



ICG2022-617, updated on 29 Nov 2022

<https://doi.org/10.5194/icg2022-617>

10th International Conference on Geomorphology

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Annual dynamics of a river sandbar in the Lower Danube: geomorphic adjustments under anthropogenic pressures

Sabin Rotaru, Albert Scriciu, and Adrian Popa

National Institute for Marine Geology and Geo-ecology (GeoEcoMar), Bucharest, Romania

Danube River is one of the largest fluvial systems in Europe in terms of length, drainage area, discharge and sediment load. Multiple anthropogenic pressures in the Danube River Basin have led to evident hydromorphological alterations, amongst which the most heavily disturbed component is the sediment regime. Like many temperate zone rivers, the sediment load of the Danube River has been substantially reduced due to the combined impact of flood protection, navigation and hydropower measures applied over a long period of time.

In this study, we analyse sand bar morphology for a period of five years (2018-2022) using various data recorded from single-beam bathymetry, river discharge and sediment load measurements. The investigated sandbar is located in the Bechet reach of the Lower Danube, downstream of the Iron Gates I and II Dams; it has a 2 km length and emerges during the low discharge season. The analyses revealed an accelerated riverbed incision around the islet and moderate accumulation on top of the bar. Furthermore, the results are discussed in relation to anthropogenic interventions such as dredging for ensuring optimal navigable conditions in the area, floodplain embankment and hydropower generation in the upstream.