

12th Conference on Cartography and Geoinformation Commemorating the World GIS Day Zagreb, November 16–18, 2016

The Croatian Cartographic Society and the Faculty of Geodesy, University of Zagreb, organized the 12th Conference on Cartography and Geoinformation celebrating the World iGIS Day in Zagreb, November 16–18, 2016.

By organizing this conference in the International Map Year (IMY), we wanted to contribute to the development of geoinformatics, cartography, geography and associated fields with special emphasis on GIS applications. The conference featured a wide range of themes, interesting lectures and a contemporary approach.

The conference was endorsed by the International Cartographic Association – ICA, the Croatian Academy of Engineering – HATZ, the University of Zagreb and the University of Zadar. Seventy participants attended the three-day conference.

The first conference day consisted of lectures held in the Great Hall of the Miroslav Krleža Institute of Lexicography in Zagreb. Prof. Dr. Joep Crompvoets was the keynote speaker, with the lecture *Governance for a Smart World*. Other lectures were about geodiversity and geoheritage, GIS in education at universities and high schools, mapping vegetation cover, forest ecosystems, geomorphological research for the needs of the proclamation,

expansion and management of protected areas, developing speleological geodatabases, presenting migrations on thematic maps, etc.

The second conference day continued in the Council Hall of the Faculty of Geodesy, University of Zagreb with some more lectures on different applications of GIS. Afterwards, a Round Table was organized to start early planning of celebrating

- 250 years since results of the Vienna meridian survey were published (Brno–Varaždin)
- 230 years since Ruđer Bošković died
- 200 years of the Patent on Stable Cadastre and beginning of the cadastral survey of Istria
- 170 years since the beginning and 140 years since the end of the cadastral survey of Croatia and Slavonia (1847–1877)
- 80 years since the Astronomic Observatory in Maksimir was established
- 65 years of the Croatian Geodetic Society
- 55 years of independent Faculty of Geodesy

After the lunch break, we visited the Croatian State Archive, which has a rich map collection including cadastral material of the Croatian State Geodetic Administration. At the end of the day, the Open Source Geospatial Lab (OSGL) of the Faculty of Geodesy, Croatian Cartographic Society and IT-section of the Student Council of the Faculty of Geodesy organized the *OpenGeoWeek* workshop, where participants learned and worked together, mapping in *OpenStreetMap* for humanitarian purposes.

A tour to Samobor highlands was organized by the Student Mountain-

eering Section of the Faculty of Geodesy, University of Zagreb on the last conference day.

We visited the St. Barbara mine in Rude, near Samobor. It is not known when exactly people started to work in Rude mines. However, certain data and remains of old and narrow galleries built without the use of powder lead to the conclusion that it was in the Middle Age, or maybe even in the Roman Age. According to the oldest available data, copper ore was extracted as early as 1210, when the village of Rude was called Rovi. According to the first reliable data (16th century), the mine used to be owned by Leonard Gruber, who sold copper. The mine often changed owners, mainly due to financial crises. Data on copper production is scarce, particularly for the 16th and 17th centuries. The year 1773 marked the beginning of more regular records on production details providing evidence of a more or less constant mining, with some variations in production, and from the beginning of the 17th century until 1800, the annual output was between 200 and 400 cents (1 cent=56.006 kg). The highest copper outputs were recorded in 1634 and in 1791 with 573 and 546 cents, respectively. It is also when the preserved pit map (1777), showing a wide extent of the underground works, was produced. Production dropped after 1800 due to exhaustion of deposits. Exploitation of copper ore stopped in 1851. An analysis of the existing data leads to the conclusion that the total production at Rude amounted to 2,200 to 2,800 tons of copper.

Production of iron ore (siderite) started in 1850. Most of the ore was



12. savjetovanje o kartografiji i geoinformacijama uz obilježavanje Svjetskoga dana GIS-a Zagreb, 16–18. studenoga 2016.

Hrvatsko kartografsko društvo i Geodetski fakultet Sveučilišta u Zagrebu organizirali su 12. savjetovanje o kartografiji i geoinformacijama uz obilježavanje Svjetskoga dana GIS-a u Zagrebu od 16. do 18. studenoga 2016.

Organizirajući to savjetovanje u Međunarodnoj godini karata (International Map Year – IMY), željeli smo dati doprinos razvoju geoinformatike, kartografije, geografije i srodnih područja s posebnom naglaskom na primjene GIS-a. Široki raspon tema dao je zanimljiva predavanja i suvremeni pristup problematici.

Pokrovitelji savjetovanja bili su Međunarodno kartografsko društvo (International Cartographic Association – ICA), Akademija tehničkih znanosti Hrvatske (Croatian Academy of Engineering – HATZ), Sveučilište u Zagrebu i Sveučilište u Zadru. Savjetovanju je prisustvovalo 70 sudionika, a trajalo je tri dana. Savjetovanje je svečano otvorila rektorica Sveučilišta u Zadru prof. dr. sc. Dijana Vican.

Prvoga dana savjetovanja održana su predavanja u velikoj dvorani Leksikografskog zavoda Miroslav Krleža u Zagrebu. Pozvani predavač bio je Prof.

Dr. Joep Crompvoets s KU Leuven, a njegova tema bila je Upravljanje za Pametni Svijet (Governance for a Smart World). Ostale teme bile su georaznolikost i geobaština, GIS u obrazovanju na sveučilištima i u srednjim školama, kartiranje vegetacije, šumski ekosustavi, geomorfološka istraživanja za potrebe proglašenja, proširenja i upravljanja zaštićenim područjima, razvoj speleoloških prostornih baza, prikazivanje migracija na tematskim kartama, i dr.

Drugi dan savjetovanja započeo je predavanjima u vijećnici Geodetskoga



Organizatori / Organizers



Hrvatsko kartografsko društvo
Croatian Cartographic Society



Geodetski fakultet
Sveučilišta u Zagrebu
Faculty of Geodesy
University of Zagreb

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melted in Rude, in a blast furnace with an annual capacity of 25,000 cents, one part of which was transported to Slovenia. Annual production of iron ore was between 20,000 and 130,000 cents, while annual production of iron was between 5,000 and 16,000 cents. The mine was closed in 1859 due to unprofitability. Twenty-six thousand tons of ore were extracted during the ten years of operation.

Nearly all ore at the time was extracted in Vlačić-Kokel pits and only a small portion of ore was extracted from other locations such as the Classenbruch opencut where, before World War Two, hematite was extracted for the needs of the Sisak ironworks.

After mine exploitation ceased, research was carried out on several occasions with the aim to restore the mining activity in the area. Research was carried out before World War I and between World War I and II, when numerous minor research projects were conducted both on the left and right banks of the Gradna brook. In addition to exploration of iron and copper ore deposits, exploration and extraction of gypsum were also carried out, but further extraction of gypsum was stopped, despite its considerable quantities, because the percentage of anhydrite was too high (about 15%).

Gypsum was extracted at several sites in the mining part of Gradna, downstream Rude. Exploitation started at the beginning of the 20th century and went on, with occasional interruptions, until the early 1950s.

After visiting St. Barbara Mine in Rude, we went to the Oštrc peak (752 m), where we took some photos and enjoyed views of the surrounding hills. We enjoyed our lunch in the mountain home Veliki Dol, where a kind lady served us a stew with gnocchi and cabbage salad, with apple strudel for dessert. We returned satisfied to Zagreb in the afternoon.

The conference Program and Abstracts were printed and published (ISBN 978-953-95815-5-6). They are also available, along with many photos, at the Croatian Cartographic Society web site www.kartografija.hr.

Miljenko Lapaine ■

fakulteta Sveučilišta u Zagrebu s još nekoliko tema o raznim primjenama GIS-a. Nakon toga održan je Okrugli stol kako bi se na vrijeme započelo s planiranjem obilježavanja ovih obljetnica:

- 250 godina od objavljivanja rezultata izmjere Bečkoga meridijana (Brno–Varaždin)
- 230 godina od smrti Ruđera Boškovića
- 200 godina od Patenta o stabilnom katastru i početku katastarske izmjere Istre
- 170 godina od početka i 140 godina od završetka katastarske izmjere Hrvatske i Slavonije (1847–1877)
- 80 godina od osnutka Astronomskog paviljona u Maksimiru
- 65 godina Hrvatskoga geodetskog društva
- 55 godina samostalnog Geodetskog fakulteta Sveučilišta u Zagrebu

Nakon stanke za ručak posjetili smo Hrvatski državni arhiv u kojem se čuva bogata zbirka karata s također bogatim katastarskim materijalom Državne geodetske uprave. Na kraju dana Open Source Geospatial Lab (OSGL) Geodetskog fakulteta, Hrvatsko kartografsko društvo i IT-sekcija Studentskoga zbora Geodetskog fakulteta organizirali su radionicu Osm-GeoWeek na kojoj su sudionici učili i zajedno radili kartirajući u OpenStreetMapu za humanitarne svrhe.

Posljednjega dana savjetovanja Studenska planinarska sekcija Geodetskog fakulteta organizirala je stručni obilazak Samoborskoga gorja.

U Rudama blizu Samobora posjetili smo rudnik sv. Barbare. Ne zna se točno kad se počelo kopati u rudniku u Rudama. Međutim, izvjesni podaci i ostaci starih i uskih prolaza izgrađeni bez upotrebe eksploziva vode na ključak da je to bilo u srednjem vijeku ili možda čak u doba Rimljana. Prema najstarijim dostupnim podacima, bakrena ruda vadila se još 1210., a tada se selo rude zvalo Rovi. Prema prvim pouzdanim podacima iz 16. stoljeća u to je doba vlasnik rudnika bio Leonard Gruber koji je prodavao bakar. Rudnik

WE MAPS
INTERNATIONAL MAP YEAR 2015–2016

**12. savjetovanje
KARTOGRAFIJA I GEOINFORMACIJE**
kojim se obilježava Svjetski dan GIS-a

**12th Conference
CARTOGRAPHY AND GEOINFORMATION**
commemorating the World GIS Day

ZAGREB
16-18. studenoga 2016. / November 16-18, 2016

Organizatori / Organizers
Hrvatsko kartografsko društvo / Croatian Cartographic Society
Geodetski fakultet Sveučilišta u Zagrebu / Faculty of Geodesy University of Zagreb

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GEO diversity raznolikost

Hrvatsko kartografsko društvo organiziranjem ovoga savjetovanja u Međunarodnoj godini karata želi pridonijeti razvoju geoinformatike, kartografije, geografije i srodnih područja s posebnim naglaskom na obilježavanje svjetskoga dana GIS-a i različite primjene GIS-a u proučavanju georaznolikosti. Širok raspon ponudjenih tema i poznati pozvani predavači jamče zanimljivost izlaganja i suvremenost pristupa problematiki.

By organizing this conference in the International Map Year (IMY), the Croatian Cartographic Society wishes to contribute to the development of geoinformatics, cartography, geography and associated fields with special emphasis on commemorating the World GIS Day in studying geodiversity. A wide range of themes offered and renowned invited lecturers guarantee interesting lectures and a contemporary approach.

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je mijenjao vlasnike, uglavnom zbog financijskih kriza.

Gotovo sva ruda vađena je na području jame Vlašić-Kokel, a samo mali dio na drugim lokacijama kao što je površinski kop Classenbruch, gdje je prije 2. svjetskoga rata vađen hematit za potrebe željezare u Sisku. Osim iskorištavanja nalazišta željeza i bakra, vađen je također gips, no to je prestalo, bez obzira na značajnu količinu, jer je postotak anhidrita bio prevelik (oko 15%).

Nakon posjeta rudniku sv. Barbare u Rudama uputili smo se na vrh Oštrc (752 m), gdje smo se fotografirali za uspomenu i uživali u pogledu na okolne planine. U planinarskom domu

Veliki Dol čekao nas je ručak, gdje nam je ljubazna gospođa ponudila gulaš s njokima i salatu od zelja te savijaču od jabuka za desert. Zadovoljni vratili smo se u Zagreb u posljednopolnevnom satima.

Program savjetovanja sa sažetcima objavljen je i tiskan (ISBN 978-953-95815-5-6). Dostupan je također uz velik broj fotografija na web-stranici Hrvatskoga kartografskog društva www.kartografija.hr.

Sljedeće, 13. savjetovanje o geoinformacijama i kartografiji održat će se u rujnu 2017. u Selcu kraj Crikvenice.

Miljenko Lapaine ■