



Joint Research Centre Round Table

A Global Climate Change and Bulgaria

Staytcho Kolev

Bulgarian Academy of Sciences

Global Climate Change and Bulgaria

In the area of the Climate Change is worked actively in the Bulgarian Academy of Sciences (BAS). It is stressed at the next important directions as: climate variations and change in regional and global scale, vulnerability and adaptation assessment regarding of some branches (for example water resources, agriculture, forest and etc.), reasons contributing Climate-Solar-Earth interactions and/or anthropogenic activity, etc.

Global Climate Change and Bulgaria

These subject matters advance in more than 10 BAS entities: National Institute of Meteorology and Hydrology, Geophysical Institute, Solar terrestrial influence laboratory , Institute of Geography, Institute of Astronomy, Space research institute, Institute of Nuclear research and nuclear energy , Forest Institute , Institute of Oceanology, Institute of Water Research, Geological Institute, Botanic Institute, Central Laboratory of Ecology, etc.

Global Climate Change and Bulgaria

The research activities in the field of Global Climate Change in the frame of BAS are coordinated by the Scientific Coordination Center for Global Change of the Bulgarian Academy of Sciences (SCCGC-BAS).

It is a voluntary association of representatives of academic research and development institutes and units, as well universities and higher educational establishments, institutions, agencies, organizations, companies and other entities in Bulgaria which organizes and conducts activities related to global change in environment, as well as to the economic, political, social and spiritual aspects of global change on society.

Global Climate Change and Bulgaria

The SCCGC-BAS is a consultative/advisory body of the Steering Committee of the Bulgarian Academy of Sciences on global change in Bulgaria. It is managed by a Steering Committee, General Council and Consultants. The President is Assoc. Prof. DSc. Vesselin Alexandrov.

Since 31 May 2006 the residence of the SCCGC-BAS is located at the National Institute of Meteorology and Hydrology in Sofia

Global Climate Change and Bulgaria

Goals of the SCCGC-BAS :

- To implement scientific, methodological and informational support in respect to the national politics on global change in Bulgaria;
- To coordinate scientific, methodological and informational activities related to implementation of national and international programs and projects on global change.
- To develop an integrated scientific-methodological approach to global change in the entire spectrum of its research, applied, technological, managerial, socio-economical and spiritual aspects.

Global Climate Change and Bulgaria

Main tasks are:

- **To coordinate and support research on aspects of global change in Bulgaria and to support methodological and informational needs related to the implementation of the national programs;**
- **To coordinate and support scientific, methodological and informational needs related to implementation of the country's commitments under international conventions, contracts and agreements on the subject of global change;**
- **To assist contacts among scientists and their participation in national, regional and international global change programs;**

Global Climate Change and Bulgaria

- **To assist contacts among scientists and their participation in national, regional and international global change programs;**
- **To coordinate and assist the information exchange among scientists and stakeholders in the country and abroad through establishment and maintenance of a scientific network on global change in Bulgaria;**
- **To organize and perform assessments and evaluations, to provide expertise, and to develop reviews and position papers as required by governmental institutions, international organizations, business entities, NGOs and other organizations or individuals on aspects of global change;**

Global Climate Change and Bulgaria

- To organize and support scientific conferences, courses for training and skill enhancement for specialists, as well as the publication of research, information, applied science and materials for the public in the field of global change;
- To play the role of a focal point, information center and representative of the Bulgarian Academy of Sciences before national and international bodies, organizations, programs and projects within the scope of the major objectives and goals of the Center.

Global Climate Change and Bulgaria

It has to be outlined the last event held recently - the International conference in Sofia 19 - 21 May 2008 titled: GLOBAL ENVIRONMENTAL CHANGE: CHALLENGES TO SCIENCE AND SOCIETY IN SOUTHEASTERN EUROPE ;

with organizers :- the SCCGC-BAS and the Austrian Science and Research Liaison Offices Ljubljana and Sofia.

One of the problems still existing is the insufficient information exchanges, observed some times between separate BAS institutions and other entities.

Global Climate Change and Bulgaria

Briefly about the Climate Change over the Bulgarian region

The climate changes and variability's investigations about the Bulgarian region, carried out in NIMH in summary shows that in the last 10-20 years the tendency of increasing winter temperatures in January is notable observed.

By other side the tendency of weak warming over the Bulgarian region are observed from the 1980.

The interesting fact is that the minimal temperature is increased faster that the maximal one, which means that the difference between them become shorter.

Global Climate Change and Bulgaria

In an accordance to the climate scenarios about Bulgaria in the period 2050-2080 it is expected an 2-5 degrees increasing, which will lead to a replacement of the subtropical climate to north. It means that North Greece climate will be meet in the south Bulgaria, and consequently South Bulgaria climate will meet in North Bulgaria. The climate scenarios for Bulgaria foresee increasing of extreme events numbers-thunderstorms, floods, droughts, hurricane winds, etc.

As well the warming will lead to new diseases and garden pests which will survive in the new climate conditions. The climate change will influence plants, animals and human life.

Global Climate Change and Bulgaria

Important projects:

For the last 10 years, the BAS institutions are taken part in more than 30 international projects in the frames of EC, COST, NATO, in more than 25 bilateral projects , 10 national ones .

Some of the projects supported by EC are:

Global Climate Change and Bulgaria

- **Climate change and variability: Impact on Central and Eastern Europe (CLAVIER), 2007-2009, NIMH – BAS-6FP**
- **-Adaptation of agriculture in European regions at environmental risk under climate change (ADAGIO), 2007-2009 , NIMH - BAS -6FP**
- **-Central and Eastern Europe climate change impact and vulnerability assessment (CECILIA), 2006-2009, NIMH - BAS -6FP**
- **-Impacts of climate change and variability on European agriculture, 2006-2010, NIMH - BAS**

Some of the important topics are :

Stochastic models and methods in climate and hydrology

- 1. Development of non-homogeneous hidden Markov model for multisided downscaling synoptic atmospheric patterns to daily precipitation occurrence and amounts;**
- 2. Development of stochastic weather generators using Generalized Linear Models for simulation of daily precipitation occurrence and amounts, daily minimal and maximal temperature, conditional on atmospheric fields;**
- 3. Climate change and variability using stochastic downscaling of atmospheric fields;**
- 4. Development of robust regional frequency analysis for flood/droughts studies;**

Global Climate Change and Bulgaria

- **Extreme Hot Spells and Heat Waves on the Territory of Bulgaria.**
- **Extreme Drought and Dry Wind Conditions Assessed on Temperature–Humidity Basis.**
- **Climatologic Analysis of the Synoptic Situations Causing Dry Wind and Droughty Spells in the country.**

Global Climate Change and Bulgaria

Climate change and energy .

The Bulgarian Case Study realised in the framework of the DECADES Inter-Agency Project (BCS/DECADES) serving as an example how to apply the EIA (environmental impact assessment) concepts as a kind of EIA applied to the electricity generation.

A Study about the energy related climate variability where qualitative estimation of the impact on climate from the main electricity generation options are performed.

Global Climate Change and Bulgaria

There are more than 500 science papers and 3 books issued in the frame of SCCGC-BAS.

Unfortunately mostly of these ones are in journals with low impact factors which make the researchers here, almost unknown internationally. One of the reasons is the absent of financial support.

The main results and issues are the base in preparation of national reports in accordance to the UN convention about the Climate change, UN convention about combating with drought, Environmental Ministry's every year reports, expertises, etc.

Global Climate Change and Bulgaria

Outside BAS, the climate changes are investigated in some Bulgarian universities as:

- **Sofia State University;**
- **New Bulgarian University,**
- **South-West University- Blagoevgrad;**
- **Veliko Tarnovo University;**
- **Plovdiv Agriculture University,**
- **Forest University.**

And partially in other institutes , NGO, etc.

Global Climate Change and Bulgaria

The problems we face are:

The BAS human resources dealing with the topic is more than 80 researchers, but their number decrease , grow olds and no new coming young peoples. The young scientists express interest to this topic but much of them leave BAS because of the very low salaries.

The rest ones are not motivated.

Global Climate Change and Bulgaria

-There is not expressed expected interest by many our institutions to our results. In the same time, the results, achieved by BAS researchers are utilized in Spain Ministry of environment about the perspectives and consequences influenced their country because of the Climate Change. As well some our results were applied abroad in a forecast of fish draught.

-There is not appropriate responses from the decision makers, governmental bodies, local authorities.

Global Climate Change and Bulgaria

- There is not still any essential NGO quest to our scientific results.
- There is unclear feed back from the society.
- There is absent of actual stakeholders and supporting agencies.
- There are not any sponsors.

Global Climate Change and Bulgaria

Our Intentions are:

- to implement the good practices from EC member countries with emphasis to those as JRC-Ispra, 7FP-projects, ERA-NET in the field of Climate change, etc.
- to be implemented additional cooperation with JRC- Ispra for joint research activities using their experience and research base.
- To contribute in lobbying in an establishment a national research program dealing with wider aspects of Climate Change.

Global Climate Change and Bulgaria

- to be organized joint events in Bulgaria, aiming to attract not only more researchers and decision makers , but and authority representatives from all scale in order to provoke a wider response in the whole society.

Expectations:

An sustainable long-time cooperation with JRC-Ispra.

Acknowledgements:

assoc. prof. DSc. Vessein Alexandrov-president SCCGC-BAS;

assoc. prof. Dr. Anelia Kmetska;

assoc. prof. Dr.Neyko Neykov;

assistant prof. Antoaneta Yotova



A Global Climate Change and Bulgaria

THANK YOU FOR YOUR ATTENTION

Joint Research Centre Round Table