

**POLISH NATIONAL COMMITTEE  
FOR INTERNATIONAL CARTOGRAPHIC ASSOCIATION**

**CARTOGRAPHIC ACTIVITIES  
IN POLAND  
2007–2010**

**NATIONAL REPORT**

**Submitted to  
the 15th General Assembly  
of the International Cartographic Association  
Paris, France  
July 2011**

**HEAD OFFICE OF GEODESY AND CARTOGRAPHY**

**Warsaw 2011**

**Polish National Committee  
for International Cartographic Association**

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ISBN 978-83-254-1214-2

Translations by TRADO–Biuro Tłumaczeń

Technical elaboration and printing by  
Institute of Geodesy and Cartography  
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## Part one

### AREAS OF ACTIVITY

#### **1. Cooperation between Polish cartographers and the International Cartographic Association (ICA)**

Cooperation between Polish and foreign cartographers within the framework of international organizations and bilateral relations in 2007–2010 was strong and developed at various levels. A significant portion of the cooperation was related to the operations of ICA. Poland has participated in the operations of ICA since 1964. Cooperation with ICA has long been considered important and prestigious by Polish cartographers. Their active participation in international, regional and thematic cartographic conferences and in related exhibitions and competitions organized by ICA, as well as in other activities of ICA proves this.

Poland's participation in various events and initiatives by ICA is coordinated by the National Committee for ICA. The Committee was established in 1976 at the Institute of Geodesy and Cartography, which has been the official representative of Poland for ICA since 1964. The Committee includes 27 members who represent main cartographic institutions and organizations in Poland. The Committee continues its cooperation with ICA, is responsible for the Polish participation in the General Assembly and in cartographic conferences (by preparing national reports, motions, opinions, initiatives, displays during international exhibitions and competitions), organizes international cartographic events in Poland. It is also a medium for the exchange of information related to the activity of the Committee and ICA working groups.

The National Committee for ICA, in cooperation with the Chair of Cartography at the Department of Geography and Regional Studies, University of Warsaw, the Institute of Geodesy and Cartography and the Cartography and GIS Lab, University of Nebraska at Omaha, organized in Warsaw, from July 31 to August 2, an annual conference of the Commission on Maps and Internet at ICA entitled: „Maps and Internet 2007”. 37 specialists from 9 countries participated in the conference. During 4 conference sessions, participants presented 13 papers which have been published in a post-conference volume.

In 2007, representatives of the Committee participated in the 14th General Assembly of the International Cartographic Association in Moscow. They also participated in a meeting of ICA national representatives in Santiago (2010) and in the celebrations of 50 years of ICA held in Bern in 2009.

Polish cartographers participated in international conferences organized by ICA in Moscow (2007) and in Santiago de Chile (2010). 23 Polish specialists participated in the 23rd International Cartographic Conference in Moscow. They presented 14 papers and 5 posters. By motion of the Committee, professor Wiesława Żyszkowska was chosen the Chairperson of the Commission on the Underrepresented Groups and Cartography.

24 Polish specialists participated in the 24th International Cartographic Conference in Santiago de Chile. They presented 17 papers and 3 posters. The Polish representative was nominated as one of the five most promising young cartographers and received a diploma and a conference scholarship. Polish cartographers also participated in the related workshop entitled „The Future of Maps and the Internet” as well as in various commissions and working groups of ICA.

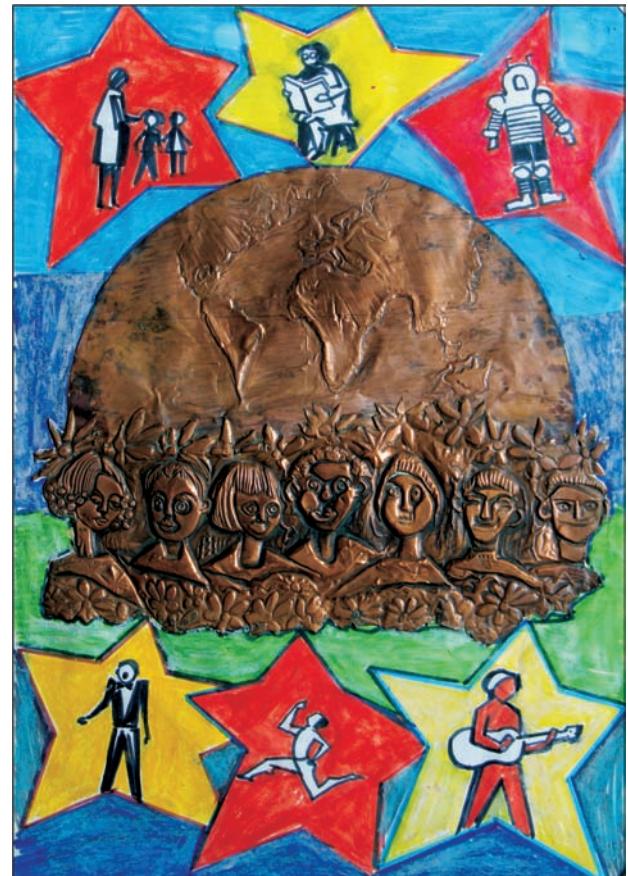
Polish cartographers also participated in numerous regional and thematic conferences by ICA, such as: the 4th International Symposium on LBS and Tele-Cartography in Hong Kong (2007), 4th Cartography and Cartosemiotics seminar in Vilnius (2007), 1st „Art and Cartography – Cartography and Art” symposium in Vienna (2008), conference of the Commission on Mountain Cartography in Lenk (2008) and in Borsa (2010), meeting of the Commission on Cartography and Children in Prague (2009), Symposium of the Working Group on Cartography and Early Warning in Prague (2009), International Conferences on Cartography and GIS in Borovec (2009) and Nessebar (2010); ICA Symposium on Cartography for Central and Eastern Europe in Vienna (2009), 5th International

Symposium on „Digital Technologies in Cartographic Heritage” in Vienna (2010), 6th International Symposium on „Digital Approaches to Cartographic Heritage” in Hague (2011) and in Workshop of the Commission on Use and User Issues in London (2010).

In the reporting period, Polish cartographers actively participated in the activities of the following commissions and working groups of ICA:

- Commission on Underrepresented Groups and Cartography;
- Commission on Ubiquitous Mapping;
- Commission on Mountain Cartography;
- Commission on Generalization and Multiple Representation;
- Commission on Map Projections;
- Commission on Maps & the Internet;
- Commission on Standards for the Geospatial Data;
- Commission on Theoretical Cartography;
- Commission on Use and User Issues;
- Working Group on Cartography and Early Warning.

The National Committee for ICA organized two Barbara Petchenik national competitions for 5th and 6th grade pupils. The first one was held in 2007. The competition committee received nearly 300 works, 5 of which were nominated to participate in the international competition, held in Moscow. In Moscow, two Polish pupils received commendation for their works: *We may be of different skin color, but we are all children* and *Music unites us*. The second Barbara Petchenik competition was held in 2009. From among 160 works,



*Fig. 1. Work of Polish pupil awarded in the Barbara Petchenik competition in Santiago*

six were nominated for the international round in Santiago (Chile). One of the Polish pupils received award for her work: *Living in a global world*, presented in the Fig. 1.

## 2. Structure of the Geodetic and Cartographic Service in Poland

According to the act of May 17th, 1989 entitled „Geodetic and Cartographic Law”, the Geodetic and Cartographic Service shall consist of:

- 1) Geodetic and cartographic supervisory bodies:
  - Surveyor General of Poland,
  - Voivodes executing their responsibilities through voivodship geodetic and cartographic supervision inspectors in 16 voivodships;
- 2) Geodetic and cartographic administrative bodies:
  - Chairmen of Voivodship Assembly executing their responsibilities through voivodship surveyors from the 16 voivodships,
  - County Chief Officials executing their responsibilities through county surveyors as well as commune heads and mayors. (Fig. 2).

The responsibilities of the Geodetic and Cartographic Service are defined in the Geodetic and Cartographic Law and in the Spatial Information Infrastructure Act.

Based on the Geodetic and Cartographic Law, the responsibilities of the Geodetic and Cartographic Service include:

- 1) To implement national policy in geodesy and cartography;
- 2) To provide survey and cartographic supervision of public offices, public institutions and businesses;
- 3) To organize and finance geodetic and cartographic operations;
- 4) To initiate scientific research and R&D work in geodesy and cartography;

- 5) To distribute and maintain a register of professional qualifications;
- 6) To manage and update national geodetic and cartographic resource;
- 7) To produce topographic and thematic maps of the country and the basic map;
- 8) To manage the national register of borders and the area of administrative divisions.

New objectives:

- 1) Managing:
  - Databases of general geographic entities, at the scale 1:250 000 or smaller;
  - Integrated databases of topographic entities, at the scales 1:10 000–1:100 000, incl. Digital Terrain Model;
  - Air and satellite images and orthophotograph banks;
  - Standard cartographic works at the scales 1:25 000, 1:50 000, 1:100 000, 1:250 000, 1:500 000, 1:1 000 000;
  - Thematic and special cartographic elaborations.

- 2) Development and submission of governmental programs for realization of survey and cartography objectives;

- 3) Creating a system and a program of training in survey and cartography and cooperating with research centers, R&D centers and professional organizations for the realization of such training.

Surveyor General of Poland is the main administrative body. It is supervised by the Minister of Interior and Administration. Surveyor General of Poland executes his/her responsibilities through the central administration body: GUGiK (Head Office of Geodesy and Cartography). Surveyor General is its chairperson. Surveyor General is aided by the Deputy Surveyor General of Poland, Chief Executive and lower organizational directors. Surveyor General of Poland is appointed by the Prime Minister, based on a competition, for a 5-year term (Fig. 3).

Geodetic and Cartographic Service employs 7250 specialists nationwide, 146 of whom are employed in the Head Office of Geodesy and Cartography in Warsaw.

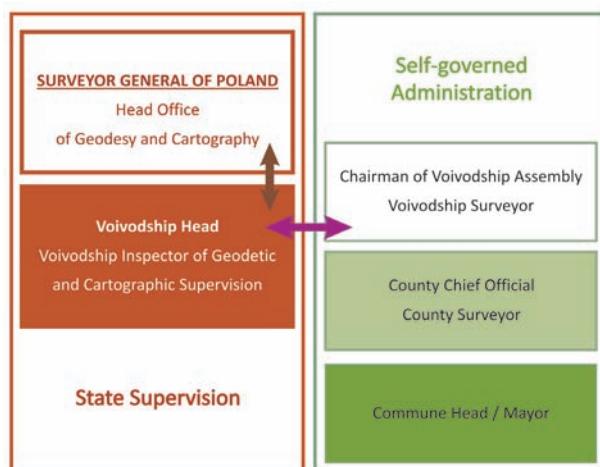


Fig. 2. General scheme of Geodetic and Cartographic Service

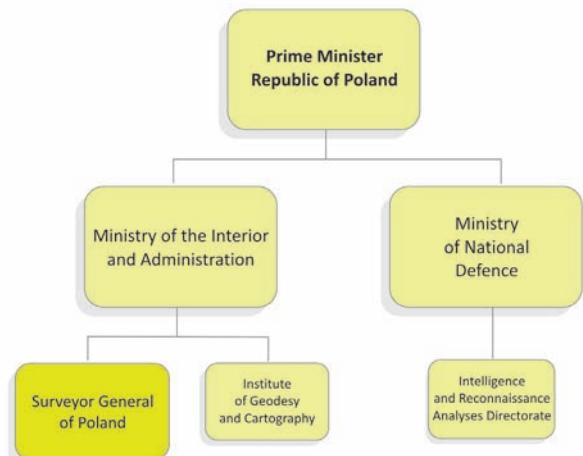


Fig. 3. Schema of subordinating of Surveyor General of Poland to overriding state authority

### 3. Activity of Polish cartographic organizations

In 1999, Stowarzyszenie Kartografów Polskich (Association of Polish Cartographers – APC) was established and thus Poland joined the group of countries with their own independent public cartographic organizations. Apart from this Association, there are other organized groups of cartographers operating within other associations and research institutions.

These are: Oddział Kartograficzny Polskiego Towarzystwa Geograficznego (Division of Cartography of the Polish Geographical Society) and two groups related to the Polish Academy of Sciences: Sekcja Kartograficzna Komitetu Geodezji (Cartographic Section of the Committee of Geodesy) and Zespół Historii Kartografii przy Instytucie Historii Nauki (Team

for the History of Cartography at the Institute of the History of Science). Moreover, such institutions as Polskie Towarzystwo Informacji Przestrzennej (Polish Association for Spatial Information) and Komisja Geoinformatyki Polskiej Akademii Umiejętności (Commission of Geoinformatics of the Polish Academy of Arts and Sciences).

\*

**Association of Polish Cartographers** (APC) is a professional and a research-technical organization of Polish cartographers based on voluntary membership. At the end of 2010, APC included 176 normal members and 5 supporting members. Joanna Bac-Bronowicz, Ph.D. Eng. from the Institute of Geodesy and Geoinformatics, Wrocław University of Environmental and Life Sciences has been the chairperson of the Executive Council from the beginning.

Statutory objectives of APC are: to represent authors and specialists working as cartographers, protecting the trade and copyright of cartographers, raising professional qualifications of its members, popularizing knowledge about cartography among the society, co-operating with local and national government in the scope of cartography.

Said objectives are fulfilled by organizing conferences, symposia and competitions, publishing articles and reports on the situation of Polish cartography and cooperation in the work on legal acts and other documents related to cartography with the Head Office of Geodesy and Cartography. This ongoing cooperation is based on a special agreement with Surveyor General of Poland signed in January 2005.

In October 2009, APC organized the 3rd Professional Conference of APC in Duszniki-Zdrój under the theme: „Professional perspectives of cartographers” (previous conferences were organized in 2002 and 2006). It was co-organized by the Institute of Geography and Regional Development, University of Wrocław and the Institute of Geodesy and Geoinformatics, Wrocław University of Environmental and Life Sciences. The theme of the papers and concurrent discussions was the issues of cartographers’ education in view of current market requirements, working conditions of cartographers, the quality of cartographic products, the role and objectives of cartography in view of the act on spatial information infrastructure and the special case of copyright provisions in relation to cartography.

In October 2007, APC co-organized 4th Polish Geoinformational Symposium on „Geoinformation:

research, application and education” in Dobczyce with a special session „Aspects of Cartographic Geoinformation” and in September 2009, 5th Polish Geoinformational Symposium in Cracow on „Geoinformatics for the environment and the society: research and applications”.

Since its beginnings, APC has cooperated with the Division of Cartography of the Polish Geographical Society, in e.g.: organizing 30th Cartographic Conference in Ustka (2008) and joint meetings during conferences. This cooperation was strengthened further in January 2009 when both institutions established a Cooperative Team and drew up its status.

The „Map of the Year” competition organized regularly since 2000, is one of the most popular such events among Polish cartographers. Each year, more than 10 leading cartographic publishers participate in the competition. Moreover, APC was the main organizer of the „Good tourist map, good tourist atlas, good tourist guide” competition held in 2009 during the 1st International Tourist Fair Wrocław 2009. The rules and the results of the competitions, together with submitted maps, are available at the APC website at: [www.polishcartography.pl](http://www.polishcartography.pl) ([www.gislab.ar.wroc.pl/SKP](http://www.gislab.ar.wroc.pl/SKP)). Conference materials and information regarding the activity of APC and other events in Polish cartography are published in the „Bulletin of the Association of Polish Cartographers”.

**Division of Cartography of the Polish Geographical Society** includes 60 members. Since 2006, it has been headed by Professor Wiesława Żyszkowska from the Chair of Cartography, University of Wrocław. The main objective of the Division is to propagate cartography especially among geography teachers. The aim of the Division is to promote cooperation and exchange of experience between research, educational and production centers operating in cartography. These goals are fulfilled mainly through organizing national conferences, promoting cartographic schools and publishing.

National cartographic conferences have been organized annually since 1968 in different towns in cooperation with institutes of geography of local university. In years 2007–2010 the following conferences were held:

– 2007: 22nd Polish Cartographic Conference in Nałęczów. Theme: „Current trends in methodology of cartography”;

– 2008: 23rd Polish Cartographic Conference in Ustka. Theme: „Regional cartography”;

– 2010: 24th Polish Cartographic Conference in Warsaw. Theme: „Polish cartography in the period of methodological and technological changes”.

The last conference was the 8th one of the cycle of quinquennial conferences held in Warsaw dealing with the issues of „The state and the perspectives of the development of cartography in Poland”. Materials from each conference are always published in the series: „Studies in Cartography” (Fig. 4).



Fig. 4. Last two volumes of the new series „Studies in Cartography”



Fig. 5. First volumes of a „Library of the Polish Cartographical Review”

The Division publishes a special quarterly: „Polish Cartographical Review”. It is the only magazine in the entire Central and Eastern Europe solely focusing on cartography. Since 2004, it has been published with financial support by E. Romer Polish Cartographical Publishing House (until 2010), the Ministry of Science and Higher Education and since 2004 the Nowa Era publishing house. Additionally, the Division has pub-

lished two volumes in the „Biblioteka Polskiego Przeglądu Kartograficznego” (Library of the Polish Cartographic Review) collection entitled: *W stulecie Atlasu geograficznego Eugeniusza Romera 1908–2008* (100 Years of the Eugeniusz Romer Geographic Atlas 1908–2008) and *Komisja Kartograficzna Polskiego Towarzystwa Geograficznego 1966–2000* (Cartographic Commission of the Polish Geographical Society 1966–2000) (Fig. 5). The Division, in cooperation with the Chair of Cartography, University of Wrocław, organizes „Cartographic Schools” (see p. 27) and participates in meetings of the Polish Geographical Society, during which cartographic exhibitions are held.

**Cartographic Section of the Committee of Geodesy of the Polish Academy of Sciences.** The Section includes nearly 40 members actively engaged in the issues of current cartography. At that moment it is headed by Professor Tadeusz Chrobak, AGH – University of Science and Technology, Cracow. Most of its activities are devoted to organizing and co-organizing thematic symposia, conferences and seminars related to the issues of modern cartography. In 2009 in Cracow, the Section organized a symposium entirely devoted to the problem of creating and functioning updating of Multiple Databases of Topographic Objects. The general conclusion arising from the symposium was a necessity to conduct research in:

- the functioning of norm in the processes of automatic updates for Multiple Database Topographic Objects,
- application of generating operators in supply and update processes,
- unambiguity in automatic processing of Multiple Database Topographic Objects.

Since 2007, the Section has coordinated work on multilingual dictionary of cartographic terms.

Since 1975, **Team for the History of Cartography at the Institute of the History at Science of the Polish Academy of Sciences** has been an active non-institutional group of cartographers and historians operating in the field of history of cartography. The team, headed by Radosław Skrycki, Ph.D., Szczecin University, consists of 14 normal members and 3 honorary members. The main objective of the Team is to inspire, coordinate and help conduct research in the history of cartography by organizing conferences and academic meetings as well as publishing.

The Team organizes (annually or every second year) a national conference of cartography historians

in cooperation with various local research centers. In the past few years, three conferences were held:

– 22nd Conference in Pobierów near Szczecin (2007) on „Old map as a source of knowledge in the world”. It was co-organized by the Institute of History and International Relations, Szczecin University;

– 23rd Conference in Warsaw (2009) on „Old cartography of cities”. It was co-organized by the Archives of the Capital City of Warsaw and Warsaw Surveying Company S.A.

– 24th Conference in Chojna (2010) on „From atlas to collection. In celebration of the 440th anniversary of the first edition of Abraham Ortelius Atlas”. It was co-organized by the Institute of History and International Relations, Szczecin University and the National Archives in Szczecin.

Additionally, in November 2009, in co-operation with the Municipal and Voivodship Public Library in Gorzów Wielkopolski, the Team organized a conference entitled „Cartographia confinium. Western and Northern Polish lands in cartography of the past”.

Meetings with papers and discussions are organized by the Team periodically twice a year and all materials after national conferences are published in the „From the History of Cartography” series. Volume 14 (Szczecin 2008), the most recent one, includes 23 papers presented during the conference in Pobierowo and a summary of all the previous conferences. The next two volumes which will include materials from the conferences in Warsaw and in Chojna will be published in 2011.

**Polish Association for Spatial Information** is an interdisciplinary association which objective is to support the development of geomatics for effective creation and implementation of spatial information systems and general access to spatial data in Poland.

The Association pursues its objectives by: supporting the development of geoinformational infrastructure, organizing and coordinating cooperation of interested entities, propagating knowledge, coop-

erating with other national and foreign organizations, presenting achievements of the members of the Association. The main forms of activity of the Association include: organization of annual conferences, seminars, workshops and training as well as publishing.

In the period 2007–2010, the Association organized in Warsaw four conferences in the series „Geoinformation in Poland” which were focused on the creation of legal, organizational and technical basis for the Polish spatial information infrastructure as an element of the European infrastructure (INSPIRE).

Within this period, the Association published 30 issues of „Annals of Geomatics” science periodical of combined length of 4100 pages. Articles included in the periodical can also be found in the Repository section of the Association’s website ([www.ptip.org.pl](http://www.ptip.org.pl)) In the Lexicon section, you will find an online dictionary of geomatics which includes nearly 1000 entries in Polish and English related to the rapidly developing terminology of geomatics, with special consideration of cartographic terms.

**Commission of Geoinformatics of the Polish Academy of Arts and Sciences**, affiliated with Faculty of Natural Sciences of the Polish Academy of Arts and Sciences in Cracow has been operating since 1998. It specializes in the methods of gathering, storing, analyzing and presenting spatial data with the use of information technology. The main objectives of the Commission include: exchange of experience between specialists in various disciplines in the field of geoinformatics, stimulation of the development geoinformatics and promotion of its results. Members of the Commission are scientists from various fields of science: cartography, geology, geophysics, geodesy, photogrammetry and remote sensing, mining, informatics, forestry and geography. Activities of the Commission include monthly science meetings in the form of seminars and organizing or co-organizing national and international conferences. Results of its activity are presented in the form of publications in „Geoinformatica Polonica” periodical.

## 4. Publications

Head Office of Geodesy and Cartography is responsible for the development and publication of official maps in Poland. Maps for the Armed Forces are published by the Polish Army Geographic Service and maps and atlases for scientific and economic research are published by national research institutes: mainly Polish Geological Institute and the Institute of

Meteorology and Water Management, various institutes affiliated with the Polish Academy of Sciences and universities as well as some of the science societies and geodetic and cartographic enterprises.

Many privately owned companies and cartographic publishers operating in the Polish market publish general use maps, e.g.: school, road and tourist maps.

## 4.1. Topographic maps

The tasks of **Surveyor General of Poland** in the scope of standard cartographic works are defined in the Geodetic and Cartographic Law of May 17, 1989. This act forms the legal basis for realization of the objectives in the scope of managing databases, which include spatial data of the spatial information infrastructure, i.e. databases of topographic objects (BDOT10k) providing detail for the creation of standard cartographic works at scales 1:10 000 – 1:100 000 and databases of general geographic objects (BDOO250k) providing detail for the creation of standard cartographic works at scales 1:250 000 – 1:1 000 000.

In 2009, work started on the Spatial Information Infrastructure Act and it was passed on May 7, 2010. This Act transfers the provisions of the 2007/2/EC Directive of March 14, 2007 which established the spatial information infrastructure within the EU (INSPIRE).

In 2009, work started on the project of ordinance on databases of topographic objects and databases of general geographic objects. One of the main provisions of the ordinance is to form a common model of data for BDOT10k and BDOO250k and to create tools for semi-automatic supply of BDOO250k databases with data from BDOT10k databases.

Head Office of Geodesy and Cartography, in the framework of the project „Georeferential Database of Topographic Objects (GBDOT) with national management system”, has been conducting work towards the creation of databases of topographic objects for the entire country and tests of the method of visualization of cartographic information contained in BDOT10k and BDOO250k and their gathering to create topographic and general maps at the scales 1:10 000–1:1 000 000. Currently, 53% of BDOO250k information layers has been collected from the area of Poland.

By the end of 2013, in the scope of this project, the entire area of Poland will be covered by uniform (in terms of quality and validity) BDOT10k database, which will include information about object classes, such as: watercourses, road and railway networks, networks of utilities, constructions and facilities, land utility complexes, protected areas, administrative divisions, elements of the relief, address points.

Apart from works on the project described above, the Head Office of Geodesy and Cartography is still the editor of two basic topographic multi-sheet maps: *Topographic Map of Poland, 1:10 000* and *Topographic Map of Poland, 1:50 000*.

Published since 1994, a new detailed *Topographic Map of Poland, 1:10 000* consisting of 17 264 sheets is prepared in the international sheet format with 1992 system of coordinates based on GRS-80 ellipsoid. The map is developed in the framework of co-operation agreement between central administration and self-government authorities. It is produced by specialized geodesic-cartographic companies which employ well-qualified staff and have modern equipment.

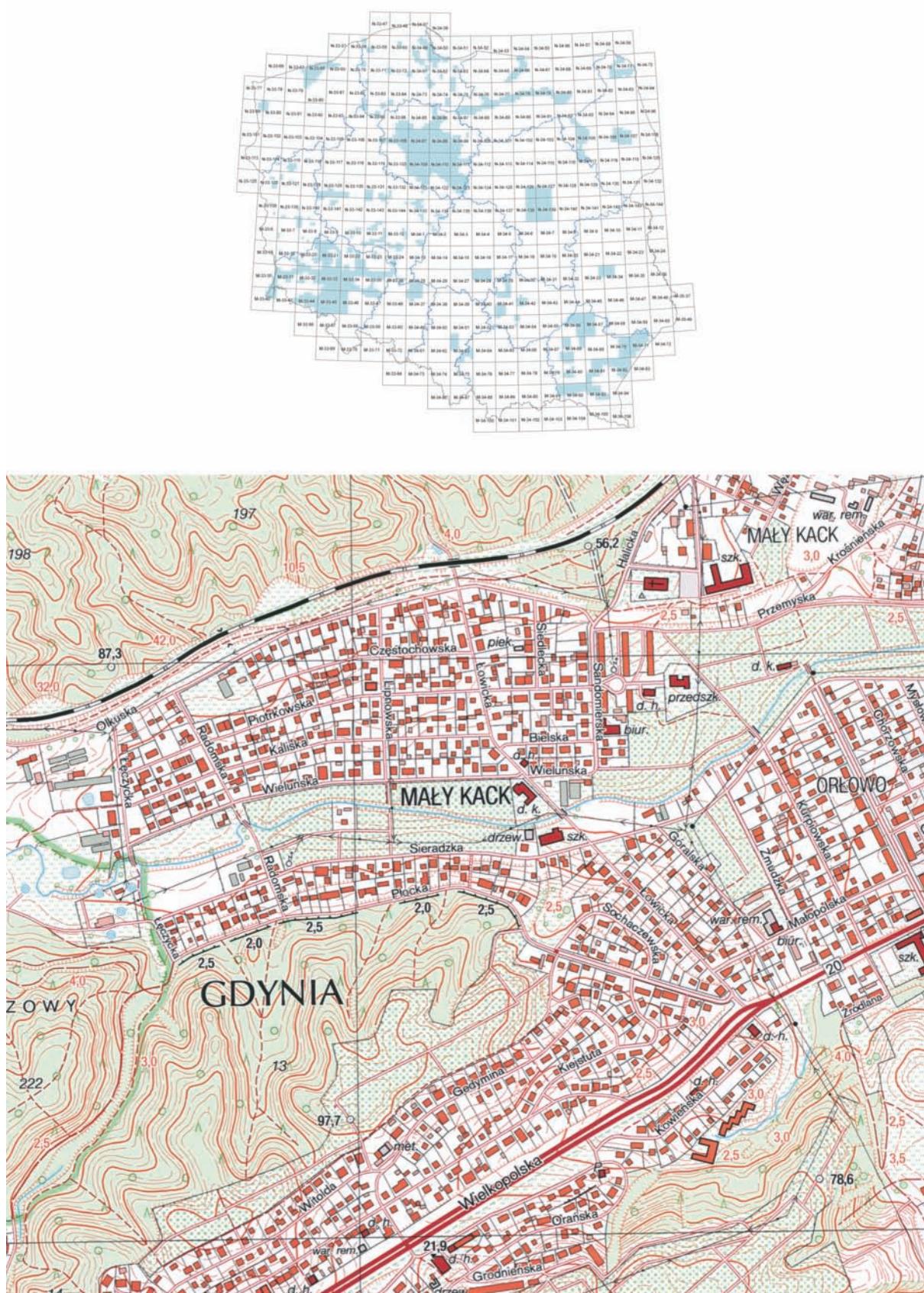
Since 2000 the map has been elaborated in the Topographic Database standard. By the end of 2006 976 sheets of this map in the new form were published. In the reported period the following numbers of sheets were issued: 2007 – 314, 2008 – 165, 2009 – 122, 2010 – 32. By the end of 2010 1509 sheets of the map were published, covering 9% of the total area of the country (Fig. 6).

The modern *Topographic Map of Poland, 1:50 000*, at first with 1942 system of coordinates and then with 1992 system of coordinates, was published since 1995. Out of 1083 sheets including the territory of Poland, 589 ones (nearly 55% of the Polish territory) were published until the end of 2002; then, they were replaced with a map prepared based on a military map of the same scale using the Vmap Level 2 technology. Double sheets of this version included app. 31% of the territory of Poland. The works on the 1:50 000 topographic map have been finished; however, its sheets are often reissued on request of the Head Office of Geodesy and Cartography. In 2010 only, 94 sheets of this map were reissued, most concerning the vicinity of Warsaw and Poznań (Fig. 7).

The national geodesic and cartographic resources of the central and voivodship levels also include, apart from the materials described above, earlier topographic maps of the following scales: 1:10 000, 1:25 000, 1:50 000, and 1:100 000, with various actualities and systems of coordinates.

\*

**Polish Army Geographic Service** develops topographic and topographic-reference maps at the following scales 1:25 000, 1:50 000, 1:100 000, 1:250 000, and 1:500 000; they are dedicated for the army and their contents are adapted to military purposes. Series of these maps, which include 100% of the Polish territory, have been prepared using modern digital technologies according to NATO standards. At present, the Geographic Service is focused on updating and improving digital products, i.e. vector maps of 3 levels, raster maps, and the digital terrain model. These tasks



*Fig. 6. Fragment of an exemplary sheet and coverage of the Topographic Map of Poland, scale 1:10 000 elaborated in Topographic Database standard*

are performed by Military Geographic Center in Warsaw and special units in Komorowo, Toruń, and Leszno, which, since 2007, have been subject to Intelligence and Reconnaissance Analyses Directorate of the General Staff of the Polish Army.

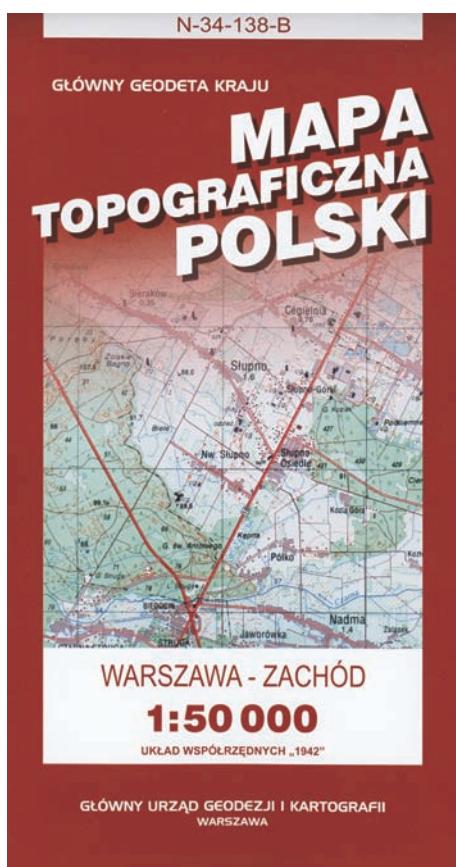


Fig. 7. Exemplary cover of a reissued sheet of Topographic Map of Poland, scale 1:50 000 published by Surveyor General of Poland

#### 4.2. Thematic maps and atlases

According to the Geodetic and Cartographic Law, Head Office of Geodesy and Cartography is responsible for the elaboration of two multi-sheet thematic maps: *Hydrographic Map of Poland, scale 1:50 000* and *Ecological Map of Poland, scale 1:50 000*.

**Hydrographic Map of Poland** is a thematic map presenting the circulation of water in relation to the natural environment, its redevelopment and transformation. It is developed on the basis of a topographic map by adding the results of land mapping of water entities and objects, soil permeability and many other information related to water management, water

quality control and the information gathered by the network of hydrosphere control network.

Hydrographic database is necessary for solving social-economic issues, such as: water supply, locations of housing complexes, industrial, water power and water treatment investments, development of spatial development plans, flood prevention and early flood damage control, as well as other issues related to water management.

In years 2007–2010, 73 new sheets of hydrographic maps were developed and published, which together with 561 previously published sheets constitutes 634 sheets covering 58.5% of the entire country (Fig. 8).

**Ecological Map of Poland** is a thematic map presenting the state of the natural environment, cause and effect of changes exerted by various processes, especially by human activity and the forms of protection of the natural value of the environment. Environmental database is a useful source of information on pollution, providing an invaluable tool for researching and diagnosing its condition. It may also be used for a synthesis of the natural environment indicator of different spatial units, while its numerical version offers a chance to acquire, collect and visualize geographic data with constant updating of databases.

The ecological map for spatial planning is especially useful for localizing new economic units (incl. industrial) and communal (incl. housing), recreational centers, etc. This map constitutes a source of information for natural environment maps in lower scales and for other related thematic maps.

In years 2007–2010, 45 new sheets of ecological maps were developed and published, which together with the 581 previously published sheets constitutes 624 sheets covering 59.3% of the entire country (Fig. 9).

Hydrographic and ecological maps are developed on the basis of technical requirements specified by Surveyor General of Poland: „GIS-3” for hydrographic maps and „GIS-4” for natural environment maps. Both maps are being developed in analogue and digital versions using the GIS technology in the MapInfo Professional environment. VMAP Level 2 database is used as a reference database of topographic data for both thematic maps; its geometric precision corresponds to a map at the scale 1:50 000.

Currently, both maps are being developed by commission of chairmen of voivodship Assembly. The works are coordinated by the Head Office of Geodesy and Cartography. These maps will be mainly used by institutions, regional, voivodship, district and com-

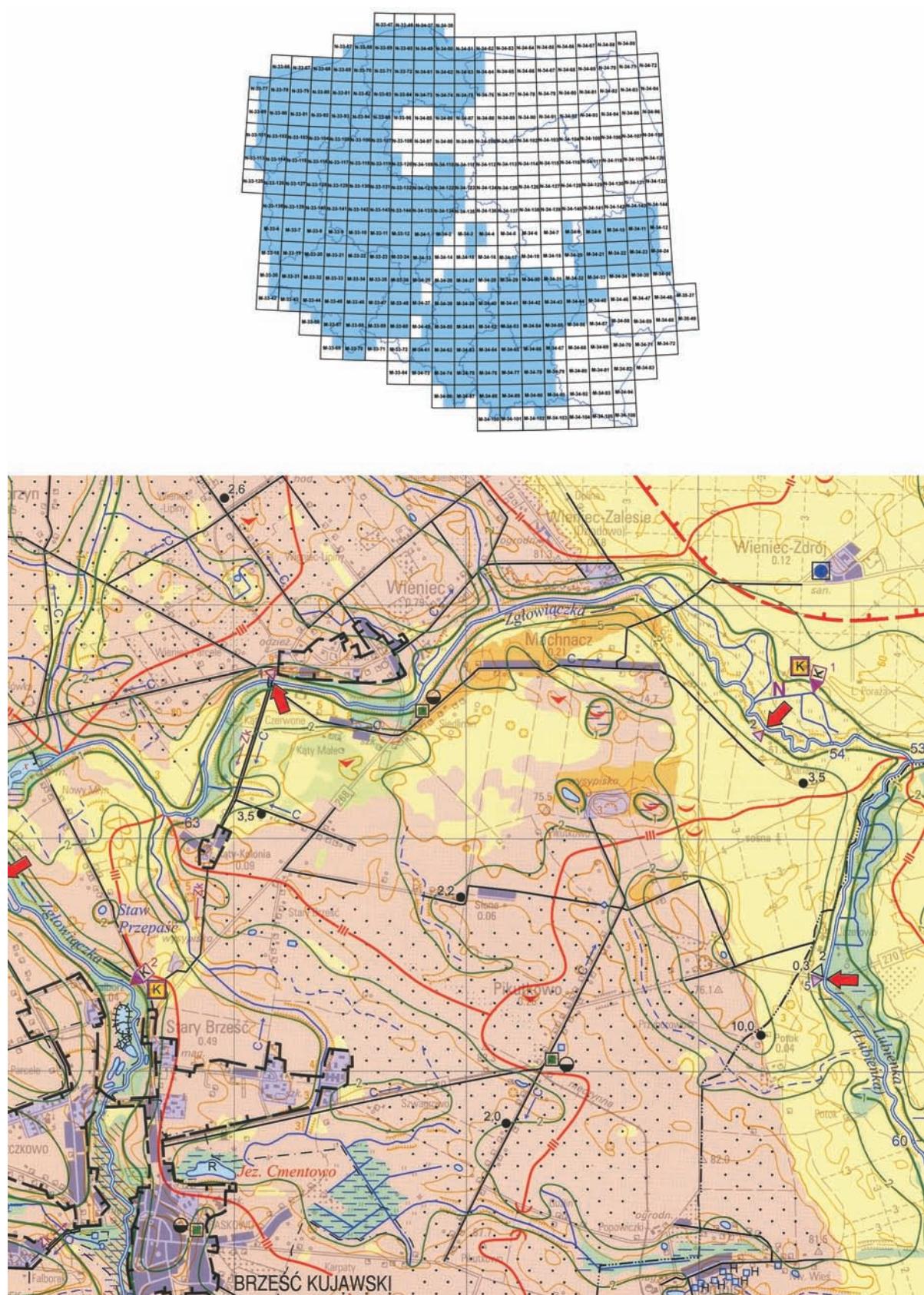


Fig. 8. Fragment of an exemplary sheet and coverage of the Hydrographic Map of Poland, scale 1:50 000

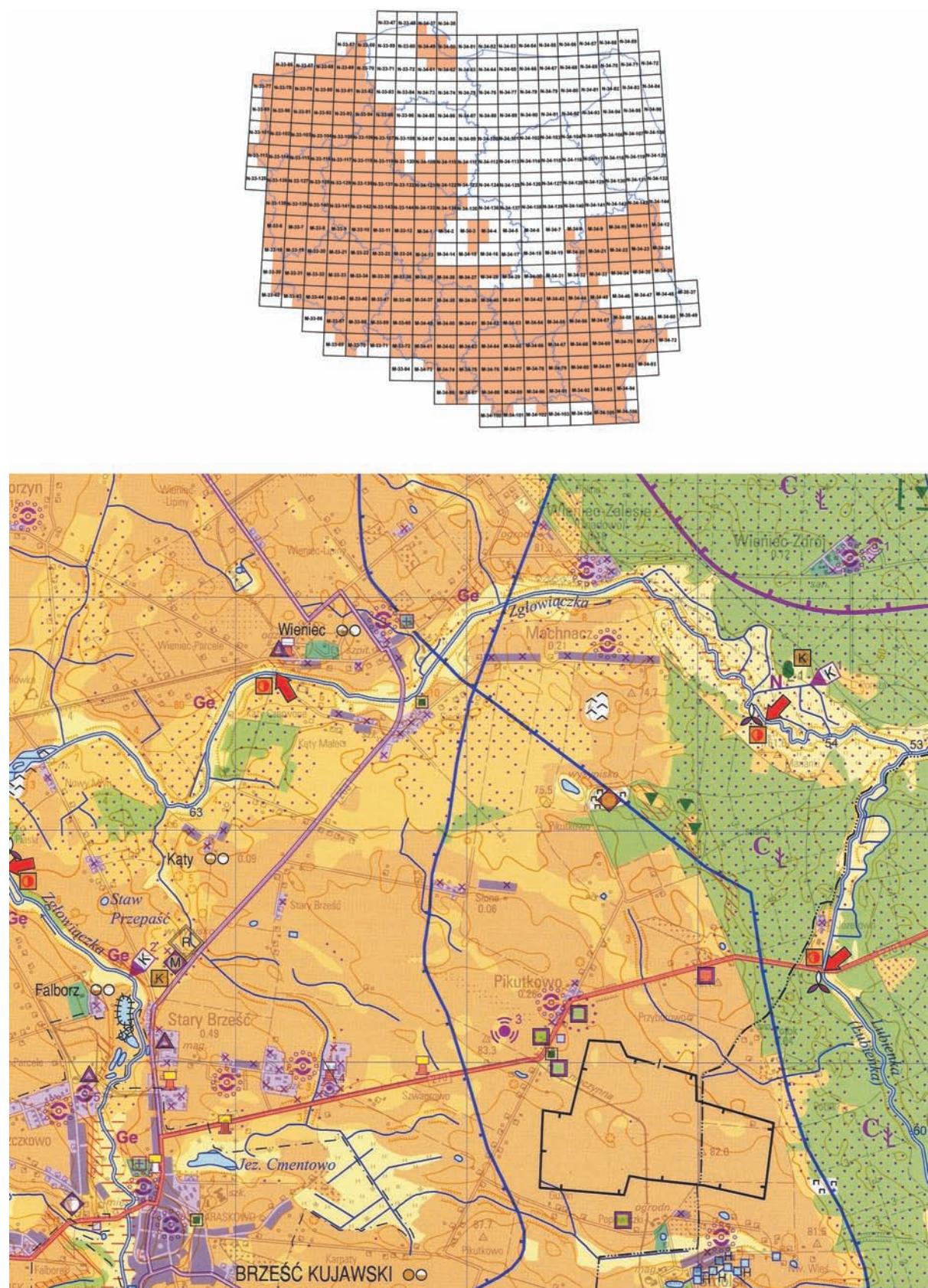


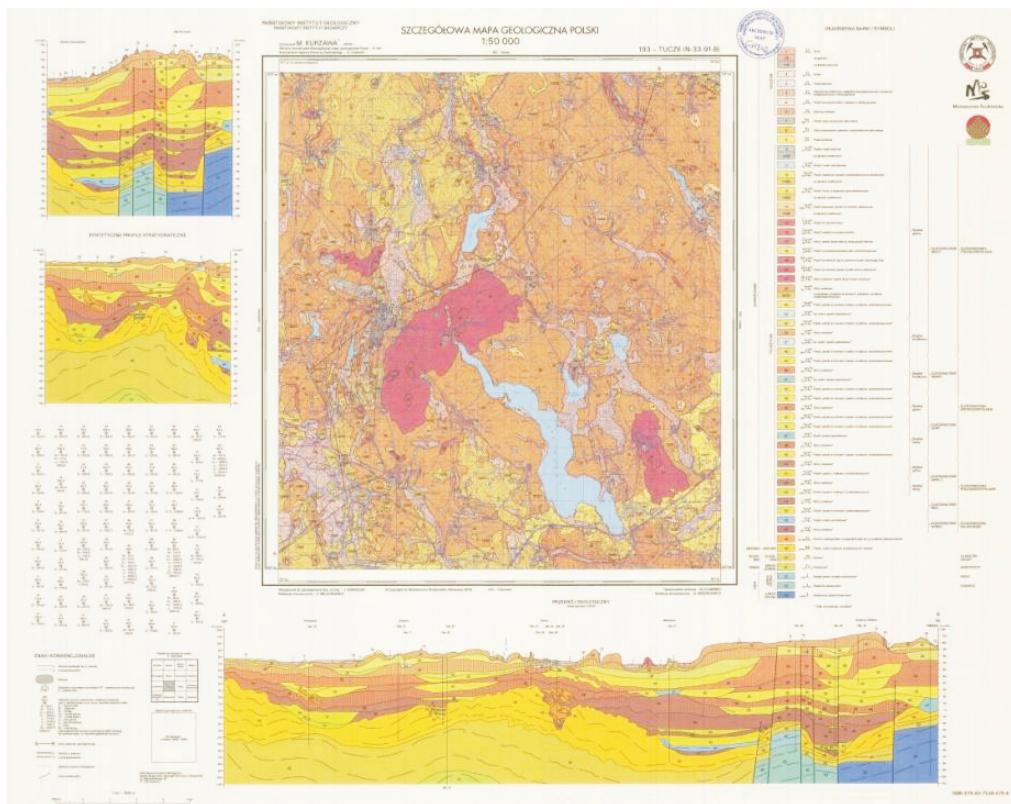
Fig. 9. Fragment of an exemplary sheet and coverage of the Ecological Map of Poland, scale 1:50 000

municipal decision makers and planners who operate in the field of development and protection of natural environment, spatial planning and water management.

Geological mapping is one of the primary scientific objectives fulfilled by the **Polish Geological Institute – National Research Institute (PGI-NRI)**. The Institute develops thematic maps in the field of geology, hydrogeology, engineering geology, economic geology, geophysics and environmental geochemistry covering the area of the entire country.

stratigraphy, petrography, tectonics and the formation of the material composing a given area. Work on 1069 sheets of the maps has already been finished, many more sheets published in previous years are systematically updated (Fig. 10).

At the moment, the Institute is also engaged in the development of many other map sheets at the scale 1:50 000, such as *Hydrogeological Map of Poland*, *Geological-Economic Map of Poland*, *Geoenvironmental Map of Poland* (Fig. 11), and *Lithogenetic Map of Poland*. All these maps are a cartographic



*Fig. 10. Exemplary sheet of the Detailed Geological Map of Poland, scale 1:50 000 published by the Polish Geological Institute*

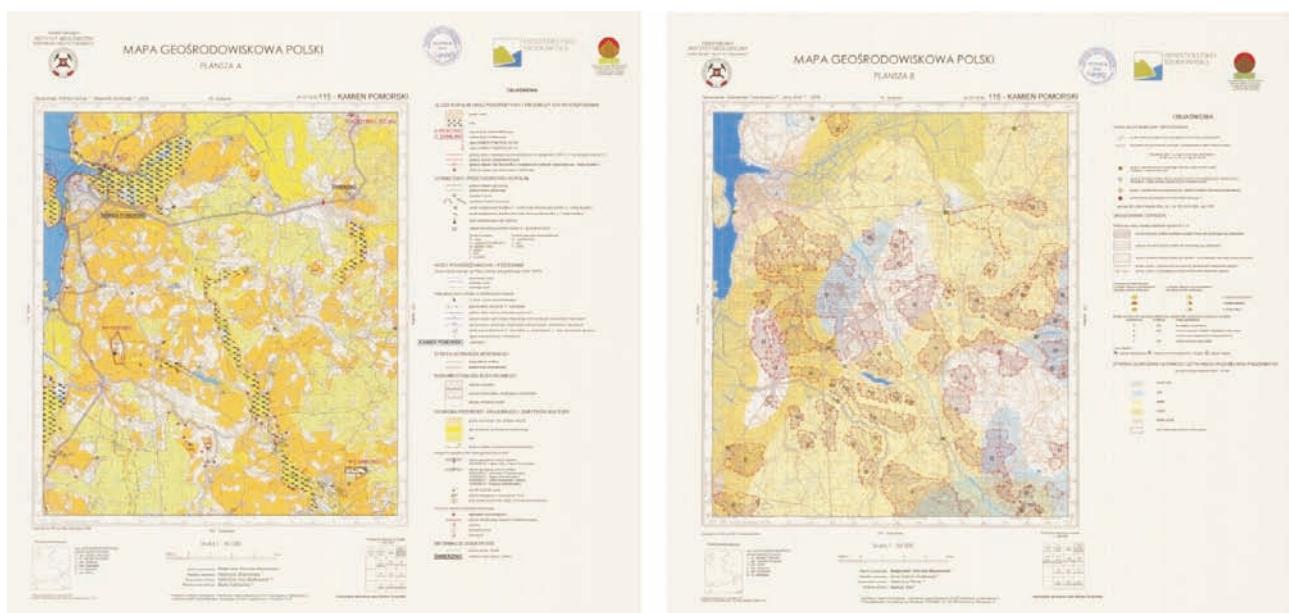
Within the last four years activity of the Institute was mainly focused on preparing sheets of serial maps scaled 1:50 000 and 1:200 000. These maps presented issues on geology, geochemistry and environmental geology, economic geology, geophysics, geochemistry and marine geology. All maps are developed in a digital form and they contribute to the system of geographic information.

One of the most important maps developed by the Institute is *Detailed Geological Map of Poland*, scale 1:50 000. It presents the geological composition of the area of Poland with special consideration for

representation of problems related to managing mineral resources, geochemistry and environmental protection.

The elaboration of the *Hydrogeological Map of Poland* and the *Geological-Economic Map of Poland* was finished. They were developed using Intergraph software. Both, the geoenvironmental and the lithographic maps, are still being developed. All sheets are to be finished in 2019.

The last four years have also seen the completion of many other maps, such as: the second edition of the *Tectonic map of the Sudetes and the Fore-Sudetic Block*, scale 1:200 000, general geological map of



*Fig. 11. Exemplary sheet of the Geoenvironmental Map of Poland, scale 1:50 000 (two series) published by the Polish Geological Institute*

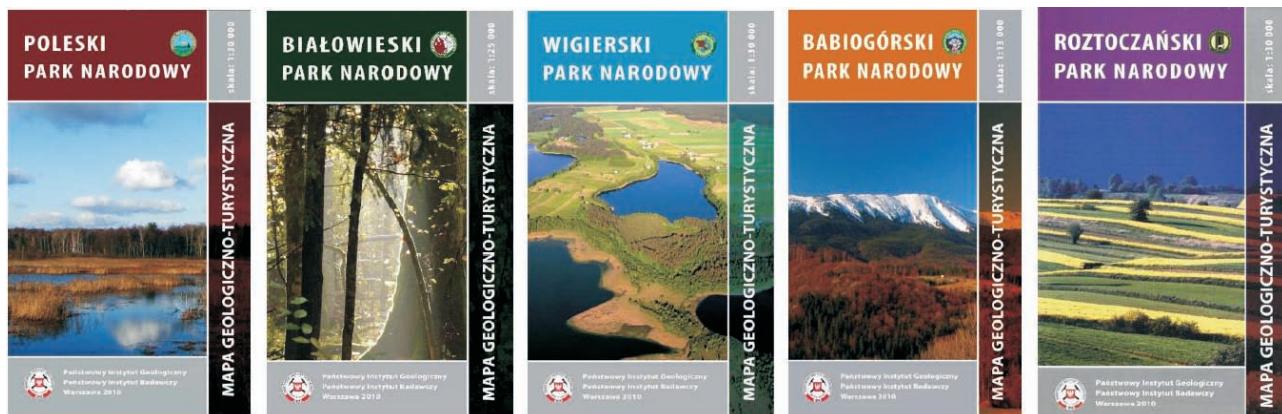
Poland, 1:1 000 000 and the geochemical atlas of Europe. It was developed in cooperation with geological surveys of 26 countries. It is a voluntary contribution of EuroGeoSurveys for the shaping of EU policy.

For the purposes of tourism, the Institute has developed a series of geological maps of national parks. They include several thematic layers: geological, topographic and tourist which in combination form a well-developed database (Fig. 12).

In 2006, the Institute started the IKAR Geoportal project. The goal is to develop an integrated system of geological cartography which would link the existing as well as the new solutions in geological, hy-

drogeological, geoenvironmental and geoeconomic mapping. IKAR has also been developed as a response of the Institute for the INSPIRE initiative. The Geoportal will provide access to spatial geological data online, using modern technologies and in accordance with the recent standards.

Its internet début IKAR recorded in 2007 and since then its functions have been developing. In 2007, the Institute developed and implemented a Catalogue of services (CSW – Catalogue of Services for the Web), introduced cartographic services (WMS – Web Map Service) and offered the first set of metadata. In 2008, the Institute developed and implemented new services offered at the website – WFS (Web Feature Service).



*Fig. 12. Geological-tourist maps of Polish national parks published by the Polish Geological Institute*

**Institute of Meteorology and Water Management – National Research Institute (IMWM NRI)** represents Poland at the World Meteorological Organization. Its main objectives are to conduct research and to perform the function of national institution in the scope of: meteorology, hydrology, oceanography, water management and engineering, quality of water resources, waste management, treatment of waste sediments.

IMWM NRI provides the moderators of websites forecasts in the form of numerical relationship maps. IMWM NRI also conducts research in hydrography. In the reporting period, a new version of the database for the *Map of the Hydrographic Division of Poland* developed, according to the Water Framework Directive of the EU and *Atlas of extreme meteorological phenomena and synoptic situations in Poland*. Work was also conducted on the database of regional and local flood areas of various genetic types, which was designed to help flood prevention planning and spatial development.

**Hydrographic Office of the Polish Navy (HOPN)** fulfils in Poland the function of the national hydrographic office and navigational signage in the scope of marine hydrography and cartography. Within this function, HOPN represents Poland at the International Hydrographic Organization (IHO). HOPN is also responsible for navigational-hydrographic and meteorological-oceanographic services of the Polish Navy.

HOPN acquires and analyses marine geo-spatial information data, manages digital navigational and oceanographic databases and databases of underwater objects within Polish sea territory, edits paper editions of navigational charts and atlases and issues nautical publications, develops Electronic Navigational Charts and specialist products.

Collection, production, processing and managing of national ad international exchange of nautical information is the main task of the Nautical Information Department of the HOPN.

Editing and preparing for print analogue navigational charts and atlases is the main task of the Nautical Cartography Department of the HOPN. The Department publishes Polish navigational charts as part of international series (INT) and Polish series. Polish navigational charts fulfill the standards set by IHO.

Development of Electronic Navigational Charts (ENC) is one of the tasks of Hydrographic Department of the HOPN. These maps are vectorial. They are used in Electronic Chart Display and Information

Systems – ECDIS). HOPN is the sole author of ENC for the Polish territorial waters.

In 2007–2010, over 20 scientific atlases were published in Poland with various topics and territorial scope. One should mention atlases prepared in the **Institute of Geography and Spatial Organization of the Polish Academy of Sciences**, which, apart from the *Internet Atlas of Poland* described in another part of this report, published the updated comprehensive *Atlas of Polish Agriculture* and two volumes (10 and 11) of *Atlas of Warsaw*, which presents changes in the Warsaw metropolitan landscape and demographic problems of the Polish capital city in the light of the last census.

A showpiece of Polish cartography is the second amended edition of the great comprehensive regional *Atlas of Lower and Opole Silesia* edited by a laboratory in the University of Wrocław which has been founded specially to this purpose. In the same University, the next two fascicles of volume IV of *Silesia – Legnica* and *Świdnica*, which were prepared and published as a part of *Historical Atlas of Polish Cities*. As a part of this atlas the fascicle *Cracow* was also published, which is the largest one from those which have been published so far and which starts the volume V *Lesser Poland*.

What should also be mentioned is the sixth volume of *Historical Atlas of Poland*, developed in the **Institute of History of the Polish Academy of Sciences**, which focuses on Cracow voivodship in the second half of the 16th century.

### 4.3. School maps and atlases

Cartography for schools has a long tradition in Poland. The first school atlases were published already in the 18th century. The Romer school of cartography, established in Lvov by Professor Eugeniusz Romer (1871–1954), a distinguished Polish geographer and cartographer, was widely known in the first half of the 20th century for its ingenuity and originality especially as it comes to small-scale school hypsometric maps. Its ideas are still alive today.

The ideas of the Romer's school were continued after the World War II mainly in Wrocław, where the Lvov publishing house Książnica-Atlas resumed its activities. The large Cartographic Editorial Office of **Nowa Era** publishing house is its successor. The publishing house has existed since 1992 and has the widest range of products from the field of school cartography in Poland.

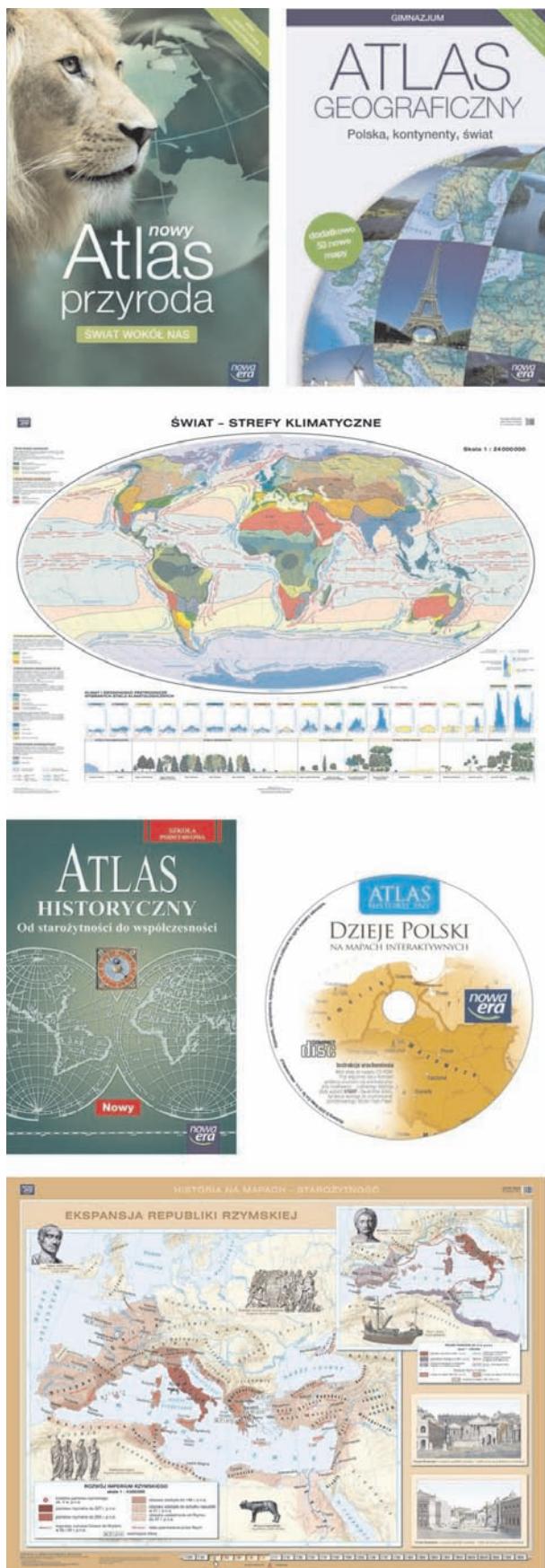


Fig. 13. Publications of the Nowa Era publisher

**Nowa Era** is one of the leading educational publishing houses in Poland. It has been active since 1992. Its wide range of publications spans through various fields of education, including the largest Polish range of school cartographic publications and software for managing education.

Its current range of cartographic publications includes over 200 positions, including 20 atlases, nearly 120 wall maps, several hypsometric maps and educational screens. Since 2010, the range has featured the first interactive history atlas *Dzieje Polski* (History of Poland.) (Fig. 13).

**School and Teaching Publishers (WSiP)** publishing house was established in 1945 and are a competition to Nowa Era publishing house. For many years, they have published maps, atlases and course books for all levels of education. Within the reporting period, have published two new atlases: *Historia i społeczeństwo* (History and society) – designed for primary schools and *Atlas geograficzny* (Geographic atlas) for lower secondary schools (Fig. 14).

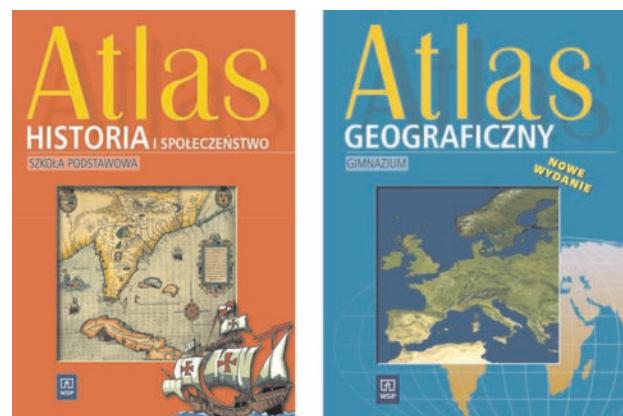


Fig. 14. Atlases of the School and Teaching Publishers

Recently, school atlases have also been published by **PWN School Publishers** in Warsaw. These are atlases for secondary schools and high schools prepared before 2007 by Demart publisher.

#### 4.4. Maps and atlases for the visually handicapped

For nearly 30 years now, the **Head Office of Geodesy and Cartography** has developed and published maps specifically designed for the visually impaired, especially as educational aid for geography and history students of special schools.

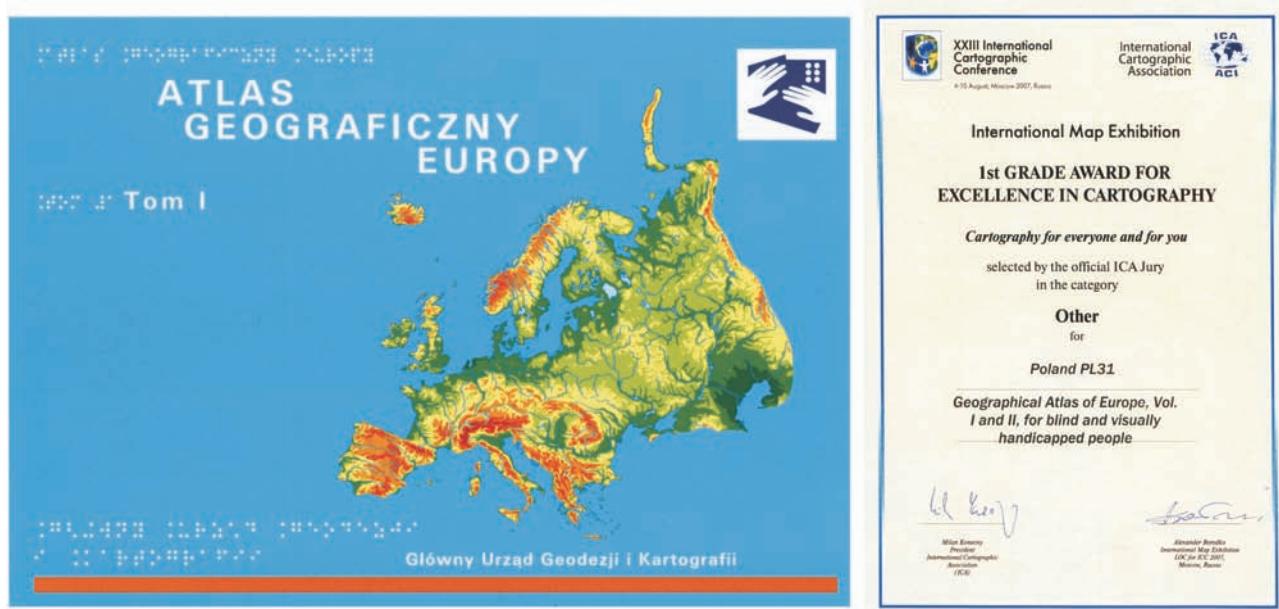


Fig. 15. The Geographical Atlas of Europe for the blind and visually handicapped people awarded by ICA in 2007

Atlases published by the Office have received many rewards both in Poland and abroad, probably one of the most important being the Excellence in Cartography award for the *Atlas geograficzny Europy* (Geographical Atlas of Europe) awarded by ICA during the 23rd International Cartographic Conference in Moscow in 2007 (Fig. 15).

In years 2007–2010, the Head Office of Geodesy and Cartography worked on the *Atlas Świata* (Atlas of the World), which is the third (after the *Atlas of Poland* and the *Atlas of Europe*) such publication by the Office designed for the visually impaired. The atlas is scheduled for printing in 2011.

The atlas, printed on A3 paper, will contain 38 map sheets. It is divided into two parts. Part 1 is dedicated to the natural environment and social-economic issues from the global perspective. It includes 23 maps, scale 1:90 000 000. The first 12 sheets are dedicated to natural environment issues, the remaining 11 present social-economic phenomena. Part 2 is an overview of regions; it includes 15 maps, scale 1:10 000 000–1:40 000 000, presenting relief and political division of the continents.

#### 4.5. General use maps and atlases

Many atlases and maps for general purposes, mainly for tourism, are prepared and published in Poland by over one hundred large-, medium-, and small-sized private publishing houses, at least 20 out of

which are specialized cartographic publishing houses. These companies have various experience, and are of various profiles, and territorial scopes of production. They are located mainly in large cities, i.e. Warsaw (8 cartographic publishing houses), Cracow, Wrocław, Katowice, Poznań, Łódź, and Lublin. However, some of them conduct their activities in smaller cities, e.g. Jelenia Góra, Piła, Sopot, and Krosno. Their products are presented here with the example of two active Warsaw publishing houses, i.e. the E. Romer Polish Cartographical Publishing House and Demart.

Within the reporting period, the **E. Romer Polish Cartographical Publishing House S.A.** concentrated on the development of its range of general cartography products and databases. The positions developed by this publishing house, published under the „Copernicus” trademark, are addressed to a large group of recipients, especially:

- Drivers and road transportation professionals. For this group of users, the publishing house developed *Atlas Polski. Bezpieczne drogi* (Atlas of Poland. Safe roads), the main concern of which are notions of safe driving. This Atlas has been warmly received by its users, especially by professional drivers.

- Tourists. The publishing house offers this group of users a series of tourist maps and guides, the latter supplied with fully-fledged tourist maps (Fig. 16).

Years 2006–2010 meant for E. Romer Polish Cartographical Publishing House S.A. a period of develop-

ing geoinformation products. The PPWK/Copernicus Geographical Database has grown by nearly 1900 city and town plans and by 1.4 million points of interest. A modern library of multimedia tourist data has been developed. By altering the organization of the production process, the company was able to be the only company operating in the Polish market to offer nearly 10 updates per year.

In 2006, E. Romer Polish Cartographical Publishing House S.A. became the main supplier of vector maps of Poland and GIS technology for Polish Yellow Pages, and since 2007, this data has been the basis for Google Maps and Google Earth. Many important institutions and companies became the users of E. Romer Polish Cartographical Publishing House S.A. digital maps, including the Central Statistical Office and General Directorate for National Roads and Motorways.

E. Romer Polish Cartographical Publishing House S.A. data and technology have become the basis for the construction of many online maps, e.g.: mobile phone and digital television coverage. New versions

of the Navigo car GPS software, including Navigo 9i with the innovative function: Voice Tourist Guide, new Navigo Tour functioning as a regional guide and a special version of LarkMap software have been developed.

**Demart** publishing house is a company developing and publishing maps, atlases and books in three themes: tourist, historical and children's publications. In years 2007–2010, Demart published 14 regional guides in the „Polska niezwykła” (Unusual Poland) series. They have been designed for tourists to encourage them to visit regions and towns off the beaten path. Recently, the publishing house issued an extended version which covers the whole Poland. The house offers over 70 tourist and road maps, city atlases and plans of foreign cities. In the last 4 years, Demart also published a 400-page *Wielki atlas Polski* (Grand Atlas of Poland) and *Geograficzny atlas Polski* (Geographical Atlas of Poland) (Fig. 17).

For children, the publishing house prepared several positions, such as: *Polska od A do Z* (Poland from A to Z) – a guide book with a road atlas designed to cater to children's interests.



Fig. 16. Groups of products of the E. Romer Polish Cartographical Publishing House

Apart from those two large publishing houses, the following should also be mentioned owing to their sizes and product quality: Warsaw publishing houses named ExpressMap Polska, Daunpol, Carta Blanca, and Wojskowe Zakłady Kartograficzne, Compass in Cracow, Eko-Graf in Wrocław, Plan in Jelenia Góra, Pietruska & Mierkiewicz in Poznań, and Kartpol in Lublin. Examples of their more important publications are listed in the bibliographic part of the report.

#### 4.6. Electronic maps and atlases

Electronic maps and atlases constitute a fairly new group of cartographic publications. While first, simple maps of this kind appeared in Poland as early as in 1993, it was not until the late 1990s that such maps gained wider use among the general public.

Currently published Polish electronic maps and atlases generally fall into two distinct categories: the first being general reference maps and atlases of the



Fig. 17. Publications of the Demart publisher

world and Poland, whereas the other contains numerous maps and on-line services designed primarily for route-planning purposes.

Within the first group, two world atlases should be noted. The first one, *Multimedialny Atlas Geograficzny PWN* (PWN Multimedia Geographic Atlas) published by the Polish Scientific Publishers (PWN) contains almost 200 mostly general-reference maps of the world, continents and particular countries. It also includes several simple thematic maps, as well as a multimedia geographic lexicon. The current 2009 edition comes on a DVD-ROM. Another world atlas under the title *Atlas Świata* (World Atlas) is a product of a multimedia company named Cartall. It contains a vector-based cartographic database of the entire world, whose level of detail roughly corresponds to the scale of 1:5 million. Only general-reference coverage is provided, with no other thematic contents. The atlas is distributed on a DVD-ROM.

The Surveyor General of Poland maintains an on-line *Geoportal* ([geoportal.gov.pl](http://geoportal.gov.pl)) which is designed to serve as a depository of vector and raster official topographic maps prepared by this civilian agency. Apart from the vector database (up to the level of VMap2), it contains scanned images of official topographic maps (the most detailed being 1:10 000), as well as series of orthophoto imagery. A similar portal under the name *Geoserwer* at [geoserwer.wcg.mil.pl](http://geoserwer.wcg.mil.pl), maintained by the Military Geographic Centre, containing Polish military topographic maps, but the latter is available only for authorized users and is not publicly accessible. Several provincial and county level surveying administrations also maintain on-line map services for their respective areas of responsibility, and most of them, especially on the city and town level also contain cadastral information.

The Institute of Geography and Spatial Organization of the Polish Academy of Science prepared and maintains an on-line *Internetowy Atlas Polski* (Internet Atlas of Poland), available for viewing at [maps.igipz.pan.pl/aims/home\\_pl.htm](http://maps.igipz.pan.pl/aims/home_pl.htm). The atlas was prepared using the original Polish GIS software *Aviso*, which itself had also been developed by the aforementioned Institute. The atlas contains a general reference map of Poland at the scale of 1:200 000 as well as a set of 137 thematic maps.

Route-planning software of varying quality is currently the most widely used electronic mapping in Poland. Maps and mapping services of this kind are available in three distinct forms, namely on DVD-ROMs for use on PCs; as software packages for hand-held car navigation units; and finally in the

form of on-line location services. Most of these products incorporate a seamless, vector-based cartographic database, containing a detailed representation of the entire road network (typically up to the scale of 1:50 000) integrated with a set of maps of all cities and towns as well as the large villages, with street-level detail and house numbering. Within the first group a family of *Emapa* PC software packages should be noted, produced by a company by the same name, distributed on DVD-ROMs and designed to meet the needs of logistics and transportation companies. The most notable maps for car/hand-held GPS devices are: *Automapa*, a joint product of three companies Geosystems Polska, Aqrat and Indigo; *MapaMap* and *GPMapa* developed by Imagis, having also a specialized version *GPMapa Topo* (with added contour lines and marked tourist and bike trails); and finally *Navigo*, prepared by the Navigo company, which formerly belonged to the group of companies led by the well-known E. Romer Polish Cartographic Publishing House (PPWK).

As to the web map location services, the most popular services of this kind in Poland are: *Google Maps* (<http://maps.google.pl>), *Zumi* (<http://mapy.zumi.pl>), *Targeo* (<http://mapa.targeo.pl>), *DoCelu* (<http://docelu.pl>) and *Panorama Firm* (<http://mapa.pf.pl>). The first one is a part of a global service containing maps of the entire world, although the Polish contents is being delivered by Navigo, while the remaining four services have been fully developed in Poland.

## 4.7. Cartographic literature

In Poland, cartographic literature is traditionally rich and diversified. Summing up the number of all published textbooks, theses, articles, reports, reviews, instructions, and catalogues, we obtain the result of nearly 500 publication a year. Recently, issues covered by them have been more and more dominated by problems of the latest technologies and solutions (computer geovisualization, digital terrain models, infrastructure for spatial information, or various GIS applications) with less emphasis on theoretical issues and methods of cartographic presentation.

Scientific theses and articles are published mainly in the quarterly „*Polski Przegląd Kartograficzny*” (Polish Cartographical Review) published by the Cartographic Division of the Polish Geographical Society, the half-yearly “*Geodesy and Cartography*” (with articles in English) published by the Committee of Geodesy of the Polish Academy of Sciences, „*Annals of Geomatics*”, which is published irregularly

(4–8 editions a year) by the Polish Association for Spatial Information, „Geoinformatica Polonica” – the series published by the Commission on Geoinformatics of the Polish Academy of Arts and Sciences, and „Archiwum Fotogrametrii, Kartografii i Teledetekcji” (Archive of Photogrammetry, Cartography, and Remote Sensing) – the series published by four related scientific societies. A new periodical which replaced long-published „Prace Instytutu Geodezji i Kartografii” (Proceedings of the Institute of Geodesy and Cartography) is a half-yearly “Geoinformation Issues” published by the Institute on Geodesy and Cartography since 2009 (Fig. 18). Practical issues of Polish geodesy and cartography, including legal and organizational problems, as well as technological issues dominate in two monthlies, i.e. „Przegląd Geodezyjny” (Geodetic Review) and „Geodeta. Magazyn Geoinformacyjny” (Geodesist. Geoinformation Magazine). A half-yearly „Biuletyn Stowarzyszenia Kartografów Polskich” (Bulletin of Association of Polish Cartographers) deals with similar issues.

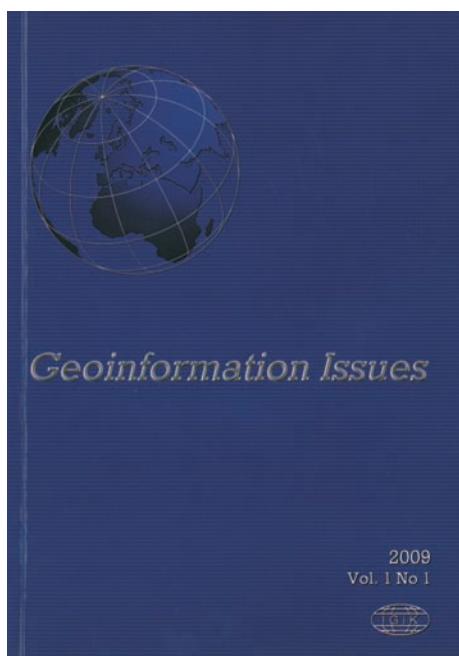


Fig. 18. New periodical of the Institute of Geodesy and Cartography

A separate group in Polish cartographic literature is formed by materials from numerous conferences, trainings, and seminars. These are mainly materials from conferences and trainings organized by the Cartographic Division of the Polish Geographical Society, published usually once a year. Materials from conferences since 2007 are published as volumes of a new

series titled „Prace i Studia Kartograficzne” (Studies in Cartography); lectures of cartographic schools are published as a series titled „Główne problemy współczesnej kartografii” (Main Problems of Contemporary Cartography) by their co-organizer, i.e. the Department of Cartography of the University of Wrocław. Materials from national conferences of cartography historians are published as volumes of the series titled „Z Dziejów Kartografii” (From the History of Cartography).

More important independent publications which appeared in 2007–2010 include four academic textbooks, i.e. *GIS – obszary zastosowań* (GIS – Areas of Application) by D. Gotlib, A. Iwaniak, and R. Olszewski (2007), *GIS w badaniach przyrodniczych* (GIS in Natural Science Research) by J. Urbański (2008), *Odwzorowania kartograficzne – podstawy* (Cartographic Projections – Fundamentals) by I. Gajderowicz (2009), and *Wprowadzenie do kartografii i topografii* (Introduction to Cartography and Topography) – the second enlarged edition (the first one appeared in 2006) of a joint publication edited by J. Pasławska (2010). Four interesting theses were also published which were prepared as a part of scientific title awarding procedures, i.e. *Opracowanie odwzorowania Cassiniego-Soldnera całej elipsoidy oraz obszaru Polski w szerokiej strefie odwzorowawczej z zastosowaniem funkcji i całek eliptycznych Jacobiego* (An elaboration of the Cassini-Soldner projection of a whole ellipsoid, and the area of Poland in the wide zone, with the application of Jacobi's elliptical integrals and functions) by P. Pędziuch (2007), *Pragmatyczne podstawy komplikowania kartograficznego* (Pragmatic foundations of cartographic compilation) by B. Medyńska-Gulij (2007), *Semiotyczne podstawy projektowania map topograficznych na przykładzie zabudowy* (Semiotic basis of designing topographic maps with the example of built-up areas) by W. Ostrowski (2008), and *Kartograficzne modelowanie rzeźby terenu metodami inteligencji obliczeniowej* (Cartographic modelling of terrain relief with the use of computational intelligence methods) by R. Olszewski (2009).

Among publications dedicated to history of cartography, two books should be mentioned, i.e. *Dzieje kartografii Nowej Marchii do końca XVIII wieku* (History of Neumark Cartography until the End of 18th Century) by R. Skrycki (2008) and *Kartografia topograficzna państwa i zaboru pruskiego od drugiej połowy XVIII wieku do połowy XX wieku* (Topographic Cartography of the Prussian State and Annexed Regions from the second half of 18th Century until the Middle of the 20th Century) by A. Konias (2010). The 20th-century history of Polish cartography

was also the subject of the first two volumes of „Biblioteka Polskiego Przeglądu Kartograficznego” (The Library of Polish Cartographical Review).

A specific but important group of literature related to cartography includes publications which are results of activities conducted by the **Commission on Standardization of Geographic Names Outside the Republic of Poland** at the Surveyor General of Poland.

In 2007–2010, the Head Office of Geodesy and Cartography published the results of the Commission's works:

- *Nazewnictwo geograficzne świata. Zeszyt 10. Morza i oceany*, (Geographical names of the world. Volume 10. Seas and Oceans);
- *Nazewnictwo geograficzne świata. Zeszyt 11. „Europa – Część I*, (Geographical names of the world. Volume 11. Europe. Part I);
- *Nazewnictwo geograficzne świata. Zeszyt 12. „Europa – Część II*, (Geographical names of the world. Volume 12. Europe. Part II);

– bilingual (English and Polish) *Toponymic guidelines of Poland for map editors and other users*, 4th edition, which aroused great interest and gained recognition during the 26th UNGEGN Session in Vienna in May 2011 (Fig. 19).

All publications by the Commission on Standardization of Geographic Names Outside the Republic of Poland are available in the PDF format in the website <http://ksng.gugik.gov.pl/english/wydawnictwa.php>

\*

The short review of cartographic publications in Poland presented above is supplemented with a reference list of chosen atlases, maps, books, and articles which constitutes the second part of this report (pp. 31–48). As in previous reports for ICA, the list contains only the most significant publications which are a small part of Polish atlases, maps and literature in this area from 2007–2010.

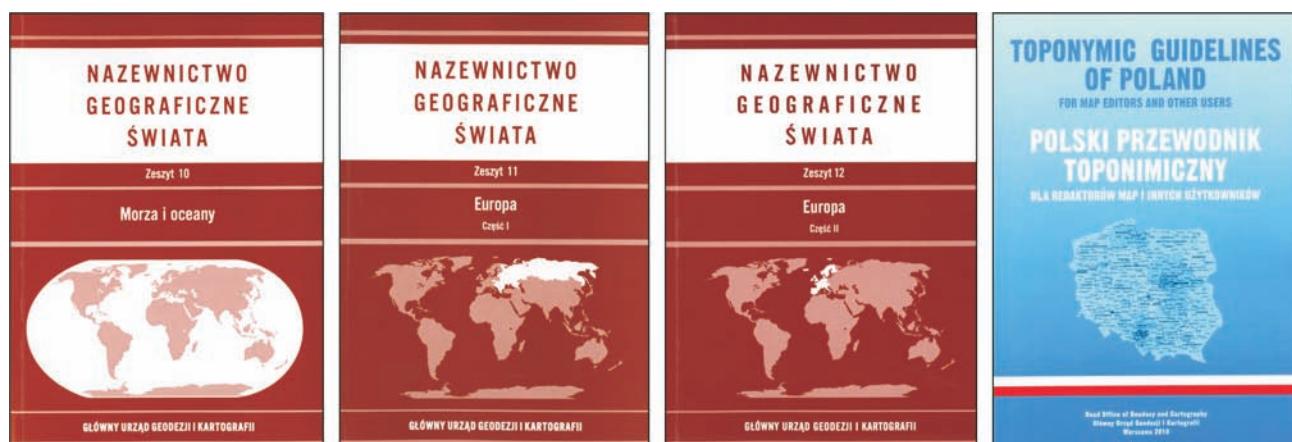


Fig. 19. Geographical names of the world – last three volumes and Toponymic guidelines of Poland for map editors and other users, the fourth edition

## 5. Education in cartography

In Poland, cartography as a specialization has been taught for over 50 years in geographic faculties of universities in Lublin, Warsaw, and Wrocław as well as in Warsaw University of Technology. At present, widely-understood GIScience issues are taught in almost all universities in Poland and in various vocational schools.

In 2007–2010, in the **Chair of Cartography of the University of Warsaw**, the title of magister (MSc equivalent) was awarded to 32 undergraduates. Geography course is taught on three levels bachelor (MSc and doctoral studies). Cartography is a specia-

lization within geographical studies on the MSc level. At present, 2 graduates study cartography in doctoral course of the Faculty of Geography and Regional Studies.

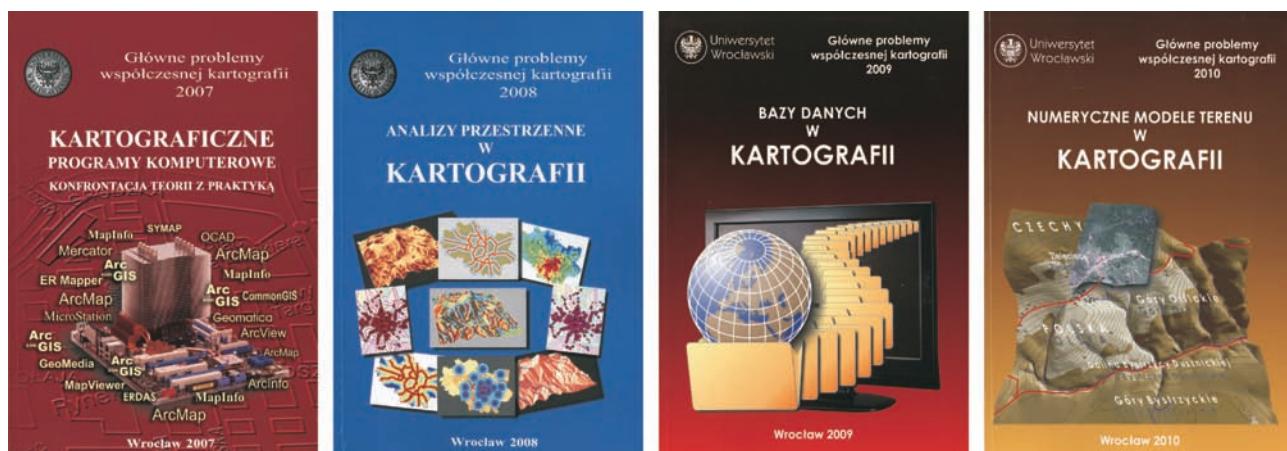
The issues of MSc theses include maps for *Atlas Województwa Mazowieckiego* (Atlas of Mazovia Voivodship), methods of cartographic presentation and map edition, preparation and application of databases, and GIS application. The Chair of Cartography of the University of Warsaw is the oldest unit educating cartographers in Poland; in 2010, it celebrated the 60th anniversary of its foundation.

In the **Department of Cartography of the University of Wrocław**, specialists are educated in the field of maps and atlases edition; they are usually employed in publishing houses and scientific institutions. Cartography is a specialization after a three-years' course in geography, as in the remaining two Polish universities (Warsaw, Lublin), where cartographers are educated. In 2010, the name of the specialization was changed into „Cartography and GIS”.

The Department employs 13 people, 1 professor, 4 doctors, and 3 graduates in the doctoral course. The main area of education is the edition of geographic and environmental maps. In 2007–2010, 50 undergraduates were awarded the title of MSc in cartography. Graduates are employed in many public and private institutions using GIS.

Geographic Information Systems”. Subjects taught in this specialization include mathematic cartography, mobile cartography, multimedia cartography, map publication technologies, cartographic information generalization, geostatistics, GIS, and spatial information databases. In 2007–2010, 87 undergraduates were awarded the title of MSc eng. in cartography. The subjects of theses include a wide range of issues, e.g. elaboration thematic maps, geographic information systems, multimedia maps and atlases, animated maps, and panoramic maps as well as creating computer applications supporting the designing of map projections.

In the **Faculty of Environmental Engineering and Geodesy of the University of Environmental and Life Sciences in Wrocław**, there is the **Department of Cartography, Photogrammetry, and Geo-**



*Fig. 20. Volumes of the series „Main Problems of Contemporary Cartography” with materials of cartographic schools*

**Department of Cartography of the Maria Skłodowska-Curie University in Lublin** has educated cartographers since 1960s. In 2007–2010, the title of MSc was awarded to 38 undergraduates. Two graduates are writing their doctoral theses. The specialization includes lectures on mathematic cartography, history of cartography, thematic cartography, GIS and remote sensing.

**Department of Cartography of the Warsaw University of Technology** educates students in the field of cartography and geographic information systems. Department employees teach mathematic cartography, topographic cartography, cartographic technologies, spatial information infrastructure, databases etc. within the first-level course. Within the second-level course, the Department of Cartography organizes classes in the specialization called “Cartography and

information, which organizes classes in cartography and GIS. In 2007–2010, within the course of Geodesy and Cartography, 60 MSc theses were written concerning cartography.

In 2007–2010, in the **Department of Cartography, Remote Sensing, and Geographic Information Systems of Nicolaus Copernicus University in Toruń**, 48 students graduated with the title of MSc in cartography. During the nation-wide competitions for MSc theses in cartography and geoinformation, the graduates of this specialization took first places in 2009 (Poznań) and 2010 (Toruń).

**Department of Cartography and Geomatics of the Adam Mickiewicz University in Poznań** has 3 employees and 2 graduates in the doctoral course, who organize classes in cartography, topography, geoinformation, and geomatics. In 2010, 8 under-

graduates were awarded the title of MSc in the Department. At present, seminars in cartography and geomatics are organized for 39 students writing their Master theses.

Classes in cartography and GIS are also conducted in other universities in Poland, e.g. in the **Military University of Technology in Warsaw**, where theses are written also by non-military students, developing thematic maps, city plans, and thematic geoportals.

\*

Discussing educational activities, one should mention **Cartographic Schools** organized by the Depart-

ment of Cartography of the University of Wrocław and the Cartographic Division of the Polish Geographical Society. Meetings, to which app. 80–150 people come, are usually held weekly in spring and are dedicated to selected issues. The topic of last meetings included “Cartographic software, confrontation of theory with practice” (Wrocław 2007), “Spatial analyses in cartography” (Wrocław – Krzyżowa 2008), “Databases in cartography” (Legnica 2009), and “Digital terrain models in cartography” (Zieleniec 2010). Lectures of these meetings appear in a special publication series (Fig. 20).

## 6. Research and implementation works in cartography

The Act concerning the spatial information infrastructure, which was also a transposition of the Directive 2007/2/EC of the European Parliament and Council of March 14, 2007 to Polish regulations, was adopted on March 4, 2010. It specified the principles of creating and using infrastructure for spatial information as well as responsible administrative bodies.

The Act introduced legal mechanisms which will enable the ensuring of interoperability and cooperation concerning data, metadata, electronic services, and coordination of construction and development of the infrastructure. Furthermore, the Council for Spatial Information Infrastructure was established at the Minister for Interior and Administration, responsibilities of which include giving opinions on legal acts, standards, undertakings, plans, and reports as well as putting forward proposals concerning improvements of infrastructure functioning. Polish representatives are present in the INSPIRE Committee. They maintain close contacts with members of editorial committees dealing with implementation regulations and with members of working teams. They also participate in INSPIRE conferences.

The Institute of Geodesy and Cartography was commissioned by the **Head Office of Geodesy and Cartography** to perform works including the testing of Polish spatial data sets whether they are in accordance with specifications of spatial data of the INSPIRE first thematic group, the identifying of spatial data sets and services for the first and INSPIRE second thematic group, and the development of instructions and forms for the monitoring of the implementation process of spatial data infrastructure.

In 2010, the first executive regulations were adopted in Poland related to INSPIRE implementation; this

were the regulation of the Minister of Interior and Administration of September 13, 2010 concerning the Council for Spatial Information Infrastructure, and the regulation of the Minister of Interior and Administration of October 20, 2010 concerning the inventory of spatial information sets and services included in information infrastructure.

In May 2010, Poland submitted the list of spatial data matching themes from Appendix I and II, for which it was possible to make metadata accessible until December 3, 2010. New and significantly modified spatial data sets from Appendix I will be accessible by June 2012.

In 2010, the process of organizing the background of spatial information infrastructure in Poland was continued; the works focused on the creation of coordinating structures, the preparation to harmonization of geoinformation resources, and the building of awareness within this field through the cycle of trainings on INSPIRE for public administration employees organized by the Head Office of Geodesy and Cartography.

**Institute of Geodesy and Cartography** is the largest research unit in Poland dealing with cartography issues. Research conducted by the Institute include issues related to modeling spatial information and geovisualization. One of research subjects concerns the development of principles and technologies of preparing pictorial maps. The second subject is focused on modeling digital contents of the basic map of Poland at the scale of 1:200 000, optimallised and adapted to the contents of the map to issues presented in thematic maps. The digital base map of Poland is updated permanently; its contents are expanded. At present, the works are focused on adapting the map to the requirements of the INSPIRE Directive.

The Institute of Geodesy and Cartography also conducted works on the concept of a pictorial map of cross-border natural areas supplemented by hatched contents. The developed map is universal and enables the presentation of areas of diversified natural and landscape qualities.

Another subject of research conducted in the Institute of Geodesy and Cartography was the application of geoinformation technologies in the protection and promotion of national heritage. The research results included the development of methods for preparing maps of historical relics, using quantitative and qualitative methods of cartographic presentation and dynamic means of communication. Based on these methods, a temporal-spatial model of a historical relic has been proposed. The results of the project in the form of a pilot application are available in the website [www.GEOHeritage.polska.pl](http://www.GEOHeritage.polska.pl).

The Institute of Geodesy and Cartography also conducts works on the concept of the Bible Atlas, a spatial information system concerning architectonic and landscape objects within the territory of Poland, and methods of cartographic presentation for indices of landscape diversification in Poland, using CORINE Land Cover databases and GIS technologies. The purpose of this research was to present on maps, the complexity of Polish landscape shaped by natural factors as well as by humans.

**Environmental Information Center UNEP/GRID-Warsaw** specializes in developing spatial databases and thematic maps related to environment management issues. The Center is the author of many maps which are used in books, wall maps, and visualizations of geographic information, particularly environmental data in geoportals.

The most important cartographic works in the achievements of the Center UNEP/GRID-Warsaw include wall maps of protected areas in Poland which present the location of these areas in respect of the existing and planned road and railroad infrastructure. The Center has also developed many maps for thematic reports concerning the issues of sustainable development of the Carpathian region. In recent years, intensive activities are carried out focusing on promotion possibilities of using spatial information as a tool supporting environment and space management among representatives of public administration. These activities directly support the process of creating the infrastructure for spatial information in Poland.

The main direction of activities conducted by the **Laboratory of Cartography and Geographic Information Systems in the Institute of Geography**

**and Spatial Organization of the Polish Academy of Sciences** was internet cartography. Works were continued on *Internetowy Atlas Polski* (Internet Atlas of Poland), a public non-commercial map service for a wide circle of users. For the purposes of Atlas operation, the Laboratory developed special software AIMS (Aviso Internet Map Server) and still improves it. The software cooperates with the Aviso geographic information system designed in the Laboratory. What was also developed was the special GraphTA application (a laboratory of graph availability models) for examining transport availability of counties in Poland.

Moreover, members of the Laboratory focused on standardization of geographic names for the purposes of cartography and on the documentation of Polish and foreign cartographic literature.

The Laboratory operated in the previous organizational form until the end of 2010; it was then reorganized into the interdepartmental GIS and Cartography Workgroup.

In the **Chair of Cartography at the Faculty of Geography and the Regional Studies of the University of Warsaw**, research conducted by a 13-members' team is quite diversified. Traditional subjects include cartographic methods of presentation. At present, the Chair conducts the project titled Internet Atlas of Cartographic Methods [www.wgsr.uw.edu.pl/kartografia](http://www.wgsr.uw.edu.pl/kartografia); works are also in progress on Atlas of Mazovia voivodship. Main interests of employees of the Chair of Cartography include theoretic cartography, contents of topographic maps, newspaper maps, and city plans, as well as perception of animated maps and legends of thematic maps.

**Department of Cartography of the Institute of Earth Sciences of the Maria Skłodowska-Curie University** has existed since 1964. Traditional research subjects include cartographic methodology, i.e. perception of statistic maps, particularly isopleth maps, and cartographic generalization. Other subjects studied by the 9-members' research team include the history of cartography, edition of maps and atlases, GIS, and remote sensing. In 2009, the employees of the Department prepared cartographic illustrations for the monumental atlas of the Polish independence underground in 1944–1956.

Research conducted in the **Department of Cartography of the University of Wrocław** are focused on issues of spatial data bases for medium-scale maps of Lower Silesia concerning the use of land and technical infrastructure, using digital terrain models, and on some aspects of cartographic methodology from the point of view of computer technology.

The newly-created **Department of Cartography and Geomatics of the Adam Mickiewicz University in Poznań** conducts research in four subjects, i.e. cartographic methods of studying the shaping of natural environment, standards of collecting spatial data, determining the potential of old maps for research on natural environment, and history of cartography in the aspect of creating cartographic rules.

**Department of Cartography, Remote Sensing, and Geographic Information Systems of Nicolaus Copernicus University in Toruń** conducts research focused on methodological and editorial cartographic issues which form the basis for proper development and functioning of geoinformation systems. Scientific projects carried out using GIS tools include works in history of cartography (Historical Atlas of Polish Cities), multimedia cartography (geocompositions as videographic forms), thematic cartography (communication availability of services network in Toruń), and spatial analyses of flood risks.

In the **Department of Remote Sensing and Marine Cartography of the University of Szczecin** founded in 2008, works have been started on the development of maps of storm surge risk as a part of the Early Alert System concerning storm consequences.

In the **Department of Cartography of the Pomeranian University in Ślupsk**, works were conducted on the project titled “Topographic cartography of the Prussian state and annexed regions from the mid-18th century to the first half of the 20th century”.

In the **Department of Cartography of the University of Technology in Warsaw**, the research in cartography concerned designing reference databases, cartographic modeling, the theory of cartographic projections, cartographic generalization, methodology of cartographic presentation in mobile systems and internet geoservices, and cartographic methods of research.

In the area of mathematic cartography, methods were developed for constructing the Cassini-Soldner projection of the whole ellipsoid onto a surface and the Gauss-Krüger projection of the whole ellipsoid onto a sphere. Research was also conducted on anamorphic projections and using cartographic equal-area projections for calculating the surface area of ellipsoidal geodetic polygons.

The Department of Cartography also carries out research on the concept of Baza Danych Georeferencyjnych – BDG (Georeference Data Base) as a MRDB data base, on methods of constructing two-level structure of the BDG data base, and on cartographic visualization of reference data and their large-scale

analysis and generalization. The employees of the Department also conduct research on mobile cartography, particularly effective transfer of spatial information to users during navigation and methods of preparing mobile maps for gliding.

**The Department of Cartography, Photogrammetry and Geoinformation of the University of Environmental and Life Sciences** in Wrocław conducts works on cartographic methods of modeling the distribution of continuous phenomena recognized discretely, sonorous systems of coding spatial data in cartography and educational programs, application of digital taxonomy and cartographic models in the analysis of the natural environment, and application of MRDB data base containing topographic data as a component of Spatial Data Infrastructure in Poland.

The Department, in cooperation with the University of Technology in Warsaw, completed the subsidized project titled „Methodology and procedures of integration, visualization, generalization, and standardization of reference data bases available in geodesic and cartographic resources and their application for the construction of thematic data bases”. The developed concept of a MRDB topographic database ensures optimum use and visualization of available topographic data bases and enables their integration with other solutions in this area. Within the implementation phase, the solution was implemented in National Register of Geographic Names, geoinformation services giving access to data were designed and constructed, and VMap L2, SOZO and HYDRO maps were visualized as well as other data on various levels of generalization. The authors also introduced mechanisms for updating geoportals from data bases of address points and buildings registers as well as for visualizing the buildings layer.

In 2007–2010, the Department also focused on research subjects related to cartographic issues and GIS as well as those connected with cartographic modeling in analyses of spatial distribution of surface features, construction of an internet service for recognizing topographic features in raster maps, and improving methods of constructing anamorphic maps with their implementation in GIS.

**The Faculty of Civil Engineering and Military Geodesy of the Military University of Technology in Warsaw** conducts works on the development of military maps (topographic, reference-topographic, and aeronautical maps) and spatial data bases (Vmaps, thematic bases) as well as on the application of these solutions for the purposes of planning military actions on various levels of command.

## 7. Cartographic collections

Collecting maps and atlases as well as making such collections available to public has a long tradition in Poland, dating back to the 17th century. Despite great losses suffered by the most valuable Polish collections during the World War II, a few dozen scientific and public libraries have, at present, valuable cartographic collections, which are often separate organizational units. Their sizes and importance differ from one another; however, the number of objects does not always go hand in hand with the value of collections.

The leading position is taken by the collection of the National Library in Warsaw; a part of its structure is Department of Cartographic Collections, which conducts intense activities. The collection of cartographic documents held in this library is regularly expanded mainly by compulsory publications from current production. This way, the library receives app. 1500 new maps and atlases each year. At present, the collection consists of app. 117 000 maps and 4600 atlases, among which one can find valuable atlases from the 16th–18th centuries. In recent years, the collection has been increased by two gifts – one from the Sejm Library and one from Staatsbibliothek zu Berlin.

In 2006, the National Library began publishing a half-yearly „Bibliography of Cartographic Materials” as an integral part of Polska „Polish National Bibliography”. Simultaneously, all bibliographic information is put in the online catalogue on the website of the National Library <http://alpha.bn.org.pl>. In 2008, the Library published the last edition of this bibliography (2006, No. 1-2) on paper. Later editions appeared only in the form of information in the PDF format and in the central online catalogue, which contains information on all types of Library collections.

In the series „*Studia i Materiały z Historii Kartografii*” (Studies and Materials on History of Cartography) published by the Library, in 2008 an important source catalogue appeared titled *Cartographica Poloniae 1570–1930. Catalogue of manuscript sources in Swedish collections to the history of Polish territories*, compiled by Ulla Ehrensvärd.

A large and intensely used cartographic collection, consisting of 91 600 maps and 5300 atlases, including many national atlases and multi-sheet maps from various regions of the world, is in possession of Central Library of Geography and Environmental Protection at the Institute of Geography and Spatial

Organization of the Polish Academy of Sciences in Warsaw. In this library, the detailed instruction for cataloguing cartographic documents in the international format titled „Marc 21 format for bibliographic data: cartographic documents” was developed and published in 2008. The library also started the registration of more important cartographic documents in the digital form.

Valuable historical collections of maps and atlases are also in possession of the Ossolineum Library in Wrocław, the Library of the Gdańsk Division of the Polish Academy of Sciences, and university libraries in Cracow (the Jagiellonian Library), Wrocław, Warsaw, and Toruń. They may also be found in some large public libraries; the most valuable ones are in the Public Library of the Capital City of Warsaw, the Raczyński Library in Poznań, the Pomeranian Library in Szczecin, and the City and Voivodship Public Library in Gorzów Wielkopolski. Rich cartographic collections of national archives are quite different; they possess, above other things, documents in the form of manuscript multi-sheet maps. The most valuable and largest ones include the Central Archives of Historical Records in Warsaw as well as archives in Wrocław, Cracow, Lublin, Gdańsk, and Przemyśl.

In February 2009, a very valuable private collection of cartographic Polish materials of Tomasz Niemodniczański, Ph.D. from Bitburg (Germany) was given to the Library of the Royal Castle in Warsaw as a perpetual deposit. The collection consists of 2500 rare old maps of Polish lands, app. 40 atlases, and 150 historical city views.

In recent years, Polish scientific libraries, including their cartographic collections, have intensively modernized their ways of cataloguing of and giving access to collected documents. This concerns mainly collections which are parts of the national central catalogue of scientific and academic libraries NUKAT. Original inventory and catalogues of cartographic documents in the form of a georeference data base containing information on these documents were developed in the Department of Cartographic Collections of the University Library in Wrocław. A modern, very efficient and user-friendly system of giving access to maps has been designed and implemented in the Cartographic Collections of the Institute of Geography and Land Management of the Jagiellonian University in Cracow.

## Part two

# SELECTIVE BIBLIOGRAPHY OF POLISH CARTOGRAPHIC PUBLICATIONS 2007–2010

### A b b r e v i a t i o n s :

Elab. – Elaboration

et al. – et alii (and others)

Fasc. – Fascicle

PAN – Polska Akademia Nauk (Polish Academy of Sciences)

Polski Przegl. Kartogr. – Polski Przegląd Kartograficzny (Polish Cartographical Review)

PPWK im. E. Romera – Polskie Przedsiębiorstwo Wydawnictw Kartograficznych imienia Eugeniusza Romera (Eugeniusz Romer Polish Cartographical Publishing House)

Przegl. Geodez. – Przegląd Geodezyjny (Geodetic Review)

Przegl. Geolog. – Przegląd Geologiczny (Geological Review)

PTG – Polskie Towarzystwo geograficzne (Polish Geographical Society)

Red. Kartogr. – Redakcja Kartograficzna (Cartographic Editorial Staff)

Wydawn. – Wydawnictwo (Publishing House)

Zsfg. – Zusammenfassung (summary in German)

## A. ATLASES

### General world atlases

1. *Atlas świata*. Editor Hubert Mroczkiewicz. Warszawa: Demart, 2010, 432 pp. (The world atlas. Geography).
2. *Atlas świata. Geografia*. Editor Hubert Mroczkiewicz. Warszawa: Demart, 2010, 103 pp. (World atlas. Geography).
3. *Mały atlas świata*. Editors Łukasz Mędrzycki, Hubert Mroczkiewicz. Warszawa: Demart, 2009, 256 pp. (The small world atlas).
4. *Historia świata – atlas ilustrowany*. Editor Witold Sienkiewicz. Warszawa: Demart, 2006/2007, 488 pp. (The world history – illustrated atlas).
5. *Multimedialny Atlas Geograficzny*. Warszawa: Wydawn. Naukowe PWN, 2009 (Multimedia geographical atlas of the world on DVD-ROM).

### Popular atlases of Poland

6. *Geograficzny atlas Polski*. Editors Hubert Mroczkiewicz, Katarzyna Sańko. Warszawa: Demart, 2009, 137 pp. (Geographical atlas of Poland).
7. *Ilustrowany atlas Polski. Nasza ojczyzna. Mapy informacje, krajobrazy*. Editors Barbara Karpińska, Elżbieta Meissner. Warszawa: Reader's

Digest, 2008, 288 pp. (Illustrated atlas of Poland. Our homeland. Maps, informations, landscapes).

8. *Wielki atlas Polski. Polska niezwykła. Historia, geografia, kultura*. Editors Elżbieta Olczak et al. Warszawa: Demart, 2010, 424 pp. (Great atlas of Poland. Unusual Poland. History, geography, culture).
9. *Dzieje Polski. Atlas ilustrowany*. Editors Witold Sienkiewicz, Elżbieta Olczak. Warszawa: Demart 2009, 527 pp. (History of Poland. The illustrated atlas).
10. *Historyczny atlas Polski*. Editor Elżbieta Olczak. Warszawa: Demart, 2009, 127 pp. (Historical atlas of Poland).

### Comprehensive regional atlases

11. *Atlas Śląska Dolnego i Opolskiego. Wydanie II – Atlas of Lower and Opole Silesia. 2nd edition – Atlas von Nieder- und Oppelner Schlesien. 2. Aufgabe*. Executive editor Władysław Pawlak. Cartographic editor Janina Pawlak. Wrocław: Uniwersytet Wrocławski – Pracownia Atlasu Dolnego Śląska, Fundacja dla Uniwersytetu Wrocławskiego, 2008, 131 pp.

12. *Atlas otoczenia Kampusu 600-lecia Odnowienia Uniwersytetu Jagiellońskiego*. Editor Ireneusz Jędrychowski, Kraków: Instytut Geografii i Gospodarki Przestrzennej Uniwersytetu Jagiellońskiego, 2007, 71 pp. (Atlas of the surroundings of Jagiellonian University Campus in Cracow).

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13. *Atlas geologiczno-strukturalny paleozoicznego podłoża Karpat zewnętrznych i zapadliska przedkarpackiego*. 1:300 000. Editors Zbigniew Buła, Ryszard Habryn. Warszawa: Państwowy Instytut Geologiczny, 2008 (Geological-structural atlas of the Palaeozoic bed of outer Carpathians and Carpathian Foredip).
14. *Atlas ekstremalnych zjawisk meteorologicznych oraz sytuacji synoptycznych w Polsce – Atlas of extreme meteorological phenomena and synoptic situations in Poland*. Elab. Zbigniew Ustrnul, Danuta Czekierda. Warszawa: Instytut Meteorologii i Gospodarki Wodnej, 2009, 182 pp.
15. *Atlas rozmieszczenia ptaków lęgowych Polski 1985–2004 – The atlas of breeding birds in Poland 1985–2004*. Editors Arkadiusz Sikora et al. Poznań: Bogucki Wydawn. Naukowe, 2007, 639 pp.
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21. *Atlas historyczny wojen polskich*. Elab. Marek Gądek. Warszawa: Bellona, 2009, 164 pp. (Historical atlas of Polish wars).
22. *Atlas historii Żydów polskich*. Editor Witold Sienkiewicz. Warszawa: Demart, 2010, 424 pp. (Atlas of the history of Polish Jews).
23. *Atlas Historyczny Polski. Mapy szczegółowe XVI wieku. 1. Województwo krakowskie w drugiej połowie XVI wieku*. Editor Henryk Rutkowski. Polska Akademia Nauk, Instytut Historii. Warszawa: Wydawn. Neriton, 2008, 13 map sheets, 319 pp. (Historical Atlas of Poland. Detailed maps of Poland in the 16th century. 1. Cracow voivodship in the 2nd half of the 16th century).
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31. *Nowy Atlas Przyroda. Świat wokół nas.* Elab. Krystian Chanza et al. Wrocław: Nowa Era, Zespół Kartograficzny, 2010, 92 pp. (New Atlas. Natural history. The world around us).
32. *Atlas geograficzny. Gimnazjum.* Editor Ludwik Przyłuski. Warszawa: Wydawn. Szkolne i Pedagogiczne, 2009, 132 pp. (Geographical atlas for grammar schools).
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35. *Atlas geograficzny świata.* Editors Marzena Wieczorek, Beata Byer. Warszawa: Wydawn. Szkolne PWN, 2010, 208 pp. (Geographical atlas of the world, for secondary schools).
36. *Atlas historyczny. Od starożytności do współczesności. Szkoła podstawowa.* Elab. Izabela Hajkiewicz et al. Wrocław: Nowa Era, Red. Kartogr., 2009, 52 pp. (Historical atlas. From antiquity to the present day. For primary schools).
37. *Atlas historyczny. Od starożytności do współczesności. Gimnazjum.* Editors Izabela Hajkiewicz, Beata Konopska, Dariusz Przybytek. Wrocław: Nowa Era, Red. Kartogr., 2010, 72 pp. (Historical atlas. From antiquity to the present day. For grammar schools).
38. *Spotkania z historią. Atlas z komentarzem źródłowym dla gimnazjum.* Elab. Teresa Maresz et al., Editor Beata Bińko. Warszawa: Demart, Wydawn. Szkolne PWN, 2007, 160 pp. (Meetings with history. Atlas with source commentary for grammar schools).
39. *Atlas historyczny. Od starożytności do współczesności. Liceum.* Editor Izabela Hajkiewicz.

Wrocław: Nowa Era, Red. Kartogr., 2008, 170 pp. (Historical atlas. From antiquity to the present day. For secondary schools).

### Road and tourist atlases

40. *Polska. Atlas samochodowy.* 1:300 000. Editor Agnieszka Wędrychowska. Warszawa: Demart, 2008, maps 280 pp., (Poland. Road atlas).
41. *Polska dla kierowców zawodowych. Atlas samochodowy.* 1:550 000. Editors Beata Konopska, Michał Starzewski. Warszawa: PPWK im. E. Romera, 2008, 144 pp. (Poland for professional drivers. Road atlas).
42. *Atlas Polski. Bezpieczne drogi.* Editors Beata Konopska, Michał Starzewski. Warszawa: PPWK im. E. Romera, 2008, 241 pp. (Atlas of Poland. The safe roads).
43. *Polska. Atlas samochodowy.* 1:220 000. Editors Beata Konopska, Michał Starzewski. Elab. Polkart, Dosuch. Warszawa: PPWK im. E. Romera, 2009, 362 pp. (Poland. Road atlas).
44. *Polska. Sąsiedzi z Schengen. Niemcy, Republika Czeska, Republika Słowacka, Litwa.* 1:550 000. Editors Beata Konopska, Michał Starzewski. Warszawa: PPWK im. E. Romera, 2008, 371 pp. (Poland. Neighbours from Schengen. Germany, Czech Republic, Slovak Republic, Lithuania. Road atlas).
45. *Polska 2009. Autonawigator. Atlas samochodowy 1:200 000 dla profesjonalistów.* Editor Tomasz Kaliński. Warszawa: Carta Blanca, Grupa wydawnicza PWN, 2009, 294 pp. (Poland 2009. Autonavigator. Road atlas 1:200 000 for professionals).
46. *Turystyczny atlas Polski.* 1:300 000. Editor Tomasz Kaliński. Warszawa: Carta Blanca. Grupa Wydawnicza PWN, 2009, 376 pp. (Tourist atlas of Poland).
47. *Polska. Atlas turystyczny. 9 tematów turystycznych.* 1:250 000. Elab. Agnieszka Wędrychowska et al. Warszawa: Demart, 2007, 291 pp. (Poland. Tourist atlas. 9 touristic themes).
48. *Atlas zabytków Polski.* 1:300 000. Editor Tomasz Kaliński. Warszawa: Carta Blanca, Grupa wydawnicza PWN, 2007, 256 pp. (Atlas of monuments in Poland).
49. *Narciarski atlas Polski, Czech i Słowacji 2009.* Elab. Anna Stafiej, Aleksandra Soboń-Smyk. Kraków: Wydawn. Family Cup, 2008, 292 pp. (Ski atlas of Poland, Czechia and Slovakia 2009).

50. *Polskie wybrzeże Bałtyku. Atlas turystyczno-samochodowy*. Editor Karol Kawałko. Piła: Wydawn. BiK, 2007, 86 pp. (Polish Baltic sea coast. Tourist and road atlas).
51. *Wiekopolska. Atlas turystyczno-drogowy – Tourist road atlas – Freizeit-strassenatlas*. 1:75 000. Poznań: Pietruska & Mierkiewicz: Wydawn. i Bank Informacji, 2007, 186 pp.
52. *Mazowsze. Polska niezwykła. Turystyczny atlas samochodowy*. 1:250 000. Editors Adam Ząkrzewski, Katarzyna Sańko. Warszawa: Demart, 2008, 388 pp. (Mazovia. Unusual Poland. Tourist and road atlas).
53. *Śląsk. Polska niezwykła. Atlas turystyczno-samochodowy*. 1:250 000. Editor Katarzyna Sańko. Warszawa: Demart, 2007, 356 pp. (Silesia. Unusual Poland. Tourist and road atlas).
54. *Dolny Śląsk, Śląsk Opolski. Atlas*. Editors Jerzy Błędowski, Roman Janusiewicz. Wrocław: Wydawn. Kartograficzne Eko-Graf, 2007/2008. (Lower and Opole Silesia. Tourist atlas).
55. *Górnośląski Okręg Przemysłowy. Atlas aglomeracji – City atlas of Upper Silesian Industrial District – Städteatlas oberschlesischen Industriegebiet*, 1:17 500. Editors Beata Konopska, Michał Starzewski. Warszawa: PPWK im. E. Romera, 2008, 268 pp.
56. *Górny Śląsk. Okręg Rybnicki, Górnosłaski Związek Metropolitalny. Atlas miast i okolic – Atlas of the cities – Städteatlas – Atlas des villes*. 1:20 000. Warszawa: Daunpol Wydaw. Kartograficzne, 2008, 261 pp. (Upper Silesia. Rybnik District, Upper Silesian Metropolitan Union. Atlas of 40 cities and towns with environs).
57. *Jura Krakowsko-Częstochowska. Atlas rowerowy*. 1:50 000 or 1:60 000. Editor Roman Trzmielewski. Kraków: Compass, 2009. 64 folded pp. (Cracow-Częstochowa Jurasic Plateau. Bicycle atlas).
58. *Warszawa. Atlas aglomeracji*. 1:20 000. Editors Beata Konopska, Michał Starzewski. Warszawa: PPWK im. E. Romera, 2008, 182 pp. (Warsaw. Atlas of agglomeration).
59. *Warszawa i okolice. Atlas miasta 1:20 000, atlas turystyczny 1:60 000*. Editors Adrian Bajer, Wojciech Kowalski, Krzysztof Radwański. Warszawa: ExpressMap Polska, 2010, 160 pp. (Warsaw and environs. City map 1:20 000, tourist atlas 1:60 000).
60. *Warszawa XXL. Najlepszy atlas*. 1:13 000. Cartographic elab. Bogusława Karlicka et al. Warszawa: Demart, 2010, 53 pp. (Warsaw XXL. The best atlas).

## B. MAPS

### Topographic maps

1. *Mapa topograficzna 1:10 000*. Warszawa: Główny Urząd Geodezji i Kartografii, Główny Geodeta Kraju, since 1994, 17 264 sheets. New topographic map, since 2000 in the Topographic Database standard. Till end of 2010 – 1509 sheets, continued.
2. *Mapa topograficzna 1:50 000*. Warszawa: Główny Urząd Geodezji i Kartografii, Zarząd Geografii Wojskowej. New editions of topographic map sheets issued in 1995–2002, 1083 sheets, continued.

### Thematic maps

3. *Mapa sozologiczna Polski 1:50 000*. Warszawa: Główny Urząd Geodezji i Kartografii, Główny Geodeta Kraju, since 1993 (new version), 1080 sheets. Till end of 2010 – 624 sheets, continued (Ecological map of Poland 1:50 000).

4. *Mapa hydrograficzna Polski 1:50 000*. Warszawa: Główny Urząd Geodezji i Kartografii, Główny Geodeta Kraju, since 1993 (new version), 1080 sheets. Till end of 2010 – 634 sheets, continued (Hydrographic map of Poland 1:50 000).
5. *Szczegółowa mapa geologiczna Polski 1:50 000*. Warszawa: Państwowy Instytut Geologiczny, since 1958, 1069 sheets (Detailed geological map of Poland).
6. *Mapa geośrodowiskowa Polski. 1:50 000*. Warszawa: Państwowy Instytut Geologiczny, 1069 sheets. Every sheet in two plates: A and B, continued (Geoenvironmental map of Poland 1:50 000).
7. *Mapa litogenetyczna Polski. 1:50 000*. Warszawa: Państwowy Instytut Geologiczny, Ministerstwo Środowiska, 1069 sheets, continued (Litogenetic map of Poland 1:50 000).
8. *Mapa geologiczna Polski – Geological map of Poland. 1:1 000 000*. Elab. Stanisław Lisiecki. Warszawa: Państwowy Instytut Geologiczny, Ministerstwo Środowiska, 2010.

9. Szczegółowa mapa geochemiczna Górnego Śląska – Detailed geochemical map of Upper Silesia. 1:25 000. Editor Maria Pasieczna. Four sheets: Olkusz, Myślachowice, Nowa Góra, Chrzanów. Warszawa: Państwowy Instytut Geologiczny, 2008.
10. Tectonic map of the Sudetes and the Fore-Sudetic Block – Mapa tektoniczna Sudetów i Przedgórza Sudeckiego. 1:200 000. Editor J. Małecka. Warszawa: Państwowy Instytut Geologiczny, Ministerstwo Środowiska, 2009.
11. Babiogórski Park Narodowy. Mapa geologiczno-turystyczna. 1:13 000. Elab. Antoni Wójcik et al. Warszawa: Państwowy Instytut Geologiczny, 2010 (Babia Góra National Park. Geological-tourist map).
12. Białowieski Park Narodowy. Mapa geologiczno-turystyczna. 1:25 000. Elab. Tomasz Krzywicki, Monika Pielach. Warszawa: Państwowy Instytut Geologiczny, 2010 (Białowieża National Park. Geological-tourist map).
13. Poleski Park Narodowy. Mapa geologiczno-turystyczna. 1:30 000. Elab. Magdalena Kucharska, Weronika Daniel. Warszawa: Państwowy Instytut Geologiczny, 2010 (Polesie National Park. Geological-tourist map).
14. Roztoczański Park Narodowy. Mapa geologiczno-turystyczna. 1:30 000. Elab. Marek Krapiec et al. Warszawa: Państwowy Instytut Geologiczny, 2010 (Roztocze National Park. Geological-tourist map).
15. Wigierski Park Narodowy. Mapa geologiczno-turystyczna. 1:30 000. Elab. Joanna Rychel, Katarzyna Pochocka-Szwarc, Andrzej Ber. Warszawa: Państwowy Instytut Geologiczny, 2010 (Wigry National Park. Geological-tourist map).
16. Geomorfologia Pojezierza Myśliborskiego i Niziny Szczecińskiej – Geomorphology of the Myślibórz Lakeland and Szczecin Lowland. 1:200 000. Elab. Andrzej Karczewski. Poznań: Uniwersytet im. Adama Mickiewicza w Poznaniu, 2008.
17. Dolnośląska mapa ochrony przyrody. 1:330 000. Editors P. Śnigucki, P. Sendecki, G. Zwoliński. Wrocław: Dolnośląski Zespół Parków Krajobrazowych (Lower Silesia map of nature protection).
18. Polska. Mapa archeologiczna. Największe odkrycia, najważniejsze zabytki. 1:700 000. Elab. T. Bieroński, E. Marcińska. Wrocław: Wydawn. Kartograficzne Eko-Graf (Poland. Archeologic map. The greatest discoveries, the most important monuments).
19. Muzea w Polsce. 1:1 000 000. Elab. Tomasz Banach et al. Gdańsk: Wydawn. Via Mercatorium, 2007 (Museums in Poland).
20. Rozwój terytorialny Łodzi. 1:29 000. Elab. Mariusz Stępniewski, Zdzisław Szambelan. Łódź: Urząd Miasta Łodzi, Biuro Informacji i Komunikacji Społecznej (Territorial development of Łódź city).

### School wall maps

21. Polska. Mapa ogólnogeograficzna. 1:500 000. Wrocław: Wydawn. Nowa Era, Red. Kartogr., 2007 (Poland. Physical map).
22. Polska – gospodarka. Rolnictwo / Przemysł i usługi. 1:750 000. Elab. Joanna Fiedor, Teresa Dzieniszewska. Wrocław: Wydawn. Nowa Era, Red. Kartogr., 2009 (Poland – economy. Agriculture / Industry and services).
23. Zjednoczenie ziem polskich przez Władysława Łokietka / Polska Kazimierza Wielkiego, 1:1 000 000, 1:1 200 000. Elab. Jarosław Jakubiak, Izabela Hajkiewicz. Wrocław: Wydawn. Nowa Era. Red. Kartogr., 2008 (Unification of Polish territories by Władysław Łokietek / Poland in the period of king Kazimierz Wielki).
24. Deutschland, Österreich, Schweiz – Niemcy, Austria, Szwajcaria. 1:750 000. Wrocław: Nowa Era, Red. Kartogr., 2007 (two-sided maps in German: general geographic and administrative).
25. United Kingdom & Ireland – Wielka Brytania i Irlandia. 1:850 000. Wrocław: Nowa Era, Red. Kartogr., 2007 (two-sided maps in English: general geographic and administrative).
26. Europa. Gospodarka – Przemysł wydobywczy i przetwórczy. Rolnictwo i rybołówstwo. 1:4 000 000. Elab. Janusz Dajek, Teresa Dzieniszewska, Marta Fret. Wrocław: Nowa Era, Red. Kartogr., 2010 (Europe. Economy – Industry and mining. Agriculture and fishing. Two-sided maps).
27. Świat – budowa geologiczna / Świat – wielkie formy ukształtowania powierzchni. 1:24 000 000. Elab. Piotr Migoń. Wrocław: Nowa Era, Red. Kartogr., 2009 (The world – geological structure / The world – great relief forms – two-sided maps).
28. Świat. Krajobrazy/Strefy klimatyczne. 1:24 000 000. Elab. Justyna Romanowska, Janusz Dajek. Wrocław: Nowa Era, Red. Kartogr., 2008 (The world. Landscapes / Climatic zones – two-sided maps).
29. Wielkie religie średniowiecza. 1:10 000 000 and 1:8 000 000. Elab. Jarosław Jakubiak, Izabela

- Hajkiewicz. Wrocław: Nowa Era, Red. Kartogr., 2010 (Great religions of the Middle Ages. Two-sided maps).
30. *Wielkie odkrycia geograficzne*. 1:25 000 000. Elab. Izabela Hajkiewicz, Jarosław Jakubiak. Wrocław: Nowa Era, Red. Kartogr., 2010 (Great geographical discoveries. Two-sided maps).
31. *Europa napoleońska / Europa po kongresie wieńckim*. 1:3 650 000. Elab. Izabela Hajkiewicz, Jarosław Jakubiak. Wrocław: Nowa Era, Red. Kartogr., 2009 (Napoleonic Europe / Europe after Vienna congress. Two-sided maps).
32. *Imperia kolonialne na świecie*. 1:25 000 000. Elab. Izabela Hajkiewicz, Jarosław Jakubiak. Wrocław: Nowa Era, Red. Kartogr., 2009 (Colonial empires in the world. Two-sided maps).
33. *Świat na progu XXI wieku – osiągnięcia / Świat na progu XXI wieku – zagrożenia*. 1:24 000 000. Elab. Izabela Hajkiewicz, Jarosław Jakubiak, Cezary Mazur. Wrocław: Nowa Era, Red. Kartogr., 2009 (The world on a threshold of the 21th century – achievements and dangers. Two-sided maps).
42. *Zalew Szczeciński. Mapa topograficzno-turystyczna 1:50 000*. Warszawa: Wojskowe Zakłady Kartograficzne, 2009 (Szczecin Lagoon, Polish part. Topographic and tourist map).
43. *Kaszuby. Atrakcje turystyczne. Mapa turystyczno-samochodowa*. 1:175 000. Gdańsk: Eko-Kapio, 2010 (Kashubia. Tourist attractions. Tourist-road map).
44. *Mapa szlaków wodnych i rowerowych oraz zabytków okolic Kanału Ostródzko-Elbląskiego – A map of water and bike routes and monuments in the area of the Ostróda-Elbląg Canal*. 1:70 000. Warszawa: Daunpol Wydawn. Kartograficzne, 2010.
45. *Biebrzański Park Narodowy. Mapa turystyczna*. 1:85 000. Warszawa: ExpressMap Polska, 2010 (Biebrza National Park. Tourist map).
46. *Okolice Warszawy*. 1:75 000. Warszawa: ExpressMap Polska, 2009 (Environs of Warsaw. Tourist map).
47. *Okolice Łodzi. Mapa topograficzno-turystyczna*. 1:50 000. Warszawa: Wojskowe Zakłady Kartograficzne, 2009 (Environs of Łódź. Topographic-tourist map).
48. *Puszcza Białowieska. Mapa turystyczna – The Białowieża Forest. Tourist map – Das Białowieża Urwald. Touristenkarte*. 1:50 000. Warszawa: Agencja TD Wydawn. Turystyczne, 2008.
49. *Okolice Białegostoku. Mapa turystyczna – Tourist map – Touristische Karte*. 1:100 000. Elab. Robert Janaszek. Warszawa: Agencja TD Wydawn. Turystyczne, 2007 (Environs of Białystok).
50. *Roztocze południowe. Część polska. Mapa turystyczna – Tourist map*. 1:50 000. Lublin: Kartopol, 2009 (Southern Roztocze. Polish part).
51. *Dolny Śląsk. Mapa turystyczna – Lower Silesia. Tourist map – Niederschlesien. Wanderkarte*. 1:300 000. Wrocław: Wydawn. Kartograficzne Eko-Graf, 2010.
52. *Sudety. Mapa turystyczna*. 1:120 000. Warszawa: ExpressMap Polska, 2010 (Sudets Mts. Tourist map).
53. *Ziemia Kłodzka z pograniczem polsko-czeskim. Mapa turystyczna – Turistická mapa – Tourist map – Wanderkarte*. 1:100 000. Wrocław: Wydawn. Kartograficzne Eko-Graf, 2010 (District of Kłodzko with the Polish-Czech borderland).
54. *Ziemia Wadowicka. Mapa turystyczna*. 1:50 000. Kraków: Compass, 2009 (District of Wadowice. Tourist map).
55. *Tarzański Park Narodowy. Mapa turystyczna – The Tatra National Park. Tourist map*. 1:30 000.

### Road and tourist maps

34. *Polska. Mapa samochodowa*. 1:750 000. Warszawa: PPWK im. E. Romera, 2007 (Poland. Road map).
35. *Polska. Mapa samochodowa*. 1:750 000. Warszawa: ExpressMap Polska, 2007 (Poland. Road map).
36. *Polska. Mapa samochodowa dla zawodowców*. 1:750 000. Warszawa: Demart, 2008 (Poland. Road map for professionals).
37. *Auto Mapa Polska XL. Wersja 5.0.7*. Wrocław: Geosystems Polska, Aqurat, 2008, 1 CD-ROM. (Electronic road map of Poland).
38. *Mapa Polski 2008*. Cartographic elab. Map 1. Łódź Cartall, 2007, 1 CD-ROM (Map of Poland. Electronic road map of Poland with printed road atlas 1:500 000).
39. *Navigo Professional Plus. Komputerowa mapa Polski*. Warszawa: PPWK S.A., 2008, 1 CD-ROM (Electronic road map of Poland).
40. *Navigo Professional Plus. Komputerowa mapa Europy*. Cartographic elab. PPWK S.A. and Tele Atlas S.A., 2008, 1 CD-ROM (Electronic road map of Europe).
41. *Województwo Mazowieckie. Mapa samochodowa*. 1:300 000. Warszawa: PPWK S.A., 2007, (Masovian voivodship. Road map).

- Wrocław: Wydawn. Kartograficzne Eko-Graf, 2007/2008.
56. *Park Krajobrazowy Podgórza Przemyskiego. Mapa turystyczno-krajobrazowa*. 1:50 000. Lublin: Kartpol, 2010 (Przemyśl Uplands Landscape Park. Tourist-landscape map).
57. *Gorce i Pieniny. Mapa turystyczna*. 1:50 000. Warszawa: ExpressMap Polska, 2010 (Gorce and Pieniny Mts. Tourist map).
58. *Pieniny polskie i słowackie. Mapa turystyczna*. 1:25 000. Wrocław: Wydawn. Kartograficzne Eko-Graf, 2007/2008 (Polish and Slovak Pieniny Mts. Tourist map).
59. *Beskid Sądecki. Mapa topograficzno-turystyczna*. 1:50 000. Warszawa: Wojskowe Zakłady Kartograficzne, 2008 (Beskid Sądecki Mts. Topographic-tourist map).
60. *Tatry Polskie. Mapa turystyczna – Tourist map*. 1:30 000. Kraków: Wydawn. Compass, 2007 (The Polish Tatra).
61. *Tatrzański Park Narodowy. Mapa turystyczna – The Tatra National Park. Tourist map*. 1:30 000. Wrocław: Wydawn. Kartograficzne Eko-Graf, 2007/2008.
62. *Tatrzański Park Narodowy. Mapa turystyczna – Tourist map – Touristenkarte – Turističeskaja karta*. 1:30 000. Kraków: Wydawn. Gauss, 2010 (Tatra National Park).
63. *Bieszczady. Góry Sanocko-Turczańskie. Mapa turystyczna*. 1:75 000. Warszawa: PPWK im. E. Romera, 2007 (Bieszczady. Sanok-Turka Mts. Tourist map).
64. *Warszawa. Plan miasta*. 1:26 000. Warszawa: PPWK im. E. Romera, 2009 (Warsaw. City map).
65. *Wrocław. Plan miasta – City plan – Stadtplan*. 1:20 000. Wrocław: Wydawn. Eko-Graf, 2007.
66. *Lwów. Plan miasta*. 1:10 000. Warszawa: Express-Map Polska, 2009 (Lvov. City map).

## C. CARTOGRAPHIC LITERATURE

### Bibliographies. Catalogues

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2. *Cartographica Poloniae 1570 – 1930. Katalog źródeł rękopismiennych do historii ziem polskich w źródłach szwedzkich – Catalogue of manuscript sources in Swedish collections to the history of Polish territories*. Compiled by Ulla Ehrensvärd. Biblioteka Narodowa, Instytut Historii Nauki PAN. Warsaw, Stockholm: Wydawn. Retro-Art., 2008, 367 pp. Studia i Materiały z Historii Kartografii, XXI.
3. Dudzicka Grażyna, Gazicka-Wójtowicz Dorota, Grzybowska Irena: *Format 21 rekordu bibliograficznego dla dokumentu kartograficznego – Marc 21 format for bibliographic data*. Stowarzyszenie Bibliotekarzy Polskich, Centrum NUKAT Biblioteki Uniwersytetu Warszawskiego. Series „Formaty, Kartoteki” 18. Warszawa: Wydawn. SBP, 2009, 209 pp.
4. Dworsatschek Mariusz: *Polska w dawnej kartografii. Historyczne ziemie polskie na mapach do początku XIX wieku w zbiorach Ossolineum*.
- Wrocław: Zakład Narodowy im. Ossolińskich, 2008, 167 pp. (Poland in old cartography. Historical Polish territories on map till beginning of the 19th century in collection of Ossolineum Library in Wrocław).
5. *Kartografia geologiczna ziem polskich do roku 1919. Katalog wystawy*. Elab. Stanisław Wołkowicz, Krystyna Wołkowicz, Jerzy M. Miecznik. Warszawa: Państwowy Instytut Geologiczny, 2009, 31 pp. (Geological cartography of Polish territories till 1919. Catalogue of exhibition).
6. *Katalog atlasów XIX wieku (1801–1900) w zbiorach kartograficznych Biblioteki Naukowej PAU i PAN w Krakowie*. Elab. Jadwiga Bzinkowska, Ewa Niedziałkowska. Kraków: Polska Akademia Umiejętności, 2010, 216 pp., summ.: The catalogue of the 19th century collection of Scientific Library of Polish Academy of Arts and Sciences and Polish Academy of Sciences in Cracow.
7. *Polska Bibliografia Narodowa. Bibliografia Dokumentów Kartograficznych*. Biblioteka Narodowa, Zakład Zbiorów Kartograficznych. Warszawa: Biblioteka Narodowa, 2003, Nr 1, 2007, 166 pp. 2003, Nr 2, 2007, 119 pp.; 2004, Nr 1–2, 2007, 135 pp.; 2005, nr 1–2, 2008. 173 pp; 2006, Nr 1–2, 2008, 196 pp. (Polish National Bibliography of Cartographic Materials).
8. „*Polski Przegląd Kartograficzny*”. *Bibliografia zawartości tomów 31–40 (1999–2008)*. Elab. Jerzy Ostrowski. Polski Przegl. Kartogr. vol. 40,

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9. Wespiański Paweł E.: *Warszawa. Obrazy z dziejów – Warschau. Bilder aus der Geschichte – Warsaw. Images from the history.* Warszawa: Archiwum Państwowe m.st. Warszawy, Muzeum Historyczne m.st. Warszawy, Warszawskie Przedsiębiorstwo Geodezyjne, 2007, 122 pp., 23 reproductions of maps and plans of Warsaw from 1641–2004.
  10. Wytyczak Roman: *Śląsk na mapach z lat 1800–1945 w zbiorach Zakładu Narodowego im. Ossolińskich.* Wrocław: Zakład Narodowy im. Ossolińskich, 2008, 186 pp., Zsfg.: Schlesien auf den Karten in den Jahren 1800–1945 (Silesia on maps from 1800–1948 in Zakład Narodowy im. Ossolińskich collection. Catalogue).

### History of cartography

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