Zakaj potrebujemo znanje geodezije?

Why is geodetic knowledge an asset?

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Pred nekaj dnevi mi je padla v oči novica s portala Radio televizije Slovenija: *Gen energija umaknila zemljevid potresne ogroženosti z napačnimi lokacijami jedrskih elektrarn.* Ne bom se poglabljal v vzroke napake, ali je bila namerna ali pa zgolj šlamparija oziroma napačna uporaba prostorskih podatkov. V tem primeru so »prostorski podatki« koordinate in ustrezen prikaz točk z določenimi koordinatami na karti. Danes so prostorski podatki pogosto prosto dostopni. Obstajajo tudi množična GIS orodja, ki omogočajo njihov nazoren in raznolik prikaz. Lahko bi rekli, da karto lahko izdela skoraj vsak, ki je vešč računalništva in se vsaj malo spozna na prostorske podatke. Pa vendar, tukaj gre za prikaz izbranih točk, z danimi koordinatami v ustreznem koordinatnem sistemu. Pa naj gre za državni, evropski ali globalni koordinatni sistem. Ko gre za koordinate, moramo biti geodeti suvereni. Četudi nas je strokovna pot po končanem študiju odpeljala stran od klasične geodezije, ne smemo pozabiti, kako ravnati s koordinatami, bodisi pri njihovem prikazu bodisi pri interpretaciji meritev.

V začetku tega stoletja se je večina študijev geodezije po svetu preimenovala v študij geodezije in geoinformatike. Po nastajajočem terminološkem slovarju je geoinformatika »veda, ki uporablja infrastrukturo geodetske znanosti, prostorske podatkovne znanosti in informacijske znanosti za obravnavanje prostorskih pojavov in reševanje problemov na področju prostorskih znanosti, geoznanosti in inženirstva, pri čemer pridobiva, obdeluje, analizira, prikazuje in posreduje ter upravlja geografske podatke in informacije«. Tako široka definicija poudarja dejstvo zastopanosti številnih strokovnjakov različne izobrazbe, ki z uporabo orodij GIS (geografski informacijski sistemi) obdelujejo in vrednotijo prostorske podatke. Za nas geodete pa je pomemben del definicije, ki omenja infrastrukturo geodetske znanosti. Pri tem je zanimiv svetovni pojav upadanja zanimanja mladih za študij geodezije. Ne ustreza jim učenje matematike, fizike, tistih temeljev, brez katerega ni mogoče razumeti delovanja sodobnih geodetskih instrumentov, izvrednotenja geodetskih meritev, zasnove geodetskih referenčnih sistemov in še marsikaj drugega. Roko na srce, tudi strokovnjaki s področja geoinformatike morajo prehoditi podobno pot, prek temeljnih predmetov, čeprav veliko sodobne programske opreme omogoča analizo prostorskih podatkov brez poglabljanja v to, kako resnično ti algoritmi delujejo.

Tudi iz zgoraj omenjenega razloga sta Mednarodna zveza za geodezijo (IAG) in organizacija GGOS (angl. *Global Geodetic Observig System*) septembra lani organizirali natečaj geodetske karikature. Povabili so udeležence z vsega sveta, da ponazorijo geodezijo z ustvarjalnimi, humornimi in vizualno privlačnimi

karikaturami. Cilj je bil približati kompleksne geodetske koncepte širšemu občinstvu in poudariti njihov pomen za družbo. Prispevke je ocenjevala mednarodna žirija na podlagi jasnosti, ustvarjalnosti, dostopnosti in znanstvene relevantnosti. Skupaj je na razpis prispelo 275 karikatur. Zmagovalce so razglasili 5. maja na generalni skupščini Evropske zveze geoznanosti (EGU). Bralci vestnika si vse nagrajene in prispele karikature lahko ogledajo na spletni strani IAG https://geodesy.science/cartoon/. Te so razdeljene na tematske sklope: od prvega »kaj je geodezija«, prek »tektonike plošč in premikanja celin« do recimo »vesoljskih merskih tehnik v geodeziji«.

Vabim bralke in bralce, da pred poletnimi dopustniškimi dnevi preberejo številne zanimive prispevke v tej številki. Lahko bi rekli, da so s petimi znanstvenimi članki zastopana skoraj vsa področja geodezije in geoinformatike: deformacijska analiza v inženirski geodeziji, modeliranje lokalnega geoida v fizikalni geodeziji ter dva praktična primera uporabe podatkov daljinskega zaznavanja. Na koncu še primer kronološkega pregleda rabe zemljišč v mestu v Alžiriji.

Ne spreglejte dveh zanimivih strokovnih prispevkov. Posebej je zanimiv članek o geodetski globalni dobavni verigi. Zelo nenavaden termin, gre za sistem zagotavljanja natančnih prostorskih podatkov, zanesljive navigacije, satelitskih storitev ter časovne sinhronizacije, ki so nujni za delovanje sodobne družbe. Drugi članek poizkuša iz zgodovinskega stališča pojasniti, zakaj imamo v slovenskih gozdovih ozke in dolge parcele.

Nedolgo pred izidom druge številke v začetku aprila nas je zapustil verjetno eden najstarejših geodetskih inženirjev na svetu gospod Ladislav Zima. Dočakal je skoraj 104 leta. V uredništvu smo se dolgo pripravljali, da bi pripravili pogovor z njim, vendar nam namere žal ni uspelo uresničiti.

Vsem bralkam in bralcem želim prijeten poletni oddih.

A few days ago, I noticed the title of an article on the portal of the Slovenian national broadcaster RTV SLO: Gen Energy Removes Earthquake Risk Map with Incorrect Nuclear Power Plant Locations.

I do not wish to dwell on the possible reasons for the mistake. Perhaps it was simply careless work or the inappropriate use of spatial data. Here, "spatial data" refers to coordinates and their representation on the map through the appropriate plotting of points. Free access to spatial data is increasingly common nowadays. Besides, there are widely available GIS solutions that enable one to display the data clearly and in many different ways. It is fair to say that almost anyone with some computer skills and spatial data knowledge can produce a map nowadays. And yet, this is about displaying selected points with given coordinates in an appropriate coordinate system, whether a national, European or global coordinate system. Even if our professional paths after completing our studies have deviated from classical geodesy, we must not forget basic operations with coordinates, whether in their visualization or in interpreting measurements.

At the beginning of this century, numerous geodesy study programmes were renamed to geodesy and geoinformatics. According to the terminological dictionary, currently being compiled, geoinformatics is a "science that uses surveying science infrastructure, spatial data sciences and information sciences to deal with spatial phenomena and solve problems in the field of spatial sciences, geosciences and engineering, where it acquires, processes, analyses, displays, transmits and manages geographical data and information". Such a broad definition emphasizes the fact that many experts from different educational backgrounds work in the field, using GIS (Geographic Information System) tools to process and evaluate spatial data

For us, surveyors, however, the important part of the definition is the reference to the geodetic infrastructure. What is interesting here, is the declining interest among young people in surveying study programmes, which has been present all over the globe.

They are discouraged from learning mathematics and physics, which provide the foundations necessary to understand the operation of modern geodetic instruments, the processing of geodetic measurements, the design of geodetic reference systems, and much more. It has to be admitted that experts in geoinformatics have to acquire similar knowledge and study similar basic subjects, even though much of the modern software allows for the analysis of spatial data without delving into how these algorithms actually work.

Perhaps for these reasons, the International Association of Geodesy (IAG) and GGOS (Global Geodetic Observing System) organized a geodesy cartoon competition in September last year. They invited participants worldwide to illustrate geodesy through creative, humorous, and visually engaging cartoons. The goal was to help people understand complex geodetic concepts and emphasize their importance to society. The contributions were assessed by an international jury, based on clarity, creativity, accessibility and scientific relevance. A total of 275 cartoons were submitted to the competition. The winners were announced on May 5 at the General Assembly of the European Geosciences Union (EGU). Dear readers of Geodetski Vestnik, you are invited to view all the awarded and submitted cartoons on the IAG website https://geodesy.science/cartoon/. They are divided into several categories: from the first "What is Geodesy?", and "Plate Motion, Continental Drift" to, for example, "Space Geodetic Observation Techniques".

I invite our readers to devote some time to the many interesting contributions in this issue before the summer holidays. One could argue that almost all areas of geodesy and geoinformatics are covered by five scientific pa-

pers: deformation analysis in engineering geodesy; geoid modelling in physical geodesy; as well as two practical examples of the use of remote sensing data.

Finally, one paper provides a chronological overview of land use in a city in Algeria.

Also, do not miss two interesting scholarly articles. Especially interesting is the article on the global geodesy supply chain. The term may seem somewhat unusual, but it refers to a system for providing accurate spatial data, reliable navigation, satellite positioning services, and time synchronization, which are essential for the functioning of modern society. The second article examines the historical reasons behind the elongated shape of parcels in Slovenian forests.

Not long before the release of the second issue, Mr. Ladislav Zima, probably one of the oldest geodetic engineers in the world, left us in early April.

He lived to be almost 104 years old. We had been making arrangements to interview him, but unfortunately, we were unable to do so.

I wish all our readers a pleasant and relaxing summer.