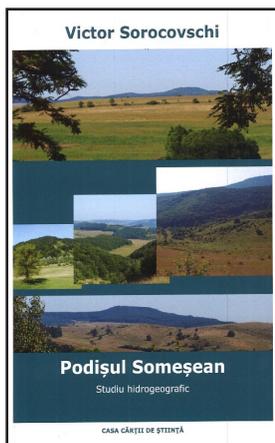


Review



Victor Sorocovschi - *SOMEȘEAN PLATEAU. HYDROGEOGRAPHIC STUDY*, „Casa Cărții de Știință” Publishing House, Cluj-Napoca, 2020.

The work in an extension of 277 pages represents the third geographical subunit of the **Transylvanian Depression**, after the other two being previously published by the author-**Târnavelor Plateau** (1996) and **Transylvanian Plain** (2005) with the same subtitles - **hydrogeographic study**, so a **hydrogeographic trilogy** of this important geographical unit located in the center of Romania.

About the author - university Professor Dr. Victor Sorocovschi has been the most authoritative and knowledgeable of the Transylvanian space for many decades,

not only in terms of **hydrology** but also in terms of **regional geography** the contributions to the geographical synthesis works on the Romanian territory published under the aegis of the **Institute of Geography of the Romanian Academy**.

Professor Victor Sorocovschi's long experience in research and teaching has been beneficial in guiding many bachelor's and master's theses and, in particular, in **guiding as a doctoral supervisor** many doctoral students, some of them teachers at **Faculty of Geography of Babeș-Bolyai University** (five out of a total of 31) and whose theses have been published. He also carries out a prodigious activity, as **editor** of the journal „*Risks and Catastrophes*”, under the auspices of **Babeș-Bolyai University, Faculty of Geography-Center for Research on Geographical Hazards and Risks**, for 20 years, which is currently in the 26th volume, a magazine listed in BDI and in which numerous articles by specialists from the country and abroad were published.

We must also emphasize the embrace by Professor Victor Sorocovschi of **the concept of hydrogeography** founded by the **Institute of Geography** through symposia / conferences / congresses, in articles and maps published in regional and synthesis papers on Romania.

The Someșean Plateau - hydrogeographic study, the most extensive of the three major subunits of the Transylvanian Depression (**2679 km²**) in this concept and context, the paper we refer to is structured in five chapters and numerous subchapters, namely: **introductory aspects (I), conditions geological and geographical development and evolution of water resources (II); running water (III); lakes (IV), water resources management (V)**, accompanied by appropriate bibliographic lists.

We note from the **introductory aspects**, first, the commentary on the name of this unit in previous works by the **Someșean Platform** and later on that of the **Someșean Plateau** oronymously found in most regional and synthesis works on Romania (treatises, atlases, university courses). Also in this chapter is specified the geographical position with the limits of the unit and the component subunits with a brief characterization of their geographical features accompanied by two special color sketches.

In order to substantiate **the hydrographic configuration and hydrological characteristics**, in **Chapter II** an analysis of **the geographical factors that determine and influence the liquid flow regime** of rivers and limnological parameters of lakes is made. Among the factors that influence water resources are analyzed **geological conditions (tectono-structural, lithological), relief, vegetation, soil and overall land use. And climatic conditions as determining factors in the genesis of water resources**, in particular, **temperature with evapotranspiration and precipitation determine the configuration of the spatio-temporal liquid flow regime (daily, monthly and multiannual) associated with thermal and physico-chemical particularities.**

We note from the geological conditions the **sedimentary cover** which, through the **degree of permeability, quantitatively influences the surface flow (sheet flow) and the tectonics of the Carpathian foundation** in the direction of the major hydrographic arteries (Someșul Mic and Someșul Mare).

A detailed and well-illustrated analysis with map sketches is made on **the relief** as a factor influencing the process of liquid runoff not so much in the minor riverbed as on the interbasinal surface under **altitudinal** aspect (altitudinal gap of 780 m), **the slope of the relief, the depth and fragmentation of the relief, slopes' exposition.**

Climate as a determining factor in the formation of water resources is analyzed in detail using the data from 2 meteorological stations-Dej and Cluj-Napoca and 10 rainfall stations over a comprehensive period 1953-2003 but differentiated as steps depending on their validity to some parameters. The analysis of meteorological parameters prefaced by the characterization of **genetic climate factors** (radiation, air mass circulation, the underlying surface) is considered very professional, argued by tables, graphs and maps, justifiable by quantitative values that although modest and refer to **precipitation**, but which are slightly larger compared to the **east of the Transylvania Plain (560 mm/year in the southern part and 780 mm/year at the northern limit the contact with Breaza Peak).**

Running waters (the most extensive chapter over 100 pages), after the presentation of the organization (drainage basins of different orders according to the **Horton-Strahler criterion**), well illustrated in the map sketch (fig.46) and in the tables with their morphometry to the analysis of liquid flow based on **15 hydrometric stations** located on most local river basins (except Șimișna-Gârbău

Hills), with differentiated measurement periods (1950-2005, 1968-2005), considered by the author quite relevant for the analysis of water regime phases.

The analysis of the **average annual flow** is preceded by the spatial distribution of the **average flow**, concretized in table 50 which gives the values of all autochthonous hydrographic arteries belonging to the allochthonous rivers – Someșul Mic, Someșul (after the confluence at Dej of Someșului Mare with Someșul Mic and Lăpuș Someș outside the Someșean Plateau), namely: **average flow $Q = 10,150 \text{ m}^3/\text{s}$, specific flow $q = 3.867 \text{ l/s.km}^2$, average annual volume $V = 319.434 \text{ mil.m}^3$ and drainage layer $Y = 122 \text{ mm}$** . The following is the **seasonal, monthly and daily runoff, the characteristic periods of high / maximum runoff with high waters and floods, low / minimum runoff and the drying phenomenon**. All these aspects of liquid leakage are analyzed through a special graph-graphs and tables that argue the genesis and manifestation of the liquid leakage regime.

The water balance analyzed on components according to the **M.I. Lvovici equation, 1960**, widely used by some Romanian hydrological geographers helps to indirectly determine some parameters for which there are no values resulting from direct measurements. respectively **precipitation (X) and liquid runoff (Y) and indirectly groundwater runoff (U), evapotranspiration (Z) and total soil moisture (W)**. From the table with the values of the balance components, four values are defined to define the configuration of the water balance, namely: **$X = 704 \text{ mm}$, $Z = 582 \text{ mm}$, $W = 619 \text{ mm}$ and $Y = 122 \text{ mm}$** , so a balance that is specific to the area with **moderate humidity** of the territory of Romania.

Alluvium runoff is determined by the lithology of friable sedimentary formations of the drainage surface, by the liquid precipitation regime and by the freeze-thaw phenomenon that favors the **specific average runoff of suspended alluvium** with values between **1.5-2.5 t/ha. and turbidities between 1500-2000 g/m³**.

The chemistry of river water in relation to the water circuit and the lithological substrate, so that **the mineralization varies between 200-500 mg/l** but also increases up to **1000 mg/l** where there are saline lithological deposits such as in the Dej Hills, where the hydrochemical type is chlorinated and sodium sulfate relative to the predominant **calcium bicarbonate**.

The lakes from the Someșean Plateau, although they are small, the natural dolina ones are smaller, and the anthropic ones more numerous, the anthroposelines from Ocna Dejului, the ones from the pits resulting from the exploitation of construction materials are punctually analyzed and revealed the thermal, chemical and their use for different purposes. We must emphasize that the lakes in the Someșean Plateau were research topics for teachers at **Babeș-Bolyai University, Faculty of Geography**, with outstanding results on **limnological features**, less known in Romanian literature.

In the **hydrogeographic concept**, the problems of water resources are analyzed from the factors that generate them, the way of spatio-temporal manifestation, the physico-chemical characteristics, the way of their management. In this context in the last chapter – **The management of the water resources from the Someșean Plateau**, the author analyses the water resources according to their quality in two areas, namely: first drinking water in the supply of localities in relation to the resource on river basins, water needs, optimization of water supply solutions; the second chlorinated and sulphated mineral waters, used in several spa resorts - one of regional level – Toroc Ocna Dejului Spa Park and some of local level - Bizușa, Băița Gherla, this Leghia near the geological reservation "Gipsurile de la Leghia" ("Gypsum plaster from Leghia").

In conclusion, *The Someșean Plateau. Hydrogeographic study*, is a reference work for quantitative and qualitative knowledge of water resources, their local and regional capitalization, fulfilling a desire to cover **hydrogeographically** the entire geographical area of the **Transylvanian Depression** by **Prof. Univ. Dr. Victor Sorocovschi**.

University Professor Dr. Doc. Petre Găștescu