

Automatizirana izrada topografskih karata u Švicarskoj

U Švicarskoj je početkom 2001. graviranje u izradi topografskih karata zamijenjeno digitalnim metodama zasnovanim na CAD-tehnologiji. Istodobno pokrenuta su i dva velika projekta s ciljem da se produkcija u budućnosti potpuno usmjeri na izradu vektorskih GIS-podataka: TLM i OPTIMA-LK. Zadatak projekta TLM je izrada jedinstvenog digitalnog topografskog modela (*Topographisches Landschaftmodell* – TLM) visoke rezolucije. Projekt je u međuvremenu završen i 2008. počelo se s izradom TLM-a. Projekt OPTIMA-LK ima za cilj izradu digitalnog kartografskog modela (*Digitaler Kartographischer Modell* – DKM) i topografskih karata iz TLM-a. Predviđeno je da se digitalni kartografski model 1:25 000 (DKM25) izradi u šest godina. Da bi se

taj cilj ostvario potreban je visoki stupanj automatizacije.

Izrada DKM25 počinje isporukom TLM-podataka određenog područja kartografima. Budući da DKM25 ne treba toliko informacija koliko ih sadrži TLM, to se TLM-podaci transformiraju u tzv. kartografski izvorni model pri čemu se 3D podaci pretvaraju u 2D podatke.

Potom slijedi s kartografskog stajališta najvažniji korak u automatiziranoj izradi koji se odvija u sustavu *SysDab*, koji je razvijen u sklopu projekta OPTIMA-LK i temelji se na kartografskom GIS-u *axpand*. *SysDab* je nadležan za potpuno automatsku generalizaciju podataka kartografskog izvornog modela. Rezultat automatske generalizacije

sustavom *SysDab* mora biti tako dobar da se manje od 25% objekata mora još ručno doradivati. Dosadašnji testovi pokazali su da je oko 80% objekata u DKM25 korektno generalizirano i da postoji potencijal da se automatska generalizacija u sustavu *SysDab* za izradu DKM25 još poboljša.

Iz sustava *SysDab* podaci se prenose u sustav *Genius-DB* pomoću kojega kartograf dovršava kartu koja sadrži i tekst. *Genius-DB* razvila je tvrtka *ESRI Schweiz AG* na osnovi softvera *ArcGIS 9.3*.

Nedjeljko Frančula

Automatized Topographic Mapping in Switzerland

Engraving in the topographic mapping was substituted by digital methods originated on CAD-technology in Switzerland, in the beginning of 2001. At the same time there were two major projects started as well, with the objective that future production completely redirects towards producing the vector GIS-data: TLM and OPTIMA-LK. TLM Project task has been a construction of the unique, high resolution digital topographic model (*Topographisches Landschaftmodell* – TLM). Meanwhile the project had been finished and in 2008 the producing of TLM was started. OPTIMA-LK project objective is producing of a digital cartographic model (*Digitaler Kartographischer Modell* – DKM) and topographic TLM maps. It has been anticipated to produce the digital topographic model 1:25 000 (DKM25) within 6 years.

The production of DKM25 starts with the TLM-data delivery of certain



area to cartographers. Since DKM25 doesn't need as much information as TLM has, TLM-data are transformed into so called cartographic original model by which 3D data are turned into 2D data.

Then follows, from the cartographic stand, the most important step in automatized making which takes place in the *SysDab* system, developed within OPTIMA-LK project and it is based upon cartographic GIS *axpand*. *SysDab* is authorized for completely automatized data generalization of the cartographic original model. The result of the automatized generalization with *SysDab* system has to be so good that less than 25% of objects need to be finished manually. The tests, until now, have shown that approximately

80% of objects within DKM25 have been correctly generalised and there has been a potential for improving the automatized generalization in *SysDab* for the making of DKM25.

Out of the *SysDab*, data are transferred into *Genius-DB* by which helps a cartographer to finish the map which contains text as well.

Genius-DB has been developed by *ESRI Schweiz AG* Company, based on *ArcGIS 9.3* software.

Izvor / Source

Käuferle, D.: *Automatisierte Landeskartenherstellung in der Schweiz*. *Kartographische Nachrichten* 2010, 5, 273-276.

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