

CARTOGRAPHIC SOCIETY OF THE SLOVAK REPUBLIC

ACTIVITIES 2007-2011



National Report for the 15th General Assembly of the ICA

Bratislava 2011

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(3-8 July 2011, Paris)

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CARTOGRAPHIC SOCIETY OF THE SLOVAK REPUBLIC

Executive Committee

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Cartographic Society of the Slovak Republic

Activities in 2007 – 2010

Cartographic Society of the Slovak Republic (CS SR) is apolitical organization with scope in the Slovak Republic founded pursuing the Act on citizens' associations. The mission of the Cartographic Society is to associate people interested in cartography, cartographic works, and cartographic information, development of cartographic science and technologies, education of cartographers, history of cartography, compilation, production and use of different types of maps and atlases, and spatial information comprised in information systems. Members of the Society are university and superior school graduates of prevailing technological and nature scientific specializations.

The CS SR is permanent member of the International Cartographic Association (ICA). The CS SR coordinates the collaboration of its members who are either members or corresponding members of individual commissions of the ICA. It regularly participates in the Barbara Petchenik Children's Map Competition, and successfully takes part in exhibitions of cartographic production organized at the occasion of international cartographic conferences and also contributes to publications issued by the Commission on Mapping from Satellite Imagery.

The principal task of the CS SR is to organize specialized conferences and seminars involved with cartography and geo-information science and publishing activities. The CS SR in cooperation with the Institute of Geography SAS publishes the yearbook *Kartografické listy* (Cartographic Papers, <http://gis.fns.uniba.sk/kartografickelisty>). Number 18 of the yearbook appeared in 2010.

At the plenary meeting organized 6th of September 2007 at the occasion of the 17th Cartographic Conference the members elected the following Executive Committee:

Doc. Ing. Jozef Čižmár, PhD. – Chairman,
Ing. Róbert Fencík, PhD. – Vice-Chairman,
Doc. RNDr. Ján Feranec, DrSc. – Scientific Secretary,
Ing. Jana Faixová Chalachanová, PhD. – Administrator,
Mgr. Miroslav Kožuch, PhD. – Member,
Ing. Štefan Kondáš, PhD. – Auditor.

The CS SR has 84 members at present.

I. Specialized Cartographic Events in Slovakia in 2007-2010

1. The 17th Joint Czech and Slovak Cartographic Conference was held in Bratislava in 2007. The central motto of the conference was “Trends in Present Cartography”. The Conference focused on the following themes: theoretical cartography and geo-information science, remote sensing and digital photogrammetry in cartography, cartography at school, thematic cartography and user aspects, standardization in cartography, cartographic terminology, cartographic technologies and cartographic education. Twenty-six papers were read and 27 posters were presented. Exhibition of cartographic publishers in the Slovak Republic and the Czech Republic and that of works accomplished by universities and scientific institutions were also exposed during the conference.

Three specialised documents were published based on the conference debates: Proceedings both in print and electronic form, *Geodetický a kartografický obzor* and *Kartografické listy*.

Participants of the conference adopted the following recommendations:

- To carry over the concept and plans of the ICA Commissions and Working Groups into the Slovak and Czech cartography by organizing national and international events;
- To promote new technologies focused on generation of spatial data and their visualization in maps and other graphic outputs;
- To concentrate the tuition of cartography on use of Information Technologies and promote the respect for the conventional cartographic procedures;
- To observe ethical and legal aspects of published cartographic works pursuing the Copyright Law.

2. The seminar “Activities in Cartography 2008” was carried out in cooperation with the CS SR and the Institute of Geography SAS. It was the seminar number 7. Regarding the increasing number of lecturers and participants the venue was changed and the seminar moved to the Faculty of Civil Engineering of the Slovak University of Technology in Bratislava. The themes of the seminar included processing of cartographic information with linkages to geo-information science. Twenty papers were read and the proceedings of the seminar were published.

3. Scientific Conference “Historical Maps in 2009”. The CS SR with the Slovak National Archives organized it. It was the fifth conference on the similar issues and the main theme was the cultural heritage in cartography. Part of the conference was the exhibition of old maps deposited in the archives of the Slovak National Museum.

4. The 18th Joint Czech and Slovak Cartographic Conference took place in Olomouc in 2009. The title of the conference was „Quo Vadis Cartography? “. The conference was oriented to the following themes: user aspects of map works, maps on the web, historic cartography, remote sensing and satellite mapping, atlases, thematic cartography, generalization, mathematical and theoretical cartography, education in cartography, technology and standardization in cartography geospatial analysis, and the GIS. Eighty-three papers were presented during the conference and 28 contributions were presented on posters. Part of the conference was the exhibition of cartographic publishing houses including works of the university and scientific institutions. The debates of the conference were published in journals *Geodetický a kartografický obzor*, *Kartografické listy* and *Moravian Geographical Reports* and so were the abstracts of papers. Full texts of papers were published in electronic form. Participants of the conference adopted the following recommendations:

- To organize national and international expert actions in the sense of the approved ICA concept;
- To focus tuition of cartography on the use of Information Technologies along with conventional cartographic and graphic-arts technologies;
- To observe legal and ethical principles concerning publishing of cartographic works;
- To concentrate cartographic creation to publishing new thematic products with an option to disseminate it via web services;
- To use the present potential of data layers about landscape in creation of thematic maps.

5. The 9th seminar “Activities in Cartography 2010” has been devoted to the memory of Ing. Ján Pravda, DrSc. founder and co-organizer of all preceding seminars. The specific theme of the seminar was the analysis of map signs, map representation of land cover, application of colour and size scales in thematic cartography and interpretation of soil-space information. Fourteen papers were read at the seminar and proceedings were published.

II. Education of Cartographers

Education of specialists in cartography at a university level is carried out according to two models:

- The technical model with geodetic-topographic and technological objectives;
- Nature-scientific model with geographical objectives.

The graduate of the first model is granted the title of Ing. Geodesist – Cartographer from the technological university while the graduate of the second model obtains the title of Mgr. Geographer- Cartographer from the university focused on natural history.

Accreditation Commission of the Government of the SR approved the new curricula and programmes prepared by the technical and scientific faculties and since the academic year 2009/2010 the study of cartography is guided under the approved programmes. Cartography as the principal subject overlaps with the geo-information science, geo-information technologies, computer cartography and remote sensing.

The university studies comprise three levels:

1st level – 3-year Bachelor level and the graduate obtains the title of Bc.

2nd level – 2-3-year Master level studies at universities specialised in nature history and humanities, and the graduate obtains the title of Mgr.

– 2-3-year engineering study at a technological university and the graduate obtains the title of Ing.

3rd level – 4-year PhD studies destined to graduates possessing titles Mgr. or Ing. The study is organized in form of lectures, seminars and study stays. It ends by the defence of dissertation where the graduate should demonstrate the capacity of independent scientific work. The title granted to the graduate is PhD (*philosophiae doctor*).

Education of cartographers-engineers is carried out at the Faculty of Civil Engineering of the Slovak University of Technology in Bratislava, Faculty of Forestry and Faculty of Ecology and Environmental Science of the Technical University in Zvolen and at the Faculty of Mining, Ecology and Geotechnics of the Technical University in Košice.

Education of cartographers-geographers is accomplished at the Faculty of Natural Sciences, Comenius University in Bratislava, Faculty of Natural Sciences of the University of Matthias Bel in Banská Bystrica and at the Faculty of Humanities and Natural Sciences of the Prešovská University in Prešov.

III. Cartographic Research

Cartographic research in the Slovak Republic concentrates at universities of technology, humanities and nature history and at the Institute of Geography of the Slovak Academy of Sciences.

Faculty of Civil Engineering of the University of Technology

Multicriterion Risk Analysis for the Flooded Areas During Floods – VEGA 1/4210/07

The Project was involved with the risk assessment during flood events. The aim was to propose and test procedures of mathematical modelling of flowing waters in open channels (1-D, 2-D) with simultaneous establishing of topographic parameters for the potentially flooded area by the GIS methods. Results of modelling will constitute the entry parameters for the decision-making process of multicriterion risk analysis for flooded the areas along the streams in Slovakia.

Flood Control of the Settled Areas of Slovakia – VEGA 1/0894/10

The Project focused on the development of a new methodology for implementation of the EU Directive about flood risk assessment in settled areas of Slovakia. The aim was to optimize flood risk in order to flatten or remove the flood wave (complete proposal of polders). The contribution itself under the geo-information support in case of critical flood events dwelled in definition of a new type of spatial and descriptive data (layers) of databases used in the GIS application for the crisis management and preparation of the methodology for elaboration of spatial analysis for the needs of flood risk management.

Prediction of Archaeological Localities – APVV-0249-07

The Project was involved with the development and publication of a forecasting map of archaeological localities (FMAL) in the territory of the Lower Považie by the method of

forecast modelling with application of environmental and social parameters that may influence distribution of archaeological localities. One of the principal problems addressed by the Project is the uncertain nature of parameters determining the distribution of archaeological localities, which requires the application of fuzzy logics to statistical analysis. The FMAL will greatly contribute to the efficient protection of cultural and historic heritage in Slovakia.

Faculty of Natural Sciences, Comenius University

Grant of Comenius University

UK/164/2007 – Informatization of tuition of geography at the secondary/technical schools.

UK/243/2007 – Creation and presentation of algorithms for construction of optimized irregular triangle networks regarding the issue of correct triangle configuration.

UK/234/2010 – Automated creation of land cover maps by the method of object oriented classification of digital satellite images.

VEGA Grant

VEGA 1/4034/07 – Modelling of spatial structures based on the data obtained by the method of digital photogrammetry.

VEGA 1/4037/07 – Spatial infrastructure and synthesis of geographical information.

VEGA 1/0457/10 – Infrastructure of spatial information and tools for the mobile systems of landscape management.

VEGA 1/0469/10 – Processing, modelling and presentation of landscape elements from digital records of imagery.

Ministry of Education SR

State Research and Development Programme No. 1024/2004 – Tools for Integration and the Distributed Use of Geo-Spatial Information.

ESF 13120200077 – Educational block: "Specialised Research Technologies".

Flight operational services SR.

Quality assessment for digital altitude models: ECP-2006-GEO-310011 – Provision of interoperable datasets to open GI to the EU community /GIS4EU/. Commission of the European Community, eContentplus Programme.

The Institute of Geography of the Slovak Academy of Sciences

The activities in the field of geo-information science in the specified period were focused on the project CORINE Land Cover 2006 (CLC2006). The Slovak Environmental Agency (SEA) in Banská Bystrica was the national coordinator and a major technical contributor of this project in Slovakia (see <http://www.sazp.sk/corine> and Mapserv SEA: <http://atlas.sazp.sk>). Updating of the CLC2000 data layer to the time horizon 2006 and identification of land cover changes in the period 2000-2006 were the main targets of the CLC2006 project in Slovakia. The map presentation of the Slovakia's land cover in 2006 and its Change 2000-2006 has been included into the atlas by Bičík, I., Hymiyama, Y., Feranec, J. (2010). *Land Use/Cover Changes in Selected Regions in the World*, 5. Charles University in Prague (IGU Study Group on Land use cover change), pp. 17-23.

Map presentation of changes that took place in artificial surfaces in Europe in 1990-2000-2006 was prepared by using CLC data. By combination of increases and decreases observed in land cover changes in favour of artificial surfaces, in a 3×3 km grid, spatial distribution of both the increase and decrease in s land cover flow urbanization (LCFU) in Europe in the years 1990-2000 and 2000-2006 was successfully discerned by means of different colour shades. The output denoted *Artificial Surfaces in Europe: Map of Changes in 1990-2006* has been accepted for a poster presentation at the forthcoming 25th International Cartographic Conference in Paris (3-8 July 2011).

IV. Publishing Activities

The Cartographic Society of the SR annually publishes the yearbook *Kartografické listy*. So far 18 yearbooks have been published. The yearbook normally contains scientific articles of cartographers from Slovakia, Czechia and other countries. Apart from that, it also brings selected studies of students (theses of various levels and reports from the students' scientific activities) studying at technical and nature-scientific universities in Slovakia. The yearbook is

sent to university libraries and institutions involved with cartography and geography. It is also sent to about 40 subscribers all over the world.

Moreover, miscellanies and proceedings from specialized events, conferences and seminars are published. They are prepared either in printed or electronic form on CD-ROM.

The publishing activity concerning cartographic works concentrates in the Institute of Geodesy and Cartography in Bratislava and at the Institute of Military Cartography shareholding comp. (VKÚ) at Harmanec.

The Institute of Geodesy and Cartography in Bratislava sponsors publishing of the State Map Works – Basic Maps of the SR at scales from 1:10 000 to 1:200 000. Besides, it publishes the Branch Maps that are compiled from the Basic Maps. During the period in question, technology of map compilation and manufacturing has changed as the digital processing prevails. It requires digitising of the basic materials. The Basic database for the Geographical Information System (ZB GIS) was processed and the Institute of Topography in Banská Bystrica processes the Central Spatial Database – CPD. These two basic materials cover the entire territory of Slovakia and constitute the background material for derivation of all maps.

The VKÚ of Harmanec is the cartographic company oriented to publishing of maps and atlases for public at large. Great part of its activity involves publishing of school atlases and other school materials. The set of maps published as a supplement to the diary *SME* with national distribution (total 6 tourist maps) deserves special attention. The maps were exhibited at the 2009 International Cartographic Exhibition of ICA in Chile and won an important distinction.

Apart from these dominant publishing companies in Slovakia, the creation in the field of cartography is also pursued by the following organizations: State Institute of Geology of Dionýz Štúr in Bratislava, Mapa Slovakia Bratislava, Geodis Bratislava, EUROSENSE Bratislava, Esprit Banská Štiavnica, MBKart – European Map Center International, Bratislava, Topographic Institute Banská Bystrica, Soil Science and Conservation Research Institute in Bratislava, and the National Forestry Centre in Zvolen.