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PREFACE

Contemporary climatological research concentrates on the global, regional and local evaluation of past and present climatic conditions. The public opinion demands not only the diagnosis of the present functioning of the climatic system but also the prediction of its changes in the future and estimation of the changes' influences on the environment and living conditions. The science at present seems to revert to a modified form of geographical determinism based on a new relation between the physical and human geography. Its main assumption is that to predict the climatic change we must first know its history, as the past is the best key to the future. From the point of view of methodology it means that discerning understanding of the past allows predicting the future and that the research undertaken to achieve it must be of an interdisciplinary character.

The most significant data needed for such research are quantitative measurements of climatic elements gathered during last 100-250 years, which enable us to reconstruct the sequence of climatic phenomena. Equally important are proxy data with which we can characterise the interaction between natural physical environment and the conditions created wittingly or not by humans in the recent past. Tracing those indirect evidences of climatic change is based on the acceptance of the following feed-back: the environment affects the socio-economical system and the society affects the climate. The reliability of the created data bases is of crucial importance for the realisation of those tasks. First of all the verification of input data quality is needed for both measurement and proxy data series. Instrumental data must be supported with metadata files, containing the information about all conditions accompanying measurements which may have a certain impact on their homogeneity. In case of proxy data it is necessary to eliminate all symptoms which might be caused by human activity instead of natural factors. A very important step is combining instrumental and proxy data, which allows evaluating the functioning of climatic system, climate changes and fluctuations, also in historical times.

In the fascicles 107 and 108 of "Prace Geograficzne" the papers are grouped following the issues presented during the International Conference "Images and Reconstructions of Weather and Climate over the Last Millennium", which took place in Cracow, 20-22 Sep., 2000, under the auspices of the Ministry of Education of the Republic of Poland. The history of climate is considered here in different spatial scales. The diagnosis of the present climate state was studied on the basis of the connections between particular climatic elements and circulation factors together with the insolation. The forcing mechanisms triggering the climatic changes in regional and local scales were being searched with usage of statistical analysis of observed fluctuations. The papers presented during the conference evaluate different methods of present and past climate analysis together with climate change forecasts. A very important issue is finding environmental solutions, resulting from the climate evolution of the past millennium and aimed to create more harmony in the relation between the economy and climate.

The number of papers gathered in both volumes proves the importance of the subject of the conference, organised in Cracow, the European City of Culture celebrating the Festival "Kraków 2000". The future of geoecosphere in all scales depends on the efficiency of modelling the atmospheric and hydrological processes, describing complex conditions of energy and matter exchange. The research concentrated on those problems will facilitate, already at present, limiting the future unfavourable climate changes and will allow understanding various catastrophic phenomena and economical losses, experienced by many nations in the past.

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