

9. GEOGRAPHY IN BELARUS

The first geographical data pertaining to the area of modern Belarus appeared in the ancient chronicles of the 11th and 12th centuries and in the Belarusian and Polish chronicles of the 13th–16th centuries (Map of the Grand Duchy of Lithuania by Makowski, T. 1613). The works of scientists from the 18th and 19th centuries contain detailed descriptions of the natural features of the area. In the second half of the 19th century and in the early 20th century, members of the north-western branch of the Russian Geographical Society collected significant amounts of data (Picturesque Russia by Semenov, P.P. 1882). Systematic geographical research relating to the area of today's Belarus began to develop in the 20th century (e.g. works by Smolich, A.A. 1923, 1928, 1929, including the Geography of Belarus, published in Vilnius). The 1920s saw the introduction of higher education courses in geography at the Belarusian State University (BSU, est. 1921) and broad advances in scientific research in physical and economic geography. A natural science research facility was created under the auspices of the Institute of Belarusian Culture, a body that was established in 1922 and reconstituted as the Belarusian Academy of Sciences in 1929.

Maps on industry, population, agriculture, the social sphere, science and culture were produced. Such maps were then published in the "Atlas of the BSSR" (1958) and in the first "National Atlas of Belarus" (2002). In 2009, the Great Historical Atlas of Belarus was published in three volumes by Belkartografija (Minsk).

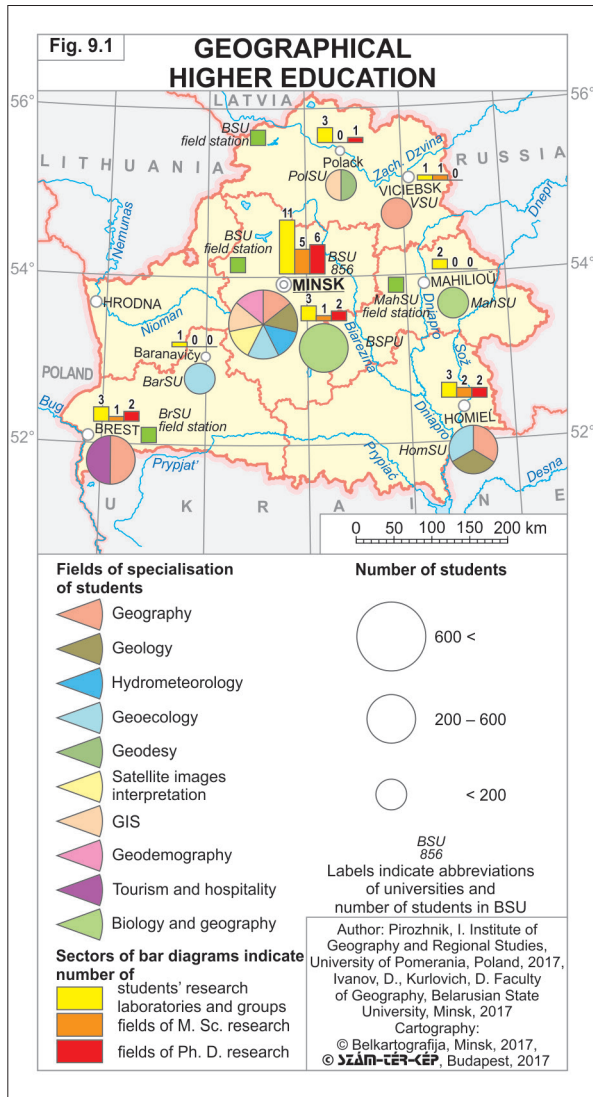
In Belarusian schools, **geography** is taught at both **primary and secondary levels**. At primary school (Years 1–4), children study basic geography as part of the course "Man and the World" (1 lesson per week). At secondary school, they complete the course "Man and the World" (1 lesson per week in Year 5) and then they begin to study the subject "Geography". Pupils study "Physical Geography" in Year 6 (1 lesson

per week) and a course entitled "Continents and Oceans" in Year 7 (1 lesson per week). In Year 8, the course is entitled "Countries and Nations" (2 lessons per week), and this is followed in Year 9 by "Geography of Belarus" (2 lessons per week). Pupils in Year 10 complete a course entitled "World Economy" (1 lesson per week at the basic level or 3 lessons per week at the advanced level). Finally, in Year 11, pupils complete a course entitled "Global Processes" (1 lesson per week at the basic level or 3 lessons per week at the advanced level). An exam in geography does not feature on the list of obligatory final school examinations.

In Belarus, students can enrol in B.Sc. or B.A. courses in higher education based on their entrance exam results (in the form of centralized testing) and their grade averages shown on the school leaving certificate. The admission requirements at the natural science faculties of universities include tests in Biology, Geography and Russian (or Belarusian). Students wishing to study geography at university are required to pass tests in Geography, Mathematics and Russian (or Belarusian) or in Geography, Physics and Russian (or Belarusian). The choice depends on the selected specialization.

Eight Belarusian universities offer degree courses in geography (*Figure 9.1*), with the greatest number of students attending the Belarusian State University (BSU). The Belarusian State Pedagogical University (BSPU) trains teachers of geography. The following regional state universities (SUs) offer degree courses in geography: PolSU (Polack), VSU (Viciebsk), MahSU (Mahilioŭ), BarSU (Baranavičy), HomSU (Homieĺ) and BrSU (Brest). At the M.Sc. and Ph.D. levels, geography can be studied at the following universities: Minsk, Mahilioŭ, Brest, Polack and Viciebsk.

In the second half of the 20th century and in the 21st century, **schools specializing in various aspects of geography** were created at univer-



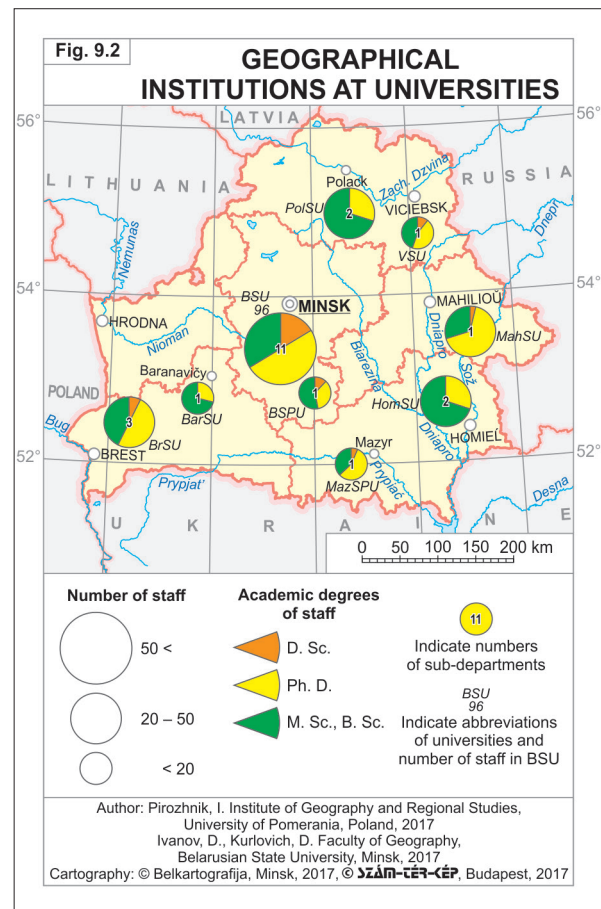
city departments or under the auspices of the National Academy of Sciences (Figures 9.2, 9.3). The best-known schools are as follows:

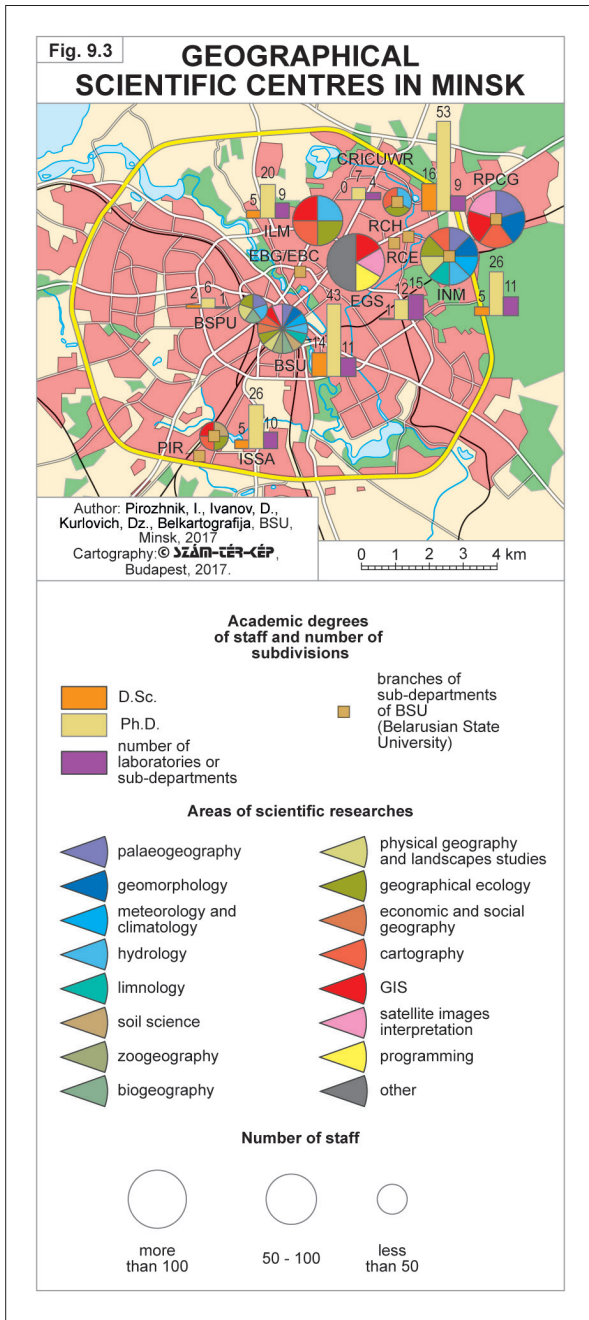
School of **physical geography and landscape studies**, focusing on the structural features of physical geography and on the genetic types of landscape, their multi-stage classification and mapping. Applied research is undertaken in such fields as landscape and recreation, agrarian landscapes, geochemical issues and landscape, human impacts on landscapes, and the development of urbanized landscapes and their sustainability. Recent areas of research include landscape diversity assessment, the preservation of unique landscapes, and the establishment and management of specially protected natural areas.

School of **economic and social geography**, examining and analysing the formation and al-

location of geographic socio-economic systems, industrial and transport hubs and complexes, the agricultural and agro-industrial sectors, population dynamics and composition, the migration of the population and workforce, and social, cultural, public and tourist services. Current research areas include the social and economic development of regions undergoing the transition to a market economy; population distribution and demographic security; the rational use of natural resources; and creating a national tourist product.

Palaeogeographic school. Glacial palaeogeographers have actively developed their fields of study by employing a broad range of palaeontological and chronostratigraphic methods. Complex research has made it possible to reconstruct climate, to trace the dynamics of environmental development, to assess in detail the development of the Pleistocene and Holocene flora and fauna of Belarus, and to construct a detailed regional stratigraphical chart of the territory of Belarus and then correlate it with the similar charts of neighbouring countries.





Geomorphological school, focusing on the results of the major geological surveys, which have resulted in creation of reconstructions. Applied research areas include: relief development in the Pleistocene; the drawing up of geomorphological maps; genetic classification and geomorphic zoning; and the locating of various genetic types and relief forms. There have been several detailed investigations into ice formations in the Belarusian Range (Bielaruskaja hrada), anthropogenic morphogenesis and the dynamics of

sloping, erosion and other relief-forming processes. Such areas of research can facilitate resource development optimization and enhance melioration in agriculture, engineering and construction.

Climatological school, focusing on the meteorological factors of climate formation in the various regions of Belarus. Based on long-term observations and climate modelling, assessments have been made of agroclimatic resources and agroclimatic zoning, of the regional features of climate change and emergency weather conditions in Belarus, and of climate resources from an agroecological perspective. A further area of research includes microclimate in cities, towns, and natural and man-made landscapes. The findings have been utilized in various sectors of the Belarusian economy.

School of **hydrology and limnology**, focusing on the hydrological, thermal and ice regimes of rivers, lakes and water basins, the genesis of lakes and lake sedimentation, lake classification, the impact of water balance on rivers and basins, water economy balances and catchment area programs, hydrological fundamentals of melioration and landscape draining, the influence of various kinds of economic activity on water resources and the principles of their rational use and protection. Belarus's water resources have been assessed, and the various kinds of resources, their special features and their formation have been investigated. Significant attention has been given to the history of swamps, their modes of functioning and their role in the biosphere.

School of **soil science and the geography of soils**, researching the genesis and structure of soils, the features of soil particle size, humus composition, mineral elements and microelements, fertility levels, and soil evolution. Large-scale research has facilitated soil mapping, enabling the soil geographical zoning of Belarus to be undertaken. The necessity and feasibility of the melioration of marshland was assessed. Recommendations are being elaborated on the efficient use of meliorated soils and on erosion-preventive measures. Geochemical processes are being studied, with a view to improving the agrochemical features of soils.

Bio-zoogeographic school, focusing on the geographical distribution of species and ranges of plants, revealing the areal features of vegetation cover and the territorial placement of veg-

etation communities, and determining the migration routes of species and floral forms, their phytogeographical connections to the flora of adjacent regions, the range of vegetation resources (medicinal herbs, wild berries, mushrooms) and the forms of their rational use.

In the zoogeographical field, revealing the features of fauna species composition, the geographical factors of the expansion of certain vertebrate species (mammals, birds, fish, amphibians and reptiles) and invertebrate species, various insect orders, as well as soil fauna. The zoogeographical zoning of Belarus has been undertaken, with the reconstruction of plant phylogenesis and the various stages of development of faunal forms in the Pleistocene and Holocene eras, based on data stemming from palynological and theriological research.

Geo-ecological school, analysing the structural features of geosystems and the geographical reasoning behind their functioning under various conditions of natural geography, the impact of humans, and the rational use of the resource potential. Special attention has been given to the development of environmental management systems that are compatible with the biosphere of various

natural environments, to radioactive and other man-induced contamination, to the accumulation and migration of different kinds of pollution, and to the cross-border transfer of pollutants. New ideas have been developed in the field of the management of city environments and the geo-ecological systems of cities and suburbs, and the long-term forecasting of environmental change.

Cartographic school. Based on geological, hydrological, soil and botanic surveys, a series of geological-lithological, hydrological, geomorphological, soil, landscape and other branch maps have been produced (scale 1:500,000).

Today, geographical research is actively implementing **GIS technologies**, using a wide range of software products. Digital land cadastres have been created for different kinds of natural resources (minerals, water, forests, recreational opportunities) and based on satellite images. Advances have been made in the remote sensing, and geographers from the BSU and the Institute for Nature Management of the National Academy of Sciences of Belarus (INM NASB) have come together with Unitary Enterprise "GeoInformation Systems" of the NASB, (EGS NASB) to participate in the Belarusian space program.



The skyscraper of Maxim Tank Pedagogical University at the Independence Square in Minsk. The Belarusian State University as well as the Belarusian Parliament is also located on this square. (Photo: Karácsonyi, D. 2006)