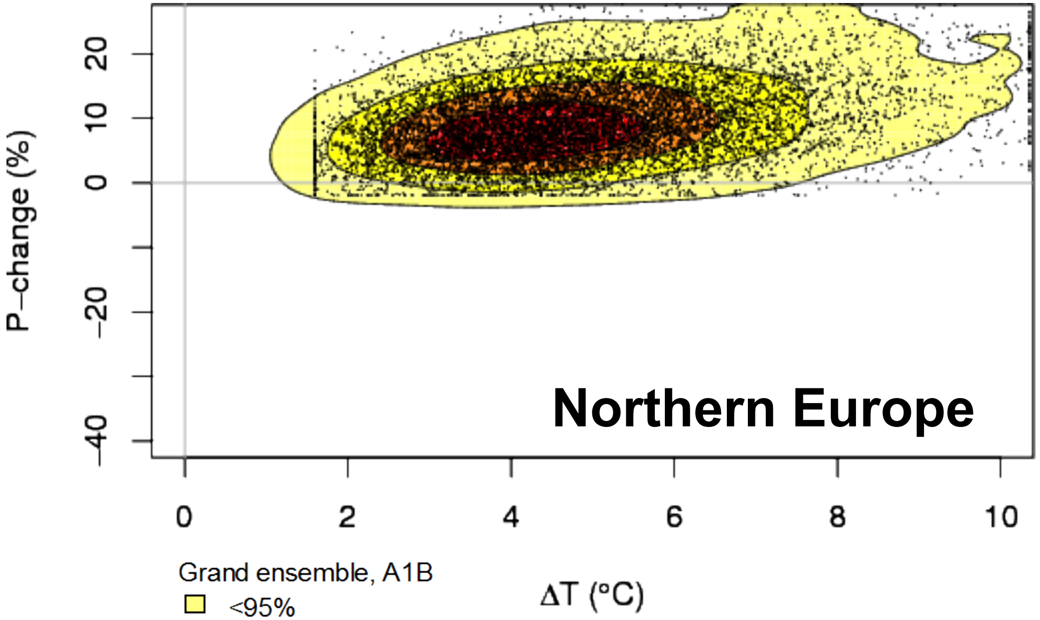

Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

Grand ensemble, A1B
- <95%
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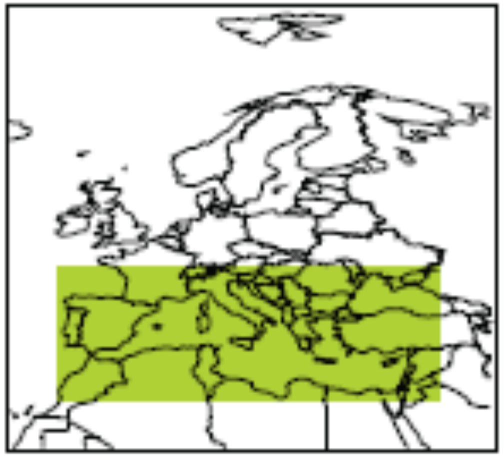
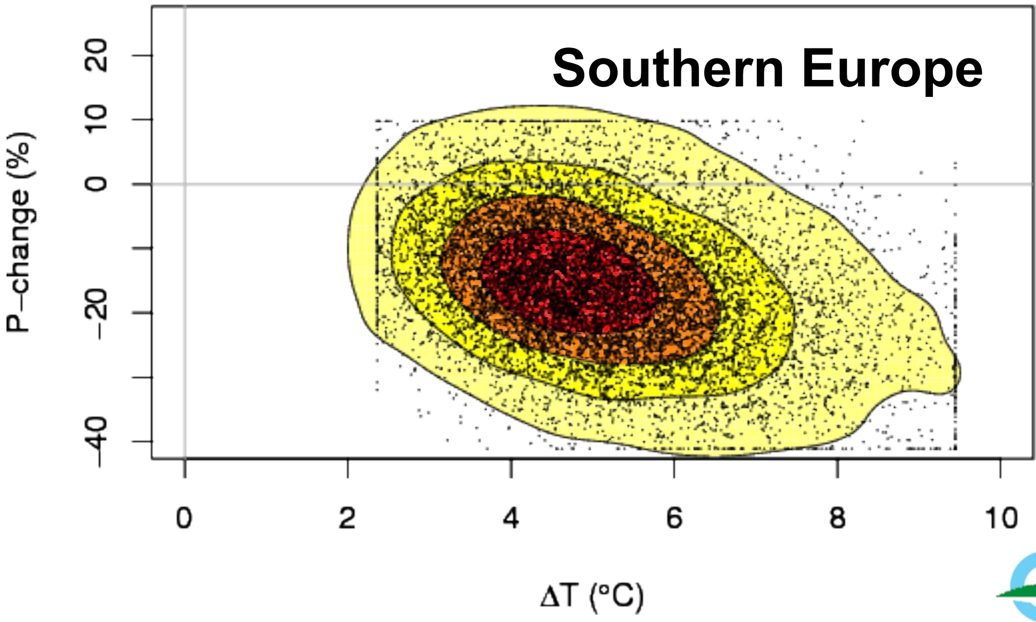
2080-2100

Solid blue symbols: RCMs □ Open blue symbols: driving GCMs, A1B





ENSEMBLES

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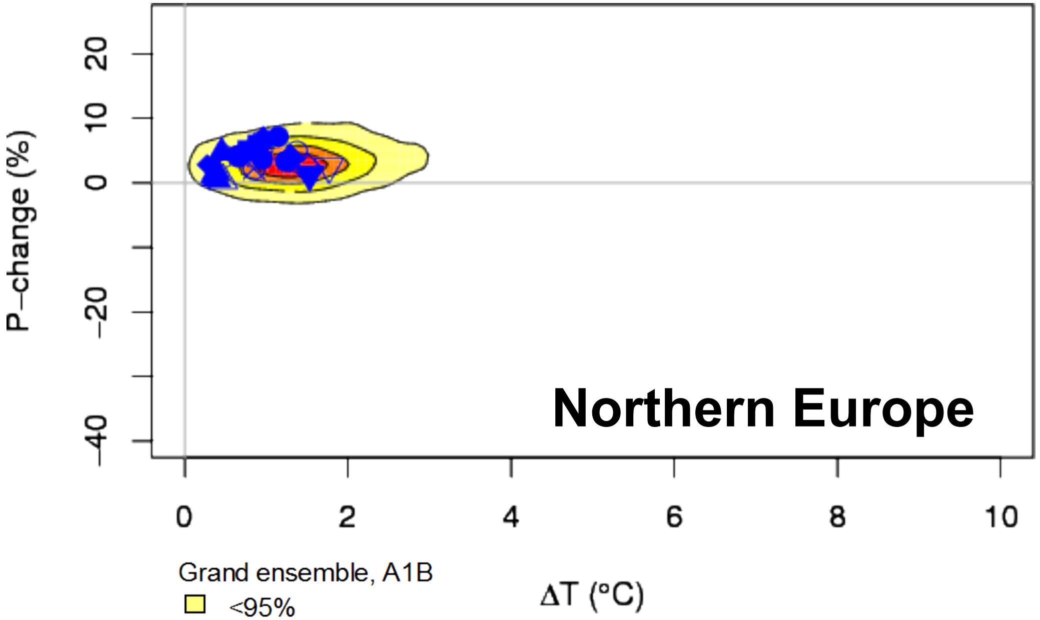
What new long-term climate information does ENSEMBLES offer impact analysts?

ENSEMBLES multiple projections intercomparison

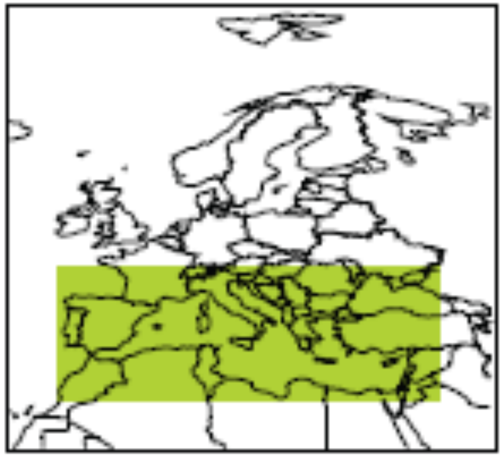


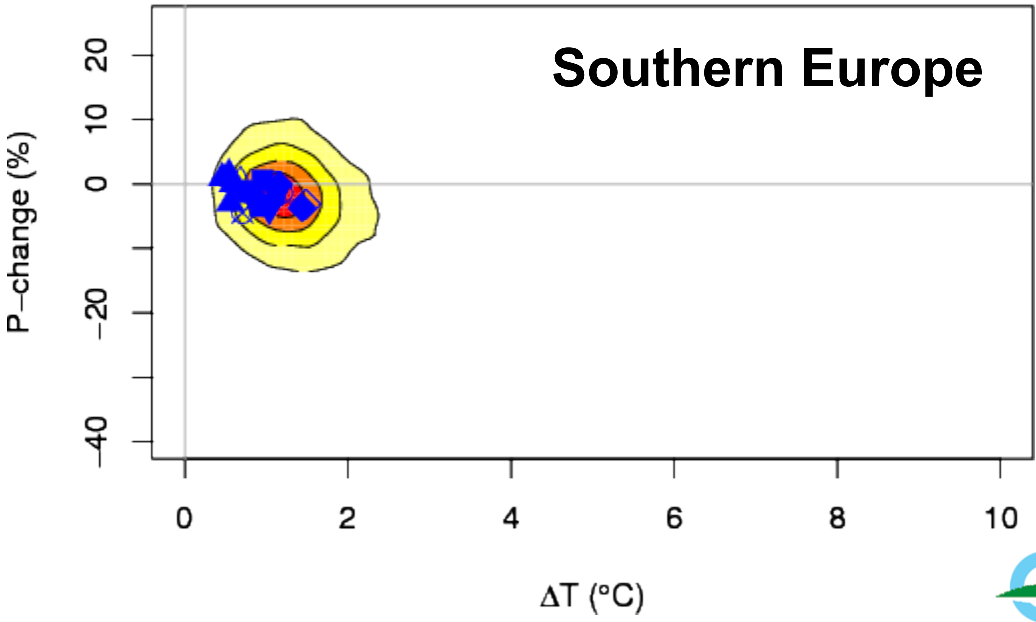
Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

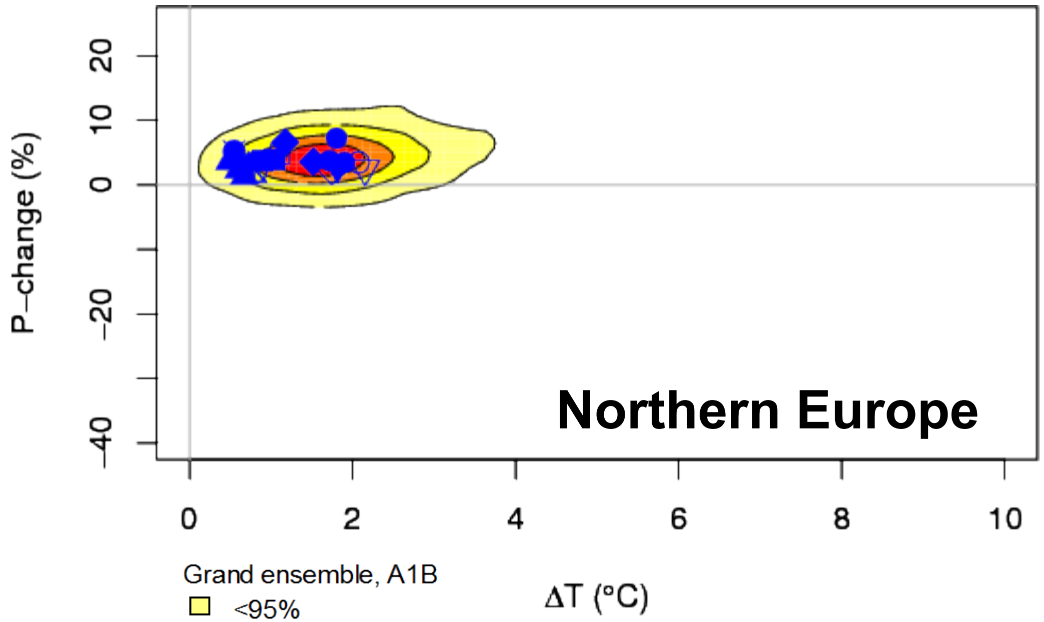
Grand ensemble, A1B
<95%
<75%
<50%
<25%

2000-2020

Solid blue symbols: RCMs Open blue symbols: driving GCMs, A1B





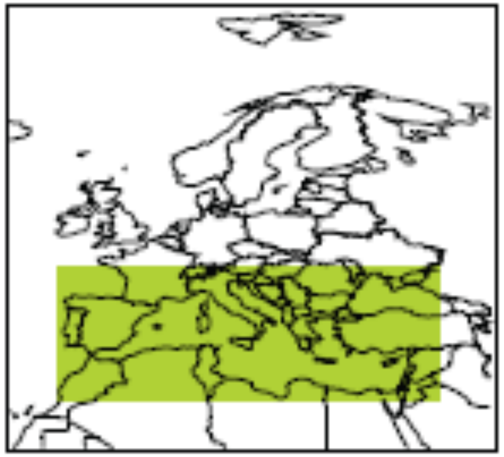


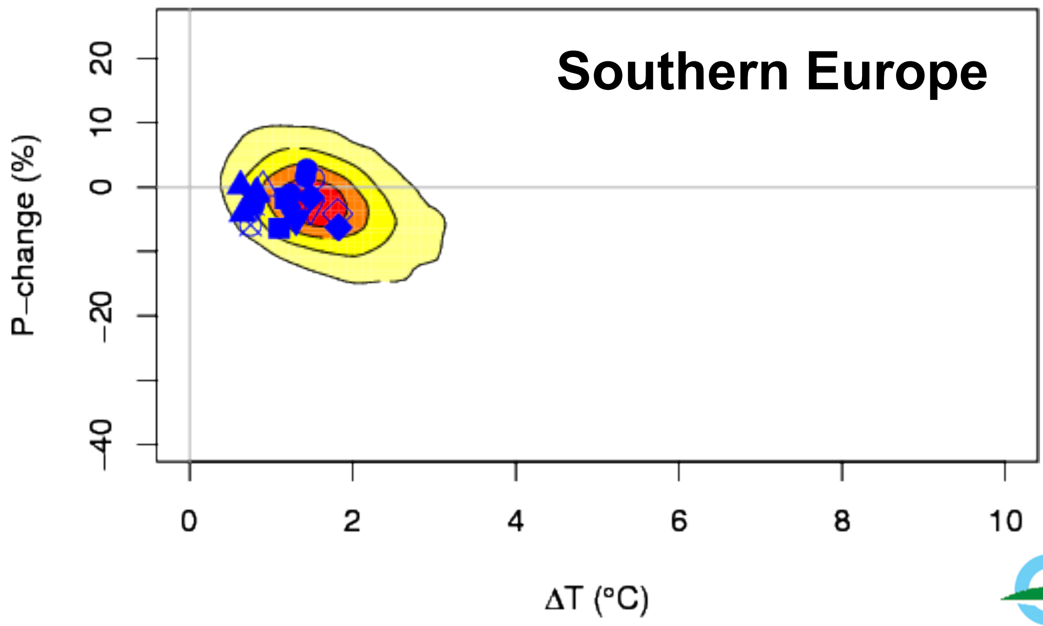
Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

Grand ensemble, A1B
- <95%
- <75%
- <50%
- <25%

2010-2030

■ **Solid blue symbols: RCMs** □ Open blue symbols: driving GCMs, A1B





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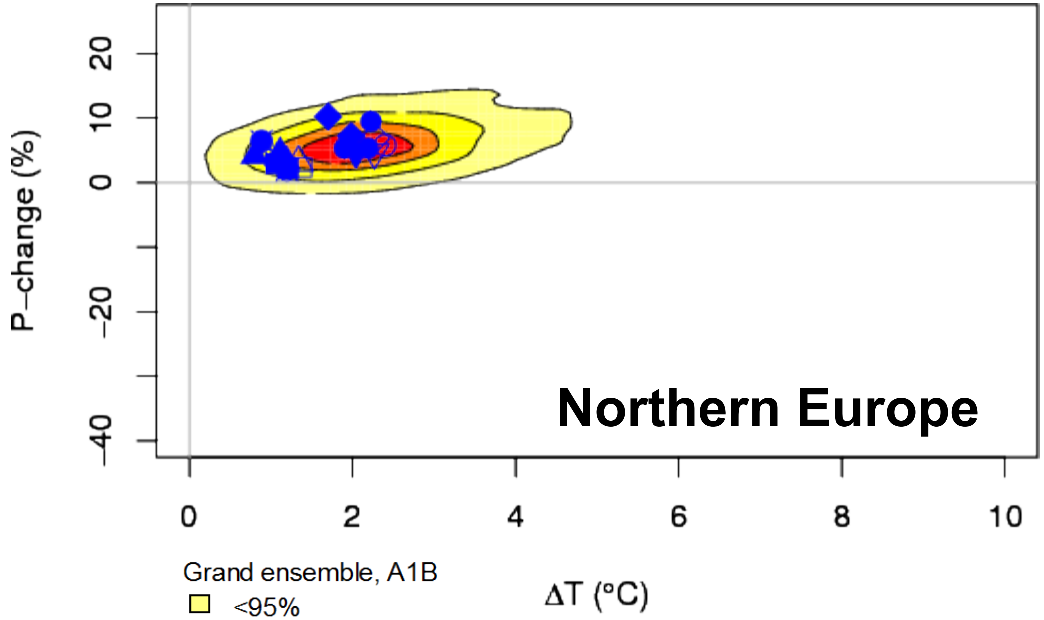
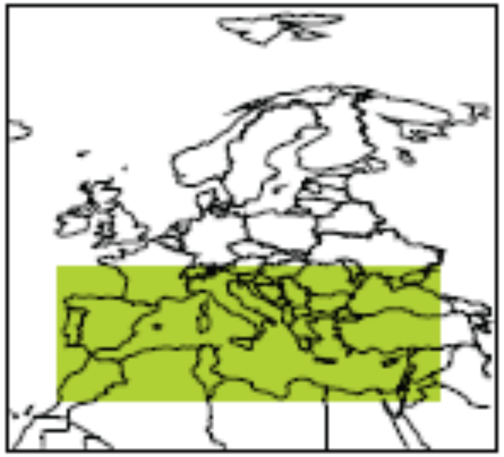


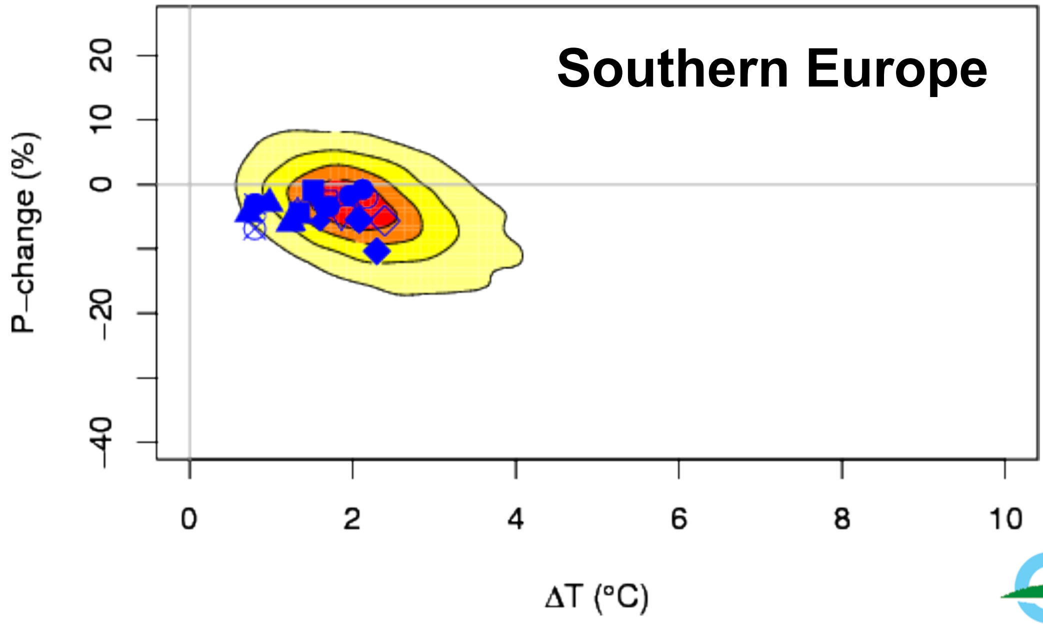
Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

Grand ensemble, A1B
- <95%
- <75%
- <50%
- <25%

2020-2040

Solid blue symbols: RCMs Open blue symbols: driving GCMs, A1B





ENSEMBLES

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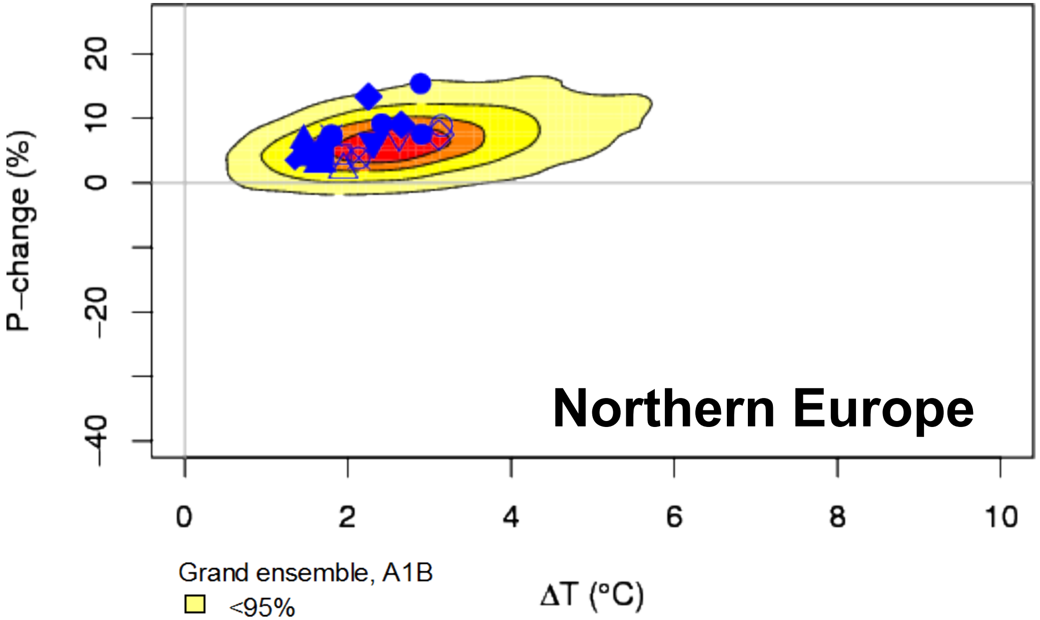
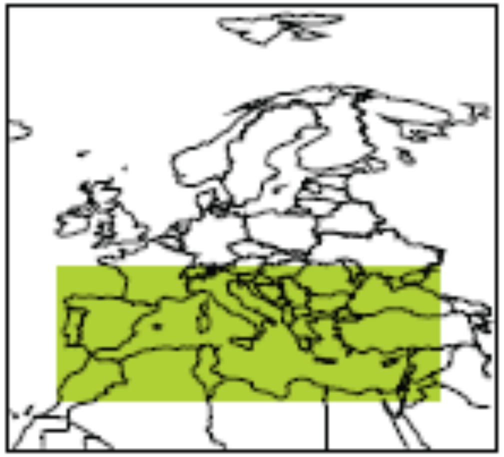


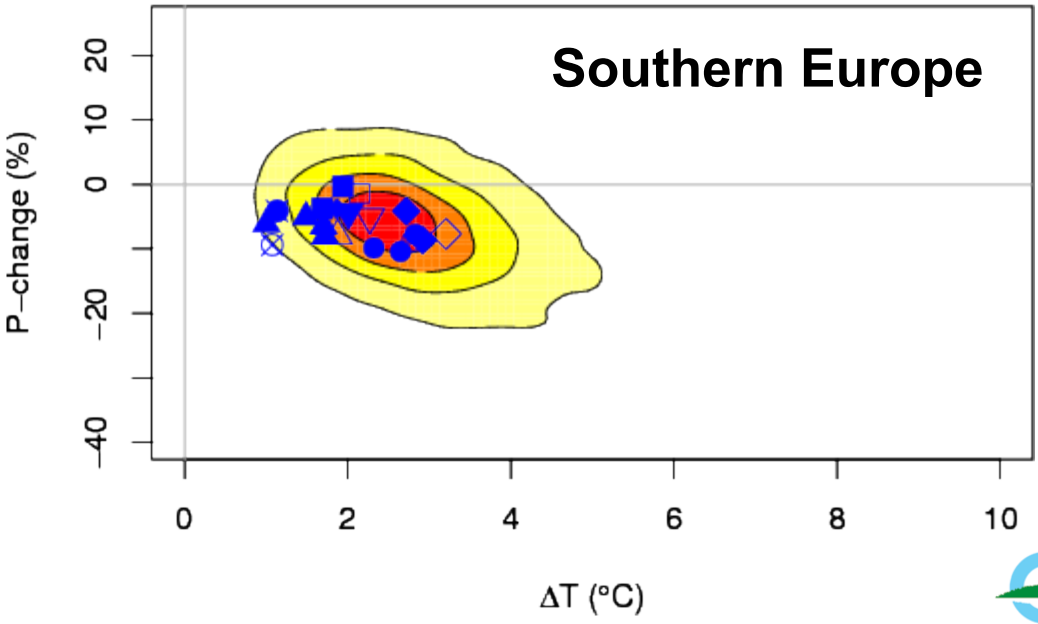
Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

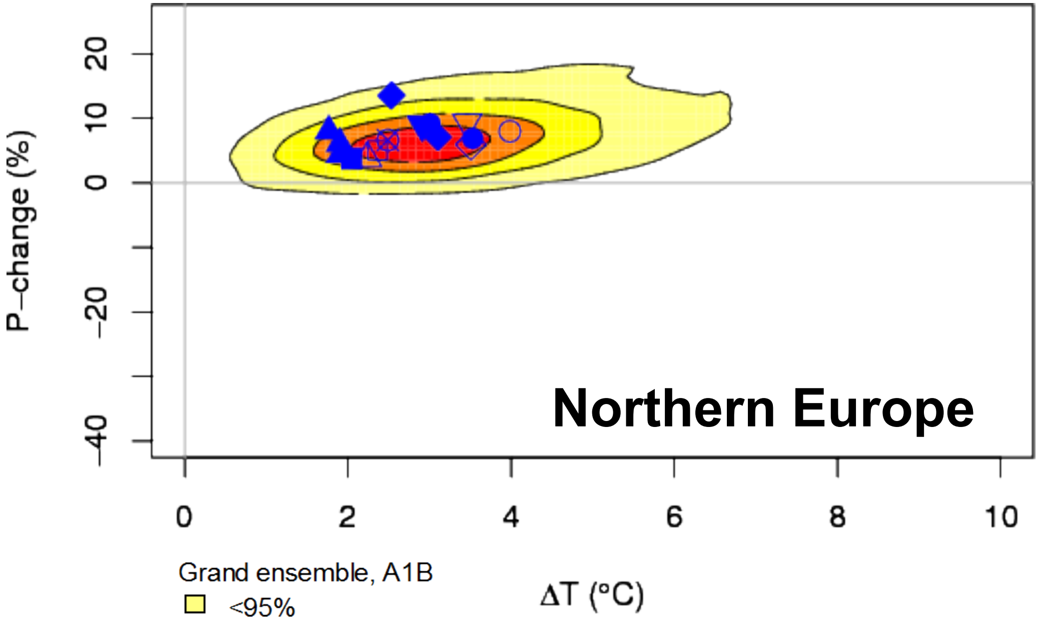
Grand ensemble, A1B
<95%
<75%
<50%
<25%

2030-2050

Solid blue symbols: RCMs Open blue symbols: driving GCMs, A1B







Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

Grand ensemble, A1B
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2040-2060

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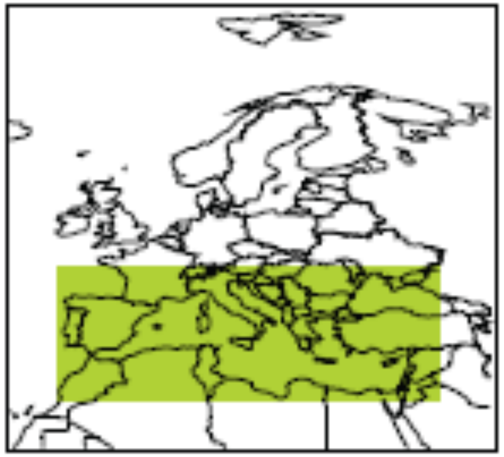
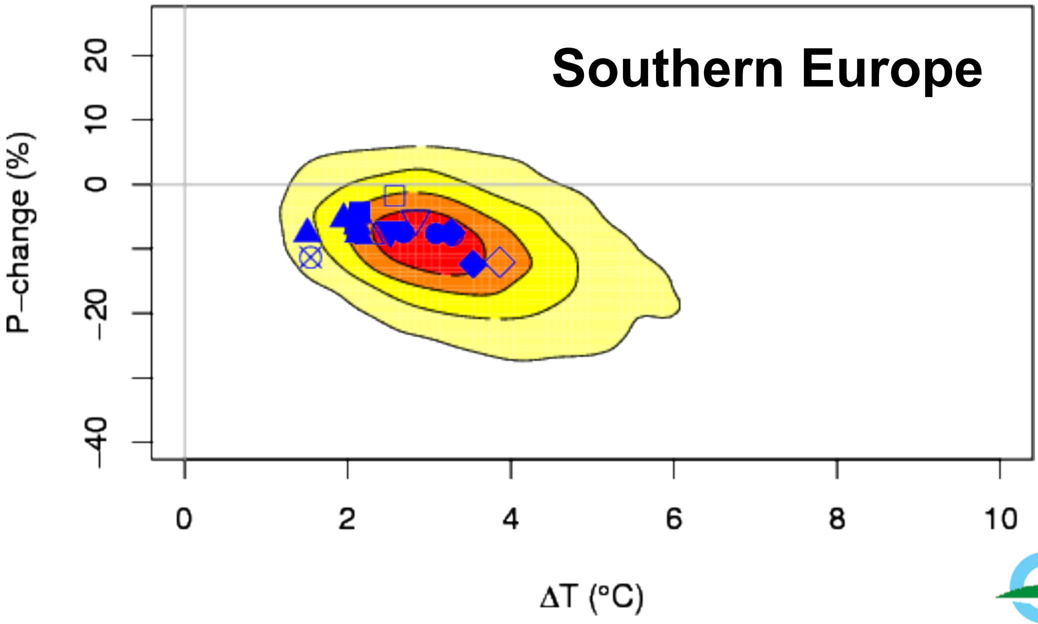
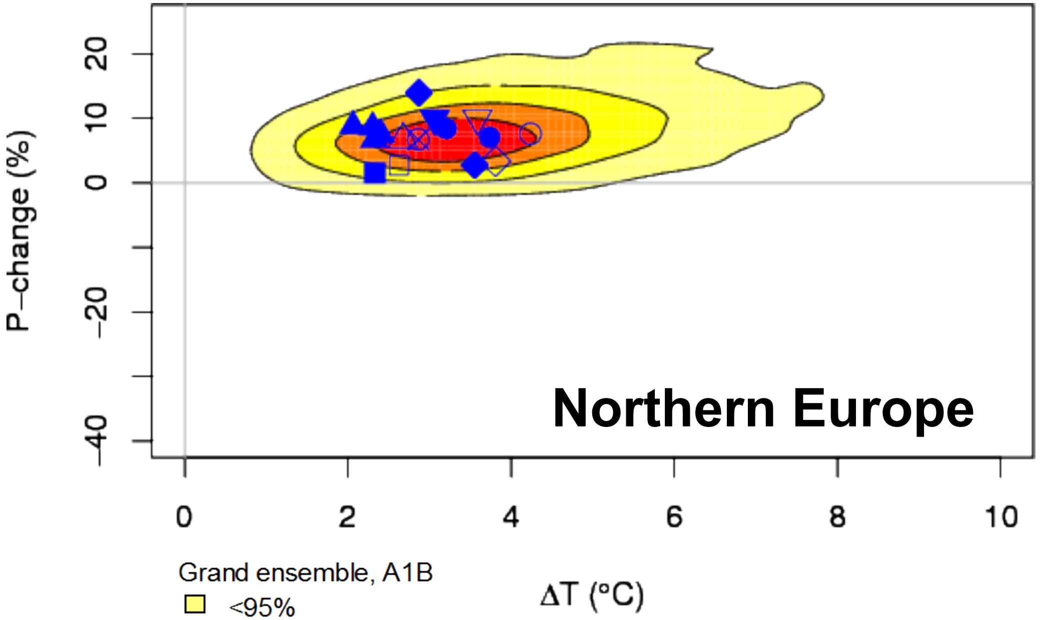




Projected mean annual temperature (°C) and precipitation (%) change relative to 1961-1990

ENSEMBLES

2050-2070



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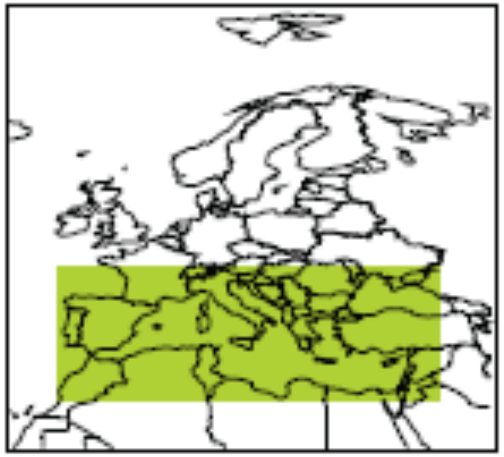

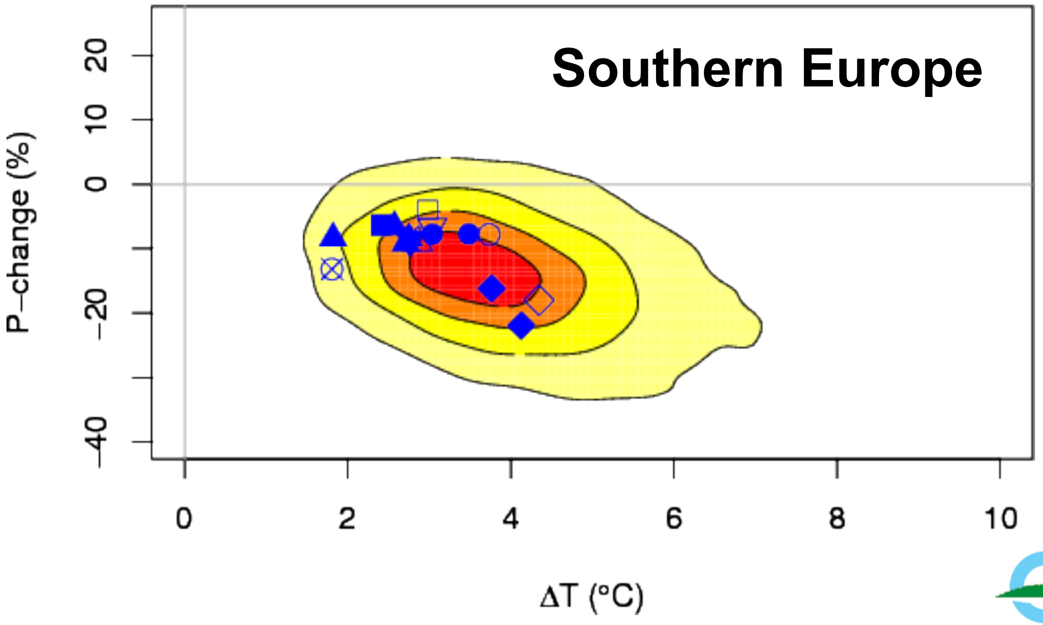

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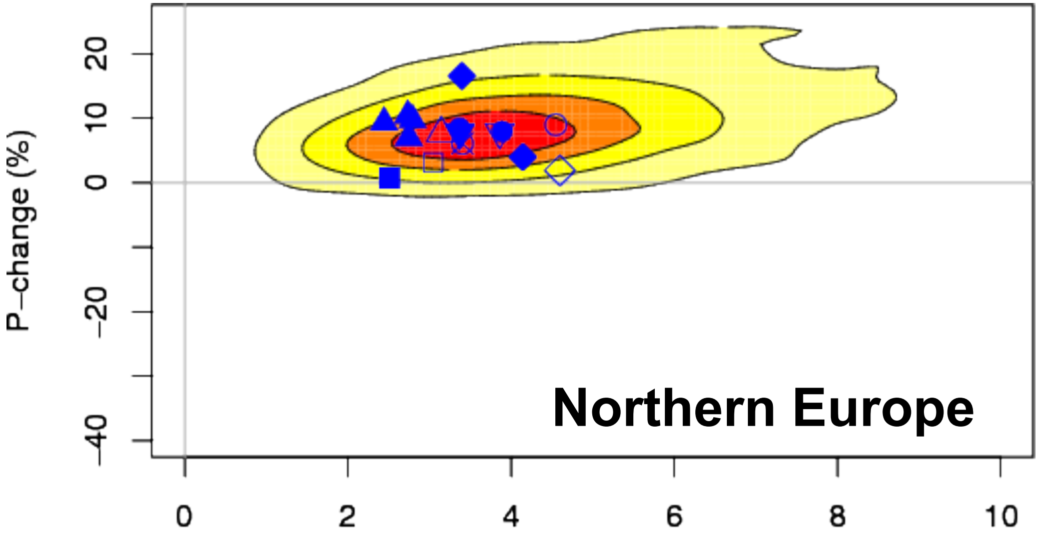

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2060-2080

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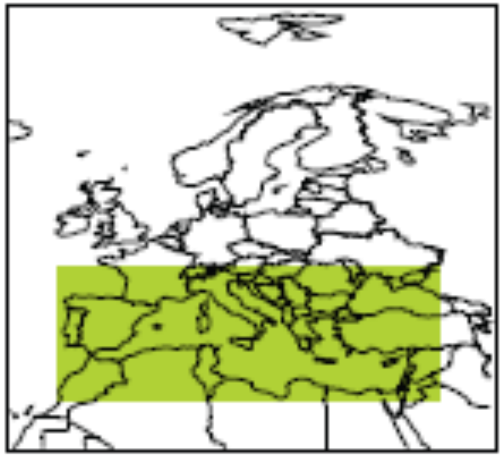

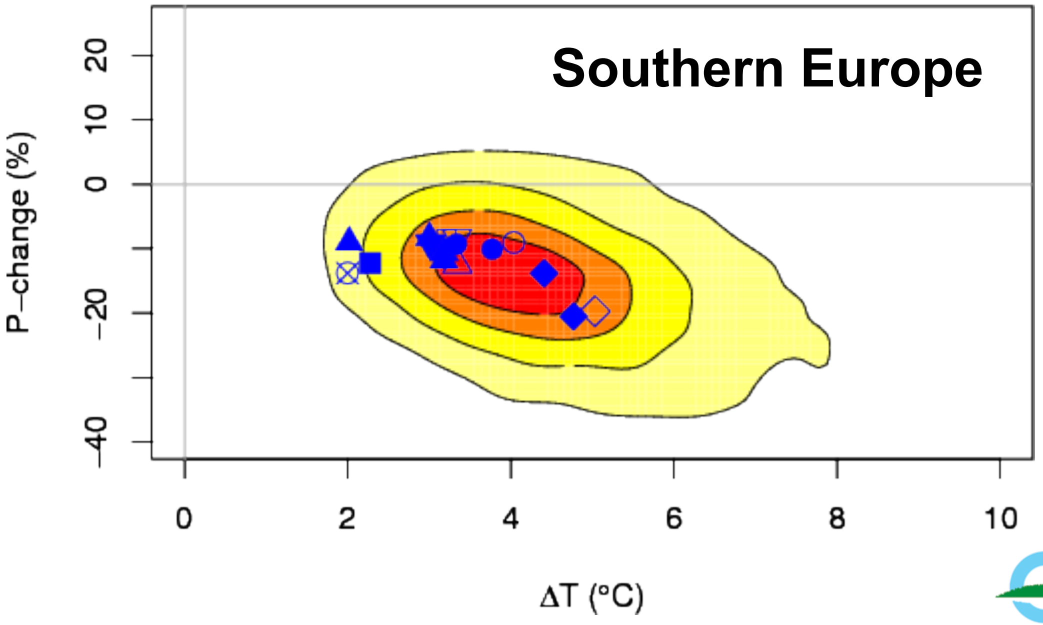

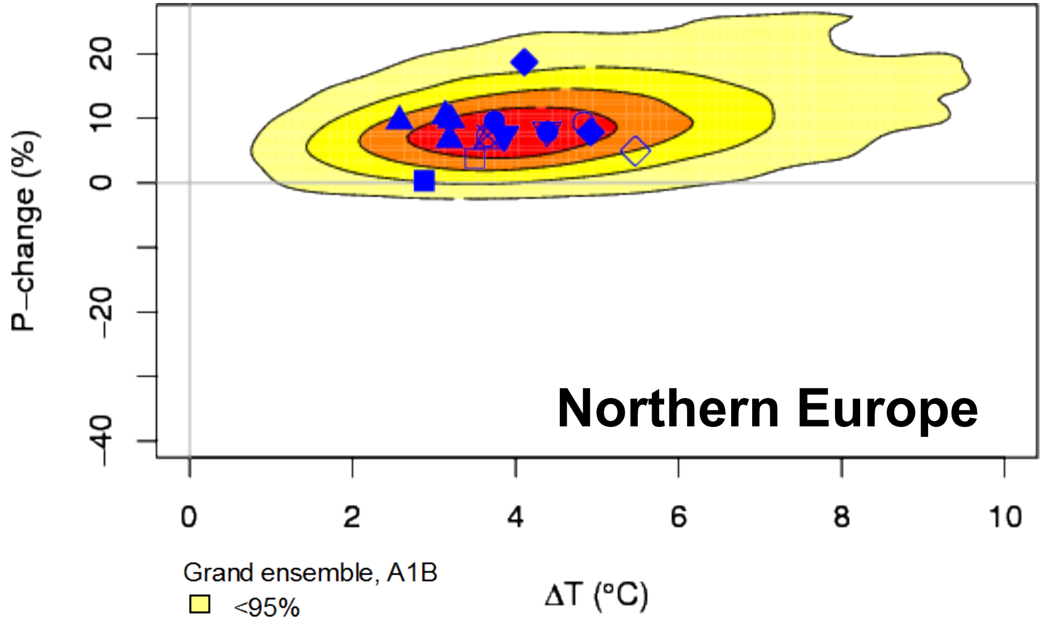

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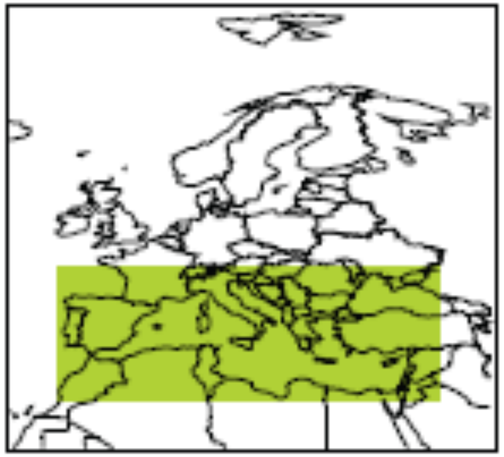
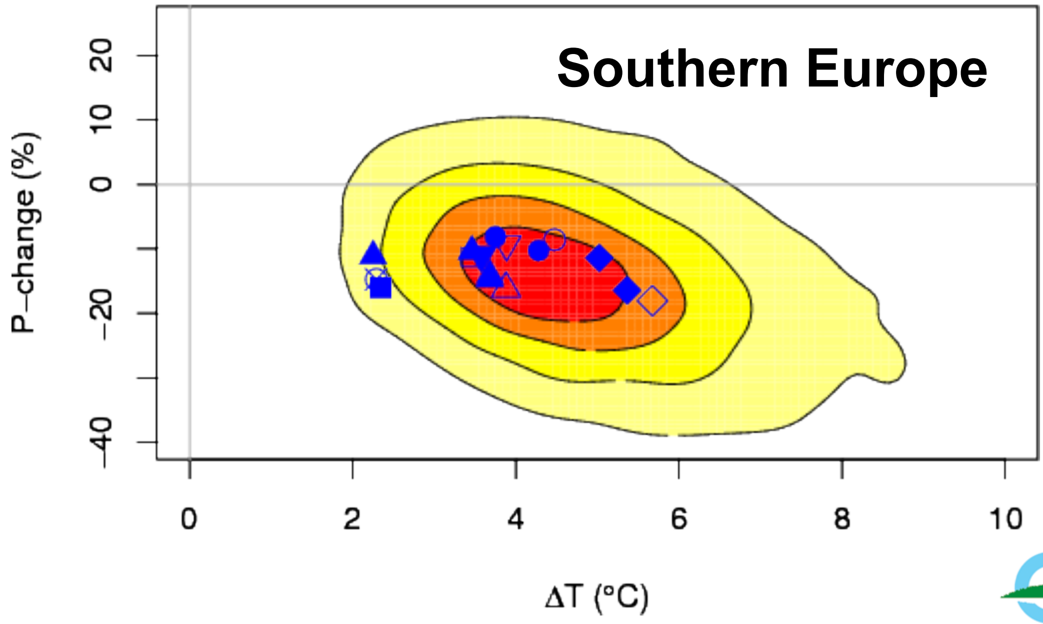
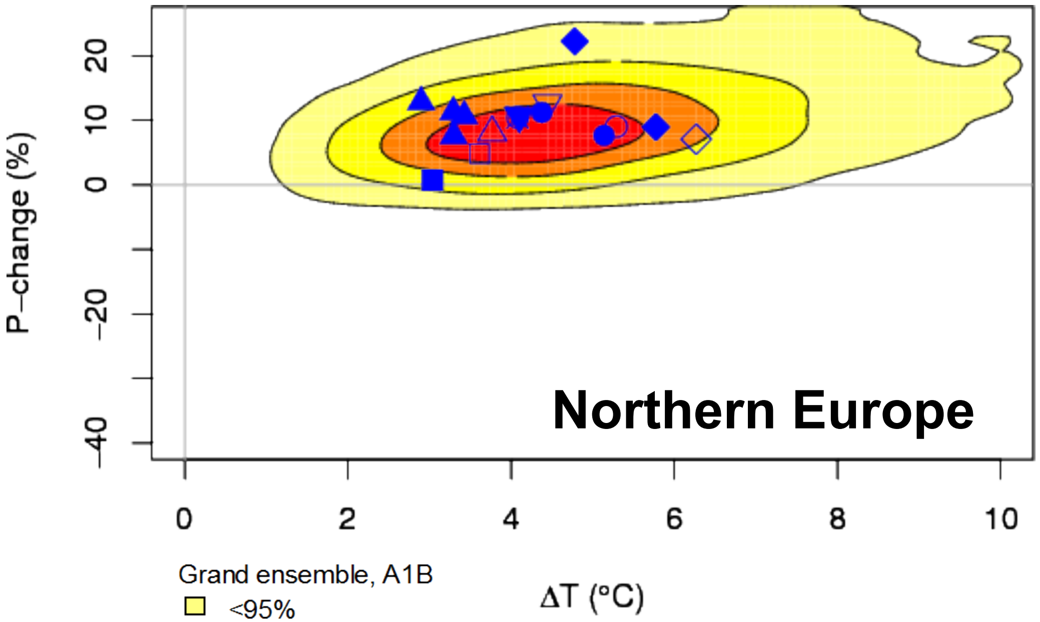
2070-2090







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2080-2100

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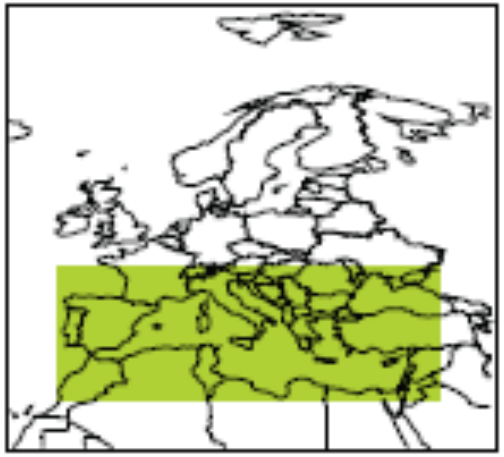
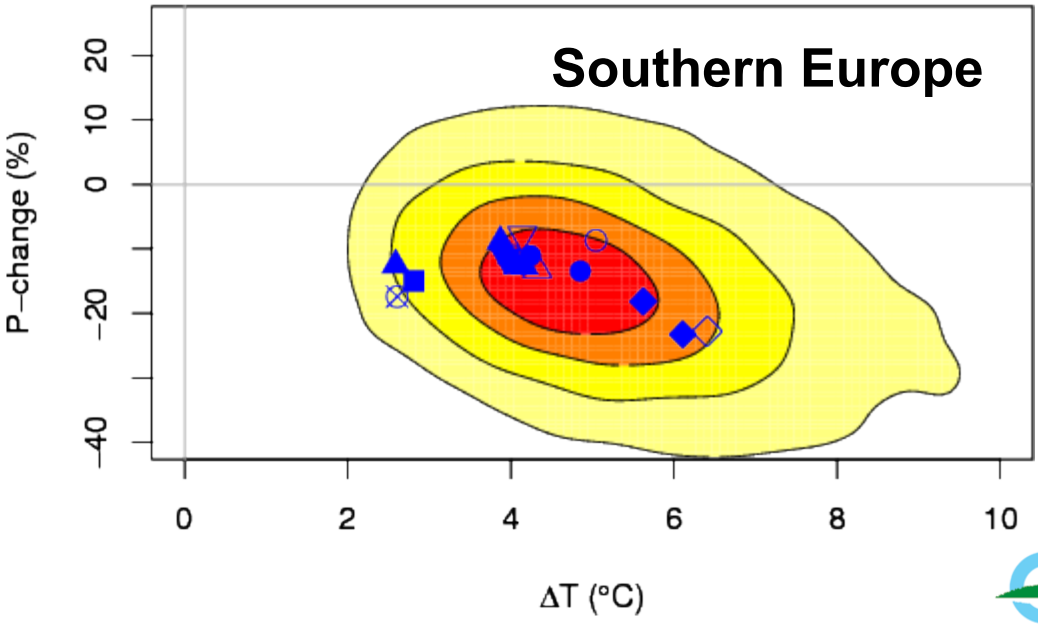
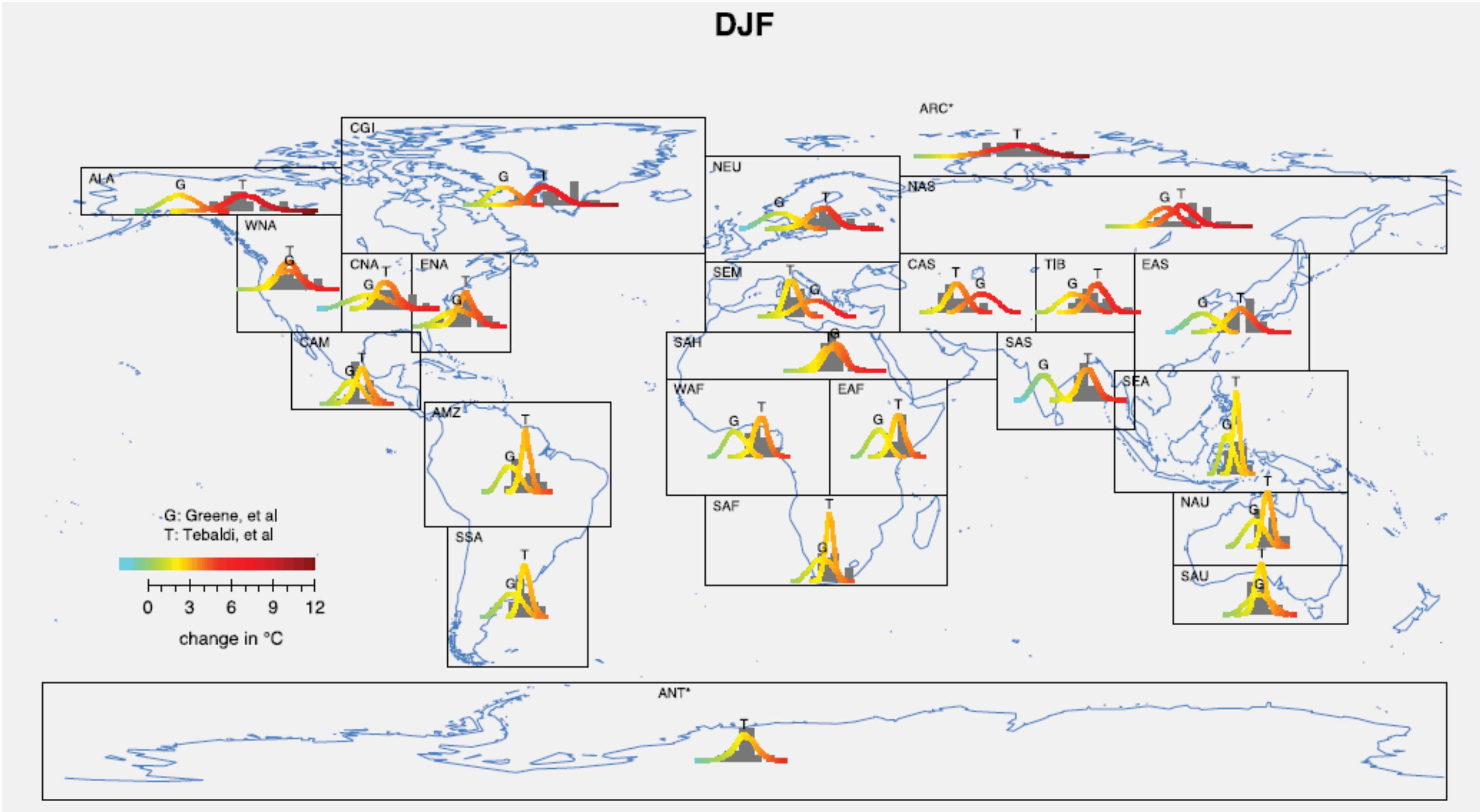




SYKE

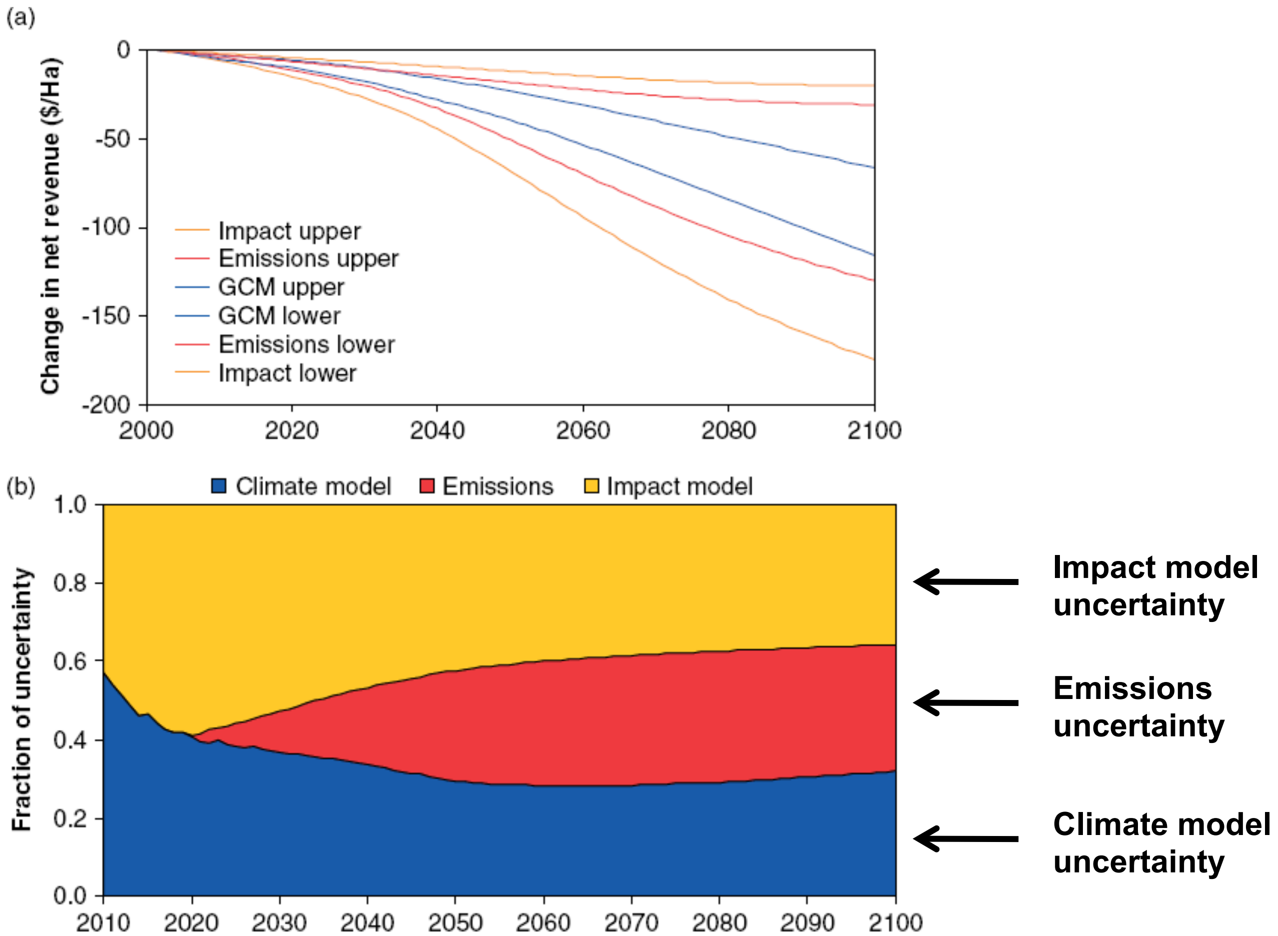
24 "Giorgi" regions as presented in Ch 11, WG I AR4



UK Met Office Hadley Centre: paper under revision on estimating "grand ensemble" uncertainties for Giorgi regions (Harris, pers. com.)

Role of impact model uncertainty

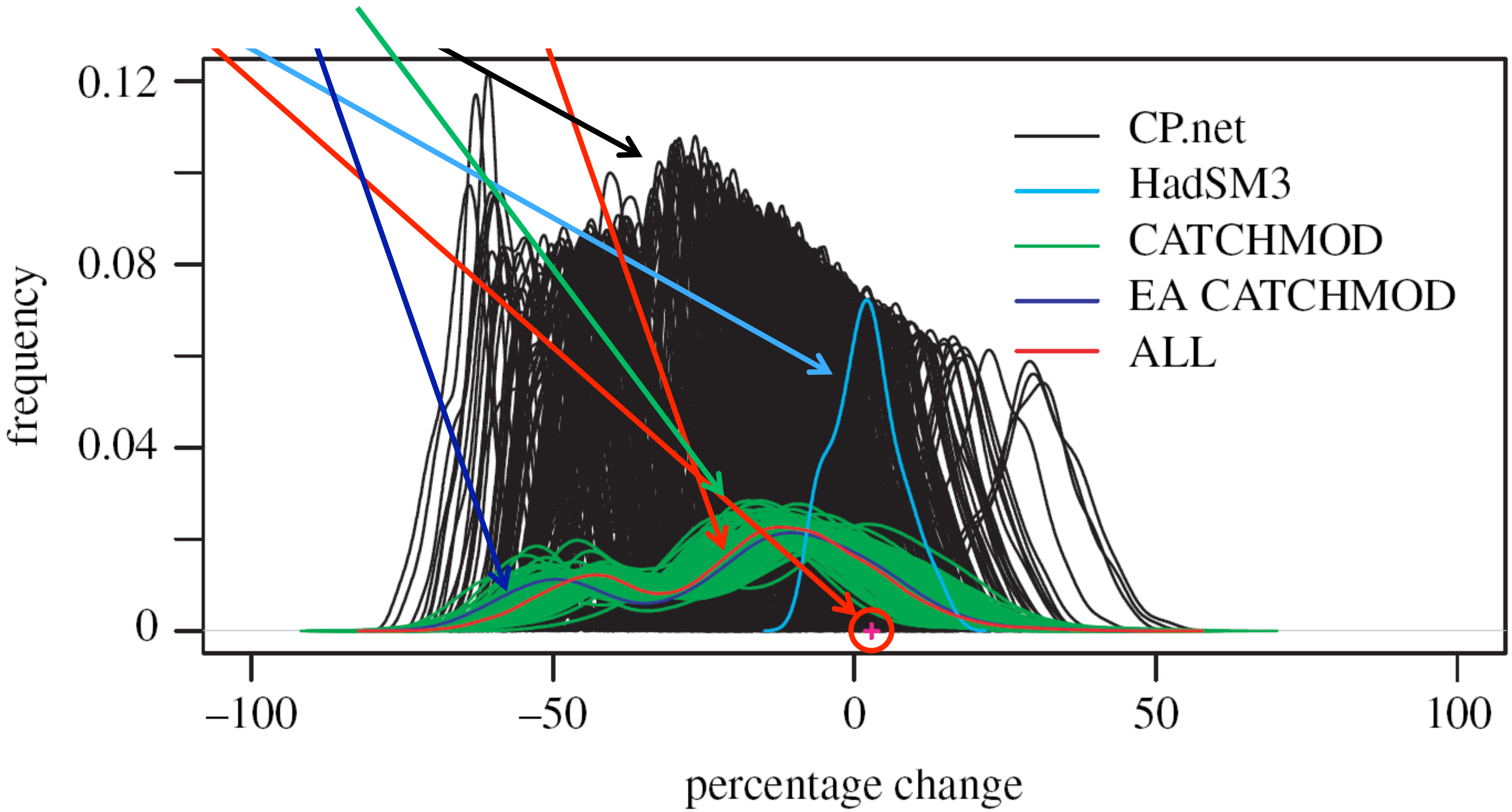
Change in net farm revenues for Sri Lanka ($/Ha) under a range of climate model projections and emissions scenarios



Source: Wilby et al. (2009)

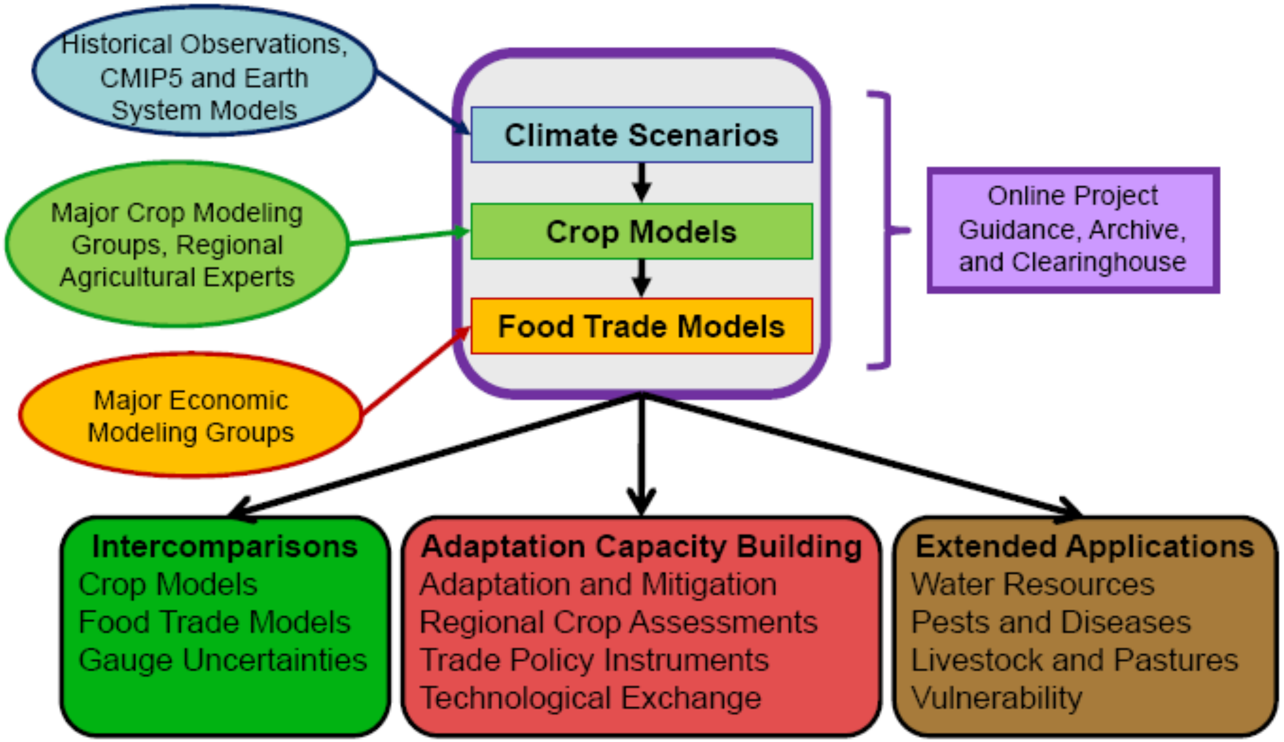
Changes in median flow simulated with a hydrological model (CATCHMOD) when model parameter uncertainties are combined with the climateprediction.net (CP.net) ensemble of climate model projections

Green curves: each CATCHMOD version; 449 climate projections



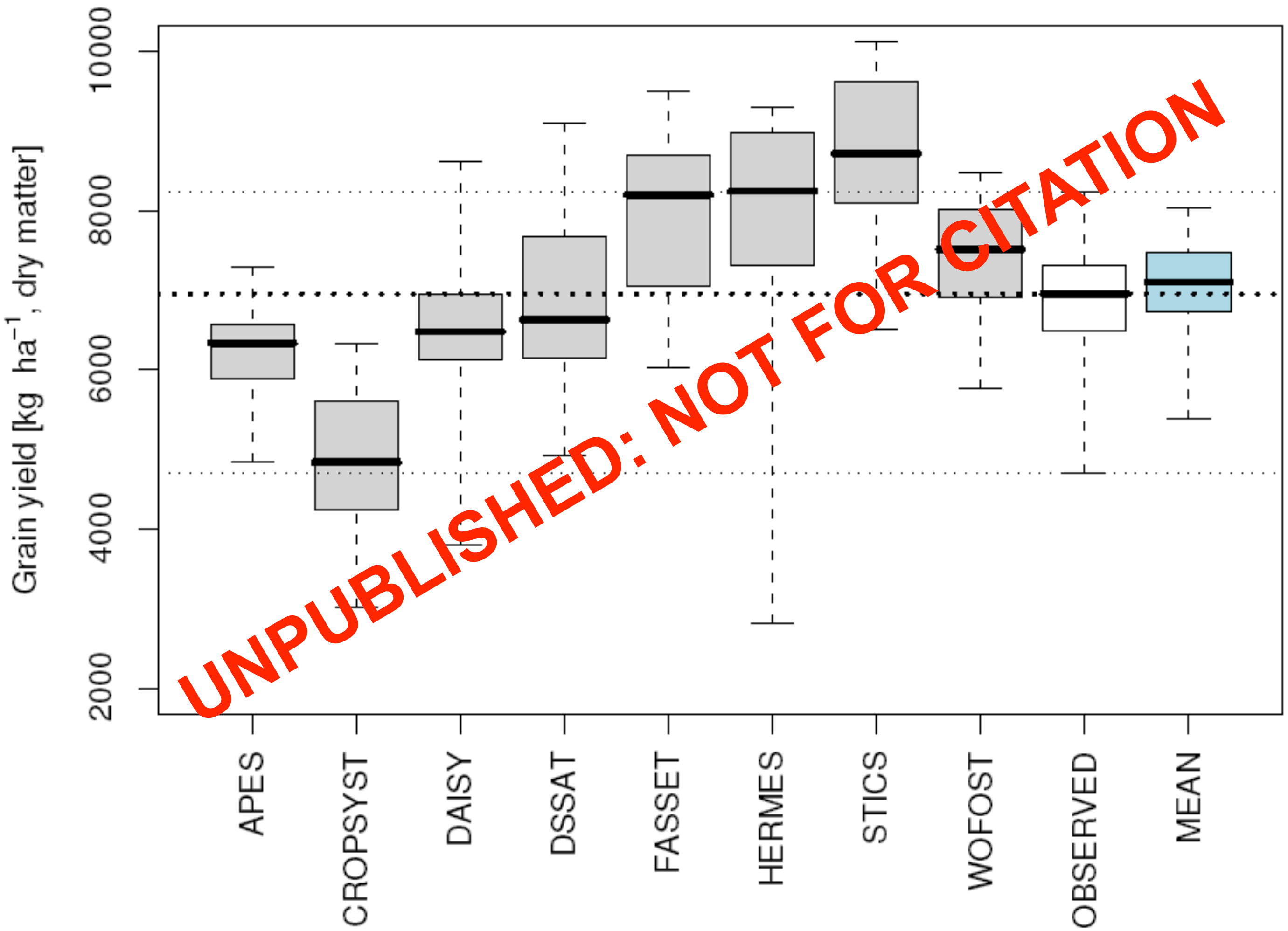
Source: New et al. (2007)

The Agricultural Modeling Intercomparison and Improvement Project (AgMIP)



- **Provides global context to regional climate change impacts on agricultural systems**
- **Assesses uncertainties and adaptation strategies**

Winter wheat yields simulated (eight models) and observed at a site in the Czech republic, 1995-2006. Mean (blue) is the distribution of the mean predictions from the eight models in different years



Palosuo et al. (submitted)

SYKE

Outline

- Priorities for IAV research
- Demand for climate information
- Added value of downscaling
- **Framing uncertainties**
- Conclusions

Outline

- Priorities for IAV research
- Demand for climate information
- Added value of downscaling
- Framing uncertainties
- **Conclusions**

Research imperatives regarding applications of regional climate research (early 2000s)

Applications

- Improve availability and accessibility of regional climate information
- Improve realism of driving factors and representation of processes (e.g. biogeochemistry; lakes)
- Involve stakeholders in determining the required resolution of regional climate information
- Investigate other applications of regional climate information (e.g. storm surges; air quality)

Overall

- Need for co-ordinated "end-to-end" prediction systems for impact assessment
- Seasonal prediction can inform added value of downscaling
- Funding agencies need to recognise importance of model development and evaluation in addition to prediction
- All downscaling techniques produce useful results – continue parallel activities

Leung et al. (2003)

	Scenario methods
1	Sensitivity analysis
2	Change factors
3	Climate analogues
4	Trend extrapolation
5	Pattern-scaling
6	Weather generation
7	Empirical downscaling
8	Dynamical downscaling
9	Coupled OA/GCMs

Appropriateness of different scenario methods for representing climate of the 2020s in light of the varying needs of IAV analysts

← Increasing complexity /resource demand

Coupled OA/GCMs	Dynamical downscaling	Empirical downscaling	Weather generation	Pattern-scaling	Trend extrapolation	Climate analogues	Change factors	Sensitivity analysis	**Scenario methods** / **Indicator**	**Preferred attributes for development and adaptation planning**
									Capacity	Low personnel, technical and infrastructure requirements
									Resources	Low data, time and financial costs
									Spatial	High spatial resolution (site or region, not continental or global)
									Temporal	High temporal resolution (hourly or daily, not monthly or annual)
									Outputs	High realism and joint behaviour of weather variables
									Forcing	High ability to represent different external forcing (land cover, aerosols)
									Uncertainty	High capability for providing probabilistic information
									Pattern	High ability to produce surfaces or maps of climate change
									Transient	High ability to produce transient (rather than time-slice) scenarios
									Availability	High availability of tools, supporting data and guidance

Capacity building

CORDEX

Modified from Wilby et al. (2009)

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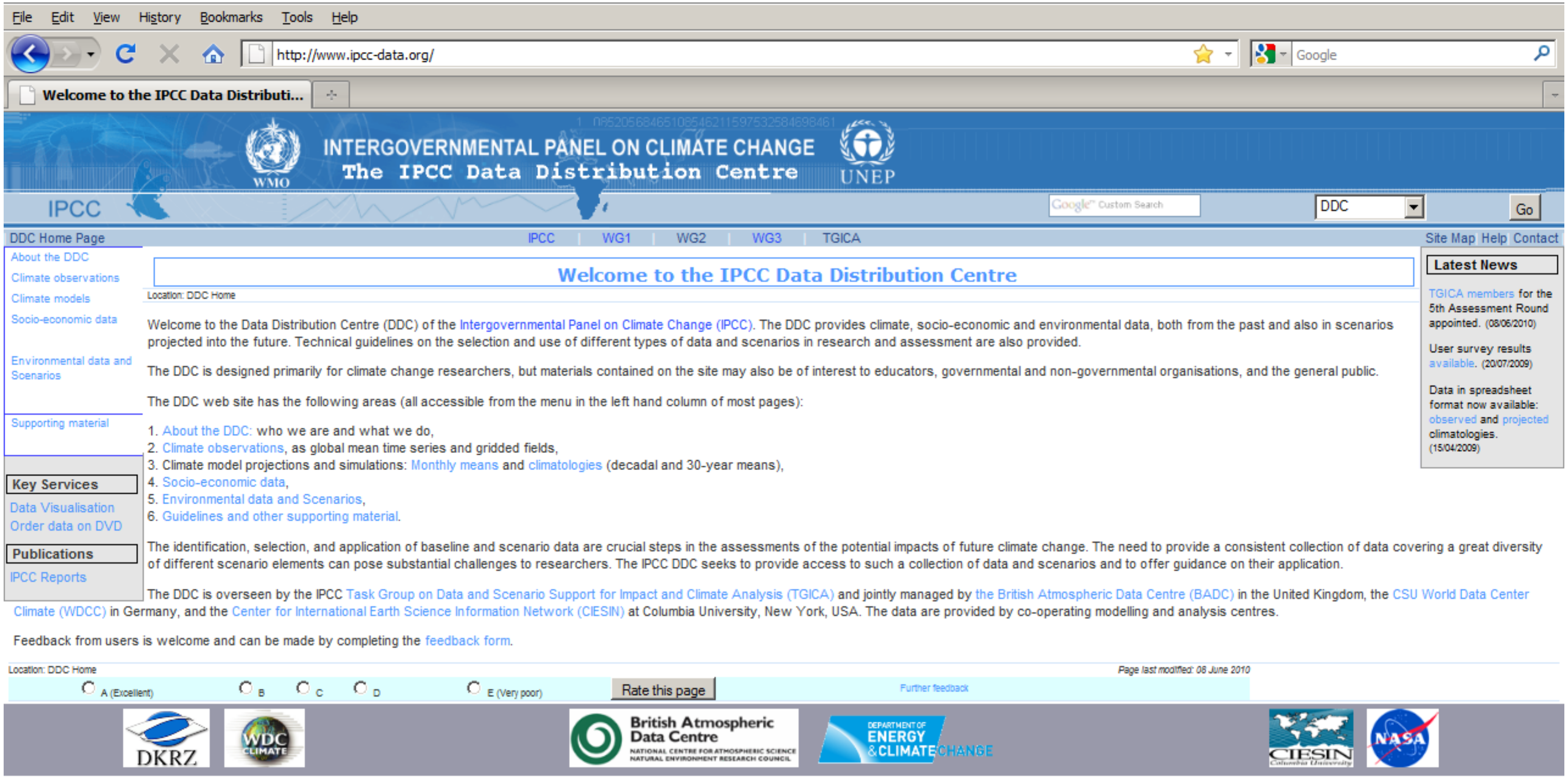
Making CORDEX results effective

- Information generated in consultation with stakeholders
- Projections available in accessible formats
- Tools offered for extracting data to suit applications
- Regionalisation of information delivery (e.g. through portals)
- Observational climate data available at equivalent resolution to projections (including reanalysis)
- Documentation of the data and projections including quality information (e.g. missing data, errors, etc.)
- Summary information, including graphs, maps, statistics but also clear narratives
- Contextual regional information for framing uncertainty (e.g. from global models)
- Guidance on the use and misuse of downscaled information, including examples

Examples of international climate data and scenario web portals



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http://www.ipcc-data.org/

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INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
The IPCC Data Distribution Centre

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Welcome to the IPCC Data Distribution Centre

Location: DDC Home

Welcome to the Data Distribution Centre (DDC) of the Intergovernmental Panel on Climate Change (IPCC). The DDC provides climate, socio-economic and environmental data, both from the past and also in scenarios projected into the future. Technical guidelines on the selection and use of different types of data and scenarios in research and assessment are also provided.

The DDC is designed primarily for climate change researchers, but materials contained on the site may also be of interest to educators, governmental and non-governmental organisations, and the general public.

The DDC web site has the following areas (all accessible from the menu in the left hand column of most pages):

1. About the DDC: who we are and what we do,
2. Climate observations, as global mean time series and gridded fields,
3. Climate model projections and simulations: Monthly means and climatologies (decadal and 30-year means),
4. Socio-economic data,
5. Environmental data and Scenarios,
6. Guidelines and other supporting material.

The identification, selection, and application of baseline and scenario data are crucial steps in the assessments of the potential impacts of future climate change. The need to provide a consistent collection of data covering a great diversity of different scenario elements can pose substantial challenges to researchers. The IPCC DDC seeks to provide access to such a collection of data and scenarios and to offer guidance on their application.

The DDC is overseen by the IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) and jointly managed by the British Atmospheric Data Centre (BADC) in the United Kingdom, the CSU World Data Center Climate (WDCC) in Germany, and the Center for International Earth Science Information Network (CIESIN) at Columbia University, New York, USA. The data are provided by co-operating modelling and analysis centres.

Feedback from users is welcome and can be made by completing the feedback form.

Latest News

TGICA members for the 5th Assessment Round appointed. (08/06/2010)

User survey results available. (20/07/2009)

Data in spreadsheet format now available: observed and projected climatologies. (15/04/2009)

Location: DDC Home — Page last modified: 08 June 2010

A (Excellent) B C D E (Very poor) Rate this page — Further feedback

DKRZ | WDC Climate | British Atmospheric Data Centre | Department of Energy & Climate Change | CIESIN | NASA

Home of Ensembles-eu.org - Mozilla Firefox

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http://www.ensembles-eu.org/

Home | Registration | Data access | Downscaling

Applied Meteorology Group (UC & CSIC & AEMet) Santander, Spain

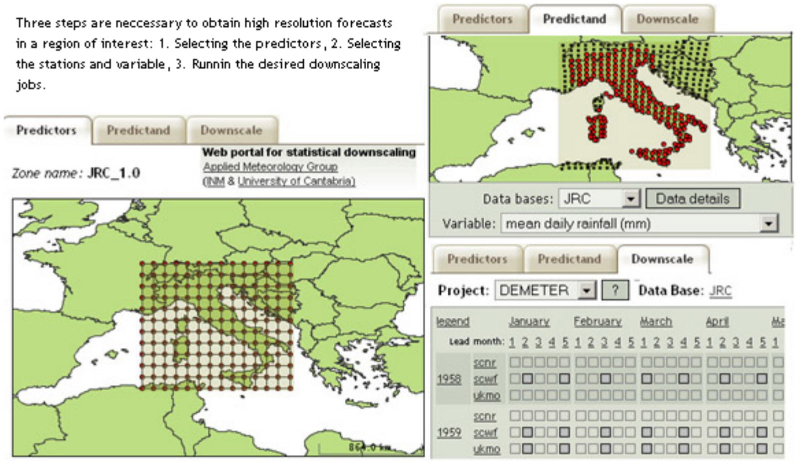
4th ENSEMBLES GA presentation (13/11/2007)

Web portals for Climate Data Access and Statistical Downscaling

One of the ENSEMBLES project's aims is maximizing the exploitation of the results by linking the outputs of the ensemble prediction system to a range of applications, including agriculture, health, food security, energy, water resources, and insurance, which use high resolution climate inputs to feed their models. The **data access portal** allows end-users to interpolate seasonal and climate model simulations to local points of interest, obtaining the requested data in simple formats (e.g., text files). Moreover, the **statistical downscaling portal** allows to callibrate/adapt the coarse model outputs in the region of interest using historical observed records.

The Data Acess portal provides access to observations, reanalysis and seasonal and climate simulations (see the common list of variables available for all models in the portal).

This Statistical Downscaling portal provides user-friendly web access to different statistical downscaling techniques.



References:

San-Martín, D., Cofiño, A.S., Herrera, S., and Gutiérrez, J.M. (2008) The ENSEMBLES Statistical Downscaling Portal. An End-to-End Tool for Regional Impact Studies. Submitted to *Environmental Modelling and Software*.

Cofiño, A.S., San-Martín, and Gutiérrez, J.M. (2007) A web portal for regional projection of weather forecast using GRID middleware. *Lecture Notes in Computer Science*, 4489, 82-89.

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http://www.ensembles-eu.org/

RT3 Home

Project Home | RT3 Home | Meetings | Documents | Members' Site | Participants | Links to other projects |

Research Theme (RT) webpages: RT1 | RT2A | RT2B | RT3 | RT4 | RT5 | RT6 | RT7 | RT8

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ENSEMBLES

Public part

RCM data portal

Front page

RT3 participant list

Older news

List of output variables

The GCM/RCM combination matrix

The AMMA-region matrix

Fields in the ERA40 archive

The integration area common to most simulations

Plots from the quick-look analysis

The PRUDENCE project (our predecessor)

The CORDEX project (our successor)

Members' part

Ensembles RT3 mailing list

Plots from C4I's validation against HOAPS

RT2B: Transient experiments 1951-2050 or 1951-2100 driven by global experiments according to this plan

Institute/ Contact	Scenario	Driving GCM	Model	Resolution	Acronym	DODS/OpenDAP access	Direct download
C4I Ray McGrath	A2	ECHAM5	RCA3	25km	C4IRCA3	Online	Online
CNRM Michel Déqué	A1B	ARPEGE	Aladin	25km	CNRM-RM4.5	Online	Online
	A1B	ARPEGE_RM5.1 New ens.mb. to 2100	Aladin	25km	CNRM-RM5.1	Online	Online
KNMI Erik van Meijgaard	A1B	ECHAM5-r3	RACMO	25km	KNMI-RACMO2	Online	Online
	A1B	ECHAM5-r1	RACMO	50km	KNMI-RACMO2	Online	Online
	A1B	ECHAM5-r2	RACMO	50km	KNMI-RACMO2	Online	Online
	A1B	ECHAM5-r3	RACMO	50km	KNMI-RACMO2	Online	Online
	A1B	MIROC	RACMO	50km	KNMI-RACMO2	Online	Online
OURANOS Dominique Paquin	A1B	CGCM3	CRCM	25km	OURANOSMRCC4.2.1	Online	Online
SMHI Erik Kjellström	A1B	ECHAM5-r3	RCA	50km	SMHIRCA	Online	Online
	A1B	BCM	RCA	25km	SMHIRCA	Online	Online
	A1B	ECHAM5-r3	RCA	25km	SMHIRCA	Online	Online
	A1B	HadCM3Q3	RCA	25km	SMHIRCA	Online	Online
MPI Daniela Jacob	A1B	ECHAM5-r3	REMO	25km	MPI-M-REMO	Online	Online
METNO Jan Erik Haugen	A1B	BCM	HIRHAM	25km	METNOHIRHAM	Online	Online
	A1B	HadCM3Q0	HIRHAM	25km	METNOHIRHAM	Online	Online
C4I Ray McGrath	A1B	HadCM3Q16	RCA3	25km	C4IRCA3	Online	Online
UCLM	A1B	HadCM3Q0	PROMES	25km	UCLM-PROMES	Online	Online

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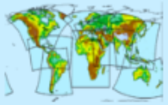
http://cordex.dmi.dk/joomla/

CORDEX: A COordinated Regional cli...

CORDEX climate data archive

Home



Main Menu

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Login Form

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- Create an account

CORDEX: A COordinated Regional climate Downscaling EXperiment

Doubt about domain specs

Written by Ole Bøssing Christensen
Wednesday, 16 March 2011 13:55

Dear all,

I just heard that there may be an error in the integration domain specifications in the original document, and therefore also in the specification table located here, which was based on that document! Probably, the definitions in the area document were NOT corners, as specified in the document, but centers of the corner points. This makes differences of 0.22 degrees most of the time. We will clear this up in Trieste next week, but you better wait a while.

Another error: I claimed that I had corrected the link to IPSL. Apparently I had not. Now it is finally fixed. Sorry!

Further changes

Written by Ole Bøssing Christensen
Tuesday, 15 March 2011 11:42

Dear colleagues,

After a meeting with several people knowledgeable about CMIP5, we have made further harmonisations and clarifications. Here is the document. You should, however, be aware of the fact that there are two very relevant meetings next week, one CORDEX conference in Trieste, plus an IS-ENES meeting in Paris. Particularly the CORDEX meeting could very well lead to further changes in the document. This is annoying for everyone, but it is probably even more annoying if necessary changes are postponed until later.

Best, Ole

Last Updated on Tuesday, 15 March 2011 13:02

Starting up the CORDEX archive

Written by Ole Bøssing Christensen

This site will shortly begin to host data from the WCRP coordinated project CORDEX, which is about covering relevant areas of the globe with rectangles and performing regional climate model simulations for each of these. This site is just starting up and contains nothing at the moment. For more information on CORDEX you will currently have to go to the IPSL.

NOTE 25/2/11 The reference to IPSL has been changed; apparently the current IPSL CORDEX page has been moved.

Last Updated on Wednesday, 16 March 2011 14:01

Archive specifications

Written by Ole Bøssing Christensen
Monday, 17 January 2011 08:38

We now have the specifications of expected data ready in this document. Many thanks to Stephanie Legutke, Grigory Nikulin and Bill Gutowski!

This means that we are now ready to accept data from you! We have not yet implemented a format checker at the server, but PLEASE stick exactly to the specifications. In case of doubt, please contact me (obc at dmi dk); others will reach the same point as you... In this archive we expect very large amounts of data. It will therefore not be possible to check consistency 100% from here. In other words it is your responsibility to follow these specifications exactly if you want your data to be accessible and eventually be part of whatever studies and publications come out of the CORDEX effort.

If you are a data provider, please contact me by mail. Data can be downloaded by us, not uploaded to us. But the simplest and most convenient method will probably be a USB disk in the mail! That is our experience from the ENSEMBLES archive; I will return the disk to you. My address is:

Ole B. Christensen
DKC/Danish Meteorological Institute
Lyngbyvej 100
DK-2100 Copenhagen Ø
Denmark

Last Updated on Friday, 04 February 2011 11:41

SYKE

Take home messages

Use of downscaled projections in IAV assessment

Don't:

- Use single projections to inform decisions
- Overlook impact uncertainties
- Expect multiple projections to represent all uncertainties
- Assume that finer resolution = more accurate projections

Do:

- Consult stakeholders to prioritise projection needs
- Explore impacts of extreme weather
- Examine impacts of climate variability at different scales
- Compare impacts with those for bounding GCM(s)
- Where possible, apply a range of downscaling methods

Notice

Colleagues are welcome to incorporate these slides into their own presentations, assuming they are correctly acknowledged. However, the author would also appreciate being informed prior to the extensive use of this material in public meetings.