

# Ways of updating ATKIS

**ATKIS (Amtliches Topographisch-Kartographisches Informationssystem) is the official topographic-cartographic information system of the Republic of Germany.**

The executive project of ATKIS was completed in 1989 and then its realization was started. Topographic

phases. It was not until 2001/02 that the production and concurrent updating of the Basic DLM employed digital orthophoto (Digitales Orthophoto – DOP) (Fig. 1). Around 2006, prior to the completion of the Basic DLM, it was considered to shorten the five-year program of aerial imaging. Requirements of the European Commission were also very important. According to their requirements of control and agricultural land use, it was necessary to use a DOP not older than five years. Fines for overstepping the deadline are very high. If images are taken every five years and if it is taken into consideration that sometimes imaging

Operation Graphics 1:200 000 topographic map and the general topographic map 1:500 000.

In 1999, in addition to the mentioned cyclical DLM updating, special updating was introduced of important object types according to the ATKIS object catalog, e.g. roads, squares, railway tracks, airports, terminals, border crossing, tunnels, bridges, wind farms, canals, national parks. Updating deadlines of Basic DLM for various object types and their attributes vary from 3 to 12 months. Using the Basic DLM, cartographic generalisation and design processes are employed to produce a digital topographic map 1:25 000 (DTK25) and, in Eastern states,



Verifikacija izgrađenih površina:  
ortofoto i objekti ATKIS-a  
Built areas verification:  
orthophoto and ATKIS objects

information was stored in digital topographic models also named digital landscape models (Digitale Landschaftsmodelle – DLM). There are four DLMs: Basic DLM (corresponds to maps in scales from 1:10 000 to 1:25 000), DLM50 (1:50 000 – 1:100 000), DLM250 (1:200 000 – 1:500 000) and DLM1000 (1:1 000 000 and smaller scales). Prior to ATKIS, German topographic maps were updated in five-year cycles. Before approximately 1990, analogous aerial images were used to update topographic maps of large scales: base German map at 1:5000 (Deutsche Grundkarte – DGK5) and in Eastern states topographic map at 1:10 000 (TK10). From 1990, the maps were digitised and the Basic DLM was gradually produced in three

has to be moved due to weather conditions and that production of the last DOP of a cycle requires 9–12 months, it was necessary to abort the five-year imaging cycle. States Berlin and Saarland decided to record their territories once a year, Hamburg, Hessen and Rheinland-Pfalz decided on a two-year cycle, and Bremen and Mecklenburg decided on a two- or three-year cycle. All other states introduced a three-year cycle. In 2011, the five-year cycle was still being active, and the three-year cycle was being introduced. The Basic DLM was produced between 1990 and 2008. DLM50 has been produced since 2005 by model and cartographic generalisation from the Basic DLM. DLM250 and DLM1000 were produced by digitising the Joint

1:10 000 (DTK10). The 1:10 000 map is also produced in Western states, but it depends on the state with specific content and cartographic key. Exceptions include Rheinland-Pfalz and Saarland, where 1:5000 maps are produced from the Basic DLM instead of 1:10 000 maps. States of Brandenburg, Hessen, Mecklenburg-Vorpommern, Niedersachsen, Sachsen-Anhalt and Thüringen execute integrated interactive updating of important object types of DLM and DTK. DTK10 is produced in Nordrhein-Westfalen on a weekly basis completely automatically from the Basic DLM. Bayern does it on a three-month basis. Baden-Württemberg plans updating important object types on an annual basis on the 1:10 000 map, while Bayern and

## Načini osuvremenjivanja ATKIS-a

ATKIS (Amtliches Topographisch-Kartographisches Informationssystem) je službeni topografsko-kartografski informacijski sustav Republike Njemačke.

Izvedbeni projekt ATKIS-a završen je 1989. godine i tada se pristupilo njegovoj realizaciji. Topografske informacije pohranjene su u digitalnim

negdje od 2001/02. za izradu i istodobno osuvremenjivanje Osnovnog DLM-a počinje se primjenjivati digitalni ortofoto (Digitales Orthophoto – DOP). Nešto prije završetka stvaranja Osnovnog DLM-a oko 2006. razmatra se mogućnost skraćivanja petogodišnjeg programa aerosnimanja u svrhu stvaranja DOP-a. Pritom su bili vrlo važni i zahtjevi Europske komisije. Prema njihovim zahtjevima za kontrolu i uporabu poljoprivrednog zemljišta nužan je DOP ne stariji od pet godina. Kazne za prekoračenje tog roka vrlo su visoke. Ako se snima svakih pet godina i uzme li se u obzir da je ponekad zbog lošeg vremena potrebno pomicati vrijeme snimanja, a da je

1:200 000 i pregledne topografske karte 1:500 000.

Od 1999. osim već navedenog cikličkog osuvremenjivanja DLM-ova, uvedeno je posebno osuvremenjivanje važnih objektnih vrsta prema katalogu objekata ATKIS-a, npr. ceste, trgovci, željezničke pruge, zračne luke, kolodvori, granični prijelazi, tuneli, mostovi, vjetroelektrane, kanali, nacionalni parkovi. Za različite objektno vrste i njihove atribute rokovi osuvremenjivanja Osnovnog DLM-a iznose 3 do 12 mjeseci. Iz Osnovnog DLM-a kartografskom generalizacijom i procesima oblikovanja izrađuje se digitalna topografska karta 1:25 000 (DTK25) i u istočnim zemljama 1:10



Verifikacija cesta: ortofoto i Osnovni DLM ATKIS-a  
Roads verification: orthophoto and basic ATKIS DLM



topografskim modelima za koje se upotrebljavaju i nazivi digitalni modeli krajolika (Digitale Landschaftsmodelle – DLM). Postoje četiri DLM-a: Osnovni DLM (odgovara kartama mjerila 1:10 000 – 1:25 000), DLM50 (1:50 000 – 1:100 000), DLM250 (1:200 000 – 1:500 000) i DLM1000 (1:1 000 000 i sitnija mjerila). U doba prije ATKIS-a njemačke topografske karte osuvremenjivane su u petogodišnjim ciklusima. Do približno 1990-ih analogne aerosnimke služile su za osuvremenjivanje topografskih karata krupnih mjerila: osnovne njemačke karte 1:5000 (Deutsche Grundkarte – DGK5) i u istočnim zemljama topografske karte 1:10 000 (TK10). Od 1990. digitalizacijom tih karata postupno je u tri faze nastajao Osnovni DLM. Tek

za izradu posljednjeg DOP-a jednog ciklusa potrebno 9 – 12 mjeseci, bilo je nužno odustati od petogodišnjeg ciklusa snimanja. Zemlje Berlin i Saarland odlučile su svoj teritorij snimati jednom godišnje, Hamburg, Hessen i Rheinland-Pfalz odlučili su se za dvogodišnji ciklus snimanja, a Bremen i Mecklenburg za dvo- ili trogodišnji ciklus. Sve ostale zemlje uvele su trogodišnji ciklus. Stanje 2011. pokazuje da je još uvijek aktualan petogodišnji ciklus osuvremenjivanja, a da se trogodišnji ciklus tek uvodi. Osnovni DLM nastao je u razdoblju 1990 – 2008. DLM50 radi se od 2005. modelnom i kartografskom generalizacijom iz Osnovnog DLM-a. DLM250 i DLM1000 izrađeni su digitalizacijom topografske karte Joint Operation Graphics

000 (DTK10). Karta 1:10 000 izrađuje se i u zapadnim zemljama, ali ovisno o zemlji sa specifičnim sadržajem i kartografskim ključem. Izuzetak su Rheinland-Pfalz i Saarland u kojima se iz Osnovnog DLM-a umjesto karte 1:10 000 izrađuje karta 1:5000. U zemljama Brandenburg, Hessen, Mecklenburg-Vorpommern, Niedersachsen, Sachsen-Anhalt i Thüringen provodi se integrirano interaktivno osuvremenjivanje važnih objektnih vrsta DLM-a i DTK-a. DTK10 izrađuje se u Nordrhein-Westfalenu tjedno potpuno automatski iz Osnovnog DLM-a. Bayern to radi u tromjesečnom ritmu. Baden-Württemberg planira jednom godišnje osuvremenjivanje važnih objektnih vrsta na karti 1:10 000, a Bayern i Nordrhein-Westfalen na DTK25. Sve

Nordrhein-Westfalen plan it on DTK25. All states plan cyclical DTK updating, mostly in three-year cycles. There are three different ways to update DLM50 and derived DTK50 and DTK100. Eleven countries plan to produce DLM50 from the Basic DLM automatically using model generalisation every six months. DTK50 is to be produced every three years from DLM50 by processes of automatic cartographic generalisation and interactive processing. Therefore, DLM50 and DTK50 have partially different geometry. DTK100 is to be produced from DLM50 by processes of model and cartographic generalisation and interactive processing in three-year cycles. DLM100 is produced in the middle of the process. Mecklenburg-Vorpommern, Niedersachsen, Bremen and Sachsen treat DLM50 and DTK50 as geometrically identical. Important object types of DLM and DTK are going to be updated interactively after updating the Basic DLM. Cyclical updating of DLM50 and DTK50 is going to be carried out concurrently with the cyclical updating of the Basic DLM. Updating of DTK100 is going to be executed immediately after updating the DTK50. Bayern plans to complete DTK50 and DTK100 by 2012, and to update both maps once a year since 2013. Digital Relief Models (Digitales Geländemodell – DGM) have been produced in Germany since approximately 1980. The models were produced by digitising isohypses from DGK5 and TK25. It was not until the middle of the 1990s that laser scanning was introduced in their production. The smallest distance in the DGM network was reduced from 10 m or 25 m to 5 m, then 2 m, then to 1 m, and height accuracy was increased to several decimeters. In 2010, a decision was made in Germany to require production of 3D building models, with the first level of detail (LoD1) in 2013, and subsequently with the second level of detail (LoD2).

**Source:**

E. Jäger: Wege zur Aktualisierung von ATKIS. zfv 2011, 6, 352-359.

Nedjeljko Frančula ■

# Cartographers in the SCOPUS database

**Scopus, a commercial database of the Elsevier company is the largest bibliographic and citation base in the world with tools for browsing, analyzing and visualizing data.**

At the end of 2011, it included 18 500 journals, out of which 1800 with open access, 425 company publications, 325 book series, 250 proceedings, 375 million scientific web pages and 24.8 million patent records. Scopus was launched in 2004, it contains data from 1966 and citations have been recorded since 1996. Scopus is available to the Croatian academic community courtesy of the Ministry of Science, Education and Sport. Access is regulated by IP address, so a username and password are not necessary (<http://www.scopus.com/home.url>).

We are not going to note all possibilities of browsing the database, but we are going to discuss browsing by authors. In order to obtain papers by a certain author, one needs to use Authors search and write his or her last name and first name or initials in corresponding fields. A special field is reserved for the institution the author works in. Some last and first names are going to yield several dozens of authors and initials might yield several hundred authors. In order to facilitate browsing, Scopus yields last and first names, sometimes only initials, scientific fields and institutions they work in. At the same time, the author ID unifies all name forms the author used into a single virtual identity. However, additional effort is sometimes required to find all virtual identities of a particular author. For example, one would like to find papers by a cartographer with the last name Du and the first name Qingyun. The base contains three virtual identities with those last and first names. One of them is not a cartographer. Out of the remaining two, one has an institution (Wuhan University), while the other does not. A review of their papers reveals they both have papers related to cartography, which leads to the conclusion they are the same person. Such a conclusion is supported by the fact that the first virtual identity was attributed with 65 papers, none of which are from 2011. The other virtual identity was attributed with seven papers from 2011 and three from 2010. In addition, an additional web search confirms the 2011 papers author also has the Wuhan University address, i.e. both virtual identities belong to the same author.

Scopus also enables a citation overview of individual or all papers by a certain author. In order to obtain data about



zemlje planiraju cikličko osuvremenjivanje DTK-a u pravilu u trogodišnjim ciklusima. U osuvremenjivanju DLM50 i iz njega izvedenih DTK50 i DTK100 postoje tri različita načina. Jednako zemlja planira izradu DLM50 iz Osnovnog DLM-a automatski pomoću modelne generalizacije svakih pola godine. DTK50 izrađivao bi se svake tri godine iz DLM50 procesima automatske kartografske generalizacije i interaktivnom doradom. Stoga DLM50 i DTK50 imaju djelomično različitu geometriju. DTK100 izrađivao bi se iz DLM50 procesima modelne i kartografske generalizacije i interaktivnom doradom u trogodišnjim ciklusima. Pritom kao međuproizvod nastaje DLM100. Mecklenburg -Vorpommern, Niedersachsen, Bremen i Sachsen tretiraju DLM50 i DTK50 kao geometrijski identične. Važne objektivne vrste i DLM-a i DTK-a osuvremenjivat će se interaktivno izravno nakon osuvremenjivanja Osnovnog DLM-a. Cikličko osuvremenjivanje DLM50 i DTK50 izvodit će se paralelno s cikličkim osuvremenjivanjem Osnovnog DLM-a. Osuvremenjivanje DTK100 izvodit će se izravno nakon osuvremenjivanja DTK50. Bayern planira dovršetak DTK50 i DTK100 do 2012, a od 2013. osuvremenjivanje obje karte jednom godišnje. Digitalni modeli terena (Digitales Geländemodell – DGM) izrađuju se u Njemačkoj od približno 1980. godine. Ti su modeli nastajali digitalizacijom izohipsa s DGK5 i TK25. Tek od sredine 1990-ih primjenjuje se u njihovoj izradi lasersko skeniranje. Pritom je najmanja udaljenost u mreži DGM-a s 10 m, odnosno 25 m smanjena na 5 m, 2 m pa i na 1 m, a točnost visina povećana na nekoliko decimetara. Godine 2010. donesena je u Njemačkoj odluka o potrebi izrade 3D modela zgrada i to do 2013. s tzv. prvim stupnjem detaljnosti (Level of Detail – LoD1), a srednjoročno i s drugim stupnjem detaljnosti (LoD2).

#### Izvor:

E. Jäger: Wege zur Aktualisierung von ATKIS. zfv 2011, 6, 352-359.

Nedjeljko Frančula ■

# Kartografi U bazi podataka SCOPUS

**Scopus, komercijalna baza podataka tvrtke Elsevier, najveća je bibliografska i citatna baza na svijetu s alatima za pretraživanje, analiziranje i vizualizaciju dobivenih podataka.**

Uključuje, krajem 2011, 18 500 časopisa od kojih 1800 s otvorenim pristupom, 425 publikacija tvrtki, 325 serija knjiga, 250 zbornika radova, 375 milijuna znanstvenih web-stranica i 24,8 milijuna patentnih zapisa. Scopus je pokrenut 2004, sadrži podatke od 1966, a citati se u bazi vode od 1996. Zahvaljujući Ministarstvu znanosti, obrazovanja i sporta (MZOS) Scopus je dostupan hrvatskoj akademskoj zajednici, a pristup je reguliran IP adresama pa nije potrebno korisničko ime i zaporka (<http://www.scopus.com/home.url>).

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