



**POLISH ACADEMY OF SCIENCES**  
**Systems Research Institute**

**ECO – INFO  
AND SYSTEMS RESEARCH**

**Editors:**

**Jan Studzinski**  
**Olgierd Hryniewicz**





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# **ECO – INFO AND SYSTEMS RESEARCH**

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**Jan Studzinski  
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The purpose of this publication is to present the information technology (IT) tools and techniques that have been developed at the Systems Research Institute of Polish Academy of Sciences in Warsaw (IBS PAN) and at the German Institute for Landscape System Analysis in Müncheberg (ZALF) in the area of applications of informatics in environmental engineering and environment protection. The papers published in this book were presented in the form of extended summaries during a special workshop organized by IBS PAN in Szczecin in September 2006 together with the conference BOS'2006 organized jointly by IBS PAN, University of Szczecin, and the Polish Society of Operational and Systems Research. In the papers the problems of mathematical modeling, approximation and visualization of environmental variables are described. Moreover, some questions concerning the environmental economy are also presented.

Papers Reviewers:

Prof. Andrzej Straszak

Dr. Lucyna Bogdan

Text Editor: Anna Gostynska

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Systems Research Institute of Polish Academy of Science  
Newelska 6, PL 01-447 Warsaw

Section of Scientific Information and Publications  
e-mail: biblioteka@ibspan.waw.pl

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## PREFACE

This book contains the papers describing the most interesting research works realized during the last years in the area of environmental engineering and environment protection at the Systems Research Institute of Polish Academy of Sciences in Warsaw (IBS PAN) and at the German Institute of Landscape Systems Analysis in Müncheberg (ZALF). These papers were presented in the form of extended summaries during a special workshop organized by IBS PAN in Szczecin in September 2006 together with the conference BOS'2006 that has been dedicated to the applications of systems research in science, technology and economy and organized jointly by IBS PAN, University of Szczecin, and the Polish Society of Operational and Systems Research. There are ten papers chosen for publication in this book. They deal with mathematical modeling, approximation and visualization of environmental variables and with development of computer aided decision making systems in the area of environmental informatics. They have been divided into three chapters dedicated to different fields of this area: "Development of specialized software", "Mathematical modeling", and "Environmental economy".

The workshop and this publication represent the realization of the idea of common meetings of Polish and German scientists acting in the area of environmental informatics with the aim to improve and develop the Polish-German scientific cooperation. This idea has been arisen quite recently when it became clear that despite close neighbourhood of Poland and Germany, and many existing contacts on political, economic and cultural levels, there are no bilateral programs of scientific cooperation which could support common research activities.

It seems to us that in presence of rapidly developing mutual relations some promotion programs in the research area shall be organized and developed to make the bilateral cooperation easier, and to secure an appropriate financing for future joint research. The joint workshops and publications like those presented in this book should be considered as first and good steps in this direction.

The workshop in Szczecin was already the second meeting organized by IBS PAN and its German partners, and realizing the idea of tightening the

Polish-German scientific cooperation. The first one was organized by the Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB) in Berlin in February 2006, and it resulted with the book, published by IBS PAN in 2006, under the title “Modeling Concepts and Decision Support in Environmental Systems”.

We hope that the realization of the idea of common Polish-German workshops and publications will help to make the scientific cooperation between Poland and Germany closer and more effective.

*Jan Studzinski*  
*Olgierd Hryniewicz*

*Warsaw, November 2006*





**Jan Studzinski, Olgierd Hryniewicz (Editors)**

**ECO – INFO AND SYSTEMS RESEARCH**

This book presents the papers that describe the most interesting results of the research that have been obtained during the last few years in the area of applications of informatics in environmental engineering and environment protection at the Systems Research Institute of Polish Academy of Sciences in Warsaw (IBS PAN) and at the German Institute for Landscape System Analysis in Müncheberg (ZALF). The papers were presented in the form of extended summaries during a special workshop organized by IBS PAN in Szczecin in September 2006 together with the conference BOS'2006 dedicated to the applications of systems research in science, technology and economy and organized jointly by IBS PAN, University of Szczecin, and the Polish Society of Operational and Systems Research. They deal with mathematical modeling, approximation and visualization of environmental variables and with development of computer aided decision making systems in the area of environmental informatics.

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