

SEVENTY YEARS OF RESEARCH AT THE INSTITUTE OF GEOGRAPHY

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INTRODUCTION

The anniversary of a research institute represents not only a significant scientific event but also an emotional one, it is a moment of synthesis of some research directions and of the activity discharged by a whole generation of researchers whose competence and abnegation have contributed to the present scientific level attained by the respective discipline.

The Institute of Geography came into being on the 6th of February 1944, on the initiative of Prof. Vintilă Mihăilescu, and functioned by the name of *Institute of Geographical Research of Romania*, under the authority of the Ministry of Culture and the Cults. Establishing a national institute of geography was a necessity sustained by Simion Mehedinți as early as 1925 at the celebration of 50 years of existence of the Romanian Royal Society of Geography. In his words, "It were enough to set up a great **Institute of Geography** for systematised work, associated with the necessary means, to soon bear fruit".

The Institute of Geography is sited in Bucharest and functions in the "Simion Mehedinți House", donated for the purpose by its owner, Prof. Mehedinți, the founder of modern Romanian Geography. The place, hosting the National Geographical Committee, and the periodical meetings of all of the country's geographers, has a special relevance for Romanian Geography. The Institute co-ordinates two research teams, one in Iași, the other in Cluj-Napoca, and has its own Natural Hazards Research Centre based at Pătărlagele, Buzău County.

In 1994, the Institute of Geography celebrated 50 years since its foundation. The festive session, held in the Romanian Academy's Aula Magna, was attended by outstanding Romanian and foreign personalities who, in their addresses, underlined the significant role played by the Institute's researches for the development of geography in Romania and abroad (D. Bălțeanu, 1994).

Among the participants, Prof. Herman Verstappen (The Netherlands), the then Chairman of the International Geographical Union (IGU), took the floor saying: "your celebration marks out not only 50 years of important contributions Romania has made to the Science of Geography, but also the beginning of a new and interesting period of active co-operation and friendship".

In his message sent on the occasion of the 70th anniversary, Prof. Vladimir Kolossov (Russia), the now IGU Chairman, says: "The research made in your Institute covers the majority of present-day geographical domains, the research-workers being involved in major international projects and programmes. IGU gives a high appreciation to its collaboration with your Institute and to the great number of your specialists who participate in the activity of numerous profile commissions".

Throughout its 70 years of existence, the Institute has succeeded in concentrating the major preoccupations of outstanding Romanian geographical personalities, such as Vintilă Mihăilescu, Member of the Romanian Academy and the first director of the Institute of Geography (L. Badea, 1994); Academician Victor Tufescu; Prof. Tiberiu Morariu, Corresponding Member of the Romanian Academy, who led the Cluj-Napoca Geography Team for nearly four decades; N. Al. Rădulescu, Corresponding Member of the Romanian Academy; Professors Ion Conea and Raul Călinescu; the Iași Team Professors Ion Gugiuman, Constantin Martiniuc and Ioan Hârjoabă.

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The Institute's research goals, established in July 1944, were aimed at elaborating a scientific geography and a great geographical atlas of Romania, as well as complex regional studies; studies of soil and vegetation degradation; a study of town geography, the process of populating the Romanian Carpathian space, the ethnical and economic consolidation of peripheral regions; the adaptation of economic activities to environmental geographical conditions and the European market demands; the problem of the confederations of European countries; the study of floods, droughts and the rational use of Romania's waters; the traffic on the Danube and the Black Sea; Romania, a land of transition (Revista Geografică, I, 1944).

Despite all the efforts made by the communist regime after 1948 to fully subordinate Romanian science ideologically, geographical research within the Institute continued its upward course of development, succeeding each time to overcome the difficult moments and carefully cultivate the traditions of geographical research into the Romanian land and its people (D. Bălteanu, 1994).

In the communist period, research would focus on Physical Geography, on Geomorphology in particular, actually a main research domain of the Romanian geographical school in the past, as well. In addition, the methodological bases of Topoclimatology, Hydrogeography and Physical limnology were being laid, and biogeographical research also went on. Economic Geography did develop, but on the basis of some concepts that proceeded from a false premise, namely the "superiority of the centralised economy versus the market economy", with reference to "the efficiency of agricultural collectivisation and socialist industrialisation", the "planning of localities" associated with the demolition of some rural settlements, etc. Even in those conditions the Institute of Geography was in the forefront of the Romanian geographical movement through the synthesis works authored by its members, who also contributed to the development of branch geography and regional geography. The Institute was also known for the level of the scientific events it was organising.

In his address at the Institute's 50th anniversary, Prof. Dan Rădulescu, member of the Romanian Academy, emphasised that "Romanian geography has proven its vitality", stressing on the necessity for Human Geography, much neglected in the past, to be more developed.

This short presentation covers mainly the post-1990 period, when the Institute was reintegrated into the structure of the Romanian Academy.

THE RESEARCH ACTIVITY

Researches carried out over the past two decades were part of some projects financed by the Romanian Academy, and of projects obtained at national and international competitions.

A new generation of researchers has been formed at the Institute over the past two decades. Their present achievements are quite remarkable, valuable studies being published in national and international volumes and journals.

The Institute of Geography's research programmes are correlated with the priority directions of the Romanian Academy's fundamental research plan, with the EU Danube Region Strategy, with the lines set by the International Geographical Union (IGU), and with the global programmes of climate, environmental and societal change.

The studies included in the Institute's research plan, elaborated by the Scientific Council through consultations with all researchers, are centred on the following issues: the elaboration of atlases and synthesis works on Romania; studies of physical, human and environmental geography of the national territory; the study of natural and technological hazards and risks; the elaboration of GIS-based maps; geographical research of territorial systems dynamics and assessment of local and regional development; geographical research of sustainable development in the light of the "global sustainability concept"; the integrated study of geosystems and the assessment of the environmental quality of protected natural areas. These topics are found also in joint research projects with various domestic and foreign

users. The Institute has permanently benefitted from the support of the Section of Geonomic Sciences, Chairman Acad. Mircea Săndulescu, as well as from the leadership of the Romanian Academy represented by Vice-president Acad. Cristian Hera, the co-ordinator of this Section.

Geomorphological research has continued the regional traditional line, the preoccupations for geomorphological cartography and for the genesis and evolution of relief units, also developing new domains underlain by modern methodology and equipment. Synthesis works had in view the relief units, the role of neotectonic movements in the evolution of the relief (L. Badea, 2009), as well as numerous regional geomorphological studies (M. Sandu, 1998; M. Dinu, 1999; Gh. Niculescu, 2008).

The interest shown in the study of present-day geomorphological processes through field experiments and cartography to produce morphodynamic maps, and maps of various processes (sheet erosion, gullying, landslides, river processes) acquired new dimensions with highlight on the interdisciplinary character of geomorphological studies. Within this context, the aim was to assess land susceptibility, the vulnerability of settlements, of infrastructure and of the environment to geomorphological hazards. Correlating these aspects geomorphological risks could also be appraised.

Climatological research covered various theoretical aspects regarding the regional and national meteorological variables, atmospheric pollution and the impact of climatic hazards on society. The publication of some works jointly with researchers from the National Meteorological Administration, as well as Ph.D.-connected activities have revealed a good collaboration potential especially regarding the effects of climate change on both the environment and society.

Previous concerns for the methodology of working out topoclimatic maps on various scales (E. Mihai, Gh. Neamu, 1970; O. Bogdan, E. Teodoreanu, 1973; O. Bogdan, 1980) were continued at regional level, a topoclimatic map of the Danube Delta Biosphere Reserve being elaborated by O. Bogdan in 1999.

Scientific works deal with a wide range of meteo-climatic hazards (O. Bogdan, 2007), excess precipitation (C. Dragotă, 2006), the elaboration of geographical atlases with focus on the climate. At the same time, some of the Institute's specialists participated in climate change projects (D. Micu, 2014).

The geographical study of water resources, a topic of major significance for sustainable development, represents one of the central preoccupations of the Institute's researchers. Water assessments were made in relief units (P. Gâstescu, 2014) and comparative studies covered the Southern Carpathians in Romania and the Stara Planina Massif in Bulgaria (I. Zăvoianu, 1996).

The course of the Danube and the Danube Delta, investigated closely with profile institutions, had in view water circulation in the Danube Delta (B. Driga, 2004), the water balance of some lake complexes, the elaboration of water balance models and the estimation of the ecohydrological equilibrium between the lake complexes and the Danube arms (P. Gâstescu, 2014).

Researches of hydrogeography and geographical limnology in the Romanian Black Sea littoral area and in the Romanian Plain were aimed at appraising the water balance and the levels of pollution.

Biogeographical research had in view the biogeographical dissemination and signification of some plant and animal species, with emphasis on man-induced degradation of vegetation, the reduction of biodiversity and the impact of climate change on vegetation.

Researches into protected natural areas, inclusive of Ramsar and Nature 2000 sites, have revealed their biogeographical importance for the conservation of biodiversity (C. Drugescu, 1997, 1999; C. Muică, 2001).

The geographical study of the terrestrial vertebrate fauna involved some mammalian and bird populations from various areas, the dynamics of certain populations of mammals (S. Geacu, 2007, 2008), as well as syntheses of the historical evolution and origin of the terrestrial fauna in Romania (C. Drugescu, 1995).

Human Geography studies implied the methodological readjustment of the Institute's researchers to current research trends after ideological barriers had been lifted. It meant new bibliographic investigations, access to a big volume of statistical data, and the use of new cartographic tools (B. Mitrică, D. Nancu, 2014).

Several chapters of synthesis works are devoted to the geography of urban and rural population, the population structure by nationality and religion, population density and distinct age-groups at national and regional level. In-depth research into the urban and rural environments emphasised spatial and temporal disparities.

Representative studies deal with the metropolitan zones, with one-industry towns and some urban eco-systems (Târgoviște, Alexandria, Fieni, Bacău, etc.). Human geography approaches the vulnerability of human settlements in different relief units. The Institute of Geography has an old tradition of toponymic research, illustrated by the works of I. Conea, D. Oancea and S. Vlad. Investigations conducted over the past few decades have focussed on regional toponymy, on the standardisation of geographical names, in particular. This line of development is closely correlated with the scientific meetings organised by the late Prof. Victor Tufescu, member of the Romanian Academy.

The two-volume *Dicționar Geografic al României* (Geographical Dictionary of Romania) published in 2008-2009 and co-ordinated by M. Buza, L. Badea and Ș. Dragomirescu, follows the recommendations of the Conferences of the UN Divisions of Standardisation of Geographical Names. Similarly, the publication of the dictionaries of the counties of Ialomița (S. Geacu, 1997), Galați (S. Geacu, 2008) and Gorj (D. Bugă, S. Dobre, D. Nancu, 2002) had the same end in view, namely, to put to account Romania's toponymic thesaurus.

The range of Historical Geography was widened with focus on the evolution of Romania's state borders (R. Săgeată, D. Baroiu, 2004), the evolution of some settlements from different regional units and the evocation of certain Romanian geographical personalities (S. Vlad et al., 2000).

Political and geopolitical studies tackled the role and place of Romania within the new European and international geopolitical and geostrategic architecture after 1990, when multi-national states were dismantled, and ethnic and separatist conflicts broke out (R. Săgeată, 2009).

Studies of industrial development in the 20th century, and its subsequent decline in the period of transition in connection with political and economic changes (C. Popescu, 2002; B. Mitrică, 2008) highlighted industrial dynamics, the economic and social effects of deindustrialisation and the development potential of industrial structures in the future; the decline of the urban population, the emergence of regional industrial clusters and the development of innovative industries were other topics of research (C. Popescu, 2014).

In the field of social geography the stress was laid on regional labour disparities and unemployment, social risks and social problems in vulnerable areas, such as the disadvantaged mining zones (I. Mocanu, 2008).

Regional geography studies, carried out under various research projects, were reported in chapters of synthesis works (C. Popescu, D. Bălțeanu, 2005), regional works on disadvantaged mining zones (C. Popescu, editor, 2003), the rural settlements of Bucovina (L. Guran editor, 2004) and in synthesis studies as well (R. Săgeată, 2010).

Complex environmental issues, generated by the difficulties and inconsistencies of the post-communist period in Romania, imposed setting up a new section at the Institute of Geography, namely, "Environmental Geography and Geographical Information Systems".

Research themes involved geographical studies on protected natural areas, the man-environment relationship in the light of sustainability, the environmental impact of climate change, the land use-environment relation, and integrated research of complex areas (M. Sima, 2014).

Of special interest proved to be the study of natural and technological hazards at national, regional and local levels, as well as research into the prevention of major risk phenomena on a national scale. Research-work involved interdisciplinary studies of floods and landslides, the elaboration of maps of susceptibility, hazard and risk on various scales.

Several researches had in view the effect of mining explorations and the processing of non-ferrous metal ores on the rivers, as well as pollution sources and the morphodynamic particularities of their transfer and cross-border impact (M. Sima).

TRAINING OF YOUNG SPECIALISTS

The Institute of Geography has five Ph.D. supervisors who direct the Ph.D. candidates in Physical Geography and Environmental Geography. Each year, the Institute organises, jointly with the Faculty of Geography – University of Bucharest, an annual scientific session for Ph.D. and M.A. students; an International Summer School on “Natural Hazards and Sustainable Development in Mountain Regions”, now at its 12th edition, is held at the Natural Hazards Centre, Pătârlagele, Buzău County.

Alongside other ten partners from different European countries, the Institute was involved in the Marie Curie European project– CHANGES (2011-2014) regarding the interdisciplinary training of young researchers in hydro-meteorological hazards and associated risks. The project, co-ordinated by Twente University (The Netherlands), evidenced the necessity for permanently correlating the formation of the young generation with the latest methods and techniques in the respective field.

PUBLICATIONS, PROJECTS AND INTERNATIONAL INTEGRATION

The Institute of Geography entertains a close collaboration with the main universities in elaborating fundamental works for Romanian science and culture, e.g.: *A Geographical Monograph of Romania* (1960), *The National Geographical Atlas* (1972-1979), *The Geography of Romania* (a 5-volume treatise, 1983-2005); comprehensive regional studies: *The Geography of the Romanian Danube Valley* (1969), *The Getic Piedmont* (1970); theoretical works and numerous studies in various fields of geography. These works reflect the steady evolution of concepts and methods connected with the traditions of the Romanian geographical school and the progress made by geographical thought worldwide. The analytical foundation of elaborating synthesis works was the result of in-depth branch research integrated into the territory as a whole and of promoting new research directions (Bălțeanu, 1994). The findings were published in many Ph.D. theses, e.g. L. Badea, Al. Roșu, Gh. Niculescu, O. Bogdan, I. Zăvoianu, E. Mihai, E. Teodoreanu, H. Grumăzescu, I. Ștefănescu, and in theoretical works, some of them being syntheses (V. Mihăilescu, 1968), or new research directions.

The Institute of Geography has been developing a sustained activity for integrating Romanian Geography in the international sphere. Acknowledging Romania's preoccupations for the problematique of global environmental change, the Co-ordinating Council of the International Geosphere-Biosphere Committee held a meeting in Romania (Sinaia, 2004), emphasising the significant potential of Romanian interdisciplinary research into the environment and society.

Next, the Institute was invited to participate in several projects under the European programmes FP6 and FP7. As a result, in 2006-2009, the Institute was involved in a project on *Climate Change and Variability: Impact on Central and Eastern Europe* (CLAVIER), co-ordinated by the Max Plank Institute for Meteorology in Hamburg. The analyses made revealed the impact of climate change on tourism, energy production and land degradation.

Another project referred to *Building Capacity for a Black Sea Catchment Observation and Assessment System Supporting Sustainable Development* (EnviroGRIDS, 2009–2012), co-ordinated by the University of Geneva (Switzerland), the Institute's task being to assess changes in agriculture and national parks. To this end, environmental assessment indicators were used and a GIS-system to study invasive plant species was established.

The impact of climate change on the agricultural use of water resources in connection with farming land fragmentation in Romania was analysed under the FP7 Project on *Climate change and impacts on water supply*, co-ordinated by the Vienna Mayorality.

The Institute of Geography's team of researchers entailed in the European Project: *Enabling Climate Information Services for Europe* (ECLISE, 2011–2014), co-ordinated by the Royal Netherlands Meteorological Institute, followed the impact of climate variability and change until 2050 in three domains: towns (Baia Mare), agriculture (the Bărăgan Plain) and land degradation (Vrancea Seismic Region). Estimations of environmental quality and natural and technological hazards in a cross-border region, the Calafat-Turnu Măgurele sector (2012–2013), were made jointly with Bulgarian specialists.

Over the past ten years, the Institute of Geography took part in various projects (financed by the British Academy, NATO and the World Bank) on heavy metal pollution of the Danube and the river network from the west of Romania, as well as landslide-related risks across the country.

The projects, financed from domestic sources, referred to the impact of mining on the environment; the transformation of old salt pits into tourist areas; the development of indicators for the management of natural resources; geographical research for the territorial planning of transport networks and GIS systems for the evaluation of hazard maps and assessment of the vulnerability of environment and localities to flooding.

Over the past two decades, the Institute of Geography has entertained relations of collaboration with profile institutions from eleven countries (Belgium, Bulgaria, China, France, Greece, Great Britain, Poland, Republic of Moldova, Slovakia and Hungary) materialised in bilateral projects, workshops and the publication of scientific papers.

A comprehensive international collaboration was aimed at an interdisciplinary study of the Carpathian Mountains, financed and co-ordinated by the United Nations Environmental Programme (UNEP), the result being the *Carpathian Environment Outlook* (2007), a work containing different scenarios on the future evolution of the Carpathian environment and society.

The Institute's researchers have published one-author volumes, especially Ph.D. theses, as well as team works and numerous articles in profile Romanian and foreign journals.

An important work that makes a comprehensive presentation of Romania is *Atlasul Istoric-Geografic*, published in Romanian, English, French and German (two editions: 1996 and 2007).

A volume much appreciated both in this country and abroad is *Romania. Space, Society, Environment*, published in Romanian and English (2005, 2006), which depicts the main aspects of the transition period and of integration into the European Union.

The category of "scientific services", a notion increasingly more used to designate applied research aspects, includes two atlases: 1) *The Environment and Electricity Transmission Grid* and 2) *The Soil Quality and Electricity Transmission Grid* (2003, 2004), as well as three volumes (2005 a, 2005 b, and 2006) published jointly with the Ministry of Industry and Resources. These volumes point out the complex impact of the energy sector on the environment and the quality of soils.

Another work on current environmental and shepherding issues in the Romanian Carpathians, correlated with social aspects, is *Changing Social Conditions and Their Impacts on Sheep Transhumance in Romania and Bulgaria* (2010), financed by Japan's Ministry of Research and published in Tokyo, co-ordinator Prof. Kazuko Urushibara-Yoshino.

In 2009, the Institute of Geography organised a Conference of the International Association of Geomorphology in the town of Braşov, part of the papers being issued by Elsevier Publishing-House in the volume *Recent advances in landslide investigation* regarding the topical problems of man-environment relations closely dependent on global climate change.

The Institute of Geography puts out two journals: *Revue Roumaine de Géographie / Romanian Journal of Geography* (two issues / year) indexed in several international databases, and *Revista Geografică* focussed mainly on the Institute's internal life and promotion of young researchers.

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