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Flood risk management solutions in the Seine river basin: the evolution of public authorities' strategies according to the Web sphere

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This study explores how Paris flood risk management issues, and in particular resilience solutions, are represented in the political sphere through the Web. Since the early 2000s, the French national and local authorities made increasing efforts to facilitate public access to administrative documents through digitalisation and online publication. On the other hand, resilience solutions gained importance, in the last five years, among scientists and practitioners concerned with flood risk in Paris.

We propose to exploit recent advances in big data exploration techniques, applied to online digital texts, to examine the strategies published on the Internet by public authorities and implemented in Paris. We adapted and applied a methodology outlined in R. Vicari, I. Tchiguirinskaia, D. Schertzer, 'Climate risks, digital media, and big data: following communication trails to investigate urban communities resilience', Natural Hazards and Earth Systems Sciences Discussion, doi.org/10.5194/nhess-2018-200
More specifically, we tried to answer the following questions: how do public authorities depict climate resilience strategies on the Web and how does it change in the long term? Which topics and actors are frequently associated with each other and how these patterns evolve over time?

We first conducted a qualitative review of online strategic documents released over 15 years. On the basis of this review, we selected key terms concerning resilience management. We then used this list to compute a complex network and identify clusters of terms that tend to appear in the same semantic context. The most central terms in the network were then identified. The analysis was repeated with two sample subsets corresponding to two different time periods: this allows the evolution of these patterns over time to be observed.

The results obtained from the study highlight the recent emergence of the following clusters of topics: nature-based solutions, integrated and multi–scale risk management, subsidiarity. These results provide new insights into the Web representation of policy and decision-making processes that tackle the challenges posed by flood resilience in the Paris region. Moreover, the proposed methodology can be reproduced in other cities facing flood risks or different hydrological shocks and stresses.

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