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## Risk Assessment of Extreme Events along a River Flow

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### ABSTRACT

The present work considers the Struma River water flow on Bulgarian territory as a starting point for evaluation of maximum and minimum water flow using an original integral method. The risk assessment is determined by specific indices like the index  $M_{max,i}$  for the deviation of the maximum water flow from the calculated norm of the maximum flow  $Q_{max,0}$  and the index  $M_{min,i}$  for the deviation of the minimum water flow from calculated norm of the minimum flow  $Q_{min,0}$ . The new integral approach introducing specific indicators for risk assessment like the indices  $M_{min,i}$  and  $M_{max,i}$  has been checked at three sampling locations of the National monitoring net along the Struma River: Pernik (in the beginning), Krupnik (in the middle) and Marino pole (at the border in Greece) for the period 1948-2006. A significant trend towards decreasing of  $M_{max,i}$  index is outlined for the three points. On contrary, a significant trend towards increasing of  $M_{min,i}$  index is found at Krupnik and Marno pole sampling points.

### KEYWORDS

Integral Indices, Climate Impact, Water Quality, River Flow, Extreme Events

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