Cartography in Croatia 2015-2019
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1 Introduction

Croatia has been a member of the International Cartographic Association – ICA since 1995 and one of its obligations has been to submit national reports about its cartographic activities at general assemblies held every four years. The bearer of those activities in Croatia is the Croatian Cartographic Society.

Croatia became a member of the ICA in Barcelona in 1995, where its first national report for the period 1991–1995 was submitted. Reports were also submitted for the period 1995–1999 in Ottawa in 1999, for the period 1999–2003 in Durban in 2003, for the period 2003–2007 in Moscow in 2007, for the period 2007–2011 in Paris in 2011, and for the period 2011-2015 in Rio de Janeiro in 2015. This report, which encompasses the period 2015–2019, is going to be submitted at the General Assembly of the ICA in Tokyo in 2019. The Republic of Croatia has a comprehensive overview of cartographic activities in the past 28 years, i.e. since it became independent state.

The report is divided into following sections: Official Cartography, Academic Cartography, Commercial Cartography and Other Activities. The report ends with Acknowledgments and Bibliography.

Such a report can never encompass all the activities for the previous period. This is because not all parties answered the call for collaboration. Nevertheless, the most relevant institutions and companies are represented in the report. It is a merit of individuals who contributed with their reports and those people are listed in the Acknowledgments chapter.

The list of references at the end of the report was based on data provided by collaborators on the report, searching the Croatian Scientific Bibliography database and other sources.
2 Official Cartography

2.1 Geographical Names

The Act on the State Survey and Cadastre of Real Estates was published in the Official Gazette (112/2017) on 14 December 2018. The Act regulates the state survey, cadastre of real estates, infrastructure cadastre, registry of buildings, registry of spatial units, registry of geographic names, the appropriate competences for tasks related to these, the performance of these tasks, the tasks of the State Geodetic Administration, the storage and use of data, and supervision of tasks regulated by the Act.

The provisions of the Act are applicable to other geodetic tasks if performed within the framework of hydrographic surveys, commassation, and similar procedures. Tasks related to the state survey, cadastre of real estates, infrastructure cadastre, registry of buildings, registry of spatial units, registry of geographic names are of interest to the Republic of Croatia. Here is the section of the Act related to geographic names.

REGISTRY OF GEOGRAPHIC NAMES

Article 143
(1) The Registry of Geographic Names is a record in which information on geographic names in the Republic of Croatia is kept and maintained, as determined by this Act or special regulations.
(2) The State Geodetic Administration is the body competent to keep and maintain the Registry of Geographic Names.

Article 144
Information on the following geographic names is kept in the Register of Geographic Names: geographic units, relief forms, land and sea waters, islands and peninsulas, buildings and other objects, areas, settlements, traffic routes, and general names.

Article 145
(1) Geographic names have the features of points with spatial coordinates.
(2) The position of a geographic name is determined and recorded in the geodetic reference system of the Republic of Croatia (Article 12 paragraph 1 of this Act).

Article 146
(1) Information from Article 144 of this Act is entered in the Registry of Geographic Names from the official documents and records of public legal bodies which within the framework of their competence create individual geographic names or information on geographic names.

(2) The bodies in paragraph 1 of this Article are obliged, without delay or recompense, to deliver to the State Geodetic Administration information which affects the contents of the Registry.

Article 147
The contents and means of keeping and maintaining the Registry of Geographic Names is prescribed by the director in the Rulebook.

Article 148
(1) Tasks relating to the standardisation of geographic names are conducted by public legal bodies in accordance with the recommendations of the Commission for the Standardisation of Geographic Names.
(2) The Commission in paragraph 1 of this Article is appointed and relieved of duty by a decision of the Government of the Republic of Croatia, with a mandate of four years.
(3) The Commission in paragraph 1 of this Article comprises members from:
- the central body of state administration competent for the Register of Geographic names (president)
- the central body of state administration competent for foreign affairs (one member)
- the central body of state administration competent for cultural heritage (one member)
- the central body of state administration competent for science and education (one member)
- the Hydrographic Institute of the Republic of Croatia (one member)
- the Institute for Croatian Language and Linguistics (one member)
- the Croatian Institute for History (one member)
- the Croatian Cartographic Society (one member)
- the Croatian Geographic Society (one member)
- the Miroslav Krleža Lexicographical Institute (one member)
- universities providing and teaching and research in the area of geographic names, at the proposal of the central body of state administration competent for science and education (two members).
(4) The Commission for the Standardisation of Geographic Names performs the following tasks:
- monitors the implementation of regulations on settlements and their application in geographic names
- conducts a revision of toponyms and confirms new ones, as necessary
- confirms the spelling and use of foreign geographic names for application in education, science, Croatian diplomacy, etc.
- makes recommendations for improving the Registry of Geographic Names
- cooperates in the work of international organizations which are concerned with geographic names.

On March 28, 2019, the Government of the Republic of Croatia appointed the Commission for Standardization of Geographical Names for a period of four years. For the first time, a multidisciplinary body has been established, which will, inter alia, deal with the standardization of geographic names in the Republic of Croatia and foreign geographic names. In addition, the Commission also monitors the implementation of settlements regulations and their application in geographic names, revision of the toponyms and, if necessary, new ones, establishes the principles of writing and use of foreign geographic names for application in education, science, Croatian diplomacy, etc. international organizations dealing with geographic names, and makes recommendations for improving the geographic naming register maintained and maintained by the State Geodetic Administration.

At this first session of the Commission, there was a remarkable interest in the issue of geographic names and further activities on systematic standardization of geographical names were agreed.

2.2 State Geodetic Administration (SGA)

www.dgu.hr

The State Geodetic Administration is a state administrative organization that carries out activities in the field of geodesy, cartography, cadastre and photogrammetry and takes care of the establishment of the national spatial data infrastructure, informatization of cadastre and geodetic-spatial data systems, official state cartography (1:5000, 1:25 000, 1:50 000, 1:100 000, 1:250 000), geodetic documentation, statistics on real estate cadastre, spatial units and infrastructure and geodetic and cadastral works for the state border.

The Law on State Survey and Real Estate Cadastre (Official Gazette 112/18) regulates state surveying, real estate cadastre, cadastre of infrastructure, building register, spatial unit register, geographic name register, jurisdiction over land surveying, real estate cadastre, infrastructure cadastre, building register, spatial unit register, geographic name register, data storage and usage, and inspection of state survey and property cadastre surveys.

The State Geodetic Administration carries out its activities in the Central Office of Zagreb and 20 branch offices throughout the Republic of Croatia. Exceptionally in the area of the City of Zagreb, the administrative and professional activities that are legally placed in the sphere of the regional office are performed by the Zagreb City Office for Cadastre and Geodetic Activities.

In the period 2016–2019, in the field of official state cartography, the following tasks were performed:

- 121 sheets of topographic maps in scale 1:25 000 (TK25) have been made. After a new division of the sheets has been put in use, these sheets were updated and released for official use. To date, 373 out of 539 TK25 sheets have been created, and map making activities are continuing.
- The production of digital orthophoto maps in a scale of 1:5000 (DOF5) from the shooting period 2014–2016 have been completed and all 10524 DOF5 maps have been released for official use. Following the two-year DOF5 production dynamics for the Ministry of Agriculture, in 2017 DOF5 sheets were made for the eastern part and in 2018 for the western part of the Republic of Croatia. All 10905 DOF5 maps are released for official use. Along with DOF5 production, the digital relief model for the entire Republic of Croatia was updated.
- For EuroGeographics purposes, data for EuroRegionalMap were created in 2016 and were updated during 2017.
- In 2018 harmonization of basic topographic database was performed to meet the requirements of the INSPIRE directive for the topics: Height, Hydrography, Transport.

During 2018 and 2019, the map-walls were also made in 17 locations.

Product Specifications for TK25 Version 2.0; Product Specifications for TK50 Version 1.0 were made and the Product Specifications for Aerophotogrammetric Shooting and Orientation Point Version 2.1 has been updated. During 2018, the Product Specifications for TK50 Version 2.0; Product Specifications TK100 Version 1.0 and Product Specifications TK250 Version 1.0 were also drafted.

In 2016, a new Ordinance on Topographic Survey and State Maps (Official Gazette 65/16) and the Regulation on Aerial Shooting (Official Gazette 70/16) were made. Amendments to the Ordinance on Cartographic Signs with the corresponding Collection of Cartographic Signs (Official Gazette, No. 59/18) have been made in 2018.

During the year 2019, a new Regulation on Aerial Shooting (Official Gazette No. 28/19) was made and drafts of the Ordinance on Topographic Survey and State Maps Production were made and they are to be put into official use in 2019.
An ERDF (European Regional Development Fund) project funded from EU funds was launched. “Establishment of an official topographic-cartographic information system to be used as a basis for geoinformation systems of state administration and public sector bodies”.

More information on the activities of the State Geodetic Administration can be found on the web site https://dgu.gov.hr.

2.3 Hydrographic Institute of the Republic of Croatia (HHI)

http://www.hhi.hr

Hydrographic Institute of the Republic of Croatia (HHI) carries out hydrographic activity of interest to the Republic of Croatia, which includes scientific research, and development and professional tasks relating to navigational safety in the Adriatic, hydrographic-geodetic survey of the Adriatic, marine geodesy, construction and production of nautical charts and publications, oceanographic research, marine geology, development of a hydrographic information system, and publishing-printing tasks. In addition, the HHI is responsible for describing and plotting of a geodetically defined limit of maritime sovereignty of Republic of Croatia, having regard to other regulations governing national border, maintenance and follow-up of the official marine database in the fields of: navigation, hydrography (structures on the sea and seabed), cartography, geology, geophysics and oceanography (sea level oscillations, waves, sea currents, thermohaline, hydroacoustic and optical properties of the sea, hydrometeorology, etc.), as well as setting up and management of a marine cadastre.

The Institute is authorised to develop the safety of navigation service in the Adriatic in accordance with recommendations of the following organizations:

- International Hydrographic Organization (IHO)
- International Maritime Organization (IMO)
- International Association of Lighthouse Authorities (IALA),

and in cooperation with the Ministry of the Sea, Transport and Infrastructure, the Croatian Navy, harbour master’s offices, the Plovput company, and hydrographic offices and institutes of maritime nations worldwide.

According to annual work plans, between 2015 and 2019 cartographic activity of the HHI involved the production and publishing of nautical charts and their continuous updating, intensified work on vectorization and production of electronic navigational charts (ENC) still pending, construction and production of plans and other graphic representations appearing in nautical publications, good cooperation with Croatian ministries (MMPI, MVEP, MORH, etc.), professional work on the preparation of studies and projects, as well as other cartographic tasks.

Official paper navigational charts

First edition:

- Navigational chart No. 18 Luka Rijeka i Rijeka-Brajdica, 1:4000 scale, October 2017
- Navigational chart No. 350-31 Venezia-Zadar, 1:350 000 scale, (in progress)
- Navigational chart No. 350-32 Ancona-Šibenik, 1:350 000 scale, (in progress)
- Navigational chart No. 350-33 Pescara-Split, 1:350 000 scale, (in progress)
- Navigational chart No. 350-34 Barletta-Dubrovnik, 1:350 000 scale, (in progress)

New edition:

- Navigational chart No. 15, Rijeka, 1:15 000 scale, October 2017
- Navigational chart No. 47, Split – Kaštelanski zaljev, 1:15 000 scale, with plans: Split – Gradsk a luka, 1:4000 scale, Bazen Vranjic, 1:4000 scale, and Bazen Solin, 1:5000 scale, March 2017
- Navigational chart No. 11, Zapadna obala Istre – plans of ports, 9 plans at different scales, (in progress)

All other HHI navigational charts were printed according to need and demand as revised reprints with updated contents, for the purpose of ensuring safe navigation in the Adriatic Sea.

Continuous updating of official navigational charts

A large part of the cartographic work involves updating of official navigational charts both in analogue and electronic form, comprising the following tasks:

- Defining of corrections for already published official charts, publishing of these corrections in the monthly publication Oglas za pomorce (OZP) (Notices to Mariners).
• Production of block corrections to be added to existing charts and publications for updating their contents. Block corrections are parts of cartographic representations, i.e. extracts from charts or plans or graphic representations appearing in publications. Between June 2015 and May 2019, a total of 40 block corrections were produced and published in OZP for updating purposes.

Printing of charts using high-quality large format printers (plotters)

Introducing new technology, the HHI production of new charts and new editions of charts in recent years has been based on a unique database, while printing on paper is usually performed using high-quality large format printers (plotters), always resulting in an up-to-date official chart (print on demand).

In the following years, printing by high-quality large format printers (plotters) will continue to increase for reasons relating to short print runs of official charts, and will eventually completely replace the offset machine in the printing of official nautical charts.

Vectorization of existing contents of official charts

Some official charts that have not been produced by means of a computer are subject to vectorization and computer processing, so as to improve the quality and accuracy of cartographic representation and facilitate their updating and reproduction. Between 2015 and 2019 this process was used for the production of official charts No. 100-21, 100-26, 100-27, and 100-28.

Conversion to the WGS84 ellipsoid

Most of official HHI charts were constructed on the Bessel ellipsoid. To achieve compliance with the IHO standard determining that charts should be produced on the WGS84 ellipsoid, the HHI aims at producing all official charts on the WGS84 ellipsoid. Therefore, through the use of new technology and specification of work processes and software, all new charts and new editions of charts are constructed on the WGS84 ellipsoid. Revised reprints, pending new editions, continue to be constructed on the Bessel ellipsoid indicating the correction for WGS84 ellipsoid.

Official electronic navigational charts (ENC)

A large part of the basic cartographic activity involves the production of new ENC cells and updating of already released ENC cells for the area of the HHI competence (area of the Adriatic Sea under the jurisdiction of the Republic of Croatia).

• In the period May 2015 and May 2019 intensive production of new ENC cells took place, both for official charts and for plans of ports, harbours, marinas and quays appearing in official nautical publications. Currently, a total of 207 ENC cells have been released through the PRIMAR distribution centre (May 2019). In the reporting period 112 new ENC cells were produced, validated (quality control performed) and released. Intensive production of new ENC cells for all navigational purposes is continued according to recommendations of the IHO.

• Maintenance of released ENC cells, due to structure of corrections and correcting method, is performed through Update, Re-issue or New Edition.

Nautical publications

- First edition:
  List of Lights and Fog Signals 2017

4 graphic representations of the Adriatic Sea or its parts were produced for the purpose of providing information on lighthouses in the area of Eastern Adriatic.

- New edition:
  Catalogue of Nautical Charts and Publications (HI-N-18), 2018

24 graphic representations were produced to provide an overview of all nautical charts and publications published by the Hydrographic Institute of the Republic of Croatia.

Adriatic Sea Pilot, Part I (Piranski Zaljev – Virsko More)

150 plans, diagrams and graphic representations of Eastern Adriatic were produced, covering the area from Piranski Zaljev to Virsko More.

Cartographic work on other projects

1. Within the CORE Project 3 cartographic representations were produced, while within the EMODnet Project data for Digital Terrain Model were produced relating to 6 areas.

2. Cartographic work on the training for dKart platform for chart production. In cooperation with PRIMAR, training course for chart production in dKart Publisher was held in order to completely define the chart production process.

3. Coastline was defined according to the data obtained from fair charts, and by consulting digital orthophotos for updates.

4. In cooperation with PRIMAR, HHI organised the International workshop on quality control, validation and use of ICT infrastructure in the production and distribution of official electronic navigational charts (ENC).

5. For the Act on Harbour Master’s Offices, 8 cartographic representations were produced.
6. For ACI publication January 2018, 22 plans of ACI marinas were produced.
7. Full implementation of the print of demand (POD) process for nautical charts is in progress.
8. 30 cartographic representations were produced for the reports presented at the Mediterranean and Black Seas Hydrographic Commission conferences (MBSHC 2017 and MBSHC 2019).

Official nautical chart No. 15 (INT3474) Rijeka, 1:15 000, October 2017

Official nautical chart No. 18 Luka Rijeka, 1:4000, October 2017

Official nautical chart No. 47 (INT3477) Split – Kaštelanski zaljev, 1:15 000, March 2017

Official nautical chart No. 350-33 Pescara - Split, 1:350 000, near finalization

ENC portfolio, status on 31 May 2019

2.4 Croatian Geological Survey (HGI-CGS)

http://www.hgi-cgs.hr

The Croatian Geological Survey is the largest research institute in the field of geosciences and geo-
logical engineering in the Republic of Croatia. Geological data form the basis for resolving numerous projects in the national interest, such as the fresh water supply, water and soil protection, the construction of large infrastructure objects, city planning, defining reserves of mineral resources, and environmental protection. Research is done using the latest methods and information and computer technology. Maps are prepared within the scientific programme: Geological Maps of the Republic of Croatia, supported by the Ministry of Science, Education and Sport which cover several fundamental scientific projects (in the period 2013–2015): Basic Geological Map of the Republic of Croatia 1:50 000, Basic Hydrogeological Map of the Republic of Croatia scale 1:100 000, Basic Engineering-Geological Map of the Republic of Croatia, Map of Mineral and Energetic Resources, Geothermal Map of the Republic of Croatia. In the period from 2015–2018, a total of 16 maps were published:


Jelaska, Vladimir; Fuček, Ladislav; Galović, Ivan; Glogavci Jernej, Željka; Gušić, Ivan; Korolija, Boško; Marinčić, Stanko; Matičec, Dubravko; Oštrić, Nenad; Prtoljan, Božo (2015): Basic Geological Map of the Republic of Croatia 1:50 000 – sheet Otok Brač, Croatian Geological Survey, Zagreb.


Filjak, Radovan; Pikija, Mato; Avanić, Radovan; Bakrač, Koraljka; Miknić, Mirjana; Pavičić, Davor; Brkić, Mato; Belak, Mirko (2016): Basic Geological Map of the Republic of Croatia 1:50 000 - sheet Slavonska Požeega 3, Croatian Geological Survey, Zagreb.


Matičec, Dubravko; Bergant, Stanislav; Fuček, Ladislav; Palenik, Damir; Korbar, Tvrtko; Vlahović, Igor; Šparica, Marko; Koch, Georg; Proljjan, Božo; Galović, Ivan et al. (2017): Basic Geological Map of the Republic of Croatia 1:50 000 – sheet Rovinj 1, Croatian Geological Survey, Zagreb.


In November 2015, the Croatian Bureau of Statistics developed the GeoSTAT portal. Thanks to that, for the first time users can use the data produced by the Croatian Bureau of Statistics in an interactive way. This application enables the cartographic presentation of statistical data, by combining the selected spatial level with the selected statistical data to the smallest detail. More specifically, users can monitor the demographic data from the 2011 Census at the microlevel of 1 km² cell size. This facilitates the monitoring of statistical indicators that are available, except in the standard form in the First Releases and publications, on interactive maps where everyone interested can spatially monitor the movement of individual statistical indicators.

In addition to the demographic data at the level of 1km² cells, users can browse the data from the Register of Business Entities (all legal forms) according to the NKD 2007 and the data on accommodation capacities in tourism, specifically the total number of establishments, the total number of accommodation units and the total number of permanent beds.

The portal provides for browsing the data at the following levels: state, NUTS 2 level, county, town/city/municipality level, city districts of the City of Zagreb, and settlement.

At the state level, browsing of data from the following areas is enabled: national accounts, Register of Business Entities, education, and at-risk-of-poverty distribution.

At the NUTS 2 level, browsing of data from the following areas is enabled: population, national accounts, trade, and at-risk-of-poverty distribution.

At the county level, browsing of data from the following areas is enabled: population, national accounts, employment and wages, Register of Business Entities, education, industry, construction, trade, at-risk-of-poverty distribution and business demography.

At the town/city/municipality level, browsing of data from the following areas is enabled: population, agriculture, employment and wages, and at-risk-of-poverty distribution.

At the city districts of the City of Zagreb level, browsing of data from the following areas is enabled: population and at-risk-of-poverty distribution.

At the settlement level, browsing of data from the area of population is enabled.

As for the selected variables, users can search the data from the 2011 Census of Population, Households and Dwellings on the map according to the following criteria: age and sex, educational attainment and activity, or the data on the average age of population.

The GeoSTAT portal provides users with a variety of tools that enable personalised browsing of data. Users can move the map in all directions, zoom a specific area or return to the full coverage. Layers can overlap, enabling users to compare data on the maps on the left and the right side of the screen. Users can also print the map and select the format and size of the paper. The portal can connect to the external OWS layers of other institutions so that the user can choose between the WMS or WFS service.

Layers and objects on the map can be identified using the polygon or point object identification tools. Users can also produce a statistical report by selecting the spatial level and set of data, and the data can be viewed in the form of a table in Excel. Using the appropriate tool, the length and surface of the selected area on the map can be measured. Certain data in GeoSTAT can also be presented in different types of charts (pie, column, bar and doughnut).

The GeoSTAT portal also contains the Metadata Catalogue, which provides for searching the sets and services of spatial data. One of the goals of the Catalogue is to facilitate searching, analysis and sharing of spatial data and to increase the interoperability between the provider and users of spatial data and its services, all with the aim of meeting the requirements of the INSPIRE Directive.

Link to the GeoSTAT portal: https://geostat.dzs.hr

The Croatian State Archives keeps archival materials of the central executive, legislative and administrative bodies and governmental bodies structured in fonds/collections that mostly correspond to
Digitization of maps
150 cartographic units were digitised (cards and plans) from the Cartographical Collection. The digitisation of cartographic records is regularly provided on users’ request and at the same time the collection of digitised copies of the Cartographic Collection is made.

‘The First World War’ Web Portal of the CSA
‘The First World War’ web portal is dedicated to commemorating a 100-year anniversary of the Great War and its goal is to present to the public the various digitised archives on WW1 and to give them insight on various research possibilities for this historical period through individual subjects. For the purpose of the portal various administrative, political, ethnographic, traffic and border-related maps were chosen and digitised, all relating to the period of the First World War. The total of 393 maps were digitised and published.


The latter guidebook was published by the CSA with the intention to encompass all relevant fonds and collections with archival material pertaining to the First World War. Among others, the guidebook includes cartographic archives kept in several of the CSA’s collections.

Acquiring new cadastral archives
In the period 2015 to 2019 the following total was acquired:

2024 maps (acquired by the official duty)
217 maps, 29 graphics i 12 vedute (purchase)
133 maps (donation)

Zbirka građevinskih nacrta, HR-HDA-905, II.99, nacr z Realnu gimnaziju u Zagrebu, ca. 1894. – 1910

ZBIRKA GRAĐEVINSKIH NACRTA (reference number HR-HDA-905)

Zbirka građevinskih nacrta (Building Designs Collection) comprises of public objects’ designs, sel-
The processed designs were created in the period from 1770 to 1990. Considering the object they show, the collection designs were divided into 38 groups (regulatory basis of the settlements; conservation studies; regional designs and site diagrams of streets and squares; educational institutions; pedagogical and social institutions; scientific institutes; health facilities; medicinal institutes; judiciary; administration; cultural institutions; publishing; financial institution; PTT; military facilities; police and guardhouses; Penitentiaries; industrial facilities; mines and quarries; state farms; cooperative facilities; rural economic facilities; veterinary surgeries; other economic facilities; road building; railway; bridge building; inland waters regulation; harbours and seashore arrangement; sewerage; waterworks; water supply; wells; residential facilities; tourist and catering facilities; castles; fortresses; citadels; church facilities; cemeteries; tombs; monuments; builder’s examination tests; furniture designs; detail designs; tools, appliances and machines designs; land holdings). The collection is regularly complemented with new acquisitions – mostly by separating them from other archival fonds.

Zbirka planova, HR-HDA-904, Inv. Br. 50, Grundris und Profil samt der Gebaude von dem Dubovacser Schloss, ca. 1800, manuscript in colours

Description and processing of designs, plans and maps

In the period from 2015 to 2019 the total of 190 pages of designs, plans and maps were analytically processed and described in accordance with the International Standard Biographic Description for Cartographic Materials – ISBD (CM). Users can access the finding aid in the CSA Main Reading Room.

ZBIRKA PLANOVA (reference number HR-HDA-904)

Zbirka planova (Plans Collection) comprises of cartographic records of private, public and military facilities. The collection’s timeframe is from 1600 to 1941. All description items were grouped in accordance with the local points of reference and some items in accordance with the topical points of reference (for example, liturgical buildings, belvederes, inns, border-guard houses, penitentiaries, mills, bridges, mortuaries, furnaces, guardhouses, stables and sheds, military buildings and flats), due to the existence of the old list and card files, the former already being structured in that way and quoted by users. The collection comprises of 536 cartographic items and does not augment. The cartographic records in the collection were processed in accordance with the International Standard Biographic Description for Cartographic Materials – ISBD (CM). Users can access the finding aid in the CSA Main Reading Room.

ZEMALJSKA VLADA, ODJEL ZA UNUTARNJE POSLOVE (reference number HR-HDA-79)

Odjel za unutarnje poslove Zemaljske vlade (Land Government’s Department for Internal Affairs) is a fonds that besides books and documents also keeps cartographic records created by the activity of the same creator (as enclosures to documents) that mostly pertain to public facilities and rarely private ones. The processed cartographic records pertain to the period from 1869 to 1921. Considering a facility they show, the cartographic items are divided into 30 groups (regulatory bases, conservation studies, regional designs and site diagrams of streets and squares, educational institutions, pedagogical and social institutions, health facilities, medicinal institutes, administration, cultural institutions, PTT, military facilities, penitentiaries, industrial facilities, mines, quarries, state farms, smaller farms, commercial facilities, other economic facilities, road building, railways, bridge building, inland waters regulation, hydrographic facilities, land reclamation, vessels, sewerage, waterworks, water supply, wells, cisterns, watering places, residential facilities, tourist and catering facilities, forests, forest farms, landed properties, various maps (demarcation maps, kilometic maps, cadastral maps, administrative maps), signs, coats of arms, flags, symbols, examination tests, cemeteries, tombs, monuments).
Description and processing of the cartographic records and creating finding aids

The processing of the associated cartographic archives (designs, plans and maps), as well as creation of the finding aid for the fonds is finished. The total of 1567 maps, plans and designs were processed and described in accordance with the International Standard Biographic Description for Cartographic Materials – ISBD (CM). In the period from 2015 to 2019 the total of 105 designs, plans and maps were described and analytically processed. Users can access the finding aid in the CSA Main Reading Room.

ZEMALJSKA VLADA. ODJEL ZA UNUTARNJE POSLOVE. KULTURNO-TEHNIČKI ODSJEK (reference number HR-HDA-79)

General information about the archives
Odjel za unutarnje poslove Zemaljske vlade (Land Government’s Department for Internal Affairs) is a fonds that also stores archival material created by the activity of the Cultural-Technical Division, with cartographic archival material created by the activity of the same creator. These archives mostly concern public and rarely private objects. The processed cartographic archives pertain to the period from 1869 to 1921. Depending on the object they show, cartographic units will be divided into several dozen thematic groups and processed in accordance with the International Standard Biographic Description for Cartographic Materials – ISBD (CM). So far the total of 305 designs and plans were described and analytically processed.

BOŽIDAR RAŠICA (reference number HR-HDA-1770)

The CSA also keeps archives created by activities of renowned individuals, as cultural heritage whose permanent value also represents a testimonial of our past and present. Božidar Rašica’s personal papers have archival material created by the activities of Božidar Rašica, the renowned architect, who designed numerous dwellings, business, fair and school objects, created urban and architectural plans, adapted the Croatian National Theatres in Zagreb and Split etc. Besides his identity documents the fonds stores designs of his projects and they are processed in accordance with the International Standard Biographic Description for Cartographic Materials – ISBD (CM). In the period from 2015 to 2019 the total of 5031 designs were described and analytically processed.

ZVONIMIR POŽGAJ (reference number HR-HAD-814)

Zvonimir Požgaj’s personal papers have archival material created by the activities of Zvonimir Požgaj, the renowned architect, who designed numerous public buildings, villas, churches and hotels. Besides his identity documents the fonds stores designs of his projects and they are processed in accordance with the International Standard Biographic Description for Cartographic Materials – ISBD (CM). In the period from 2015 to 2019 the total of 518 designs were described and analytically processed.

EXHIBITIONS

Forester’s maps and plans – from the history of managing forests of Croatia

The CSA accepted the invitation of the Faculty of Forestry to mark 250 years of the Croatian forestry with an exhibition. The purpose of the latter was to present to the general public old forestry maps and plans, as well as key documents important for understanding of history of managing forests of Croatia. On display at the exhibition was the original oldest forestry map of the Lika Regiment from 1764–1765, whose only other copy is kept at the War Archives in Vienna. 32 maps/plans were on display i.e. 12 various documents that testify about the history of forestry in Croatia. The exhibition catalogue was published by the Faculty of Forestry, authored by Mirjana Jurić and edited by Dr Renata Pernar. Mirjana Jurić was also the author of the exhibition.
The Vukovar-Srijem County on old maps and plans

At the invitation of the State Archives in Vukovar, to mark the County Day, the exhibition was held in Vukovar’s Croatian Hall. The total of 47 maps/plans was on display, mostly kept at the CSA, as well as the State Archives in Osijek and the Vukovar City Museum. The exhibition catalogue was published by the State Archives in Vukovar, authored by Mirjana Jurić, who was also the author of the exhibition.

200 years of cadastre of Francis I

The 2017 International Archives Day was marked with the exhibition on 200 years of cadastre of Francis I. The exhibition purpose was to mark the 200th anniversary since Emperor Francis I promulgated his patent, which introduced a permanent cadastre in the whole Habsburg Monarchy. The exhibition also marked 170 years since the beginning and 140 years since the end of the terrestrial survey in the Kingdom of Croatia and Slavonia. The cadastral records kept in the fonds Archival Maps for Croatia and Slavonia were displayed on 10 display boards. The exhibition leaflet was published by the CSA, authored by Mirjana Jurić, who was also the author of the exhibition.

120 years of the school forum

The CSA accepted the invitation of the Organizational Board on the occasion of marking 120 years since the construction of Isidor Kršnjavi’s Forum and it gave professional help to students of the 5th Gymnasium who organized the virtual exhibition of the same name, presented at the Mimara Museum. The students used cartographic archives kept at the CSA and also published a newspaper for this occasion.

EDUCATIONAL ACTIVITIES

Cartographic workshops

Since May 2014 the CSA has in its offer a new educational activity, the cartographic workshop entitled “Let us read maps”, intended for the children of various ages – from preschool (6 years) to 4th grade of elementary school, but also for senior classes.

The author of the cartographic workshops is Mirjana Jurić. The goal of executing the workshops in preschool institutions is introducing additional activities in order to better percept the world around us and it has also been coordinated with the National basic curriculum for preschool education and general obligatory and high school education. The goal of executing the workshop in elementary schools is to introduce after-school activities in order to better master the material of nature and society/geography and it has also been coordinated with the National basic curriculum for preschool education and general obligatory and high school education, as well as with the curriculum for the classes of nature and society/geography. The workshop uses various educational materials created by using old maps and plans from the Cartographic Collection of the CSA, which has entered the Register of Cultural Goods by the Ministry of Culture. The main purpose of the workshop is to cause interest for maps, stimulate artistic creativity in children by presenting space, promote cartography and improve cartographic perception of the children so that they acquire new knowledge and experiences, develop new skills (better orientation, orientation on the map, reading of the maps, recognizing symbols on the map in different time periods), comprehend spatial relations, are introduced to cartographic heritage and historical sources, as well as develop via geography classes basic cartographic literacy that is needed in their future education. Several thematic workshops were designed, depending on the age of the children and by adjusting the terminology and the level of their current knowledge i.e. depending on the mastered material from the nature and society classes and new ones are designed (each senior class has wider workshop terminology). In the period from May 2015 to 7 June, 2019 the total of 814 elementary and secondary school children attended the workshop, from various schools in the Zagreb area, but also from neighbouring counties.

Workshop in the Croatian State Archives: „The search for the toponyms on the Croatian map of the 16th century“

Student training program

Student training program lasting the total of 40 hours for the 3rd year university students of the Department of Geography of the Faculty of Science
in Zagreb has been taking place since 2013 and is mentored by Mirjana Jurić. During the duration of the training the students are introduced to the Cartographic Collection and Archives of Maps for Croatia and Slavonia (content-related physiognomy, types of maps, maps reproduction techniques, artistic processing of maps through history, cadastral sources, topographic and cadastral surveys, different publishers of maps), while during the practical part the topographic maps of various publishers from the turn of the 19th to 20th century, cadastral plans from the fonds Archives of maps for Croatia and Slavonia (lithographic copies) and microtoponyms from cadastral plans from the period of Francis I are analytically listed. In the period from 2015 to 2019 the total of 10 students did their training.

**Lectures on cartographic archives**

Lectures for the students of geography and geodes with the goal of introducing them to the cartographic heritage kept in the CSA, with the emphasis on the Cartographic Collection and the Archives of Maps for Croatia and Slavonia are given by Mirjana Jurić. During the lectures the students get an insight into original maps and plans from the period of mid-16th to early 20th century that follow the development of cartography through history i.e. cadastral plans and associated cadastral archives for understanding history of cadastre and terrestrial surveys. In the period from 2015 to 2019 the total of 42 students attended the lectures.

The lecture for participants of the 12th conference Cartography and Geoinformation (2016) aiming to introduce the cartographic and cadastral heritage kept in the CSA, with the emphasis on the Cartographic Collection and Archives of Maps for Croatia and Slavonia, is held by Mirjana Jurić. 10 conference participants attended the lecture.

Presentation regarding cartographic workshops and cartographic archives kept in the CSA given to the county professional active of history teachers of the city of Zagreb was given by Mirjana Jurić and circa 30 teachers attended.

**Promotional film on the CSA**

The promotional film by Robert Knjaz on the Croatian State Archives presents among others the opulent cartographic and cadastral heritage, cartographic workshops and the most valuable originals from the Cartographic Collection.

**COMMEMORATING IMPORTANT EVENTS**

**Kliofest**

Within Kliofest in 2015 and 2016 two workshops were held i.e. ‘Zagreb on old cadastral plans’ and ‘In search for toponyms on a 16th-century historical map of Croatia’, authored by Mirjana Jurić. The total of 20 children attended the workshops.

**CONFERENCES (PRESENTATIONS)**

**2nd Croatian emigrational congress, Šibenik, 30 June – 2 July 2017**

Mirjana Jurić participated in the congress with the presentation *Presenting the cultural-educational activity of the CSA: the example of the Cartographic Workshop.*

**Archives, libraries, museums, Rovinj, November 2016**

Mirjana Jurić was among the seminar’s participants and had a presentation *Exhibitions and workshops outside the Croatian State Archives – experiences and new possibilities.*

**CONFERENCES, COURSES**

**Instructing other archives**

The CSA participates in professional training and instructing of employees in other archives.

- Snježana Ivanović, senior archivist, and Mirjana Jurić provided professional assistance to the employees of the State Archives in Split, pertaining to the manner of processing fonds HR-DAST-384. Poduzeće za organizaciju izgradnje i gospodarenja ‘PIS’ Split, comprising of design documentation

- Mirjana Jurić provided professional assistance to employees of the State Archives in Sisak, pertaining to processing of cartographic archives.

**Workshop for state archives**

The CSA organizes workshops for employees from other state archives

- Snježana Ivanović, senior archivist, and Mirjana Jurić held the workshop entitled ‘Archival processing of design documentation: examples from practice, dilemmas and solutions’

- Mirjana Jurić held the workshop entitled ‘Processing cartographic archives – maps, plans and blueprints’

**2.7 Institute for Migration and Ethnic Studies**

http://www.imin.hr/

**Lectures**

During academic years 2017/2018 and 2018/2019 Ph.D. Dubravka Mlinarić gave lectures on historical
cartography entitled ‘Cartographic Sources for the Pre Modern History’ for Postgraduate Studies in Pre modern History, History Department, Faculty of Humanities and Social Sciences, University of Zagreb.

Conference Papers

28–30 May 2015, University of Juraj Dobrila, Pula

Dubravka Mlinarić presented a paper entitled Migration of People and Ideas, and Shaping of Identities in Composite Modern Empires in the Eastern Adriatic at the international conference "Past, Present, Future: Identity in Flux", pannel on Identities of Migrants. Organisers were the University of Juraj Dobrila, Pula, and Mediterranean Studies Association (Utah State University, the University of Massachusetts Dartmouth and the University of Kansas).

5–8 October 2016, University of Zadar, Zadar

Dubravka Mlinarić delivered a paper (co-author Drago Župarić-Ilijić) Early Modern Irrigation of the Vrana Lake and Prolomodern Ecological Migrations: Economical and Ecological Success or a Failure? at the 5th Conference of Croatian historians: Crises, Conflicts and Solidarity in Historical Perspective, suorganised by the Croatian Committee of Historicl Sciences, Croatian Society of Historians and University of Zadar.

30–31 May 2017, Faculty of Humanities and SocialScience, University of Zagreb

Dubravka Mlinarić gave a lecture Exchange of Ideas and Dissemination of Knowledge in the Early Modern Adriatic Basin: Perspective of a cartographer within the session Schiavoni: Artworks and Networks between Early Modern Italy and Croatian Historical Lands at the international conference Visualizing Past in a Foreign Country: Schiavoni/Illyrian Confraternities and Colleges in Early Modern Italy in comparative perspective, organised by the Faculty of Humanities and Social Sciences, University of Zagreb.

5– 6 June 2017, Zagreb

Dubravka Mlinarić participated to the international conference Borders of Southeastern Europe with a paper Shaping boundaries on the Europen periphery: Croatian experiences (co-author Snježana Gregurović). Suorganizers were European Union National Institutes for Culture – EUNIC Croatia (Austrian Cultural Forum, French Institute in Croatia, Goethe-Institut Croatia, Hungarian Institute Balassi, Italian Institute, the Instituto Cervantes, Camões Institute and British Council), Institute for Migration and Ethnic Studies, City of Rijeka and University of Rijeka.

28 June – 2 July 2017, Department of Geography, Faculty of Science, Zagreb

Dubravka Mlinarić presented a paper entitled Cartographic versus Statistical Records of the Early Modern Dalmatian Environmental and Demographic Change on the Multiple Borderlands, co-authored by Ivka Kljajić (Faculty of Geodesy, Zagreb) at the 9th ESEH Biennal Conference „Natures in between: Environments in areas of contacts among states, economic systems, cultures and religions”.

30–31 May 2019, Faculty of Humanities and Social Science, University of Juraj Dobrila, Pula


Media, Public Lectures, Popularising Cartography

24 February 2015, National and University Library in Zagreb, public presentation celebrating International Map Year, popularizing cartography and presenting the Novak Map Collection, ‘Maps and Identities - Mapmakers from Croatian Lands in the Early Modern Period – a Selection from the Novak Collection’, delivered by Dubravka Mlinarić.

16 May 2019, public presentation, popularizing cartography „Private Cartographic Collections as the Croatian Cultural Heritage: Rethinking the Access to the Archival Sources“ organised by the Croatian Cartographic Society and delivered by Dubravka Mlinarić at the Croatian State Archives in Zagreb.

Applications

October, 2018 – March, 2019 – as a project collaborator, responsible for scientific and professional analysis of old maps as specific archival sources, Dubravka Mlinarić worked on structuring of the catalogue of old maps of Croatian lands. Besides the very analyse she provided a desk-study research for the national project of Adris Foundation, named Javna dostupnost najveće privatne zbirke – Collectio Felbar (Public accessibility to the biggest private collection – Collectio Felbar). Projekt leader was Ewald Felbar in collaboration with the Croatian Cartographic Society. The aim of the project was to revise the immense national cultural heritage from this particular private collection and increase the accessibility to interested consumers. It also contributes to popularization of maps and travel literature as a specific media of communication and knowledge sharing about the past Croatian lands. Professional analysis of old travelbooks of Croatian lands was made by Neven Kovačev.
Awards

The CCS recognized Dubravka Mlinarić and co-author M. Miletč-Drder, for their contribution to cartography development and the authorship of the monograph book *Zbirka Novak Mappae Croatica e u Zbirci zemljovida i atlasa NSK*.

Dubravka Mlinarić, Research Advisor, was employed at the Department for Migration and Demographic Research. A list of her published papers for the period 2015–2019 can be found in the Bibliography.
3 Academic Cartography

3.1 Faculty of Geodesy of the University of Zagreb

http://www.geof.unizg.hr/

Institute for Cartography and Photogrammetry is one of three Institutes at Faculty of Geodesy. Heads of the Institute were Assist. Prof. Robert Župan (2015), Assist. Prof. Andrija Krtalić (2015-2017) and Assist. Prof. Vesna Poslončec Petrić (2017-). The Institute consists of three chairs: Chair for Cartography (Assist. Prof. Vesna Poslončec-Petrić, Chair 2015-2017, Prof. Stanislav Frangeš, Chair 2017-), Chair for Geoinformation (Prof. Miljenko Lapaine, Chair 2015-2017, Prof. Nada Vučetić, Chair 2017-), Chair for Photogrammetry and Remote Sensing (Assist. Prof. Dubravko Gajski, Chair). The chairs are fundamental structural units of all faculty activities.

Cartographic Activities Prof. dr. sc. Stanislav Frangeš in the period 2015-2019:

• Creation of cartographic presentations for the needs of cyclo-tourist project "Zadar bike"
• 3 overview maps and 43 detailed maps (2016-2017)
• 5 detailed maps at a scale of 1:75 000 (2019)
• Member of the Commission for drafting the Ordinance on the Register of Geographical Names at the State Geodetic Administration of the Republic of Croatia
• Member of the Commission for Standardization of Geographical Names Appointed by the Croatian Parliament

More details on the Faculty of Geodesy of the University of Zagreb can be found at www.geof.hr

3.2 Department of Geography of the University of Zadar

http://www.unizd.hr/

The Department of Geography at the University of Zadar organised various cartographic activities between 2015 and 2019. Starting from the fact that maps are objects of research to geographers (primarily as sources of spatial data), means of research, and teaching resources, almost all the staff of the Department of Geography were involved, to a greater or lesser extent, in ensuring that appropriate attention was paid to cartographic contents as part of various scientific, teaching and expert programmes. The Department of Geography planned and implemented cartographic activities independently, and in cooperation with the Croatian Geographic Society in Zadar, along with other institutions and associations, primarily the Croatian Cartographic Society, the Zadar State Archives, and other Croatian and foreign universities and companies, especially those whose activities focus on implementing geo-information systems.

Cartography and GIS, with the associated teaching content, are represented to a significant degree in curricula at all three levels of university studies. In single-subject undergraduate studies in Applied Geography, and in dual-subject undergraduate studies in Geography (for teaching Geography), cartographic contents form the core of the courses in Geographical Mathematics, Cartography I, Cartography II, and Cartography and Visualisation. They form specific parts of the courses on Geoinformatics and Multimedia Geography, while GIS is part of Geoinformatic System I and Geoinformatic System II. In many other courses, maps are part of teaching contents approached from the aforementedioned geographical perspectives. In single-subject graduate studies in Applied Geography (within the modules Geographic Spatial Modelling and Geographic Aspects of Managing Coastal Regions) and in dual-subject graduate studies (for teaching Geography), cartographic and GIS contents are represented in the following courses: Modelling Spatial Data in GIS I, Modelling Spatial Data in GIS II, Geographic Analysis of Landscapes, Spatial Analysis in GIS and Remote Research, and appear as secondary elements in many other courses. For its teaching requirements, the Department has equipped a GIS Study Room, acquired an unmanned airborne device, tablets with programmes installed for orientation and navigation, and so on. Training and certification of personnel who use this equipment in teaching and scientific work has also been carried out. In the doctoral study programme The Adriatic – a Link Between Continents cartographic contents are considered especially within the framework of the courses entitled Application of GIS in Geography and History and Development of the Adriatic in the Light of Cartographic Sources.

Scientific research is carried out within several thematic areas which successfully correlate geographic and cartographic topics. Through the Strategic Programme for Scientific Research 2014-
2018, and the Strategic Programme for Scientific Research 2019-2023, cartography has been established as a basic activity in the following thematic areas:

a) Cartographic sources in geographic research of the Croatian Adriatic area
b) Developing a new methodological approach to studying ravines
c) Developing a multi-criteria model for sustainable management in areas of travertine watercourses – based on the example of Skradinski Buk
d) Multiresolution landscape modelling

Special systematic research is carried out as part of the Geospatial analysis laboratory (GAL), financed by the Croatian Science Foundation. The project is headed by Ante Šiljeg, and the associates are Nina Lončar and Ivan Marić. Fran Domazetović and Mirko Barada, who are doctoral students, are also involved in the project. Along with acquiring the newest technological equipment, this team has also achieved significant scientific results and published many papers in WoS and Scopus indexed journals. They have also participated in various knowledge and technology transfer activities in cooperation with local and regional communities. Among other things, Ante Šiljeg, Mirko Barada and Ivan Marić have published a university textbook, Digitalno modeliranje reljefa (Digital Relief Modelling) (Alfa, Zagreb 2018).

A number of scientific papers which provide comparative analyses of old maps have been published by Damir Magaš, Josip Faričić, Lena Mirošević, Ante Blaće and Tome Marelić. These scientists have also participated in a large number of scientific meetings in Croatia and abroad, where they have presented their research results on old cartographic material, particularly Early Modern cartographic depictions of the Adriatic. Tome Marelić and Josip Faričić have concentrated particularly on cartography as a topic.

In cooperation with other geodesists and historians, Zadar geographers have hosted a number of scientific-popular courses and lectures to present various cartographic and related topics to a wider audience. For example, the following lectures were held:

19 September 2017, Zadar State Archives, Zadar on Old Maps

22 November 2017, Archdiocese of Zadar and University of Zadar (St. Chrysogonus Days of Christian Culture), The Bible is not an Astronomy Manual, and the Earth is not a Flat Plane.

A course was also organised on 4 December 2017, Marking the 200th Anniversary of the Introduction of the Cadastre which Covered the Entire Area of Modern Croatia for the First Time (Department of Geography, University of Zadar, Croatian Geographic Society – Zadar, Croatian Cartographic Society, and Zadar State Archives). In conjunction with this, an exhibition called The Islands of Iž and Rava on Old Maps (in cooperation with the National Museum of Zadar) was mounted on the Anamarija passenger vessel which connects Iž and Rava to the city of Zadar. It was also mounted at the Faculty of Geodesy, University of Zagreb, from July to October 2015, in cooperation with the Croatian Cartographic Society.

To mark World GIS Day and the International Week of Geography, lectures and scientific-expert meetings were held, where scientists from Croatia and abroad presented their work.

Thanks to team work, great interest in maps, cartography and GIS, the Zadar geographic hub has been able to implement various cartographic activities and keep abreast of the most recent scientific discoveries and IT developments, without neglecting our rich cartographic heritage. There is still much to be done in this field, and we continue to meet the challenges head on.
4 Commercial Cartography

4.1 Croatia Control Ltd. (HKZP)

http://www.crocontrol.hr

Croatia Control Ltd. is a state-owned limited liability company that operates independently in the Republic of Croatia, pursuant to relevant laws and company acts. In the provision of air navigation services to the institutions in neighbouring countries it adheres to the principles and procedures of ICAO (International Civil Aviation Organisation) and EUROCONTROL (European Organisation for the Safety of Air Navigation).

The primary mission of Croatia Control Ltd is provision of air navigation services, pursuing the basic principle of a high level of air traffic safety.

Croatia Control Ltd., Department of Air navigation, procedure design and cartography are employs three cartographers.

The products of cartography service are applied to following activities of the company:

- Provision of operational air navigation services – air traffic control, alerting service, provision of pre-flight and flight information services to enable safe, orderly and expeditious air traffic flow; processing and retention of flight data; forwarding of information significant to air traffic safety; management of air traffic flow and airspace use;

- Collection, processing and promulgation of aeronautical information, including issuance of specific publications;

- Identification of operational requirements for air traffic control systems, surveillance systems, equipment and infrastructure;

- Planning of airspace structure and flying procedures taking into account interests of civil and military users, as well as environmental requirements;

- Implementation and harmonization of operational, developmental and international tasks and duties with international organizations, especially ICAO (International Civil Aviation Organization) and EUROCONTROL (European Organisation for the Safety of Air Navigation);

Aeronautical information is collected, processed and disseminated in the form of text and charts. The data are published in the Aeronautical Information Publication Croatia (eAIP) and in the VFR Manual in regular, pre-determined cycles.

Various types of thematic maps are published for all airports in the Republic of Croatia, including the whole area of Croatia's Flight Information Region. These maps are created in different scales and are available in analogue and digital form.

Charts are adapted to the specific cartographic key for aeronautical charts.

Various types of charts which are made within Croatia Control Ltd. are published in the Aeronautical Information Publication and in the VFR Manual for period 2015 – 2019 include:

- VFR Charts with recommended VFR routes, 1:500 000
- Aerodrome Charts – ICAO 1:10 000 – 1:20 000 – preparation for publishing only
- Aircraft Parking/Docking Charts – ICAO – preparation for publishing only
- Aerodrome Obstacle Charts Type A – ICAO, 1:10 000 – 1:20 000 – preparation for publishing only
- Precision Approach Terrain Charts – ICAO
- Instrument Approach Charts – ICAO, 1:100 000 – 1:500 000
- Visual Manoeuvring - Circling Charts (IFR) - ICAO
- Standard Instrument Departure Charts (SID) – ICAO
- Standard Arrival Charts – Instrument (STAR) – ICAO
- Enroute Charts – ICAO, 1:1 000 000 - ICAO
- Visual Approach Charts - ICAO, 1:100 000 – 1:250 000
- Visual Operation Charts 1:200 000 – 1:300 000
- ATC Surveillance Minimum Altitude Charts – ICAO
- Index Charts – Charts of Aerial Sporting and Recreational Activities, Charts of Military Operations Areas, etc.

Many other types of thematic maps are created for operational purposes of Croatia Control Ltd. These include Anti-Hail Rocketing chart for Croatia and part of Bosnia and Herzegovina at a 1:500 000 scale.

Charts are made and printed by digital methods also provided in electronic form in eAIP Croatia and VFR Manual.

Total number of 185 published charts including changes are re-published several times during this period.

Charts are made according to Standards and Recommendations contained in ICAO Annex 4 and are published every time when there is a safety-critical change in aeronautical data – usually once or several times a year.
In addition to the production of various charts, we are also involved in ongoing projects aimed at the establishment of geoinformation systems: Aeronautical Information Database Modernization Project CroATM for implementation Commission implementing Regulation (EU) No 73/2010 and 1029/2014 and INSPIRE.

More details about the activities of the Croatia Control Ltd can be found at the Internet address http://www.crocontrol.hr

4.2 OIKON Ltd. – Institute of Applied Ecology

Oikon Ltd. is an institute working in the field of applied ecology since 1997. Its specialties are environmental protection, industrial ecology, environmental medicine, renewable energy sources, nature protection, natural resource management, ecological modelling, landscape ecology, remote sensing and geoinformatics. It is a medium-sized company with experts, including 8 doctors of science, who cover a 18 expert fields and with an outspread network of hundreds of external collaborators.

In order to provide better horizontal link between the departments, more successful transfer and application of knowledge, and enhanced research and development work related to the use of remote sensing methods on projects, in 2017, OIKON founded the Laboratory for Remote Sensing and GIS – LADIGIS.

The use of the latest technologies and sensors in the field of remote research, such as LIDAR, multispectral and radar satellite imagery, enables the company to achieve effective mapping of changes in land use, fires, soil and forest site index, health status, spatial composition of tree / forest type / agriculture types or determining the amount of biomass in inaccessible areas. All this has already been successfully implemented in many of Oikon’s projects. The Laboratory also provides support within the company by developing land cover layouts of higher resolutions that are necessary for better assessments of environmental impact.

Oikon does spatial analyses, cartographic processing and preparation of maps for its own needs and studies of environmental effects, natural resource management programs and nature protection studies and programs:

• Production of maps of hunting ground areas for hunting economic bases (1:10 000/ 1:25 000)

• Production of maps for forest management programs (1:5000/1:25 000)

• Production of maps for protected area (national parks and nature parks – 1:25 000) management plans

• Spatial analysis and map preparation in rural and regional development projects

• Production of maps of forest road infrastructure

• Modeling of spatial noise distribution around various infrastructural and industrial objects

• Production of maps of landscape design and landscape main projects (1:500 – 1:5000)

• Production of 3D visualization of various infrastructural and industrial objects

• Production of maps of potential and real erosion in areas of planning various infrastructural objects

• Analyses of visual sensitivity of landscape in landscape analysis

• Telemetric and GPS animal tracking (wolf, lynx, brown bear), analysis of their movement

• Ultrasound monitoring of bat movement and analysis of their use of space/habitat

• Web mapping applications

The projects in which Oikon has set up GIS / WEB GIS, conducted spatial analysis and spatial modeling, prepared maps on national, regional and local levels from 2015 to 2019 are:

1. Landscape study of Primorsko-goranska county, Client: JU „Zavod za prostorno uređenje Primorsko-goranske županije“

2. Upgrade of existing CORINE database (CLC 2018) and validation of thematic database generated by interpretation on satellite images, Client: Croatian Agency for Environment and Nature (CAEN)

3. Landscape Study for the southern coast of the town of Labin, Client: City of Labin

4. Development of expert background study for characterization and delineation of hilly and mountainous areas, Client: Ministry of Regional Development and EU Funds Croatia

5. The Study about effectiveness of the implementation of the “Orders on undertaking measures for prevention of spreading the harmful organism - Corythucha arcuata (Say, 1832) – The oak lace bug, Client: Ministry of Agriculture RC

6. Application of High Definition Multispectral Satellite Surveys in Determining the Degree of Productivity and Various Forest Owner’s Forests in the Mediterranean and Sub-Mediterranean, Client: Ministry of Agriculture RC

7. Carbon sink assessment in dead organic matter and average wood stock assessment in maquis, thickets and first age class stand in Croatian forests, Client: Croatian Agency for Environment and Nature (CAEN)
8. Landscape Study for UPU 2.2. Sveti Jakov and the surrounding area, Client: Studijski centar za obnovu i razvoj Ltd., Dubrovnik
9. Forest management program for forest owners in Istria county, four management units, Client: Croatian agricultural and forestry advisory service
11. Development of forest area baselines and maps of the area with special constrains, Client: Ministry of Agriculture RC
12. Study of Areas with Natural Constraints in Agriculture and Calculation Design, Client: Ministry of Agriculture and Rural Development, Montenegro
13. Plan for the use of renewable energy resources in Dubrovnik – Neretva County, Client: Dubrovnik – Neretva County
14. The habitat map development and the definition of ecological requirements and conservation zones of the Brijuni National Park, Client: PI „National Park Brijuni”
15. Development of geoinformation system and web GIS application for public lighting of City of Rab, Client: City of Rab
16. Analysis of spatial features of Sisak-Moslavina county for the use of renewable sources of energy, Client: Sisak-Moslavina county
17. Design and implementation of interactive map of Agriculture and Agricultural land of City of Zagreb, Client: City of Zagreb
18. Upgrade of existing CORINE database (CLC 2012), validation of thematic database generated by interpretation on satellite images and WEB GIS browser creation, Client: Croatian Environment Agency
19. Study of landscape protection of the city of Zagreb, Client: CITY OF ZAGREB – City Office for the Strategic Planning and Development of the City
20. Landscape and Spatial identity Study of the Veli Brijun Island, Client: PI „National Park Brijuni”
21. Fine Tuning spatial analysis of municipalities and their classification in mountain areas, areas with bio-physical constraints and specific areas with constraints in agriculture, Client: Ministry of Agriculture RC
22. Impact of Agriculture on Groundwater and Groundwater Pollution in the Republic of Croatia – analysis of water load from agriculture, estimation of water load from agriculture and processing of satellite images of IRS and estimation of cultures outside ARKOD, Client: Faculty of Agronomy Zagreb and Croatian waters
23. Preparation of maps for Fine tuning of areas with natural constraints in agriculture, Client: Ministry of Agriculture RC
24. Spatial analysis and site suitability evaluation of ground photovoltaic power plant on the Unije island, Client: Regionalna energetska agencija Kvarner Ltd., Rijeka
25. Study for Area Definition under influence of natural or other specific constraints in agriculture including calculations, Client: Ministry of Agriculture RC

Apart from the use of remote sensing, GIS and cartography in their regular work, OIKON employees, primarily LADIGIS members, carry out scientific research to improve and achieve greater efficiency and accuracy and the application of new data collection and analysis technologies. They regularly report to the public through their participation in professional and scientific meetings with presentations and posters, and by publishing their achievements in professional and scientific journals. In the period from 2015 to 2019, they publicized and published many papers (see section Bibliography).

4.3 CroMaps

http://www.cromaps.com/branka

Cartographic products by Branka Poljak, between 2015 and 2019 published by the Tourist Board, 3D laser design etc.:

2015 Stari Grad Tourist Map (Island of Hvar) reprinted in 2016, 2018
2015 Vrboska Tourist Map (Island of Hvar) reprinted in 2016, 2018
2016 Tourist Map Hrvatsko zagorje (Map Hrvatsko zagorje, Town Plans centre of Krapina, Zabok, Donja-Gornja Stubica, Klanjec, Pregrada, Krapinske Toplice, Oroslavje, Kumrovec, Marija Bistrica, Zlatar)
2016 Interactive maps - Tourist Topographic map Vinodol, Tourist Town Plans Novi Vinodolski, bike rout and walkways Vinodol for tourist Interactive Touch Kiosk
2017 Town Plans Samobor - Sveta Nedelja
2017 3D tactical map Association of Blind SMŽ-Sisak - day center, rehabilitation program
2019 Tourist Topographic map Lovinac - Posedarje (include cycling routes)
2017 Traffic maps RH - map desks HAK

2017 Board maps (city light) include: map of the beach Bribir coast Novi Vinodolski
2019 Board maps (city light) include: Tourist Plan Vrboska and Tourist Map of the Island of Hvar

2019 World maps – mapping natural resources (world's top oil-producing countries and natural gas production – different maps)

The following wall maps were published in the period 2015–2019:
Map of Europe, Map Southeast Europe, Map EU postal code, World map, Road Map of Europe, Road Map RH, Road Map of the Balkans, City Plan of Zagreb with District Borders, Map of the Republic of Croatia - Counties, Municipalities, Mayors, Prefects, Political Parties, Road Map Sweden, Road Map Ireland, Map Istria, Town Plans Sisak, Petrinja, Zagreb, Požega, Vinkovci, Osijek, Slavonski Brod, Split (Donje Sitno, Gornje Sitno, Kamen, Slatine, Srinjine, Stobreč, Žrnovnica included in the administrative area of the City), Makarska, Kaštele, Karlovac, Sisak, Vukovar, Dubrovnik, Varaždin, Čakovec, Koprivnica, Karlovac, Gospić, Velika Gorica, Zaprešić, Ivanić Grad, Rijeka, Pula, Zadar
5 Other Activities

5.1 Croatian Cartographic Society

http://www.kartografija.hr/

2015

The national report "Cartography in Croatia 2011–2015" was submitted in time for ICA General Assembly and published in Cartography and Geoinformation, issue 22.

Members of the Croatian Cartographic Society (CCS) participated with the following papers:

Lapaine, M.: Multi Standard-Parallel Azimuthal Projections
Viličić, M., Lapaine, M.: Research on the Reliability of Mercator's Map Sclavonia, Croatia, Bosnia cum Dalmatiae parte

212 children's drawings were submitted for the national competition with the theme “My place in today's world”. The jury selected six best drawings and five additional drawings to be acknowledged. The award ceremony was held in the scope of the Festival of Science in the Technical Museum in Zagreb on April 25, 2015.

Two maps of the Croatian Mountain Rescue Service, two wall world maps, Web-Cartography lecture notes by R. Župan and S. Frangeš and the Geochemical Atlas of Sisak by A. Šorša and J. Halamić were exhibited at the map and cartographic products exhibition in Rio.

M. Lapaine was acknowledge for chairing the Commission on Map Projections from 2011 to 2015 and was elected again for 2015–2019.

Exhibitions, lectures and other activities in 2015

- Exhibition "Herzegovina on maps and plans", 1st floor of the Faculty of Geodesy, University of Zagreb, opened on December 12, author M. Alilović
- Exhibition on the occasion of the 250th anniversary of forestry in Croatia at the Faculty of Forestry, University of Zagreb, titled "Forestry maps and plans – from the history of forest management in Croatia", authors R. Pernar and M. Jurić
- Exhibition "In the wake of Roman agrimensores" was opened in the Technical Museum in Zagreb which was renamed to Nikola Tesla Technical Museum. The exhibition was prepared by pupils of the Geodetic Technical School from Pula, and it was opened by M. Lapaine
- M. Jurić prepared the exhibition "Vukovarsko-srijemska county on old maps and plans". The exhibition was opened in the Croatian Home in Vukovar on the occasion of the Day of the Vukovar-Srijem county.
- An exhibition of tourist maps was opened on December 22, 2015 in the Museum of Tourism in Opatija, author Marija Kos.
- Promotion of the book "Herzegovina on maps and plans" in the Miroslav Krleža Lexicographic Institute in Zagreb. The book was also promoted in the Franciscan monastery of the Herzegovinian Provincial in Dubrava (Zagreb), Mostar, Velika Gorica, Ljubuško and Pleternica
- Cartography in Brazil, lecture by M. Lapaine in the Marko Marulić City Library in Split within the scope of the Croatian Mountain Rescue Service exhibition, September 14, 2015
- ICC2015 and Croatian Cartography, lecture by M. Lapaine at the Faculty of Geodesy in Zagreb, October 12, 2015
- New base geological map of the Republic of Croatia 1:50 000 – Island of Hvar (Ošтриć et al. 2015), lecture by T. Korbar at the Faculty of Geodesy of the University of Zagreb, December 15, 2015
- Determination of areas from plans and maps, lecture by M. Lapaine for high school mathematics teachers in Zagrebačka county and at the 4th Congress of Croatian Court Experts and Assessors
- I. Kljajić held a lecture on Ivan Klobučarić at the international scientific conference Seven Centuries of Augustinian Monastery in Rijeka
- M. Viličić held a lecture on Croatia at the International Cartographic Conference in Rio de Janeiro at the 8th Symposium of Chartered Geodetic Engineers held in Opatija
- D. Tutić organized the workshop OSM Geo Awareness Week on the International GIS Day,
at the Faculty of Geodesy of the University of Zagreb, November 18, 2015

- At the beginning of November 2015, a meeting was held in Vienna of all ICA commission chairs with the new Executive Board and the new President (Prof. Meno-Jan Kraak). On the occasion, CCS president donated a world map in the Winkel Projection produced by M. Lapaine, Ž. Tutek and M. Triplat Horvat to past ICA President Prof. Georg Gartner. Prof. Gartner thanked for the present and was photographed on the same day in front of the new map with all members of the Executive Board and the new ICA President. Similar maps were also sent to map exhibitions in Sofia and Rio de Janeiro. The map donated to Prof. Gartner was supplemented with representations of polar areas in the azimuthal projection.

2016

The 15th Annual Assembly of CCS was held in the hall of the Faculty of Architecture, Geodesy and Civil Engineering, Kačićeva 26, Zagreb on March 18, 2016. Participants were greeted by Prof. Dr. Damir Medak, Dean of the Faculty of Geodesy. The Assembly consisted of three parts and was opened and led by Prof. Dr. Miljenko Lapaine, President of CCS. In the first, unofficial part of the assembly, M. Lapaine held a lecture titled *Rudjer Bošković, European Geodesist 2016*.

*Exhibitions, lectures and other activities in 2016*

- A new sheet of the Base Geological Map of the Republic of Croatia 1: 50 000 – Cres and Lošinj was presented in Cres on January 28, 2016
- A map of the Zadar Archipelago published by the Croatian Mountain Rescue Service was presented in the Zadar City Library on March 3, 2016
- M. Lapaine held an invited lecture titled "Introduction of new coordinate systems in Croatia" at the 44th Slovenian Geodetic Day, Laško, March 4, 2016
- The exhibition "Rudjer Bošković, European geodesist of 2016" was opened on March 18, 2016 at the Faculty of Geodesy in Zagreb, authors M. Lapaine and I. Kljajić

Cartography and Geoinformation journal – Vol. 15, issues 25 and 26 were published.
Prof. Dr. Miljenko Lapaine was unanimously voted CCS President for 2016 and 2017.

CCS Presidency’s proposal was confirmed to award Marija Brajković, MSc a CCS letter of acknowledgment for her great dedication to promoting CCS and especially organizing the 11th Cartography and Geoinformation Conference in Buzet in 2015.

Mirko Alilović, graduate engineer, received a charter for remarkable contribution to cartography, especially for his monograph "Herzegovina on maps and plans" and a series of map exhibitions in 2015 and 2016, which were the best possible way to promote cartography in the International Map Year.

2017

The 17th General Assembly of CCS was held at the Faculty of Geodesy, Kačićeva 26, in Zagreb on March 17, 2017. Dean of the Faculty of Geodesy, Prof Dr. Damir Medak greeted all present members of CCS. President of CCS, Prof. Dr. Miljenko Lapaine led the assembly, which consisted of three parts. Prof. Dr. Miljenko Lapaine held a lecture in the first unofficial part titled 2017 – A year of significant anniversaries for geodesy, astronomy, geophysics and cartography

Exhibitions, lectures and other activities in 2017

• Festival of Science was held from April 24 to 29, 2017. CCS has participated each year. In 2017, the main themes were Time and the 160th anniversary of Andrija Mohorovičić’s birth. At the 2017 Festival of Science we participated with:
  M. Lapaine, I. Kljajić: Two Hundred Years of Cadastre (exhibition)
  I. Kljajić, A. Kuveždić Divjak: Award Ceremony for the We Love Maps Children’s World Map Competition (presentation)
  V. Poslovenč-Pretrić, Ž. Bačić, D. Tutić, Z. Nevišić: Spatial Data Infrastructure and Changes on Earth (presentation)
  M. Lapaine: 2017 – A Year of Great Anniversaries in Geodesy, Astronomy, Geophysics and Cartography (lecture)
  A. Kuveždić Divjak, Ž. Bačić: Observation of Earth with Copernicus (presentation)
  A ceremonial academy on the occasion of Prof. Emeritus Nedjeljko Frančula’s 80th birthday, honorary member of CCS, was held at the Faculty of Geodesy on June 19, 2017. Two lectures were:
  D. Tutić and A. Kuveždić Divjak: World Maps and the Winkel Tripel Projection
  M. Lapaine: Map Projections without Auxiliary Surfaces
  A small reception was held after congratulating Prof. Frančula.
  M. Lapaine participated in the International Cartographic Conference and the special ICA General Assembly in Washington D.C. from July 2 to 7, 2017. He chaired a meeting of the Commission on Map Projections, presented the paper Loxodrome in Web-Mercator Projection, participated in the World Cartographic Forum (meeting of all presidents of cartographic associations participating in the conference) and in the ceremonial academy in honour to Prof. H. Moellering
  • The 13th International Conference on Geoheritage, Geoinformation and Cartography, Selce, September 7–9, 2017 was a success. Details can be found in the publication Program and Abstracts and the conference web-site http://www.kartografija.hr/conf17/.
  • CCS was established on October 10, 2001. Its birthday was celebrated at the Faculty of Geodesy and involved a lecture by M. Lapaine on the International Cartographic Conference and the special ICA General Assembly held in Washington 2017 and the 13th International Conference on Geoheritage, Geoinformation and Cartography, Selce 2017. It was also the occasion of M. Lapaine’s retiring, so a reception was held after the lecture.
  • Dr. Ana Kuveždić Divjak and Prof. Dr. Miljenko Lapaine participated in producing a world map for an episode of Inside the Factory about tea which was broadcasted on BBC 2 in December 2017. The episode is very interesting, informative and amusing. The ending credits features their names, as well as Croatian Cartographic Society and Faculty of Geodesy of the University of Zagreb.
Cartography and Geoinformation journal – Vol. 16, issues 27 and 28 were published.

CCS Presidency's proposal to award Dr. Branko Puceković CCS acknowledgment for organizing the performance and conducting the Croatian choir Kućani from Kuče at the November 16, 2016 was accepted unanimously.

CCS Presidency's proposal to award the Croatian choir Kućani from Kuče CCS acknowledgment for performing at the opening ceremony of the 12th conference on cartography and geoinformation in Zagreb on November 16, 2016 was accepted unanimously.

CCS Presidency's proposal was unanimously accepted to award Mirjana Jurić, MSc the CCS Award for special contribution to cartography and especially for a series of exhibitions, workshops and lectures, which was the best possible way to promote Croatian cartography.

2018

The 18th Annual Assembly of CCS was held at the Faculty of Geodesy, Kačićeva 26, Zagreb on March 16, 2018. Participants were greeted by Assoc. Prof. Dr. Robert Župan, Vice Dean of the Faculty of Geodesy. The Assembly consisted of three parts and was opened and led by Prof. Dr. Miljenko Lapaine, President of CCS. In the first, unofficial part of the assembly, Prof. Dr. Miljenko Lapaine held a lecture The Behrmann Projection or Don’t Trust a Professor.

Exhibitions, lectures and other activities in 2018

The Society organised or participated in the following exhibitions:

- 200 Years of the Franciscan Cadastre, at the Faculty of Geodesy
- Forestry Maps, at the Faculty of Geodesy
- Old Maps and Plans of Istria, at the El Magazen Gallery in Vodnjan
- Old Cadastral Plans of Istria, at the Faculty of Geodesy, to mark SDI Day and the 14th ICGC

In cooperation with the State Geodetic Administration and University of Zagreb, Faculty of Geodesy, SDI Days and the 14th International Conference on Geoinformation and Cartography was held from 27 to 29 September 2018. More details are available at www.kartografija.hr. The following foreign guests participated: Paulo Márcio Leal de Menezes, professor from Rio de Janeiro, Brazil, Rex Cammack, professor at the University of Nebraska in Omaha, USA, Laszlo Zentai, professor at the Eötvös Loránd University in Budapest, Joep Crompvoets, professor at KU Leuven, Belgium, and Dalibor Bartonek and Radovan Machotka, professors at the Technical University in Brno.

Scopus informed us that our journal was evaluated again by the Scopus Content Selection & Advisory Board. It was decided that Cartography and Geoinformation would stay in Scopus without changes. The decision was explained in the following way: This is a Croatian national geography journal with bilingual (English/Croatian) articles of sufficient and consistent quality. Supporting reasons: + The journal maintains a convincing editorial policy.

From the No. 30, each article have a DOI, thanks to the efforts of the editor-in-chief, Dr. Ana Kuveždić Divjak.

Prof. Dr. Miljenko Lapaine was voted for the CCS President for the 2018‒2019 period.
The CCS Presidency’s proposal to award Dr. Dubravka Mlinarić and Dr. Mira Miletić Dr. Order for their contribution to cartography, especially co-authorship of the book *Novak Collection Mappae Croaticae in the Map and Atlas Collection of the National and University Library*, was accepted unanimously.

The CCS Presidency’s proposal to acknowledge the State Geodetic Administration for supporting CCS, especially for supporting participation in the International Conference on Geoheritage, Geoinformation and Cartography held in Selce, September 7–9, 2017, was accepted unanimously.

The CCS Presidency’s proposal to acknowledge the Faculty of Geodesy of the University of Zagreb for the perennial support of all activities of the CCS was also accepted unanimously.

The 19th Annual Assembly of the Croatian Cartographic Society was held on 14 December 2018 in the Council Chamber of the Faculty of Architecture, Civil Engineering and Geodesy, Kačićevo 26, Zagreb. Prof. Dr. Damir Medak, Dean of the Faculty of Geodesy, welcomed those present on behalf of the host institute. The Assembly was opened and chaired by Prof. Dr. Miljenko Lapaine, President of the Society. It was divided into three parts. The first, unofficial part, was a lecture by Prof. Dr. Robert Župan: *Impressions from China*.

The official part of the Assembly consisted of acceptance of the agenda, acceptance of the minutes of the 18th Assembly, president’s report on the work of the Society in 2018, financial report for 2018, report by the Supervisory Committee, plan for 2019, financial plan for 2019, the Society awards and acknowledgements.

The President of the Croatian Cartographic Society reads the explanation of the CCS Award for Mirjana Jurić, MSc

The proposal of the Society’s Presidency that Milka Kosanović and Germano Fioranti be awarded the Society’s Charter was applauded. The award was for their contributions to cartography, particularly for the *Old Maps and Plans of Istria* exhibition held in August and September 2018 in Vodnjan.

The proposal of the Society’s Presidency that the Croatian Chamber of Chartered Geodesy Engineers be awarded an acknowledgment for their support for the CCS, particularly for the journal *Cartography and Geoinformation*, was also applauded.

The proposal of the Society’s Presidency that Geomatika-Smolčak d.o.o. be awarded an acknowledgment for its many years of support for the Society’s activities was also accepted unanimously.

**2019**

A Grant Contract for the Project "Public Availability of Felbar Collection" was signed. Financial support was spent in accordance with the contract (description of maps, description of books, translation into German, translation into English and posting to the web). The Felbar Collections web-site is updated and available at www.felbar.com.

Lecture by Dr. Dubravka Mlinarić "Private Cartographic Collections as a Croatian Cultural Heritage: Reflection of Accessibility to Historical Heritage" was held on May 16, 2019 in the Croatian State Archives in Zagreb. Dr. Mlinarić talked about the Collection Novak and the Collection Felbar.

Activities related to the 29th International Cartographic Conference and the 17th General Assembly of ICA:

- At the request of ICA President Prof. Dr. Meno-Jann Kraak, comments on the ICA Strategic Plan for 2019–2027 were delivered.
- The public was informed about collecting data on activities in the field of cartography in Croatia for the period 2015–2019 for the purpose of drafting the National Report which should be submitted by 15 June 2019.
- The public was informed about the possibilities of participating in the international map exhibition in Tokyo.
- A competition has been launched for children’s drawing and this will be coordinated on behalf of the Society in Croatia by Dr. Ivka Kljajić. The competition for children's drawings on the theme *We love maps* has been luckily drawn to the end. 227 children's artworks arrived. The Committee composed of Prof. Art Ines Krasić, Assoc. Prof. Art Tomislav Buntak and Assist. Prof. Art Igor Čabraja from the Academy of Fine Arts of the University of Zagreb, Prof. Emer. Miljenko Lapaine and Assist. Prof. Ivka Kljajić from the Faculty of Geodesy of the University of Zagreb selected six children's drawings that will be exhibited at the 29th International Cartographic Conference in Tokyo, 15–20 July 2019.

In the Gallery on the 1st floor of the Faculty of Geodesy of the University of Zagreb, the exhibition "We love maps" was set up with drawings of chil-
On April 13, 2019, during the Festival of Science organized in the Technical Museum Nikola Tesla in Zagreb, the CCS organized a ceremony for all children participated in the competition. The best children's artworks were awarded.

Details are available at www.kartografija.hr, and a report was prepared to be published in *Cartography and Geoinformation* journal.

**15th International Conference on Geoinformation and Cartography**

In cooperation with the University of Zagreb, Faculty of Geodesy, the 15th International Conference on Geoinformation and Cartography will be held from 26 to 29 September 2019 in Zagreb, Vodnjan, Pula, Brijuni Islands and Venice. The invited lecturers are E. Lynn Usery, Adrijana Car and Henrik Hargitai. The conference is endorsed by the ICA, Croatian Academy of Engineering, and Universities in Zagreb, Zadar and Pula. More details are available at www.kartografija.hr.

*Cartography and Geoinformation* journal – Vol. 18, issues 31 and 32 are in preparation.

More information on CCS activities can be found at www.kartografija.hr.
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Robert Żupan, Faculty of Geodesy, University of Zagreb

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