CLIMATE CHANGE AT CENTRAL AND EASTERN EUROPE: THE CLAVIER PROJECT

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Conference on Adaptation of Water Management to Effects of Climate Change in the Danube River Basin

3rd of December, 2007

CLAVIER – CLIMATE CHANGE AND VARIABILITY: IMPACT ON CENTRAL AND EASTERN EUROPE – FACT SHEET

- Specific Targeted Research Project under "Global Change and Ecosystems" supported by the European Commission
- Project duration: 1st of September, 2006 – 30th of August, 2009
- Participants: 13 institutes from 6 countries
- Total expected amount of work: 521 mm
- Total expected EU contribution: 2 meuro

PROJECT PARTNERS

Partners outside the target region (leading partners)

Max-Planck-Institut für Meteorologie
Max Planck Institute for Meteorology

Wegener Center
www.wegcenter.at

JOANNEUM RESEARCH

LMD/CNRS

Hungary

OMSZ

MŰEGYETEM 1782

VITUKI BUDAPEST

enviroconsult Ltd.
for environment, economics and development

Romania

INSTITUTUL NATIONAL DE HIDROLOGIE ŞI GOSPODARIRE A APELOR
INHGA

ACADEMIA ROMÂNĂ

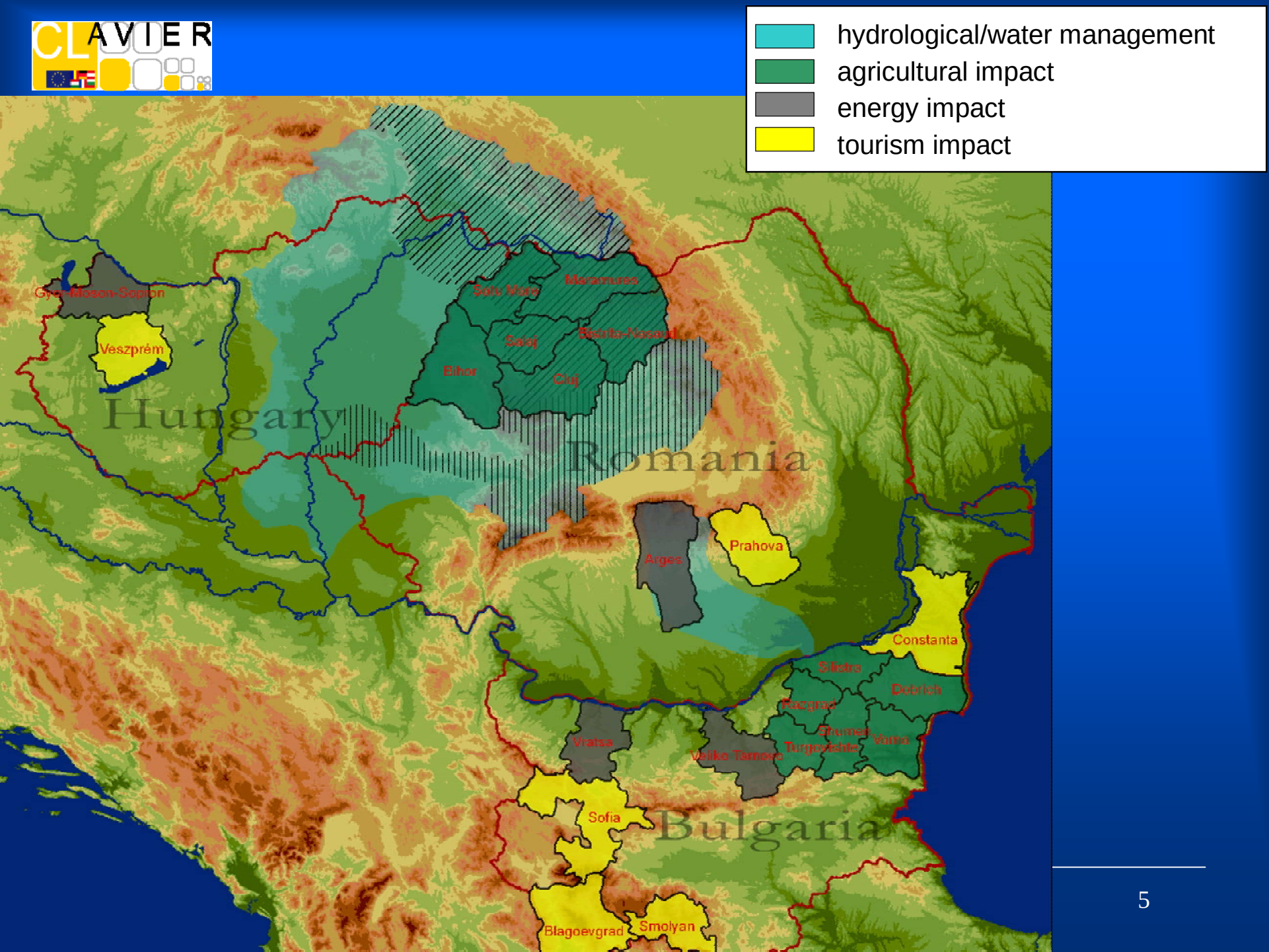
UNIVERSITAS NAPOCENSIS
1581
ROMANIA
BABEŞ-BOLYAI

Bulgaria

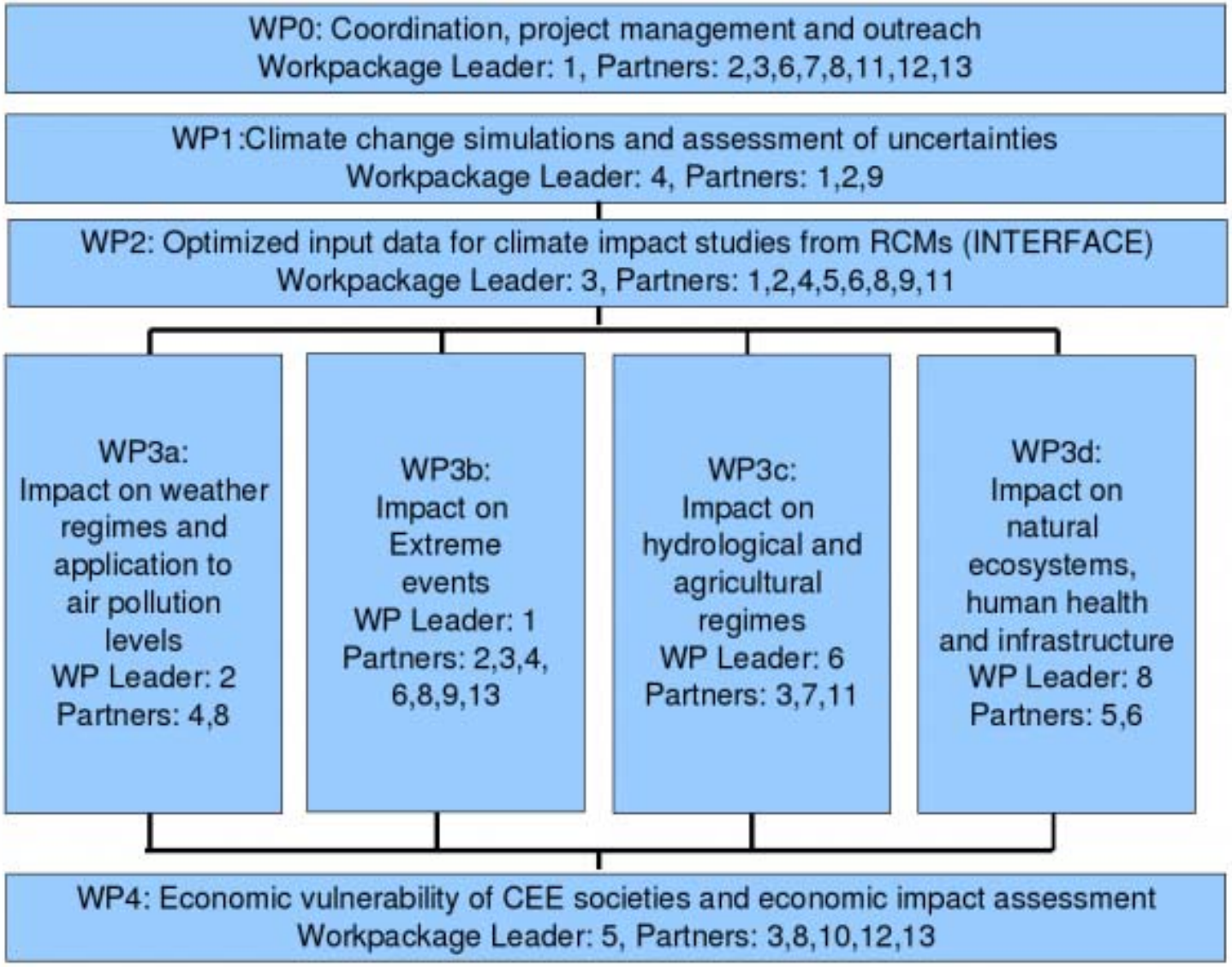
1920
СОФИЯ

CLAVIER: MAIN OBJECTIVES

- Investigation of ongoing and future **climate changes** and their associated **uncertainties** in Central and Eastern European Countries (CEEC)
- Analyses of possible **impact of climate changes** in CEEC on weather patterns and extremes, air pollution, human health, natural ecosystems, forestry, agriculture, infrastructure and water resources.
- Evaluation of the **economic impacts** of climate changes in CEEC economies concentrating on four economic sectors (agriculture, tourism, energy supply and public sector)


hydrological/water management
agricultural impact
energy impact
tourism impact
Gyor-Moson-Sopron
Veszprém
Satu Mare
Maramures
Salaj
Bistrita-Nasaud
Bihor
Cluj
Hungary
Romania
Arges
Prahova
Constanta
Silistra
Dobrich
Razgrad
Shumen
Vratsa
Veliko Tarnovo
Turgovishte
Varna
Sofia
Bulgaria
Blagoevgrad
Smolyan

PROJECT ORGANISATION



WP0: COORDINATION, PROJECT MANAGEMENT AND OUTREACH

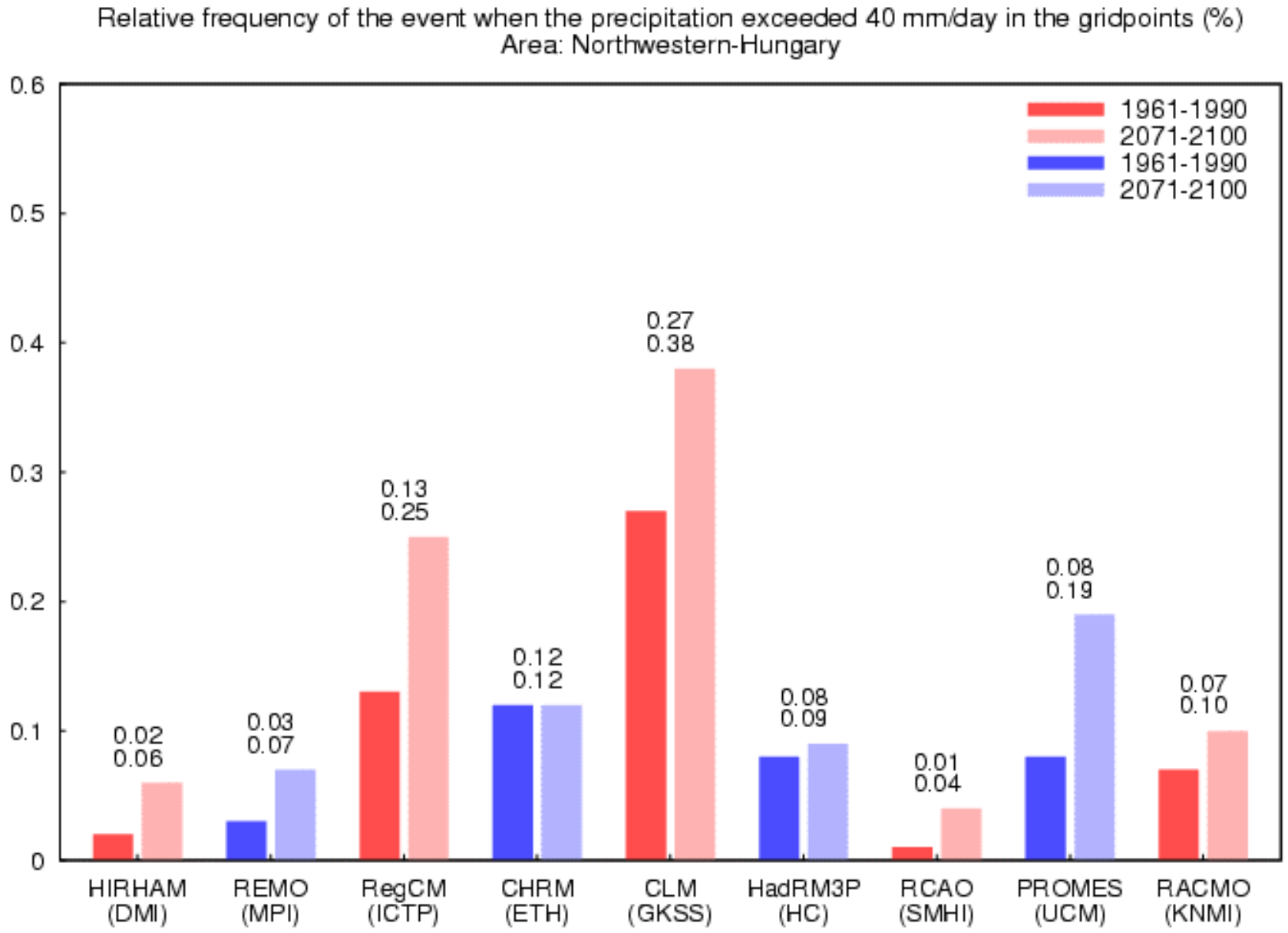
- Coordination: Max Planck Institute for Meteorology
- Co-coordination: Hungarian Meteorological Service
- Homepage of the project: www.clavier-eu.org
- Newsletters are issued at every half year (second edition to be published soon, subscription possible through the webpage)
- Establishment of the list of stakeholders (for the target regions)
- Intensive communication with the stakeholders (e.g. stakeholder workshops)

WP1: CLIMATE CHANGE SIMULATIONS AND ASSESSMENT OF UNCERTAINTIES

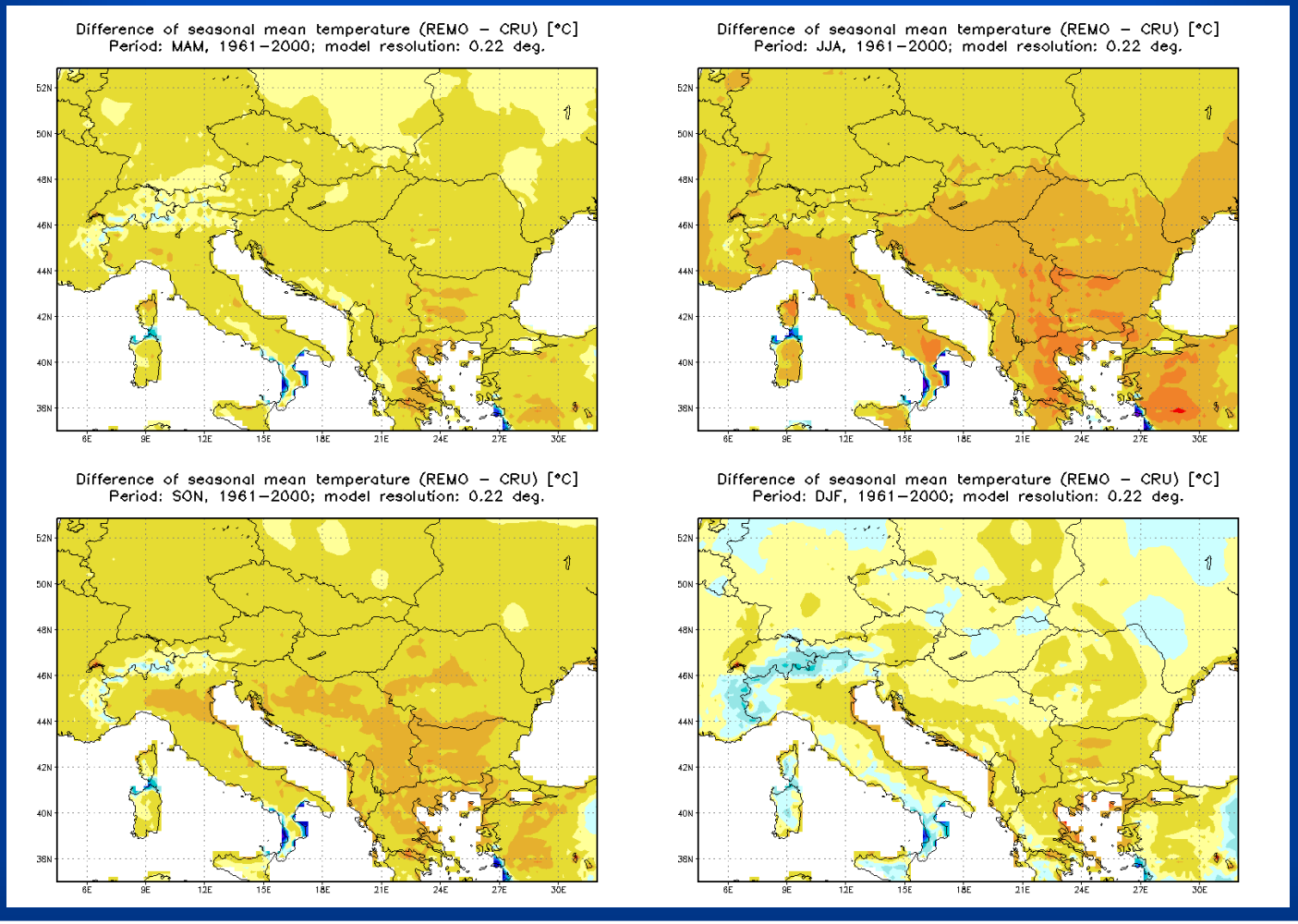
- Existing climate change scenarios for the region: results of the PRUDENCE (finished) and ENSEMBLES (ongoing) projects (see the presentation of Susanne Pfeifer in the morning)

- Validation and adjustment of regional climate models (REMO, LMDZ): ERA40 simulations (25 km), 1961-2000 (summer drying problem)

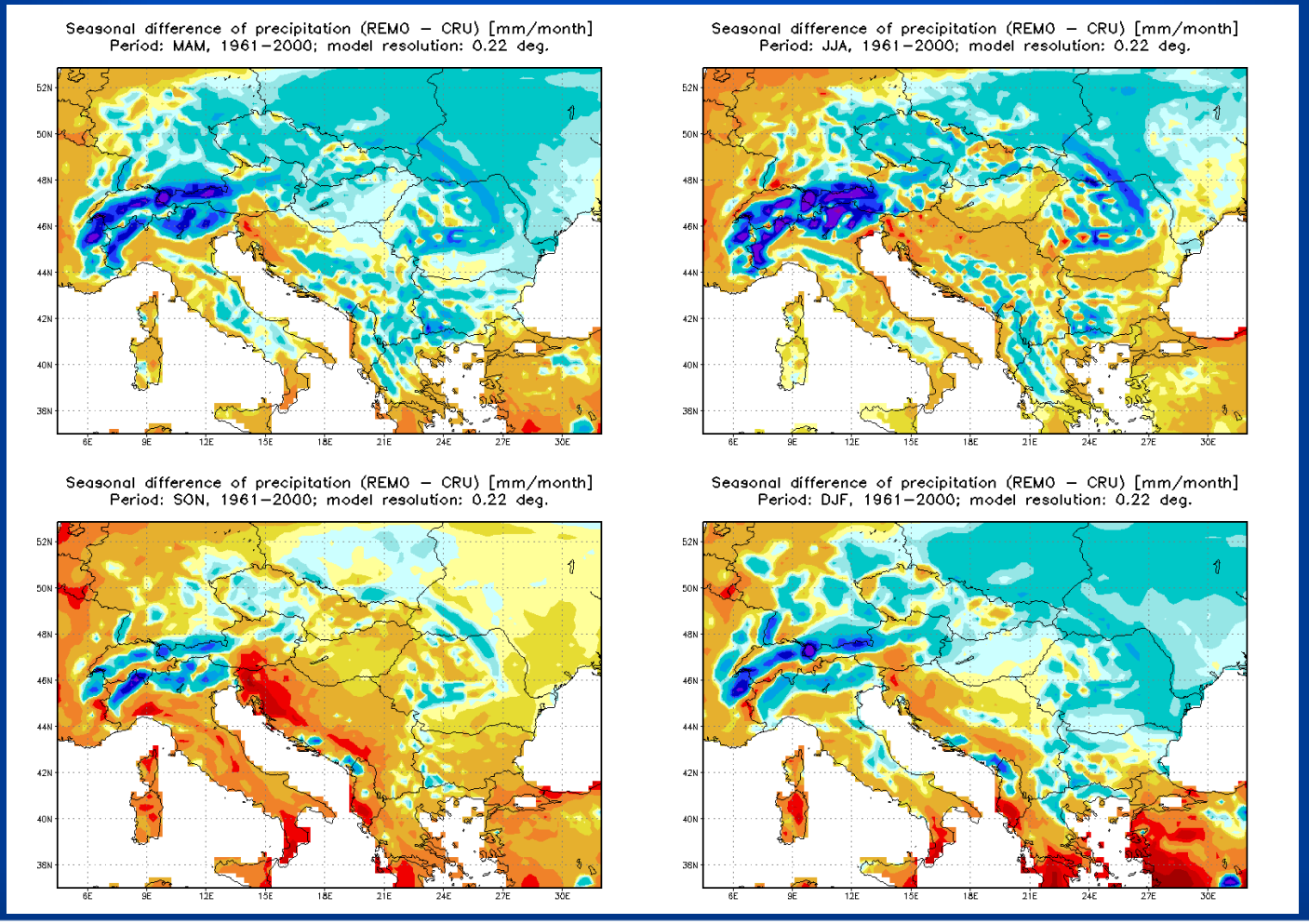
- Climate change simulations: A1B scenario, 1951-2050, 25 km resolution (ongoing), 10 km resolution (planned)

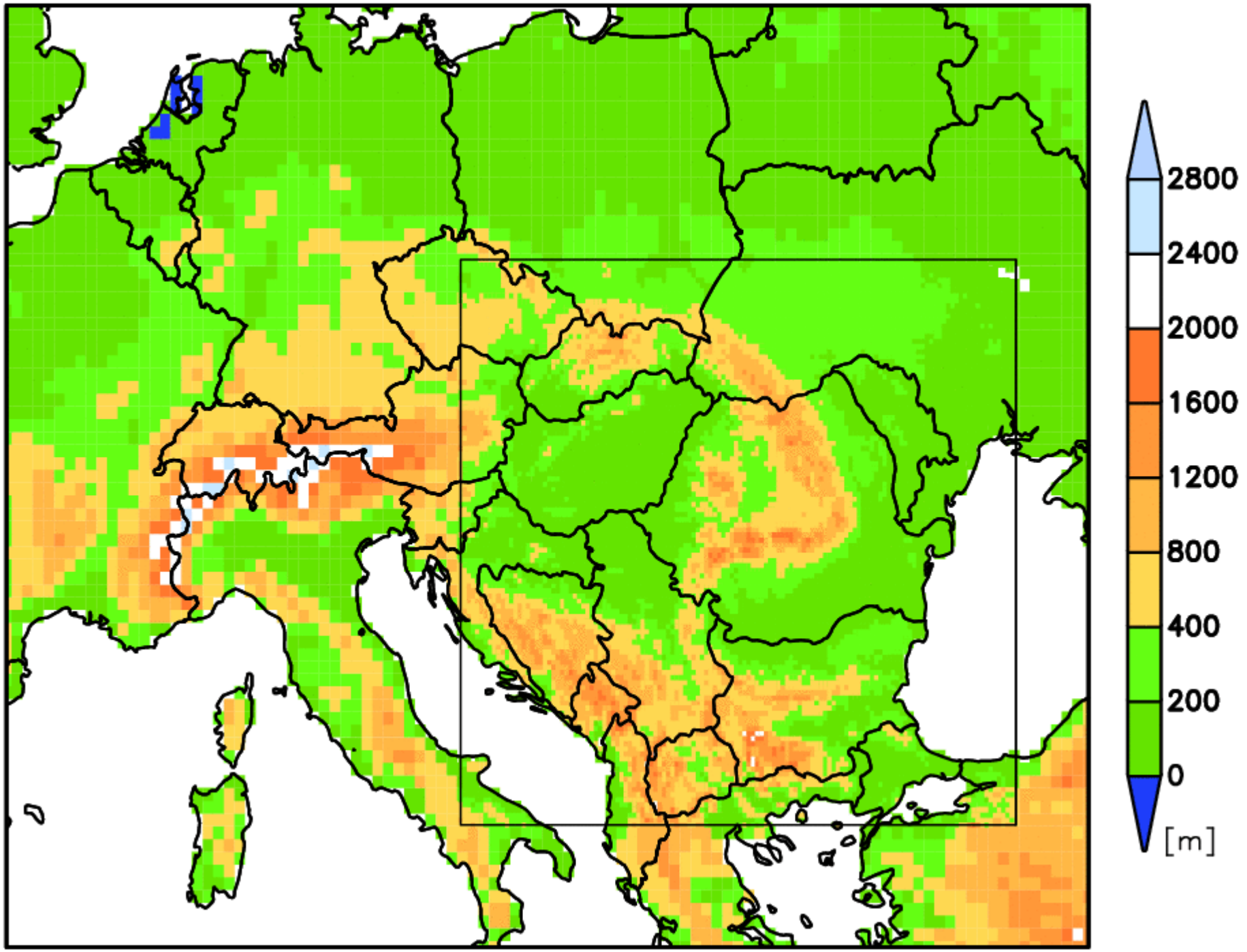

Relative frequency of the event when the precipitation exceeded 40 mm/day in the gridpoints (%)
Area: Northwestern-Hungary
1961-1990
2071-2100
1961-1990
2071-2100
0.6
0.5
0.4
0.3
0.2
0.1
0
0.02
0.06
0.03
0.07
0.13
0.25
0.12
0.12
0.27
0.38
0.08
0.09
0.01
0.04
0.08
0.19
0.07
0.10
HIRHAM (DMI)
REMO (MPI)
RegCM (ICTP)
CHRM (ETH)
CLM (GKSS)
HadRM3P (HC)
RCAO (SMHI)
PROMES (UCM)
RACMO (KNMI)

WP1 – CLAVIER VALIDATION (1961-2000): TEMPERATURE SEASONAL DIFFERENCES

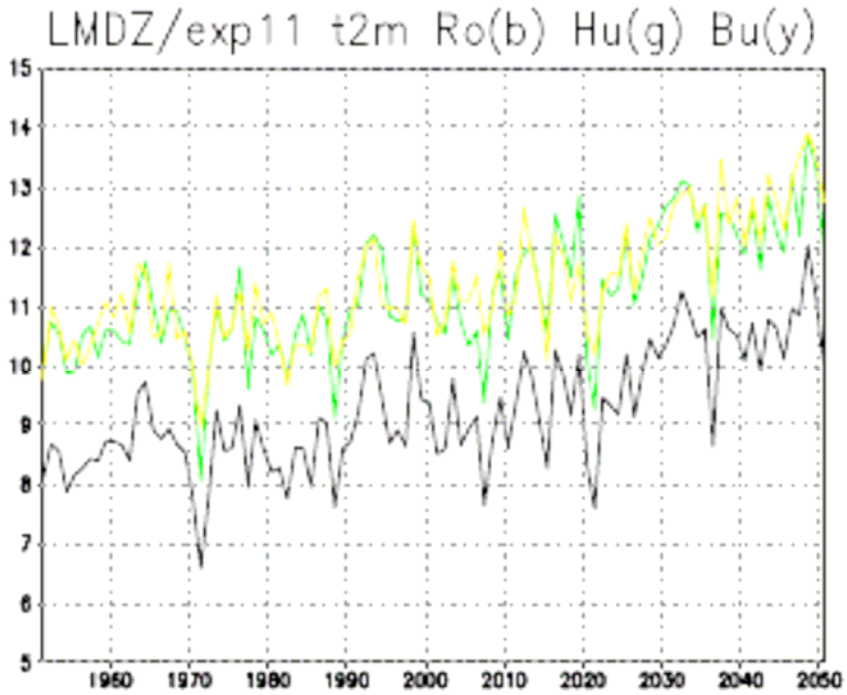


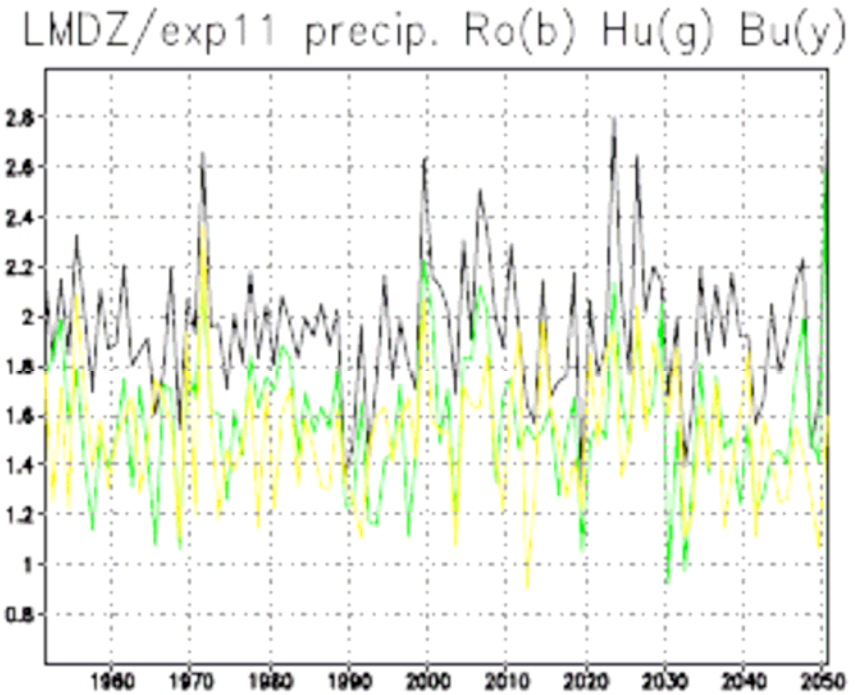
WP1 – CLAVIER VALIDATION (1961-2000): PRECIPITATION SEASONAL DIFFERENCES



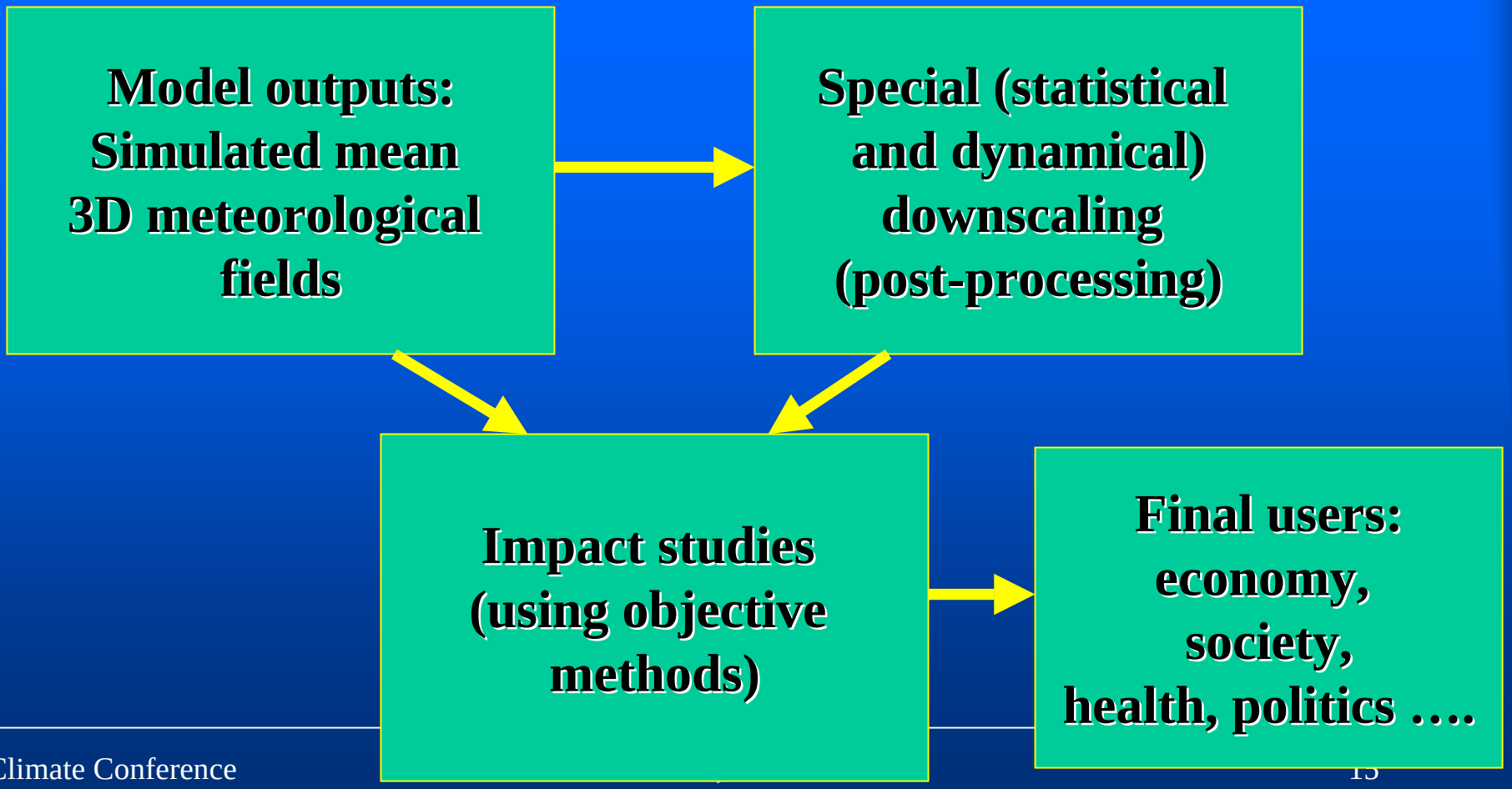

2800
2400
2000
1600
1200
800
400
200
0
[m]

WP1: FIRST, PRELIMINARY RESULTS FOR THE FUTURE (1951-2050)

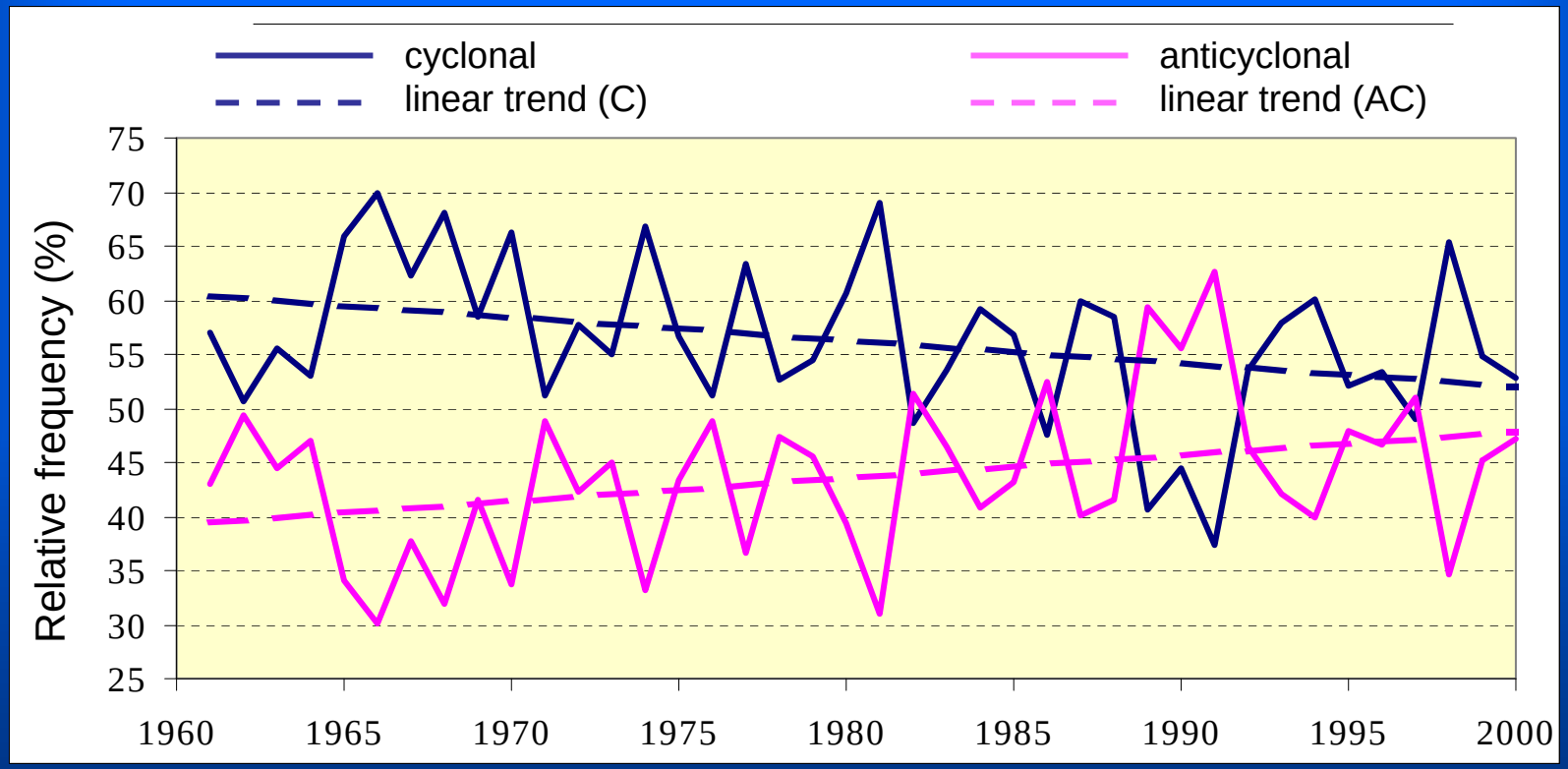




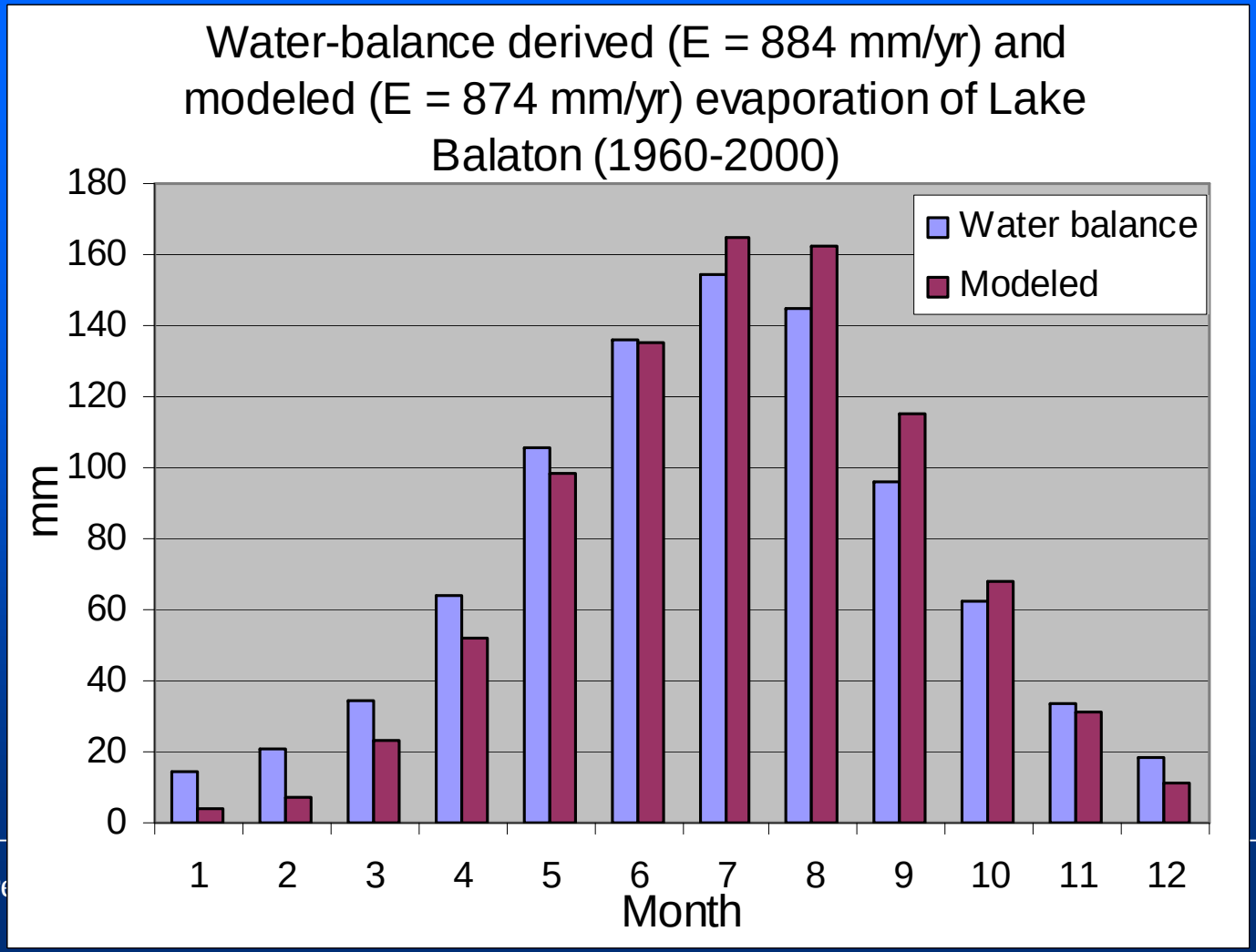
APPLICATION OF THE REGIONAL CLIMATE MODELS' OUTPUTS FOR IMPACT ASSESSMENTS



WP3a (IMPACT ON WEATHER REGIMES) : RELATIVE FREQUENCY OF MACRO-CIRCULATION TYPES



WP3c (IMPACT ON HYDROLOGICAL REGIMES): EVAPORATION FOR LAKE BALATON (DERIVED FROM WATER BALANCE AND MODELLED)



FINAL REMARKS

- The CLAVIER EU project plans not only to explore the climate change over Central and Eastern Europe, but also to give a first assessment of its impact (including economical vulnerability)
- Primary vehicle of the project is the close relationships with the “users”, stakeholders
- Please don’t hesitate to contact us if we can provide valuable information for you!

Thank you very much for your attention and for the invitation!