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Instrument: Integrated Project

Thematic Priority: Global Change and Ecosystems

D8.9b Short course on current state-of-the-art global and regional climate model approaches

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Dissemination Level		
PU	Public	✓
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the Consortium (including the Commission Services)	

SUMMER SCHOOL ON "CLIMATE VARIABILITY & CLIMATE CHANGE: ESTIMATING AND REDUCING UNCERTAINTIES"

8-17 June 2009
Visegrad, Hungary

This event was hosted by Andras Horanyi, from the Hungarian Met. Service and attended by 80 particpants.

This document is taken from the website for the meeting and describes the background, programme and participants. Full information including presentations, lecturers and other outputs are avialable on the meeting website at:

http://www.met.hu/seminars/ss2009.php

SUMMER SCHOOL ON "CLIMATE VARIABILITY & CLIMATE CHANGE: ESTIMATING AND REDUCING UNCERTAINTIES"

8-17 June 2009
Hungary

Dear Visitors,

A Summer School on "Climate Variability and Climate Change: Estimating and Reducing Uncertainties" was organized in Visegrád between 8th and 17th of June, 2009. The scientific programme was organised by *Michael Ghil* (who was born in Budapest and who is professor at the University of Los Angeles and at the Ecole Normale Superieure in Paris). The local organisation was ensured by *Gabriella Szépszó* and *András Horányi* from the Hungarian Meteorological Service.

The Summer School was generously supported by the ENSEMBLES EU project (**www.ensembles-eu.org**), by *László Kapolyi* (as a maecenas of the climate research in Hungary), by the National Office for Research and Technology and by the Hungarian Meteorological Service.

The main objective of the Summer School was on the one hand to introduce those tools, which are appropriate to investigate the climate system from the dynamical system point of view, with special emphasis on those open theoretical issues, which are at the heart of the recent interests on climatology and climate change. On the other hand, several presentations were dedicated to climate modelling, which has essential role in the preparation of the "practical" climate projections. Further focus was also put on the variability and change of the climate system, with particular emphasis on the uncertainties in the characterization and simulation of the climate system. During the panel discussions beside the estimation of the uncertainties their possible reduction was also considered and discussed.

For the calling words of Michael Ghil several internationally recognised researchers gave lectures in the Summer School in Visegrád. The list of speakers was as follows: *Eli Tziperman* from Israel, *Leonard Smith, Chris Holloway* and *Tim Palmer* from England, *Jens Christensen* from Denmark, *David Randall* and *Dmitri Kondrashov* from the USA, *Henk Dijkstra* from the Netherlands, *Herve Le Treut* and *Mickael Chekroun* from France, *Laxmi Sushama* from Canada, *Klaus Fraedrich* from Germany, *Zoltán Rácz* and *András Horányi* from Hungary.

From the students' point of view the Summer School was welcome with great interest from all regions of the World: approximately 150 persons applied for participation not only from Europe, but also from North and South America, Africa, Australia and Asia. Finally, around 70 students took part in the event (some of them could receive financial support). Majority of the students was post-doc and young researcher, who had also the opportunity to introduce their work through posters and their short presentations.

Based on the feedbacks from the speakers and the students the Summer School was a great success from the scientific and also from the social point of view gathering excellent young scientists, who were forming a great team for the end of the School (personal photos are available at **http://picasaweb.google.hu/schoolsummer2009**).

Based on all the positive feedbacks it was proposed to organise smaller follow-on events every two years (which would be organised in other parts of Hungary) with the aim to keep-in-touch with speakers and the students and certainly updating the scientific knowledge about the climate system.

Please also allow us to have some personal remarks about this event from the local organisers point of view. We could see that it was a pretty hard job to organise this event for taking care all the aspects of the event as the preparation and distribution of the calls for the Summer School, receipt and evaluation all the applications, selection of the supported students, choice the optimal location for the event, discussions and agreement on the details with the hosting hotels, liaison with the speakers, ensure the reimbursement process for the supported speakers, have all the accountings for the sponsoring institutions, organisation all the transfers from/to Budapest, management of the social events during the Summer School etc. However we are fully convinced that all of our efforts were not in vain and largely rewarded by the participants. We think that a very nice team was gathered in Visegrád, where life-lasting personal links were established and moreover all the common moments were interesting and exciting. We deeply acknowledge all your feedbacks after the Summer School, which show that most of you liked very much being together in Visegrád, enjoyed their stay in Hungary (Budapest) and preserves nice memories about Hungary in general and the Summer School in particular. We also think that the "life will be different" after this event, which makes us proud for our common achievement before during and after the Summer School.

Finally we would like to sincerely thank to all of you for making the Summer School success. Special thanks are devoted to the

- Sponsors, who provided the financial basis for the event.
- Speakers, who made all the efforts to have interesting and exciting presentations and discussions in Visegrád.
- Students, who came to Hungary for the Summer School and with their presence and with the establishment of a good working atmosphere significantly contributed to the event.
- *Chantal Kamarudin*, who efficiently and flexibly handled the ENSEMBLES support of the Summer School together with the reimbursement process for the supported participants.
- Michael Ghil, because without him it would have not been possible to organise such high level scientific event.
- Hotel Honti and Visegrád for hosting the event and being flexible for all the aspects which were raised during the Summer School.

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- *Edit Hágel*, who also intensively participated in the local organization until March, 2009.
- *Viktor Gregori*, who established and maintained the webpage of the Summer School.

You are invited to visit this webpage in detail, where you can find the **programme** of the Summer School, the lectures, the students' **posters**, some photos and some **feedbacks**.

Thank you again for all of you and we hope to meet you again soon!

Gabriella Szépszó and András Horányi

Budapest, 16th of July, 2009

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PROGRAMME: "CLIMATE VARIABILITY & CLIMATE CHANGE: ESTIMATING AND REDUCING UNCERTAINTIES"

(as of 4 June, 2009)

TYPICAL DAILY SCHEDULE:

Morning session: 9:00 – 12:30 (with ½ hour break, 1.5 + 1.5 hr or 2 +1 hrs)
Afternoon session: 14:30 – 18:00 (same set-up as the mornings)
Computer labs: they will deal with time series analysis, simple dynamical models and intermediate models.

Monday (June 8th)

Morning

Introduction to dynamical systems I (M. Ghil, 2 hr)
Computer lab (intro. to the software, dynamical systems)

Afternoon

Introduction to the climate system (C. Holloway, 2 hr)
Computer lab (intro. to the software, time series analysis)

Tuesday (June 9th)

Morning

Introduction to dynamical systems II (H. Dijkstra, 1.5 hr)
Introduction to the atmosphere (H. Le Treut, 1.5 hr)

Afternoon

Introduction to the ocean (E. Tzipermann, 1.5 hr)
The climate system as a dynamical system (M. Ghil, 1.5 hr)
Computer lab (dynamical systems)

Wednesday (June 10th)

Morning

Climate modelling and its challenges (C. Holloway, 1.5 hr)
Uncertainty lessons from Pliocene and Eocene warm climates
(E. Tziperman, 1.5 hr)

Afternoon

Free (half-day excursion to Szentendre)

Thursday (June (11th)

Morning

Introduction to random dynamical systems (M. Chekroun, 1.5 hr)
Introduction to time series analysis (M. Ghil + D. Kondrashov, 1.5 hr)

Afternoon

Regional climate and downscaling I (A. Horanyi, 1.5 hr)
Stochastic resonance and glacial climate changes (Z. Rácz, 1.5 hr)
Computer lab (dynamical systems &/or time series analysis)

Friday (June 12th)

Morning

Low-frequency-variability (interannual to decadal) – ocean (H.A. Dijkstra, 1.5 hr)

Towards the probabilistic Earth-System model (T.N. Palmer, 1.5 hr)

Afternoon

Student posters (with 2–3-minute oral introduction each)

Saturday (June 13th)

Half-day free, half day work (to be determined – student posters &/or computer labs)

Sunday (June 14th)

Full-day excursion: Boat trip to Esztergom, picnic dinner afterwards

Monday (June 15th)

Morning

IPCC-class climate modelling (D. Randall, 1.5 hr)

Uncertainty, information and decision support (L. Smith, 1.5 hr)

Afternoon

Intermediate climate models and parameter dependence (K. Fraedrich, 1.5 hr)

Dynamics of passive tracers (I. M. Janosi et al, 30 min.)

Computer lab (time series analysis)

Tuesday (June 16th)

Morning

Regional climate and downscaling II (J.H. Christensen, 1.5 hr)

Land surface processes and land-atmosphere interactions (L. Sushama, 1.5 hr)

Afternoon

Regional climate modeling at the HMS (A. Horanyi et al., 30 min)

Regional climate modeling at the ELU (J. Bartholy et al., 30 min.)

Computer lab (dynamical systems and time series analysis)

Wednesday (June 17th)

Morning

Statistical properties of wind field over Europe (P. Kiss et al., 30 min)

Overall discussion and conclusions (1.5 hr)

Climate variability and climate change

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METEOROLÓGIAI VILÁGNAP
2006

Természeti katasztrófák megelőzése, hatásainak csökkentése

2005 Időjárás, éghajlat, víz és fenntartható fejlődés
2004 Időjárás, klíma és víz az információs társadalom korában

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