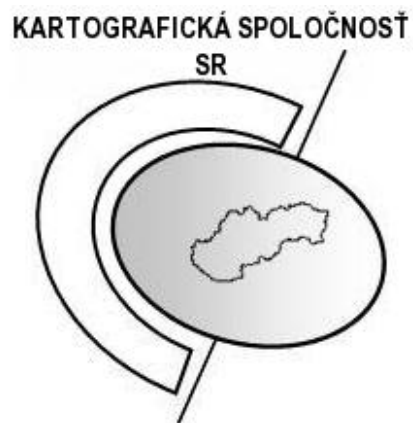


CARTOGRAPHIC SOCIETY OF THE SLOVAK REPUBLIC

ACTIVITIES 2011 - 2015



National Report for the 17th General Assembly of the ICA

Bratislava 2015

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(23-28 August 2015, Rio de Janeiro)

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Cartographic Society of the Slovak Republic

<http://www.slovakcarto.sk>

Activities in 2011 – 2015

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 Remote Sensor 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 and Faculty of Natural Sciences, Comenius University in Bratislava publishes the journal *Kartografické listy* (Cartographic Letters, <http://gis.fns.uniba.sk/kartografickelisty/?p=0&l=en>, 2 issues per year).

At the plenary meeting organized 8th of September 2011 at the occasion of the 19th Cartographic Conference the members elected the following Executive Committee:

Ing. Róbert Fencík, PhD. – Chairman,
Mgr. Miroslav Kožuch, PhD. – Vice-Chairman,
Doc. RNDr. Ján Feranec, DrSc. – Scientific Secretary (Vice-chair of the ICA Commission on Mapping from Remote Sensor Imagery),
Ing. Renata Ďuračiová, PhD. – Administrator,
prof. RNDr. Jaroslav Hofierka, PhD. – Member,
Ing. Katarína Moravčíková – Auditor.

The CS SR has 98 members at present.

I. Specialized Cartographic Events in Slovakia in 2011-2015

1. The 19th Joint Czech and Slovak Cartographic Conference was held in Bratislava in 2011. The central motto of the conference was “Cartography and Geoinformatics in the light of today”. The Conference focused on the following themes: theoretical cartography and geoinformation science, web cartography, thematic cartography and user aspects, cartographic technologies and remote sensing and digital photogrammetry in cartography. Twenty-eight papers were read and 18 posters were presented. An especially honoured guest was the President of the ICA prof. Georg Gartner (Fig. 1). Exhibition of works accomplished by the Slovak and Czech universities and scientific institutions were also part of the conference.



Fig. 1: Representatives of the Cartographic Societies of the Slovak Republic and Czech Republic together with President of the ICA (from left – Ján Feranec, Miroslav Mikšovský, Georg Gartner, Róbert Fencík, Jozef Čižmár)

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:

- Policies and research projects of ICA transferred to the Slovak and Czech cartographic practice.
- To organize national and international professional actions focus on the issue of Cartography and Geoinformatics.
- To orientate teaching Cartography and Geoinformatics on using information technologies, in continuity on traditional cartographic and printing procedures.
- Cartographic production to focus on the creation of new types of thematic maps with the possibility of their publishing through web services.
- To observe ethical and legal aspects of published cartographic works pursuing the Copyright Law.

2. The seminar “Activities in Cartography 2012” was carried out in cooperation with the CS SR and the Institute of Geography SAS. This seminar in 2012 was in the order of tenth anniversary. Since 2012, the seminar is dedicated to the memory of its founder Ing. Ján Pravda, DrSc., one of the most important and internationally respected Slovak cartographers. The themes of the seminar included processing of cartographic information with linkages to geo-information science. Nineteen papers were read and the proceedings of the seminar were published.

3. Scientific Conference “Historical Maps in 2013”. 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 20th Joint Czech and Slovak Cartographic Conference took place in Plzeň in 2013. The conference was oriented to the following themes: historic cartography, thematic cartography, atlases, theoretical cartography, airborne laser scanning, web cartography, 3D visualization and GIS. Thirty-nine papers were presented during two days of the conference. Part of the conference was the exhibition of works from the university and scientific institutions from the Slovak Republic and Czech Republic. The debates of the conference

were published in journals *Geodetický a kartografický obzor*, *Kartografické listy* and so were the abstracts of papers.

5. The 11th seminar “Activities in Cartography 2014” was held in cooperation of the CS SR and the Institute of Geography SAS in Bratislava. The specific themes of the seminar were geographical names and dynamic labelling, thematic maps and atlases, remote sensing and digital photogrammetry in cartography and eye-tracking. Thirteen papers were read at the seminar and proceedings were published.

6. National competition “Barbara Petchenik Children's World Map 2013” organized CS SR and the Institute of Geography SAS in Bratislava. There were involved 141 children from all over Slovakia. Evaluation of children works was in February 2013. Winning drawings were sent to the international round of Barbara Petchenik competition, which took place in Dresden during the 26th ICA International Cartographic Conference. Winners of national competition: the category less than 6 years – Zoja Václavíková (4 years), the category 6 – 8 years – Klára Gaššová (7 years), the category 9 – 12 years – Filip Líška (12 years, Fig. 2) and the category more than 12 years – Ivana Koručová (13years).



Fig. 2: Filip Líška – “*I want to be a world famous graffiti sprayer*”

The national competition “Barbara Petchenik Children's World Map 2015” organized CS SR and the Institute of Geography SAS in Bratislava. There were involved 158 children from all over Slovakia. Evaluation of children works was in April 2015 (Fig. 3). Winning drawings were sent to the international round of competition, which took place in Rio de Janeiro, Brazil

during the 27th ICA International Cartographic Conference. Winners of national competition: the category less than 6 years – Michal Mojžišik (5 years), the category 6 – 8 years – Zoe Szabová (8 years), the category 9 – 12 years – Leonard Šlosár (12 years) and the category more than 12 years – Tamara Husárová (14 years).



Fig. 3: Assessment of children's drawings during the national competition
Barbara Petchenik Children's World Map 2015

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 Science of Pavol Jozef Šafárik University in Košice, 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 Slovak University of Technology

DF11P01OVV021 – Cartographic sources as the cultural heritage (2011 – 2015)

The project is focused on research of new methods and technologies of digitalisation, which enable access and use of old maps, plans, atlases and globes. Programme: Applied research and development of national and cultural identity. Co-ordinator: Research Institute of Geodesy, Topography and Cartography, Czech Republic.

VEGA 1/0203/10 – Methods of fuzzy decision making and fractal geometry for modelling objects in GIS

The quality of a landscape model in software environment depends on using mathematical methods. Aim of the project was a theoretical research in the field of mathematical modelling of the relief and urban territories. The project was focused on implementation of fuzzy logic and fuzzy relations in GIS within the classification of elements in the assessment model and multicriteria decision.

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

The project is 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. 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 analyses for the needs of flood risk management.

Faculty of Natural Sciences, Comenius University

APVV projects:

APVV-0326-11 – Assessment of quality of geographical information for making environmental decisions.

Grants of Comenius University:

UK/552/2011 – Interoperability and harmonization of spatial data - development and testing of INSPIRE data specification for energy resources.

VEGA grants:

VEGA 1/0562/12 – New demographic analyses and prognostics of Slovak population and its regions with using of progressive geographical applications.

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.

Faculty of Science, UPJŠ in Košice

APVV-0176-12 – New methods of spatial modelling with laser scanning data and 3D GIS.

VEGA 1/0272/12 – Spatial analyses and modelling for 3D GIS.

KEGA 002PU-4/2012 – University level text book of geographic information science for geographic study courses.

The Institute of Geography of the Slovak Academy of Sciences

VEGA 2/0006/13 – Changes of cultural landscape: analysis of extension of urban fabric and farmland abandonment processes applying land cover databases.

Interests of society driven by the economic development and human sources represent the major forces behind changes of cultural landscape. The character and scope of changes though, depend on natural conditions. Physical condition of landscape and land use (LU) in particular time is recorded by remote sensing data. These data represent correct information sources for the analysis of the rate and spatial differentiation of two now dominant trends in the development of landscape: extension of urban fabric and abandonment of farmland followed by wasting. These processes are assessed based on the data concerning CORINE

land cover (CLC) changes from 1990, 2000 and 2006 (CLC1990, CLC2000 and CLC2006), and other specified data derived from aerial images of built-up areas at the national and regional levels of Slovakia.

VEGA 1/0275/13 – Production, verification and application of population and settlement spatial models based on European land monitoring services

The progress in geoinformatics and remote sensing techniques boosted the production and usage of spatial datasets not only related to land but increasingly also to society. European Soil Sealing Layer (SSL) and European Population Density Grid (PDG) are among the most frequently used of these datasets. While SSL is detailed portray of built-up areas, PDG is a disaggregated population raster based on CORINE Land Cover (CLC). The objective of the project is to validate SSL in Slovakia and to employ the validated SSL along with CLC in production of spatial models of population and settlement in Slovakia that are more accurate than PDG. Preliminary versions of the models will be applied to the solutions of particular problems (e.g. urban and rural settlement delineation, areal interpolation methods assessment) in order to be verified and further improved.

VEGA - 2/0018/10 – Time-spatial analysis of land use: dynamics of changes, fragmentation and stability assessments by application of the CORINE land cover data layers.

Social interests affect dynamics of changes in the landscape where the decisive driving forces are the political and economic decisions. These have very intensively changed the landscape of Slovakia in the past fifty years. Central governments controlled the trends in urbanization and socialist agriculture, as well as the nature of the landscape structure in the 1950s. The return to the market economy in the 1990s and accession of Slovakia to the European Union at the beginning of the millennium also brought about changes in the settlement and agricultural landscape structure. The concrete tool for landscape change assessment consists of aerial and satellite images, but also the CORINE land cover data layers for 1990, 2000 a 2006 (CLC90, CLC2000 a CLC2006). Landscape dynamics, fragmentation and stability assessment makes use of a comparison with the natural landscape potential, with demographic and economic indicators and also legally approved socio-economic function, which regulate the regional development.

Contributions to two Volumes of the International Geographical Union Commission on Land Use /Land Cover Change (IGU LUCC) Atlases:

Volume VII:

Feranec, J., Soukup, T.: Trend of changes in Czechia's and Slovakia's artificial surfaces (1990-2006 represented on Map. IGU LUCC (2012).

Volume IX:

Kopecká, M., Vatsava, R., Feranec, J., O'ahel', J., Rosina, K.: Urban land cover changes: case studies Trnava (Slovakia) and Burgas (Bulgaria). IGU LUCC (2014).

Šebo, D., Nováček, J.: Case study area Pruske, Bohunice, Vršatecké Podhradie and Krivoklát: land cover changes 1949-2009. IGU LUCC (2014).

IV. Publishing Activities

The Cartographic Society of the SR annually publishes the journal *Kartografické listy* (<http://gis.fns.uniba.sk/kartografickelisty>). So far 21 volumes have been published. The journal 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 journal is sent to university libraries and institutions involved with cartography and geography.

Moreover, miscellanies and proceedings from specialized events, conferences and seminars are published. Publications can be found at the webpage <http://www.slovakcarto.sk>.

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 Series – Basic Maps of the SR at scales from 1:10 000 to 1:200 000. Besides, it publishes the thematic 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 Systems (ZBGIS[®]) was processed. New digital product has been publishing through new Geoportal of the Geodesy, Cartography and Cadastre Authority of the SR with using new web application in May 2013 (Fig. 4). Basic maps of the SR and ZBGIS[®] cover the entire territory of Slovakia and constitute the background material for derivation of all maps.



Fig. 4: Web application for publishing ZBGIS[®] (<https://zbgis.skgeodesy.sk/tkgis/>)

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 leisure maps, school atlases and other school materials.

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

CARTOGRAPHIC SOCIETY OF THE SLOVAK REPUBLIC

Executive Committee

Radlinského 11

813 68 Bratislava

SLOVAK REPUBLIC

<http://www.slovakcarto.sk>, phone +421 2 59274325, e-mail: robert.fencik@stuba.sk