

INTRODUCTORY WORD

The present issue of the journal *Scripta Fac. Sci. Nat. Universitatis Masarykianae Brunensis*, published by the Faculty of Science, Masaryk University in Brno, was laid out on the occasion of the Regional Conference of IGU in Prague in August, 1994. Its objective is to present one of the two geographical institutions of Masaryk University in Brno - the Department of Geography of the Faculty of Science - to the European and the world public.

In its introductory part the reader will find first of all basic information about the Department on a general level, i.e. about its structure, its activities in the fields of teaching, science and research, as well as the geographical and social field. In the following series of technical articles by the members of the Department, constituting the main contents of this issue, the research part of the contemporary scientific activities is presented by actual results.

In context with the structure of the Faculty of Science, Masaryk University, the Department, together with the Department of Environmental Studies, forms one of the 7 sections of the Faculty, and by the number of 20 university teachers and research workers it represents at present the most numerous organisational unit (department) at the Faculty. Its personal structure is given in the following list:

HEAD OF DEPT.: SPECIALISATION:

Assoc. Prof. RNDr. Pavel PROŠEK, CSc. Climatology

PROFESSORS:

Prof. RNDr. Rudolf BRÁZDIL, DrSc. Climatology

ASSOCIATE PROFESSORS:

Assoc. Prof. RNDr. Alois HYNEK, CSc. Complex phys.

Geography and Geomorphology

Assoc. Prof. RNDr. Jaromír KARÁSEK, CSc. . Geomorphology

Assoc. Prof. RNDr. Milan KONEČNÝ, CSc. ... Cartography, Geoinformatics

LECTURERS:

RNDr. Petr DANĚK Soc. geography Geoinformatics

RNDr. Petr DOBROVOLNÝ, CSc. Climatology, Geoinformatics

RNDr. Milan DRÁPELA, CSc. Cartography

RNDr. Vladimír HERBER, CSc. Complex phys. geography

RNDr. Miroslav KOLÁŘ, CSc.	Climatology, Hydrology
RNDr. Petr KUBÍČEK, CSc.	Geomorphology, Pedogeography, Geoinformatics
Ing. Eva REINÖHLOVÁ	Agricultural Geography
RNDr. Stanislav ŘEHÁK, CSc.	Geography of transport Regional geog.
RNDr. Pavel ŠICH	Geography of services
RNDr. Zdeňka TARABOVÁ	Demography and Geogr. of settlements
RNDr. Václav TOUŠEK, CSc.	Demography and Geography of industry
RNDr. Milan VACEK-VESELÝ	Hydrology, Geoinformatics
RNDr. Jaroslav VAŠÁTKO, CSc.	Biogeography
RNDr. Pavel VAŠÍČEK	Demography and Geogr. of labour market
RNDr. Antonín VĚŽNÍK, CSc.	Agricultural geography

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In the field of educating geographers with university qualification the Department guarantees the following courses in three degrees: a three-year bachelor course, a two-year master course and a three-year postgraduate course for specialists in geography and, besides, a one-degree (five-year master) course for the education of future secondary school teachers.

On finishing the bachelor course oriented at general geography by the discussion of the bachelor thesis and by the comprehensive examination the graduates of technical studies have the opportunity of continuing their studies in one of two geographical specialisations: physical geography and social geography. A broad spectrum of lectures

in auxiliary geographical subjects as well as lectures in optional subjects enables them to concentrate in more detail on partial geographical branches, such as climatology, hydrology, geomorphology, biogeography, GIS and geoinformation, cartography, pedology, landscape ecology, disciplines of special geography and others they want to concentrate on in their degree certificate theses. By their discussion and by passing the final state examinations they acquire the degree of Master of Geography with the possibility of continuing by means of competition in postgraduate specialised studies oriented on physical geography, regional geography and regional development and cartography with geoinformatics and remote sensing. By the discussion of the doctor thesis and by passing the doctor examination they will obtain the degree of Doctor.

The present number of students of all degrees of technical studies, including the extramural studies, is 109, out of which there are 16 in postgradual studies.

The future geography teachers with qualification for secondary schools are educated in combination with other subjects (mathematics, biology and geology, history, English), which grants them a sufficient spectrum of selecting their professional orientation. That form of study is no longer divided into the bachelor and the master courses, it finishes after the 10th term by the discussion of the degree certificate thesis in one subject and the final state examinations in all disciplines of the combination and entitles the graduate to the degree of Master. Also those students have the possibility to continue in the form of postgradual studies after graduation under the same conditions as the students of technical studies. The total number of students of teachers' geography is 172.

Besides the education proper of geographers the members of the Department participate, within the Faculty, in educating the students of biology and environmental studies by teaching geomorphology, bioclimatology, hydrology, demography and, at the Faculty of Arts, by teaching geodesy for the students of archaeology.

Scientific and research activity in the sphere of physical geography was oriented chiefly on the following problems:

1. comprehensive physico-geographical research into small catchment areas (targeted to the landscape-economic management),
2. physico-geographical information systems of small territorial units with the orientation on practical needs of administrative bodies,
3. application of comprehensive physical geography in the strategy of regional development,
4. relations between structurally geological and shape elements of the relief,
5. mechanisms of solifluction,
6. reconstruction of the climate of the Czech Lands for the last millennium,
7. preparation of the regional scenario "Climatic changes in the CR" and for the impacts of the climatic change on the agriculture of the CR,

8. application of statistical methods in the analysis of the fluctuation of series of results of meteorological measurements,
9. Climate of the polar regions (energy balance of the active surface and their consequences on the active surface of permafrost and on the polar ecosystems, topoclimate, local climate of the glaciers)
10. microclimates of cave systems,
11. topoclimate of the National park Dyje-basin
12. problems of atmospheric pollution in selected districts of south Moravia
13. changes in local climate due to anthropogenic causes
14. precipitation-runoff relations in selected watersheds
15. zoogeographical studies of protected territories.

The main objectives of the scientific and research activities in the socioeconomic sphere of geography were:

16. the present problems of the economic basis, manpower market, service equipment and the forecast of the development of the population on the territory of the district of Znojmo,
17. processing of underlying data for the formation of the model of regional development of the district of Břeclav,
18. the study of commuting to work in selected regions of south Moravia,
19. regional geographical studies of small territories,
20. the making of thematic economic-geographic maps and the concept of regional atlases for the need of regional planning and decision making,
21. the present transformation process in the agriculture of the CR.

An important moment for the further development of the Department was the establishment of the Laboratory of Geoinformatics and Cartography, permitted by a successful implementation of the Canadian-Czechoslovak project in the sphere of the remote sensing (RS) and geographical information systems (GIS). The above project meant in the actual form a free of charge supply of the work station IBM RISC-6000, an input and output equipments and in the sphere of the program equipment the acquisition of EASI/PACE software for processing satellite scenes and GIS SPANS. At present the interconnection of this laboratory with the international network is being solved.

Together with computer technology, acquired gradually also in the preceding years, this Laboratory forms a unit permitting not only a broad application in the research based on the above technologies, but also broad applications in the education and training of young geographers for whom a computer laboratory was established with the prospect of the above objectives.

Besides, the Laboratory allows also the implementation of further ideas, such as the organisation of training courses, the development of cooperation within the GIS and RS and further Czech and foreign institutes (such as IGU and ICA) as well as the economic profiting of the instrumental and intellectual potential of the Laboratory by solving tasks or expert opinions for the practice.

The technical activity in the sphere of cartography and geoinformation was, in connection with the operation of the GIS laboratory oriented mainly on:

applications of GIS in the above topics Nos. 2, 17, 18 and 21, on the training of Department workers on new technologies and on the preparation of applications of GIS and RS, utilisable for the demonstration for the practice and for teaching students.

The scientific and technical activity of the workers of the Department is also reflected in their publication activity whose annual volume represents on the average 20-30 original technical papers and about 10 articles of popular scientific character. The members of the Department have also participated to an important extent in making fundamental geographical university textbooks and texts for students used practically at all geographical institutions in the CR.

Typical of the Department of Geography, Faculty of Science, Masaryk University, is extensive cooperation with further geographical or related institutions. From among those in this country let us at least mention geographical departments of universities in Prague, Olomouc, Ostrava and Plzeň, further the Academy of Sciences, CR, (Institute of Geonics, Institute of Atmospheric Physics, Institute of Botany), Comenius Museum at Přerov and Uherský Brod, Investigations Institute of Advancement and Research, Institute of Regional and Town Development Ostrava and/or administrations of national parks or biospherical reservations, the Czech Ministry of Economy and the Czech Ministry of Environment, the Czech Geographical Society, etc.

From among those from abroad let us mention at least at random the geographical institutions of universities in Amsterdam, Bern, Bratislava, Graz, Kassel, Cracow, Lisbon, Lodz, Loughborough, Marburg/Lahn, Osnabrück, Poznan, Volos, the Technical University of Vienna and the Federal institute of Technology Zurich, further the IGU, the ICA, the Canadian Centre for Remote Sensing, the French National Centre of Science Research (Group P.A.R.I.S.), the Russian Academy of Sciences (Institute of Geography, Moscow), the Slovak Academy of Sciences (Institute of Geography, Institute of Landscape Ecology), etc.

At present the workers of the Department are holders or joint holders of one international grant (European Science Foundation), of three grants of the Grant Agency CR, one grant of the Advancement Foundation of the Czech Universities and three minor projects within the faculty.

Typical of the socio-geographic activity of the Department is the organisation of Czech as well as international scientific conferences, seminars, workshops, etc. Among

the most important of them belonged, and in the near future will belong, the following events:

Conference: Climatic Change in the Historical and the Instrumental Periods (1989)

Conference: Geographic Information Systems (1991) - under the auspices of the Commission on Geographic Information Systems, IGU

Workshop of the Coordination Committee on European Arctic Ecological Research 6 (1993)

Conference: Contemporary Climatology (15-20 Aug., 1994)

Conference: Europe in Transition, the Context of GIS (28-31 Aug., 1994)

The two last mentioned ones are held on the occasion of the Regional Conference of IGU in Prague on 22-26 Aug., 1994.

To describe and express the activity of the Department of Geography, Faculty of Science, Masaryk University in full scope and in all detail is, of course, not the objective of this short characteristic which, besides, does not take into account the history of this geographical institution established in 1921, i.e. a short time after the foundation of Masaryk University in Brno.

What is mentioned here, including the following technical papers, is intended for the reader meeting us for the first time as a visiting-card for introduction. If he is inclined to get acquainted with us in more detail or to cooperate with us, he will find the door open. For our old friends and cooperators let this issue of the "Scripta" be a document of our further modest effort at the development of geography.

P. Prošek