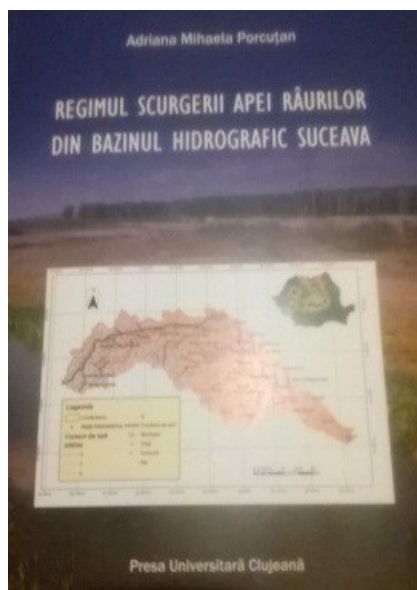


REVIEWS



Adriana Mihala Porcuțan **Regimul scurgerii apei râurilor din bazinul hidrografic Suceava (River water flow in Suceava hydrographic basin)**, Presa Universitară Clujeană, Publishing House, 2018,(175 pages, four chapters and 31 subchapters, 90 figures, 108 tables, 201 references)

The work elaborated by Miss Adriana Mihaela Porcuțan addresses a topic of great relevance, treated at a scientific high level on the basis of a large and recent bibliography in the field of physical and human geography. By realizing this work, Miss Adriana Mihaela Porcuțan made an important contribution with original elements to the completion and updating of the geographic information in the Suceava River Basin, especially those regarding the spatial and temporal variation of river water flow.

The work is the result of the accumulation of vast theoretical knowledge and the experience gained from the thorough field research conducted over several years.

The topic approached by the PhD student is within the scope of the modern objectives of geographic research in our country and abroad, having a profoundly applicative character because it responds to many fundamental requirements. which aims at solving the problems related to the integrated management of the water resources and environment of the researched region.

The complexity of the work resides in the varied problems addressed in the four chapters structured in a logical sequence, ensuring the unitary character of the work.

In Chapter I, entitled "Introductory Aspects", there are numerous issues related to the context and justification of the choice of the research topic, the definition of the hydrological regime term, the research history, the geographical position and the limits of the studied region, the methods and techniques used in the study of the river water flow regime. From the reading of the above mentioned subchapters it can be observed that Adriana Mihaela Porcuțan studied a vast

bibliography about the approached topic and knows in detail the methods and techniques used in the research of the river water flow regime.

The main issues are dealt within the next three chapters of the thesis. Thus, in Chapter II, the author pays particular attention to the analysis of the role of geographic conditions in the formation and evolution of river water flow. Particularities of natural conditions (geological, geomorphological, edaphic, phytologic) and anthropic in the researched region. On the basis of the quantitative and qualitative analyzes carried out are cartographic representations (geological map, hypsometric, relief energy, relief slopes, climatic parameters, soil types, land use) and graphs (of different types). We appreciate the cartographic representations made using GIS techniques, which allowed detailed and rigorous spatial and quantitative analysis. Particular attention was paid to the analysis of the geological factors (stratigraphy and lithological composition, the tectonic-structural aspects), geomorphological factors (morphometric and morphological) of the main climatic parameters with impact on the river water flow (liquid and solid precipitations, and air temperature). Detailed analyzes relate to rainfall, the climatic parameter in the formation and evolution of river water flow, the spatial and temporal variability of annual and monthly quantities and their trend over the entire analysis period and the five decades included in this interval.

The analysis of edaphic and phytologic cover as well as land use is based on spatial distribution maps of these environmental elements and on quantitative determinations of surfaces with different soil types and degree of vegetation coverage. The author also pays special attention to the anthropic activities that influence the formation and evolution of river water flow.

Chapter III of the paper relates to the sources of river water supply and to the river water flow regime during the year (seasonally, monthly and daily) and is remarkable through a very rich theme and numerous notes of originality. Thus, in subchapter 2.5 named "Seasonal and Monthly Water Flow Trend" developed using the Mann-Kendall test for the period 1961-2010, it was concluded that the net water change rate is more pronounced in summer and autumn, and the lowest is winter, with the exception of the hydrometric stations from the transition and plateau regions.

Very interesting results were obtained by the author in the case of the floods frequency analysis, which was done according to several criteria: importance, duration, maximum flow (month, season), genetic type (pluvial, nival, mixed, etc.), different thresholds (attention, flood, and danger).

We also appreciate the results obtained in subchapters 2.6, 2.7, and 2.8, in which are presented and analyzed the types of seasonal, monthly and daily distribution of river water flow in the Suceava basin.

An important step in the study of the drainage water regime of the rivers is the identification and analysis of the characteristic phases of the water regime. For this reason, the author intends to approach this topic in Chapter IV of the paper, which is characterized by the complexity of the topics covered and the originality of the treatment of high flow periods (high waters and floods) and low (low water), setting the appropriate thresholds for periods with maximum water flow (20% percentile) and minimum (80% percentile) and using the Hydro Office program, the author managed to identify the quantitative parameters (characteristic maximum discharges and volumes values, and minimum flows), temporal (duration, frequency, trend recurrence periods) and the shape of the floods.

To highlight the particularities of the maximum drainage, the exceptional floods produced in the five centuries were exposed in chronology. In the choice of case studies, the genesis of the floods was considered. Thus, were chosen for analysis a pluvio-nival flood (December 1995 - January 1996) and a pluvial one (July 2005), establishing, besides the synoptic context in which they occurred, the parameters of the flood waves and the induced damages.

Particular attention is paid to analyzing the social, economic and ecological effects induced by the main phases of river water flow. The contribution is made by mentioning the structural (adjustments and embankment works, bank consolidation, permanent and non-permanent accumulations) and nonstructural measures (legislative, emergency situations management, insurance) applied for the prevention, protecting and combating the negative effects of floods and small waters.

From the conclusion of the work, it is first noted that changes in the water flow of the rivers reveal modifications due to climate change and human intervention on environmental components (especially forest clearing and extension of human settlements). The changes are manifested by the rather strong increasing trend of autumn flow, and moderate of winter water flow in the case of the rivers situated in the transition and plateau region. Regarding the regime phases, the intensity of the extreme phases of summer flow is increased.

Professor PhD Sorocovschi Victor