



Abstract

The territory of what is now Slovenia appears on even the oldest maps of Europe, as a constituent part of various sovereign states. Its geographical location, Slavic roots, and long association with the Habsburg Monarchy resulted in constant contact with central and southeast European cultural trends, including in cartography. The Slovenian lands were more frequently depicted on maps from the early sixteenth century onward. Due to its marginal political role and mapmakers' lack of familiarity with the territory, at first, it was drawn fairly superficially. This changed in the eighteenth century, when Slovenian and other researchers carried out their own field research, surveying and drawing individual parts of Carniola, Styria, Istria, and Carinthia. With the national awakening in the second half of the nineteenth century, the desire for an independent country manifested itself in the first maps of Slovenian ethnic territory. For most of the twentieth century, Slovenia appeared on maps as part of Yugoslavia, and from 1991 onward as an independent country, preserving and developing cartographic practice in line with cartographic standards.

Keywords

Regional geography · Historical geography · Historical cartography · Old maps

16.1 Depictions of Slovenia on Very Old Maps

The transport routes that connected Western Europe with the Middle East were of key importance for presenting Slovenian territory even on the oldest maps. One of these is *Tabula Peutingeriana* (Fig. 16.1), a medieval copy of a Roman Empire roadmap from the first to third centuries attributed to Castorius. The medieval map is named after the Augsburg antiquarian whose collection it became part of in 1508 (Goss 1993). Drawn on 12 parchment scrolls with a total length of 6.75 m, it emphasizes roads, places to find lodging, and distances in Roman miles (Mihevc 1998: 38).

In Antiquity and the Middle Ages, Slovenia was a constituent part of various sovereign states and was thus depicted in a very generalized manner and only sporadically identified with any of the toponyms that would later become standard. One such example is the name *Carinthia*, which appears on a medieval map of the world drawn around 1235 by a monk at the Saxon monastery in Ebstorf, Germany (Höck and Leitner 1984). Only at the start of the sixteenth century did maps of various parts of Europe first appear that depicted rivers, mountains, settlements, and other cartographic features with greater locational precision. One of these is *Histriae Tabula*, a map of Istria from 1525 by the cartographer Pietro Coppo (Fig. 16.2). His work is still viewed as the best cartographic representation of the Istrian peninsula up to the mid-eighteenth century (Longyka 2003).

The Austrian cartographic pioneer Wolfgang Lazius deserves credit for the first depictions of Slovenia. In 1561 he issued a collection of 11 maps, *Typi chorographici Provinciarum Austriae* (Chorographic Plans of Austrian Provinces; Lazius 1972). One of these maps, *Ducatus Carniolae et Histriae una cum Marcha Windorum* (The Duchy of Carniola and Istria together with the Windic March; Fig. 16.3), is the first known independent representation of the Duchy of Carniola. However, this visually attractive map

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has many spatial deficiencies (Slovinci ... 1986; Longyka 2003).

Atlases played a special role in familiarizing people with foreign lands. In 1570, the Flemish cartographer Abraham

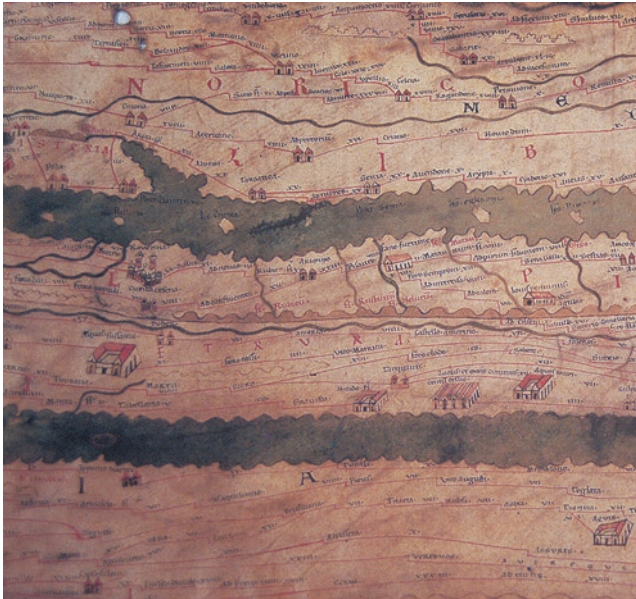


Fig. 16.1 A section of *Tabula Peutingeriana* with the Roman city of Emona (precursor to Ljubljana) in the center. (Mihevc 1998)

Ortelius included a map of *Schlavoniae, Croatiae, Carniae, Istriae, Bosniae, finitimarumque regionum nova descriptio* (A New Description of Slavonia, Croatia, Carniola, Istria, Bosnia, and Neighboring Regions) in the first edition of his atlas *Theatrum Orbis Terrarum* (Theater of the World). It was a reworked map of the Kingdom of Hungary, issued by the German cartographer Augustin Hirschvogel probably in the mid-sixteenth century (Kratochwill 1986).

The Flemish cartographer Gerardus Mercator, who was the first to call a collection of maps an “atlas” (Perko 2005), produced the map *Forum Iulium, Karstia, Carniola, Histria et Windorum Marchia* (Friuli, Karst, Carniola, Istria, and the Windic March). He issued it in 1589, and this map formed the basis for many subsequent depictions of Slovenian territory. Because information was copied over from one map to another, certain inaccuracies and errors were repeated for many decades (Shaw and Čuk 2015).

The development of cartography in Europe was furthered in the seventeenth century by the Dutch publishing family Blaeu, which issued the atlases *Theatrum Orbis Terrarum, sive Atlas Novus* (Theater of the World or New Atlas) from 1635 onward. At first, these works continued and completed Ortelius’ and Mercator’s works, but later the atlas grew into an independent work. Like the other regions, Slovenian territory was thus depicted on numerous maps, most of which were based on the works by these two cartographers.



Fig. 16.2 Map of Istria by Pietro Coppo. (Lago and Rossit 1984)



Fig. 16.3 Map of the Duchy of Carniola by Wolfgang Lazius from 1561. (Lazius 1561) (National and University Library in Zagreb Archive)

The royal geographer to Louis XIII and Louis XIV and the most important French cartographer of the seventeenth century, Nicolas Sanson, produced the map *Hertzoghüber Steyer, Karnten, Krain, & c. Duchés de Stirie, Carinthie, Carniole* (The Duchies of Styria, Carinthia, and Carniola; Fig. 16.4) in 1657. Despite some inaccuracy, the map clearly depicts Slovenian territory and served as the basis for numerous later cartographic representations of this part of Europe.

One of the most important depictions of Slovenian territory during this period was the map *Styriae Ducatus Fertilissimi Nova Geographica Descriptio* (New Geographical Description of the Most Fertile Duchy of Styria) by the Austrian cartographer Georg Matthäus Vischer. It depicts Styrian territory in great detail and includes a few illustrations. One of them portrays the battle of Archangel Michael with the dragon, which represents the victory of the Austrian army over the Ottomans at the 1664 Battle of Saint Gotthard (Stopar 2006; Fig. 16.5).

16.2 The First Maps by Local Cartographers in the Seventeenth and Eighteenth Centuries

Due to political and military interests, the end of the seventeenth century notably stepped up development of navigation aids and land-surveying instruments, and the invention of more accurate surveying methods, such as triangulation. In addition to foreign cartographers, there were now also local ones, who established European cartographic trends on Slovenian territory. This was also the period that Slovenian historiography received its best description of the country. Janez Vajkard Valvasor (Johann Weikhard von Valvasor 1689) published a work on the culture, history, and topography of the Carniolan lands, *Die Ehre deß Hertzogthums Crain* (The Glory of the Duchy of Carniola). In the second of 15 volumes, he published the map *Carniolia, Karstia, Histria et Windorum Marchia* (Carniola, Karst, Istria, and the Windic



Fig. 16.4 Nicolas Sanson's map of 1657. (Sanson 1657) (GIAM ZRC SAZU Archive)



Fig. 16.5 Representation from the 1678 map of Styria by Georg Matthäus Vischer. (Vischer 1678) (National and University Library in Ljubljana Archive)

March; Fig. 16.6). It was modeled on older cartographic works, but it used field surveying to improve the accuracy of depictions of the river network, lakes, and settlements. His map of Istria was a step backward, however, because he did not make use of Coppo's map (Fridl and Šolar 2011). Valvasor had to sell almost all his property in order to cover his printing costs for *The Glory of the Duchy of Carniola*, and so up to his untimely death, he was never able to achieve his greatest dream, which was to produce a map of Carniola on a larger scale, for which he had already surveyed most of the country.

Valvasor's cartographic work continued to be used into the first half of the eighteenth century, as is evident in the map *Tabula Ducatus Carnioliae, Vindorum Marchiae et Histriae* (Map of the Duchy of Carniola, Karst, the Windic March, and Istria) by the German cartographer Johann Baptist Homann (Lago 1996). Due to its detailed depiction of the territory from Dalmatia to Carinthia and the added city view of Ljubljana and a precise drawing of intermittent Lake Cerknica, the map was reprinted many times (Gašperič and Zorn 2011).

Valvasor's plans were finally realized more than half a century later in 1744 by the priest Janez Dizma Florjančič (Joannes Disma Floriantschitsch de Grienfeld), with his wall map *Ducatus Carnioliae tabula chorographica* (Chorographic Map of the Duchy of Carniola; Fig. 16.7). This was the result of more than a decade of work, during which the mapmaker traveled around Carniola, taking



Fig. 16.6 Valvasor's map *Carniolia, Karstia, Histria et Windorum Marchia*. (Valvasor 1689) (National and University Library in Ljubljana Archive)



Fig. 16.7 A section of the map of Carniola by Janez Dizma Florjančič. (Florjančič 1744) (GIAM ZRC SAZU Archive)

geodesic measurements from nearly 300 high-elevation points. This was the highest-quality and most complete map of Carniola up to the first half of the nineteenth century (Zorn and Gašperič 2016). It is exceptional for its scale of about 1:100,000 and its detailed, stylized depiction of relief. The map consists of 12 sheets and is roughly 180 cm high and 188 cm wide (Fridl and Šolar 2011). This map was the first to feature certain toponyms in Slovenian dialect form, such as *Terglou* for the highest Slovenian mountain, Triglav. Other special features of this wall map include an added city view and street plan of Ljubljana in the upper right corner.

16.3 Military Map and Land Cadaster from the Second Half of the Eighteenth Century

The Habsburg Monarchy did not start using the new triangulation method until 1762 (Gašperič 2013). The survey of the western part of the monarchy, which included Slovenia, was completed around 1830. Between 1763 and 1787, the Habsburg Monarchy carried out the first military topographic survey of the entire country, but it was still using the old method of drawing individual sheets using a plane table directly in the field. The Josephine military map was a strictly

guarded military document that was not available to the general public. Special attention was paid to more precise depiction of relief using hatching (Rajšp and Ficko 1994). Despite its projection inaccuracies and inaccessibility, the map is one of the best cartographic works of the second half of the eighteenth century, due to its detailed scale of around 1:28,800 and extensive information (Gašperič 2010; Gašperič et al. 2018). Facsimiles of individual sheets of the military map covering Slovenian territory were issued in seven volumes (Rajšp and Ficko 1995, 1996; Rajšp and Trpin 1997; Rajšp and Serše 1998; Rajšp and Grabnar 1999; Rajšp and Kološa 2000; Rajšp and Serše 2001).

The only maps to surpass the military survey in detail were the later Franciscan Cadaster and the subsequently revised version of it. As early as the eighteenth century, during Empress Maria Theresa's reign, property tax reform was implemented—for which the land was not surveyed, however, but only assessed by yield. A systematic survey of the land in all provinces of the Habsburg Monarchy except for Prekmurje, with a unified system of coordinates, was carried out between 1818 and 1828 under the reign of Emperor Francis I, which is why it is called the Franciscan Cadaster. Individual sections of the cadaster are in color, and most are drawn at a scale of 1:2800, with difficult-to-access regions at 1:5760 and some large settlements at 1:1440 or 1:720 (Golec 2010). The cadaster does not show the relief, but it is very precise in depicting parcels of land, which are given various colors according to their category of land use. Following the tax reform of 1869, an extensive revision of the cadaster was carried out between 1869 and 1887, and so it is now called the revised cadaster (Petek and Urbanc 2004).

16.4 Reflection of Slovenian Identity in Maps

The use and hierarchy of languages in Slovenia did not change much for several centuries, which is also evident from the titles of the maps described above. That is, in religious and educated society, Latin was required. The language of the high society, offices, and courts was German, or Italian in the southwest and Hungarian in the northeast. The majority of lower-class city residents, farmers, and serfs spoke only one language, however, and that was Slovenian. With the publication of grammars, hymnals, schoolbooks, and agricultural handbooks in Slovenian for farmers in the second half of the eighteenth century came the early stirrings of national awakening (Štih et al. 2016). The results of this were first visible on maps primarily through the use of Slovenian toponyms, such as those on the bilingual wall map by the botanist Heinrich Freyer. Between 1844 and 1846, he produced a 16-sheet thematic map called *Special-Karte des Herzogthums Krain* (Special Map of the Duchy of Carniola;

Fig. 16.8). The map is exceptionally rich in Slovenian toponyms, and about half of these are also accompanied by the German version of the toponym. Locations of quarries, mines, and mine buildings are also marked (Gašperič 2007).

Difficult social, economic, and political conditions led to several revolutionary movements in Europe. Their demands to abolish absolutism and the remnants of feudalism reached their peak in 1848. The transformation of the Austrian Empire into a bourgeois parliamentary monarchy awakened hope among Slovenians that a larger administrative unit bringing together all Slovenian ethnic territory would be created. This was also one of the demands of the political program United Slovenia (*Zedinjena Slovenija*), which was supported by various Slovenian societies (Granda 2001).

One of the Slovenian students that came to Ljubljana from Vienna in order to encourage Slovenian leaders to sign the petition in favor of United Slovenia was Peter Kozler (Peter Kosler). As a lawyer, politician, and businessman, he also studied the borders of Slovenian territory in Istria, Gorizia, Carinthia, and Hungary. Using extensive documentation, he prepared his *Zemljovid Slovenske dežele in pokrajin* (Map of the Slovenian Land and Regions) at a scale of 1:576,000 (Fig. 16.9). In 1853, the Austrian military authorities confiscated the plates from the printer, sealing all 422 maps already printed and a thousand sheets of coats of arms of the Slovenian lands. They justified this by claiming that the map depicted a nonexistent political entity and undermined the lawful union of the Austrian crownlands, accusing Kozler of high treason. After a few months, Kozler was acquitted of all charges, but his confiscated property was not returned to him until 1856 at his own special request. With permission from the authorities, the map was reprinted twice in 1864, and once again in 1871 (Kordiš 2016). The 1864 reprint was accompanied by the supplement *Imenik mest, tergov in krajev* (Index of Cities, Towns, and Villages).

Blaž Kocen (Blasius Kozenn) also did not renounce his Slovenian ethnic origin and pride. He became famous for his outstanding school atlases and wall maps. His *Geographischer Schul-Atlas für die Gymnasien, Real- und Handels-Schulen der österreichischen Monarchie von B. Kozenn* (Kocen's Geographical School Atlas for High Schools and Secondary Schools in the Austrian Monarchy), published in 1861 in German, Hungarian, Czech, and Polish, has been published in more than 180 editions, reprints, or adaptations. Even though the atlas was not published in Slovenian and some fervent Slovenian nationalists criticized Kocen for his lack of Slovenian ethnic spirit, this was not true. In the school atlas' map of Alpine lands, he drew ethnic borders that he most likely adapted from Kozler, adding a German–Slovenian list of names of major settlements in the area inhabited by Slovenians. His use of Slovenian names of places cannot be taken for granted, considering that his textbooks and atlases were primarily intended for schools that used German as



Fig. 16.8 Section of the map of Carniola by Heinrich Freyer. (Freyer 1846) (GIAM ZRC SAZU Archive)

their language of instruction and that German was also used in schools in areas inhabited by Slovenians (Bratec Mrvar et al. 2011).

The publishing society “Slovenska matica” was established in 1864 with the aim of enhancing Slovenian national identity, or, in its own words, “doing what is in its power to promote the education of the Slovenian people and thus support Slovenian literature” (Melik 1997). To obtain as many members as possible, it announced in the newspaper *Kmetijske in rokodelske novice* (Farmers’ and Craftsmen’s News) that a copy of Kozler’s *Zemljovid Slovenske dežele in pokrajin* would be enclosed with the society’s almanac. The Slovenian Society unanimously supported the idea that intellectuals, students, and the general public should also obtain a Slovenian-language world atlas as soon as possible. Despite the invention of lithography, which significantly reduced the cost of printing multiple colors and accelerated the relevant printing procedures, publishing an atlas in book form was too expensive for the society. Hence from 1869 to 1877, 18 maps were published in 6 fascicles of 3 sheets each, presenting the world as a whole or its individual parts. The “Slovenska matica” entrusted the linguist and lawyer Matej Cigale with editing the first Slovenian world atlas, called *Atlant* (Fig. 16.10; Urbanc 2005). Cigale’s work on *Atlant* was exceptional because he systematically translated or

adapted numerous foreign names into Slovenian for the first time ever. Of a total of 28,075 geographical names and names of individual general concepts provided in the atlas, Cigale Slovenianized 5907 of them, or 21%. He Slovenized all major toponyms and hence can be rightfully referred to as the founder of Slovenian toponym use (Kladnik 2005).

16.5 Modern Maps of the Twentieth and Twenty-First Centuries

After the Second World War, when Slovenia became a Yugoslav republic, the responsibility for national topographic maps was assumed by the Slovenian Surveying and Mapping Authority. Through systematic field measurements, revised surveys, and cyclical aerial photography of Slovenia carried out by the Slovenian Land Survey Institute, Slovenia established a hierarchical system of topographic maps and plans. In terms of scale, they can be divided into base topographic plans at a scale of 1:5000 for flatland and 1:10,000 for hilly regions, national topographic maps at a scale of 1:25,000 and 1:50,000, and general maps at scales of 1:250,000, 1:400,000, 1:500,000, 1:750,000, 1:1,000,000, 1:1,500,000, and 1:2,000,000 (Lipej 2001).



Fig. 16.9 Peter Kozler's map of Slovenian ethnic territory. (Kozler 1853) (GIAM ZRC SAZU Archive)

Due to security interests of the former Yugoslavia, the base topographic plans and national topographic maps were only accessible to specialist services until Slovenia's independence in 1991, and so Slovenians closed the gap in the publication of large-scale topographic maps for the general public through the 1985 publication of *Atlas Slovenije* (Atlas of Slovenia; Kos 1985). The large-scale representations of

Slovenian territory on 109 double-sided sheets of a 1:50,000 topographic map were published in as many as four revised editions of the atlas by 2012.

In the second half of the twentieth century, the leading role in thematic cartography for educational, tourism, recreational, and informative purposes was assumed by the Geodetic Institute of Slovenia, which produced the first



Fig. 16.10 A section from the Austria sheet (from 1869) of *Atlant*, the first Slovenian atlas of the world. (Fridl et al. 2005)

roadmap of Yugoslavia and set the standards for producing hiking maps and city maps. It designed 1:75,000–1:170,000 maps for many municipalities, and 1:2500–1:20,000 maps for individual settlements (Lipej 2001).

The ZRC SAZU Anton Melik Geographical Institute has the longest tradition in thematic cartography in Slovenia. It has produced maps for a series of popular and scientific volumes and atlases, including *Krajevni leksikon Slovenije* (Slovenian Gazetteer; Orožen Adamič et al. 1995), published in 1995, and the volume *Slovenija: Pokrajine in ljudje* (Slovenia: Regions and People; Perko and Orožen Adamič 1998) published 3 years later. In parallel with this, the institute's researchers also designed the first national atlas, directing special attention to emerging digital cartography. An expanded version of the national atlas was published in 1998 under the title *Geografski atlas Slovenije* (Geographical Atlas of Slovenia (Fridl et al. 1998); Fig. 16.11), and a compact version better-suited for non-Slovenian readers was published 3 years later under the title *National Atlas of Slovenia* (Fridl et al. 2001). For its sixtieth anniversary in 2006, the institute published a facsimile edition of *Atlant*, the first Slovenian world atlas (Fridl et al. 2005), and for the

sixtieth anniversary of its thematic cartography department in 2012, it published a facsimile of Gaetan Palma's map of the Illyrian Provinces of 1812 with an accompanying research volume (Gašperič et al. 2012), continuing the publication of historically important cartographic works.

The Geographical Institute was entrusted with another important cartographic representation of Slovenia: *Popisni atlas Slovenije 2002* (2002 Census Atlas of Slovenia, Fig. 16.12). This atlas contains 106 thematic maps presenting the statistical data of the population, household, and housing census carried out by the Statistical Office of the Republic of Slovenia in April 2002. That was the fifteenth census carried out in Slovenia, the seventh after the Second World War, and the first one in independent Slovenia (Dolenc et al. 2007). In addition, the institute produced the English atlas *Slovenia in Focus*, which was published on January 1, 2008 at the start of Slovenia's EU presidency (Fridl et al. 2007).

As already mentioned above, aerial photography is the most important current source of data for cartography. The first aerial photos of Slovenian territory were already taken before the First World War for military reconnaissance purposes (Breg Valjavec and Ribeiro 2014). However, aerial

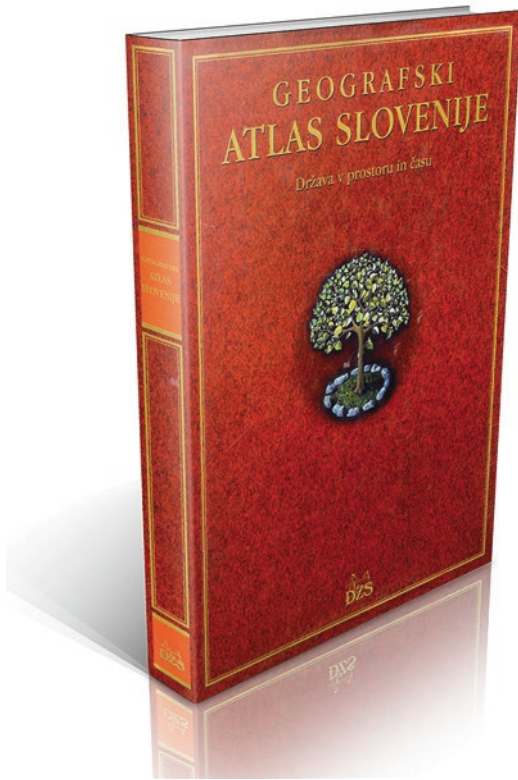


Fig. 16.11 The first national atlas of Slovenia. (Fridl et al. 1998)

photography for land-surveying purposes only began to be used as late as 1971. Systematic cyclical aerial photography began to be carried out in 1975 (Oštir 2006), and in 1980 aerial photos of all of Slovenia were produced at a scale of 1:30,000. At the same time, in addition to taking photos in the visible spectrum, photos were also taken in the near-infrared spectrum, which made it possible to interpret a new type of data on agriculture, forestry, hydrology, and geology. From 1985 onward, photos were taken at 3-year intervals at a scale of 1:10,000 for settlement areas and 1:17,500 for mountainous areas. In 1992, the scale was unified at 1:17,500. Because of technological advances, the quality of aerial photos has been changing, especially since 2006, when digital cameras began to be used (Logar 2008).

An important step in the spatial recognition of Slovenia's terrain was made with laser scanning of its entire territory using the Light Detection and Ranging (LiDAR) method (Fig. 16.13). This project was funded by the Slovenian Ministry of the Environment and Spatial Planning in 2011, 2014, and 2015. A major part of Slovenia was scanned with a density of at least five points per m^2 , and high mountains and extensive wooded areas were scanned with a density of at least two points per m^2 (Triglav Čekada and Bric 2015). Thus, in addition to land-surveying vector data, raster representations such as digital orthophotos (DOF), digital terrain models (DTM), and laser images (LiDAR) are important in modern cartography.

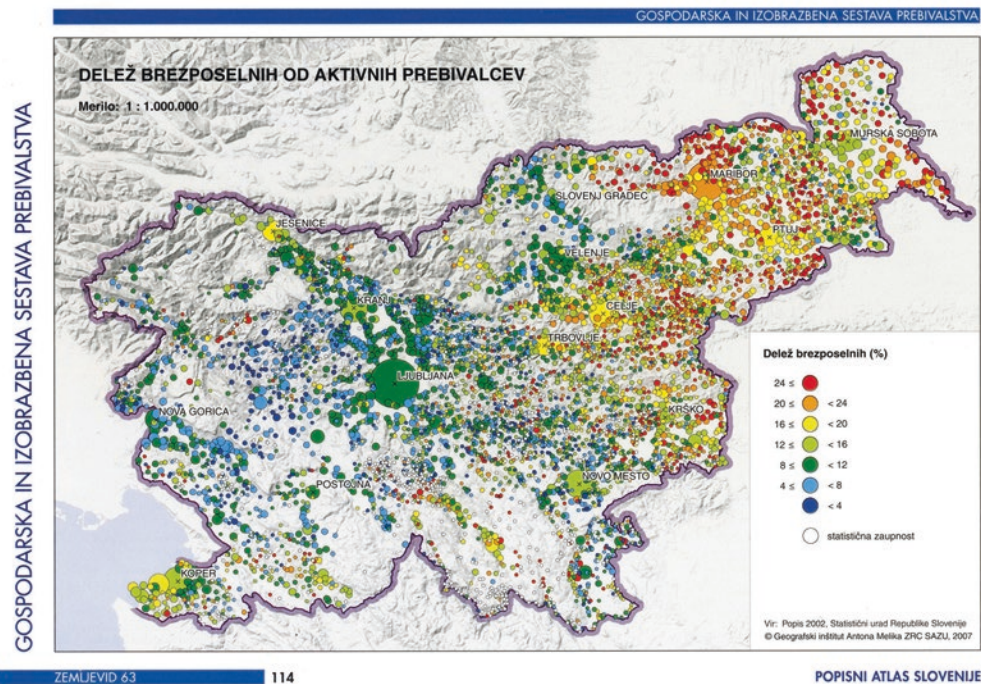


Fig. 16.12 Representation of the share of unemployed in the total working population in *Popisni atlas Slovenije*. (Dolenc et al. 2007)

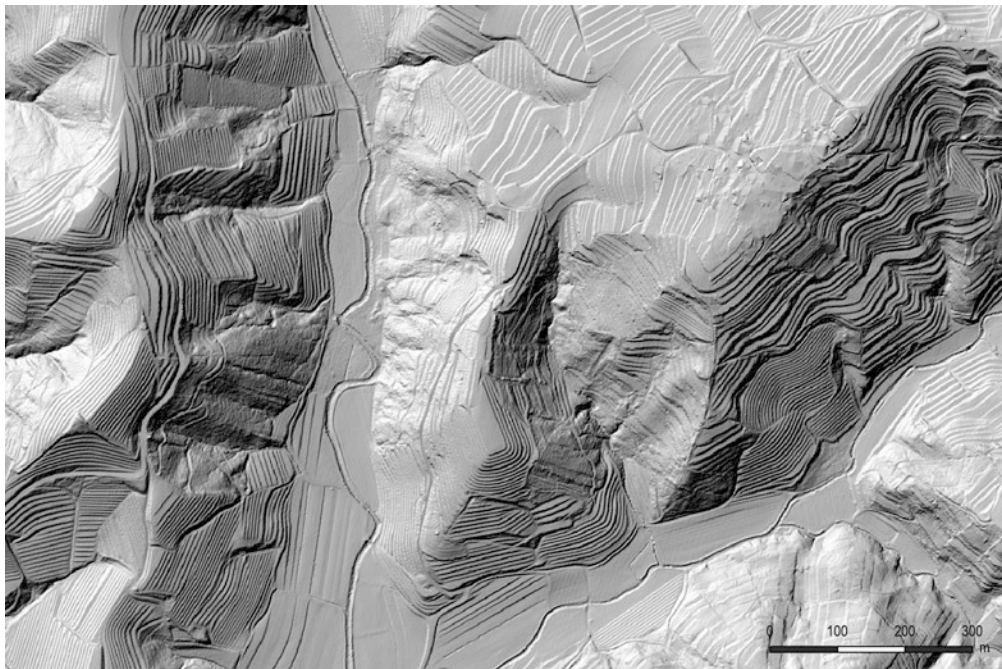


Fig. 16.13 Laser image of the winegrowing terraces in the Goriška Brda. (Slovenian ... 2012)

References

- Bratec Mrvar R, Birsak L, Fridl J, Kladnik D, Kunaver J (2011) Kocenov srednješolski atlas kot didaktična prelomnica [Kocen's school atlas as a milestone in education]. *Geografija Slovenije* 22. Založba ZRC, Ljubljana
- Breg Valjavec M, Ribeiro D (2014) Uporabnost zgodovinskih aeroposnetkov pri preučevanju pokrajinskih sprememb na ozemlju Slovenije [Applicability of historical aerial photographs in landscape change studies in Slovenia]. In: Ciglič R, Perko D, Zorn M (eds) *GIS v Sloveniji 12: Digitalni prostor*. Založba ZRC, Ljubljana, pp 71–84
- Dolenc D, Fridl J, Kladnik D, Perko D, Repolusk P (eds) (2007) *Popisni atlas Slovenije 2002* [Census atlas of Slovenia 2002]. Založba ZRC, Ljubljana
- Florjančič JD (1744) *Ducatus Carnioliae tabula chorographica* [Chorographic map of the Duchy of Carniola]. Cartographic material, app. scale 1:100,000. Laibach
- Freyer H (1846) *Special-Karte des Herzogthums Krain* [Special map of the Duchy of Carniola]. Cartographic material, app. scale 1:113,000. Wien
- Fridl J, Kladnik D, Orožen Adamič M, Pavšek M, Perko D, Repolusk P, Urbanc M (eds) (2007) *Slovenia in Focus*. Založba ZRC, Ljubljana
- Fridl J, Kladnik D, Orožen Adamič M, Perko D (eds) (1998) *Geografski atlas Slovenije*. DZS, Ljubljana
- Fridl J, Kladnik D, Orožen Adamič M, Perko D, Urbanc M (eds) (2005) *Atlant*. Založba ZRC, Ljubljana
- Fridl J, Kladnik D, Orožen Adamič M, Perko D, Zupančič J (eds) (2001) *National atlas of Slovenia*. Rokus, Ljubljana
- Fridl J, Šolar R (2011) Vpliv razvoja kartografskih tehnik na podobe zemljevidov slovenskega ozemlja od 16. do 19. stoletja [The influence of cartographic techniques development on the images of the Slovenian territory: from 16th to the 19th century]. *Knjižnica* 55(4):205–221
- Gašperič P (2007) Cartographic images of Slovenia through time. *Acta Geogr Slov* 47(2):245–273. <https://doi.org/10.3986/AGS47205>
- Gašperič P (2010) The 1812 map of the Illyrian Provinces by Gaetan Palma. *Acta Geogr Slov* 50(2):277–294. <https://doi.org/10.3986/AGS50205>
- Gašperič P (2013) Kartografija v času Ilirskih provinc [Cartography at the time of the Illyrian Provinces]. *Geografski obzornik* 60(3):4–9
- Gašperič P, Orožen Adamič M, Šumrada J (2012) *Zemljevid Ilirskih provinc iz leta 1812/Carte des Provinces Illyriennes de 1812* [Map of the Illyrian Provinces from 1812]. Založba ZRC, Ljubljana
- Gašperič P, Perko D, Zorn M (2018) Cartographic presentations of borders on old maps of Slovenia. *Acta geobalcantica* 4(2):67–76. <https://doi.org/10.18509/AGB.2018.08>
- Gašperič P, Zorn M (2011) Vzpeti svet na starih zemljevidih ozemlja Slovenije [Mountainous terrain on old maps of Slovenian territory]. *Planinski vestnik* 116(12):5–9
- Golec B (2010) *Zemljiški katastri 18. in 19. stoletja kot vir za stavbno, gradbeno in urbanistično zgodovino slovenskega ozemlja – 2. del* [Land cadastres of the 18th and 19th centuries as sources for the building and urbanistic history of the Slovenian territory – part 2]. *Arhivi* 33(2):339–396
- Goss J (1993) *The Mapmaker's art: an illustrated history of cartography*. Rand McNally, Chicago
- Granda S (2001) *Zedinjena Slovenija* [United Slovenia]. In: *Enciklopedija Slovenije*, vol 15. Mladinska knjiga, Ljubljana, pp 146–150
- Höck J, Leitner FW (1984) *Kärnten in alten Landkarten bis 1809: Ausstellung anlässlich der 100-Jahr-Feier des Landesmuseums für Kärnten 1884–1984*. Landesmuseum für Kärnten, Klagenfurt
- Kladnik D (2005) *Zemljepisna imena v Atlant in njihov pomen za sodobno imenoslovje* [Toponyms in Atlant and their significance for modern onomastics]. In: Fridl J, Kladnik D, Orožen Adamič M, Perko D, Urbanc M (eds) *Atlant*. Založba ZRC, Ljubljana, pp 14–15
- Kordiš I (2016) Peter Kozler and his map of the Slovenian land and its provinces (1849–1871). *Imago Mundi* 68(2):212–231. <https://doi.org/10.1080/03085694.2016.1171488>
- Kos V (ed) (1985) *Atlas Slovenije* [Atlas of Slovenia]. Mladinska knjiga, Ljubljana

- Kozler P (1853) *Zemljovid Slovenske dežele in pokrajin* [Map of the Slovenian land and regions]. Cartographic material, app. scale 1:576,000. Wien
- Kratochwill M (1986) Hirschvogel Augustin. In: Kretschmer I, Dörflinger J, Wawrik F (eds) *Lexikon zur Geschichte der Kartographie: von den Anfängen bis zum Ersten Weltkrieg*, vol. 1. Franz Deuticke, Wien, p 301
- Lago L (1996) *Stare karte Jadrana* [Historical maps of the Adriatic sea]. C.A.S.H., Pula
- Lago L, Rossit C (1984) *Pietro Coppo: Le »Tabulae« (1524–1526) una preziosa raccolta cartografica custodita a Pirano* [Pietro Coppo: the "Tabulae" (1524–1526), A valuable cartographic collection kept in Piran]. Lint, Trieste
- Lazius W (1561) *Ducatus Carniolae et Histriae una cum Marcha Windorum* [The Duchy of Carniola and Istria together with the Windic March]. Cartographic material, app. scale 1:520,000. Wien
- Lazius W (1972) *Typi chorographici Provinciarum Austriae* [Chorographic plans of Austrian provinces]. *Theatrum Orbis Terrarum*, series of atlases in facsimile, vol. 6. *Theatrum Orbis Terrarum*, Amsterdam
- Lipej B (2001) Slovene cartography today. In: Fridl J, Kladnik D, Orožen Adamič M, Perko D, Zupančič J (eds) *National atlas of Slovenia*. Rokus, Ljubljana
- Logar N (2008) 50 let geodetske službe v Trebnjem [50 years of geodetic service in Trebnje]. B.Sc.. Univerza v Ljubljani, Ljubljana
- Longyka I (2003) *Prikazi slovenskega ozemlja* [Depictions of Slovenian territory]. In: Vidic M, Brenk L, Ivanič M (eds) *Ilustrirana zgodovina Slovencev*. Mladinska knjiga, Ljubljana, pp 443–483
- Melik V (1997) *Slovenska matica* [The *Slovenska matica* society]. In: *Enciklopedija Slovenije*, vol. 11. Mladinska knjiga, Ljubljana, pp 415–416
- Mihevč B (1998) *Slovenija na starejših zemljevidih* [Slovenia on historical maps]. In: Fridl J, Kladnik D, Orožen Adamič M, Perko D (eds) *Geografski atlas Slovenije*. DZS, Ljubljana, pp 38–49
- Orožen Adamič M, Perko D, Kladnik D (1995) *Krajevni leksikon Slovenije* [Slovenian Gazetteer]. DZS, Ljubljana
- Oštir K (2006) *Daljinsko zaznavanje* [Remote sensing]. Založba ZRC, Ljubljana
- Perko D (2005) *Zemljevid in atlas, kartografija in geografija* [A map and an atlas: cartography and geography]. In: Fridl J, Kladnik D, Orožen Adamič M, Perko D, Urbanc M (eds) *Atlant*. Založba ZRC, Ljubljana, pp 4–5
- Perko D, Orožen Adamič M (eds) (1998) *Slovenija: pokrajine in ljudje* [Slovenia: regions and people]. Mladinska knjiga, Ljubljana
- Petek F, Urbanc M (2004) The Franziscan land cadastre as a key to understanding the 19th-century cultural landscape in Slovenia. *Acta Geogr Slov* 44(1):89–113. <https://doi.org/10.3986/AGS44104>
- Rajšp V, Ficko M (eds) (1994) *Slovensko ozemlje na vojaškem zemljevidu iz druge polovice 18. stoletja* [Slovenian territory on a military map from the second half of the 18th century]. ZRC SAZU, Arhiv Republike Slovenije, Ljubljana
- Rajšp V, Ficko M (eds) (1995) *Slovenija na vojaškem zemljevidu 1763–1787, zvezek 1* [Slovenia on the 1763–1787 Military map, vol. 1]. ZRC SAZU, Arhiv Republike Slovenije, Ljubljana
- Rajšp V, Ficko M (eds) (1996) *Slovenija na vojaškem zemljevidu 1763–1787, zvezek 2* [Slovenia on the 1763–1787 Military map, vol. 2]. ZRC SAZU, Arhiv Republike Slovenije, Ljubljana
- Rajšp V, Grabnar M (eds) (1999) *Slovenija na vojaškem zemljevidu 1763–1787, zvezek 5* [Slovenia on the 1763–1787 Military map, vol. 5]. ZRC SAZU, Arhiv Republike Slovenije, Ljubljana
- Rajšp V, Kološa V (eds) (2000) *Slovenija na vojaškem zemljevidu 1763–1787, zvezek 6* [Slovenia on the 1763–1787 Military map, vol. 6]. ZRC SAZU, Arhiv Republike Slovenije, Ljubljana
- Rajšp V, Serše A (eds) (1998) *Slovenija na vojaškem zemljevidu 1763–1787, zvezek 4* [Slovenia on the 1763–1787 Military map, vol. 4]. ZRC SAZU, Arhiv Republike Slovenije, Ljubljana
- Rajšp V, Serše A (eds) (2001) *Slovenija na vojaškem zemljevidu 1763–1787, zvezek 7* [Slovenia on the 1763–1787 Military map, vol. 7]. ZRC SAZU, Arhiv Republike Slovenije, Ljubljana
- Rajšp V, Trpin D (eds) (1997) *Slovenija na vojaškem zemljevidu 1763–1787 (1804), zvezek 3* [Slovenia on the 1763–1787 Military map, vol. 3]. ZRC SAZU, Arhiv Republike Slovenije, Ljubljana
- Sanson Nd'A (1657) *Hertzogthüber Steyer, Karnten, Krain, & c. Duchés de Stirie, Carinthie, Carniole (The Duchies of Styria, Carinthia, and Carniola)*. Cartographic material, app. scale 1:770,000. Paris
- Shaw T, Čuk A (2015) *Slovene Carst and caves in the past*. Založba ZRC, Ljubljana
- Slovenci v svetu: slikovite predstavitve slovenskih dežel in sveta na starih zemljevidih [Slovenians in the World: A Presentation of the Slovenian Lands and World on Old Maps in Pictures] (1986). Narodna in univerzitetna knjižnica, Ljubljana
- Slovenian Environment Agency (2012) *Lidar*. Ministry of the environment and spatial planning, Ljubljana. http://gis.arso.gov.si/evode/profile.aspx?id=atlas_voda_Lidar@Arso. Accessed 10 May 2018
- Štih P, Simoniti V, Vodopivec P (2016) *Slovenska zgodovina: Od prazgodovinskih kultur do začetka 21. stoletja* [Slovenian history: from prehistoric cultures to the early twenty-first century], vol. 2. Modrijan, Ljubljana
- Stopar I (2006) *Zemljevid vojvodine Štajerske* [A map of the Duchy of Styria]. In: Stopar I, Premzl P (eds) *Topographia Ducatus Stiriae*. Umetniški kabinet Primož Premzl, Maribor, pp 34–50
- Triglav Čekada M, Bric V (2015) *Končan je projekt laserskega skeniranja Slovenije* [The project of laser scanning of Slovenia is completed]. *Geodetski vestnik* 59(3):586–592
- Urbanc M (2005) *Matej Cigale 1819–1889*. In: Fridl J, Kladnik D, Orožen Adamič M, Perko D, Urbanc M (eds) *Atlant*. Založba ZRC, Ljubljana, pp 10–11
- Valvasor JV (1689) *Die Ehre deß Hertzogthums Crain* [The glory of the Duchy of Carniola]. Bey W.M. Endter, Nürnberg
- Vischer GM (1678) *Styriae Ducatus Fertilissimi Nova Geographica Descriptio* [A new geographical description of the most fertile Duchy of Styria]. Cartographic material, app. scale 1:170,000. Graz
- Zorn M, Gašperič P (2016) *Geografska dediščina – sedem desetletij Zemljepisnega muzeja* [Geographical heritage: seven decades of the geographical museum]. *Geografski vestnik* 88(1):97–120. <https://doi.org/10.3986/GV88106>