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Geologic control of rivers in the perimeter of Somes River Drainage Basin, Romania

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The present study highlights the role of geology (structure and neotectonics) on channel typology in the median and inferior parts of Someş River Drainage Basin (15.470 kmp, 124mc/s), NV Romania, based on channel morphology back in 1860 AD, channel planform dynamics between 1860 and 1977, and geological maps of the area.

The geological heterogeneity of the area is responsible for abrupt alternation of different channel types, resulting in a mixture of alluvial and mixed sinuous – meandering – sinuous anabranched – meandering anabranched reaches. Additionally, along some tributaries with reduced flow discharges, lakes are reported behind natural dams imposed by resistant rocks occurred in the river's bed. This behavior is complicated by general slopes of graded profiles, superimposed on local structural and tectonic controls, which enforce the rivers to function on different energy levels.

Based on channel typology and planform dynamic prior to large scale hydrotechnical intervention, river position in the floodplain perimeter, the type of rivers (main rivers vs. tributaries with less discharge), a general model of channel adjustment to lithology and neotectonic movements in the NV part of Romania is proposed.