

SCIENTIFIC REPORT

From Dr. Valentin Kazandjiev, Assoc. Prof. In National Institute of Meteorology and Hydrology, Sofia, Bulgaria, during STSM (16-23.04.2007) in Department for Meteorology in University of Natural resources and Applied life Sciences (BOKU), Vienna, Austria

I. Purpose of the visit

Main purposes of the visit correspond with idea to use crop simulation models as a tool for climate variability and change impacts investigation on crops. Well known are some similar investigations for comparative use of different models, provided by Dr Josef Eitzinger in department for meteorology in university of natural resources and applied life sciences (BOKU).

Further during the last fifteen years more and more extreme values of temperatures and rainfalls as well as related hydro-thermal conditions have been observed. Droughts and floods in large regions of Europe are important and limitation factors for growth, development and yield formation of cereal crops.

Attempt for establishment of relationships between climatic and hydro-thermal indices and the phenological development of cereal crops and pastures is subject of mutual interest. The influence of sowing dates to the harvest results are also in the field of investigations. Climate variability and climate change are very important conditions for building a new strategy for agriculture. The peculiarities of climatic scenarios and their applications to various simulations for analyzing impact of climate change effect.

II. Description of the work carried out during the visit

Investigation on the influence of climate variability and change on agricultural production stay more comprehensively with a lot scientific, methodological and practical value. Part of these problems can be solved with simulation model applications. In the University natural resources and applied life sciences under scientific guidance of Dr Eitzinger provide similar investigations in this field.

During STSM we emphasize on the role of interactions between meteorological factors and their influence on the agroecosystems. Leading technologies of forecasts based on drought and rainfall indices guarantee sustainability of pastures and cereals development. This explains necessity from integrating research and application approach. Under this approach was found out not only consequences from negative meteorological phenomena, and the causes for these phenomena. Providing investigation and analysis of dynamical connections between meteorological factors and agroecosystems parameters such as soil water content, stages of biological development of crops and their vulnerability will be useful to agriculture. Follow up to estimate trends and forecasts for their future condition and development.

Finally was realized visit in joint trading company "ADCON" for automated meteorological stations with field of application in agriculture. These stations are coupled with suitable software for managing data transmit, data base organizing and data processing. During the visit was demonstrated all functional blocks, assembling station with different sensors and process of establish connection with server of system.

III. Description of the main results obtained;

During the mission period according with limited time and necessity of preliminary conversations for defining the principles for investigations carry out in the next sequence:

1. Was established a common research methodology and selected models and empirical relations for estimation of growth and drought impact on productivity of different agricultural crops in agriculture - both in Austria and Bulgaria;
2. Was get knowledge on available publications and related to arometeorological forecasts materials with application of simulation models and indices;
3. Was evaluated and adopted of research methods and approaches recommendations for structure of agricultural production use agroclimatic and biological resources zoning preparing.

Iç. Future collaboration with host institution

Two sides, after some negotiations achieve to understanding to continue joint research in the frame of bilateral scientific project with working title **“Agroclimatic Resources for Field Cultures Cultivation under Natural Conditions in Austria and Bulgaria”**.

ç. Projected publications/articles resulting or to result from the STSM

It is expected to be prepared few scientific publications.

çI. Confirmation by the host institute of the successful execution of the mission;

VII. Other comments (if any)

Sofia, 02 May 2007

Participant Valentin Kazandjiev

