**Title:** Changes in the hydrosocial configuration and composition of the landscape metrics in El Coca, Ecuador (2020-2022).
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Session Topic: Data-driven geographies, geospatial analysis, and artificial intelligence

Abstract:

Research in the Amazon region is limited due to the quality and quantity of the data available, however, by means of land use and coverage maps based on satellite imagery, the territory and its process of change, urbanization, and growth can be analyzed, comprehended and predicted. The methodology applied included: I) the establishment of two scales of study: 1 km and 10 km; and two years of analysis for time comparison changes: 2020 and 2022; in total 26 transects were established for the first scale (13 for each year) and 70 transects for the second scale (35 for each year) which cover the corridor alongside each river axe in the Napo River Basin; II) the selection and measurement of a set of landscape metrics that represent the urban fabric and water bodies characterization; and III) the application of differentiation correlation and regression tests to demonstrate that rivers shape the development, expansion and growth of cities. As a result, it was found that in the Amazonian city of El Coca the relationship between the city and its three rivers is not equal and is starting to lose its connection to socionatural elements such as rivers, and the forest. Amazonian cities are unique in terms of urbanization since their development was mostly explosive and linked to extractive logics of oil and metals furthermore, they are located in a territory considered a laboratory of biodiversity hence it is essential to find different layers of urbanization linked to socionatural approaches.
**Keywords:** City-river relationship, Amazonia, big data, landscape metrics, hydrosocial territories.
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