

# **Analyses de Robustesse: Graphe non valué**

## Casser des Graphes

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Complex Networks - LIP6

# Outline

Quelques scores et distributions

Ordre eBC

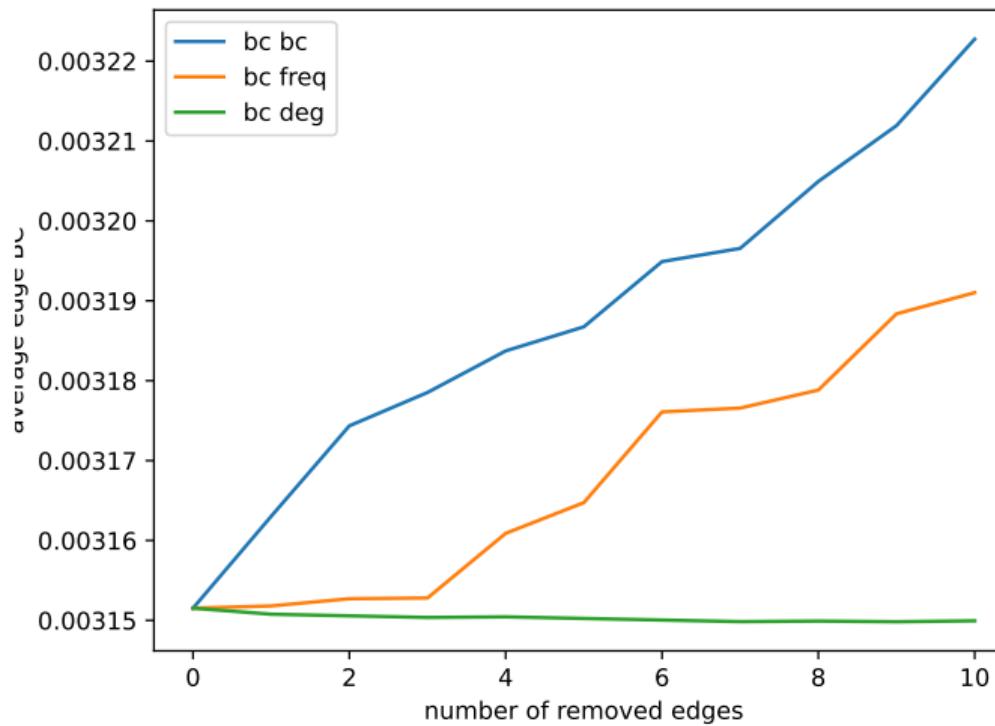
Ordre freq

Ordre eBC dans une coupe

## **Quelques scores et distributions**

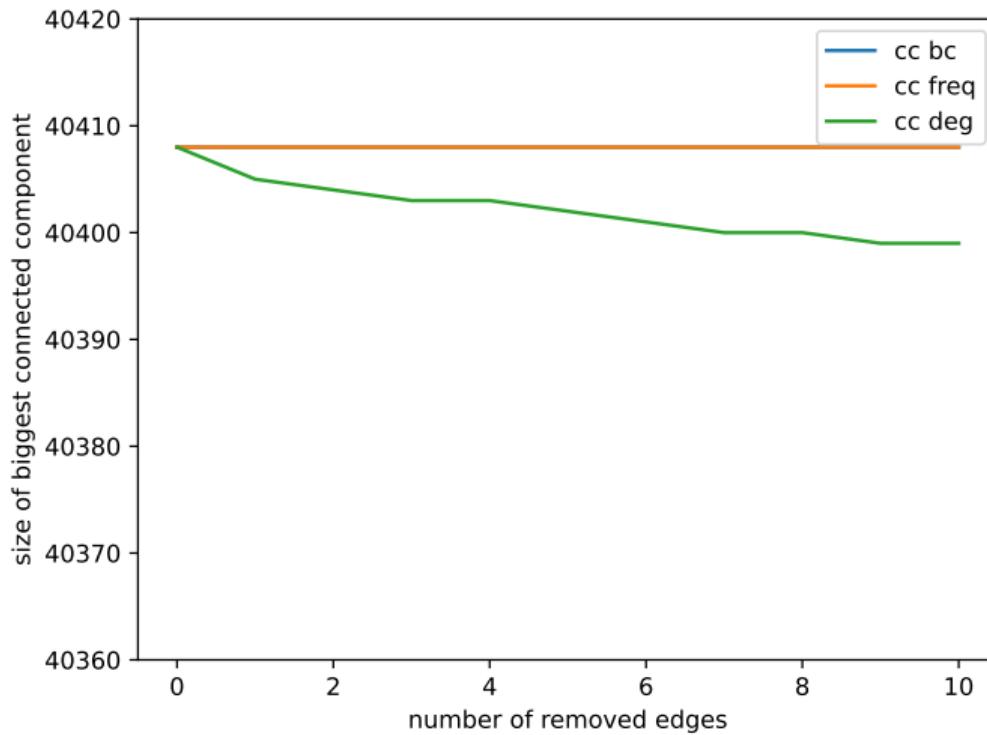
# Score: moyenne egde Betweenness Centrality

Average eBC evolution after edge removals



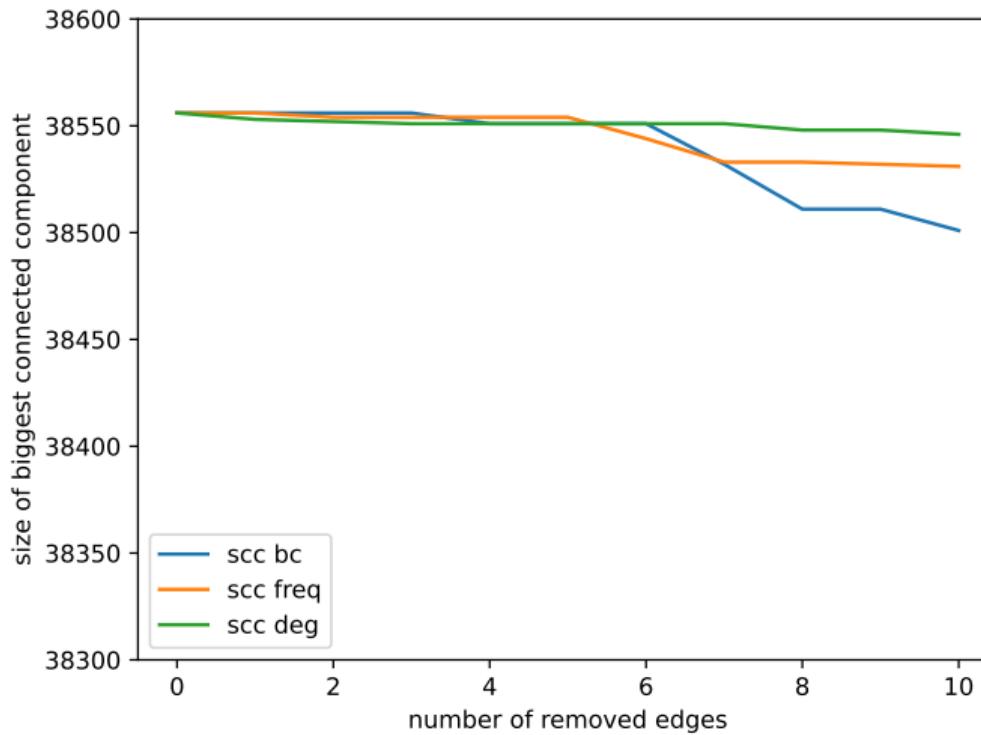
# Score: plus grande composante connexe

Size of biggest connected component evolution after edge removals

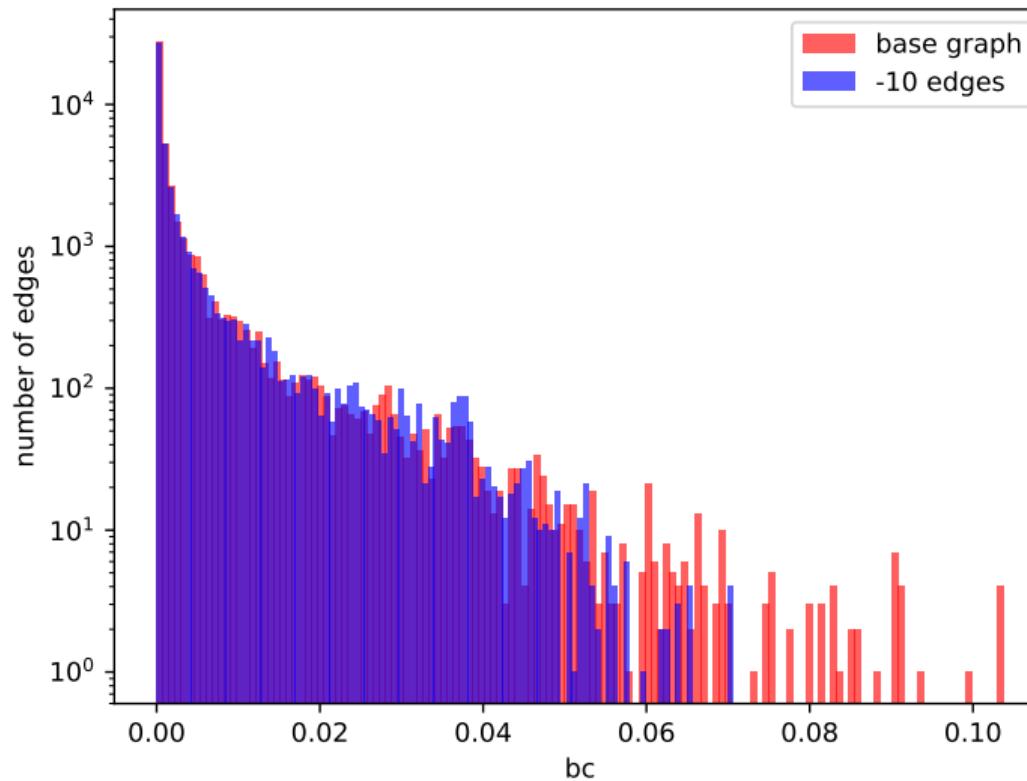


# Score: plus grande composante fortement connexe

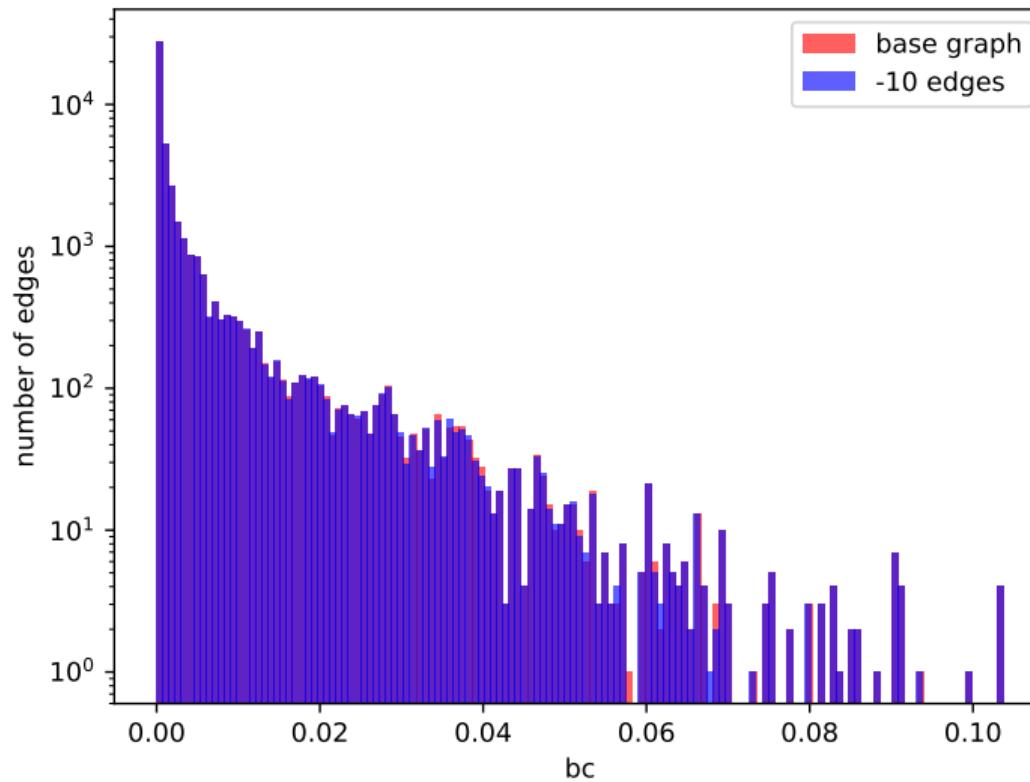
Biggest strongly connected component size at each attack step



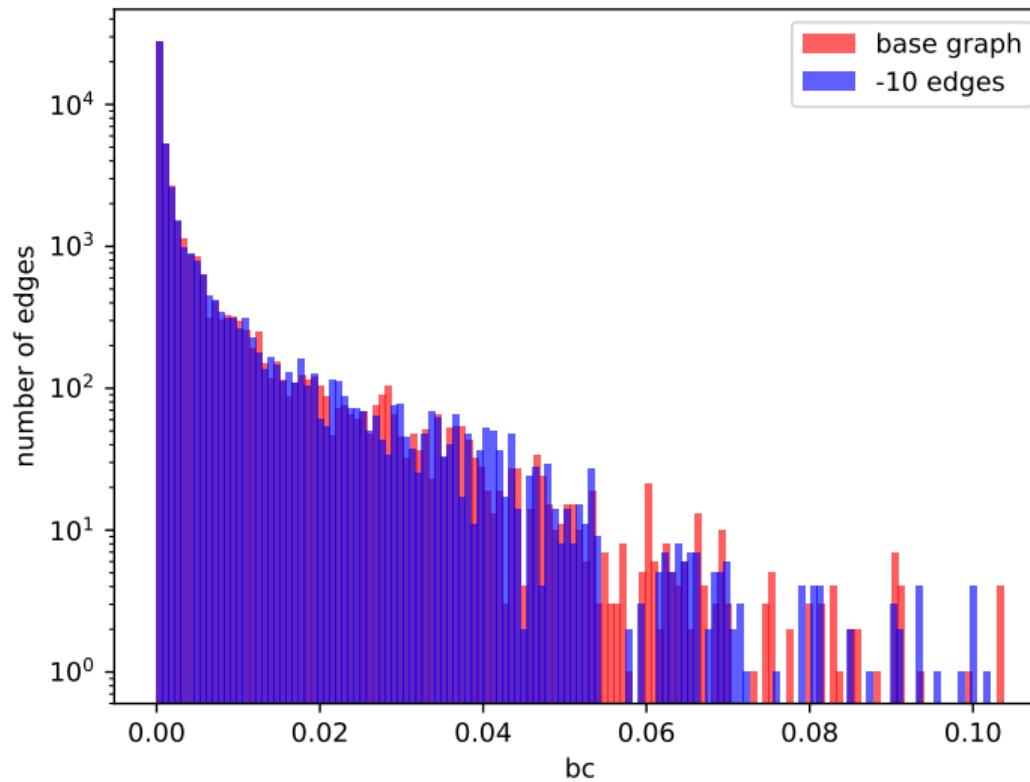
## Ordre eBC: changements de distributions après 10 arêtes enlevées



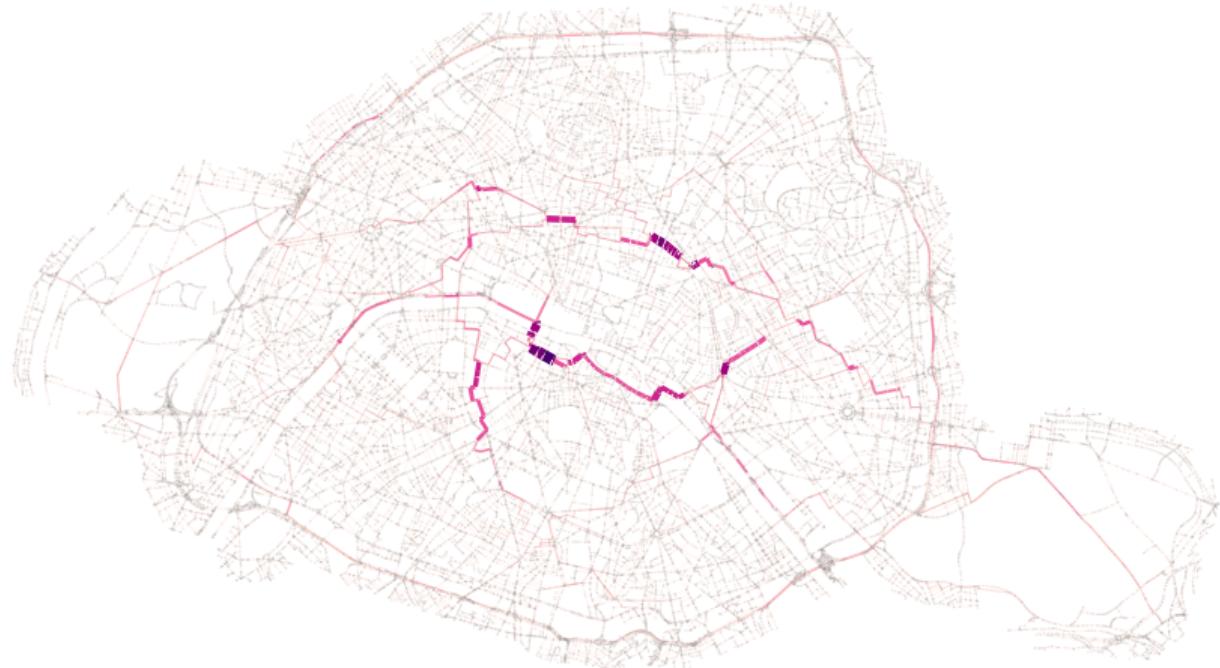
## Ordre deg: changements de distributions après 10 arêtes enlevées



## Ordre freq: changements de distributions après 10 arêtes enlevées



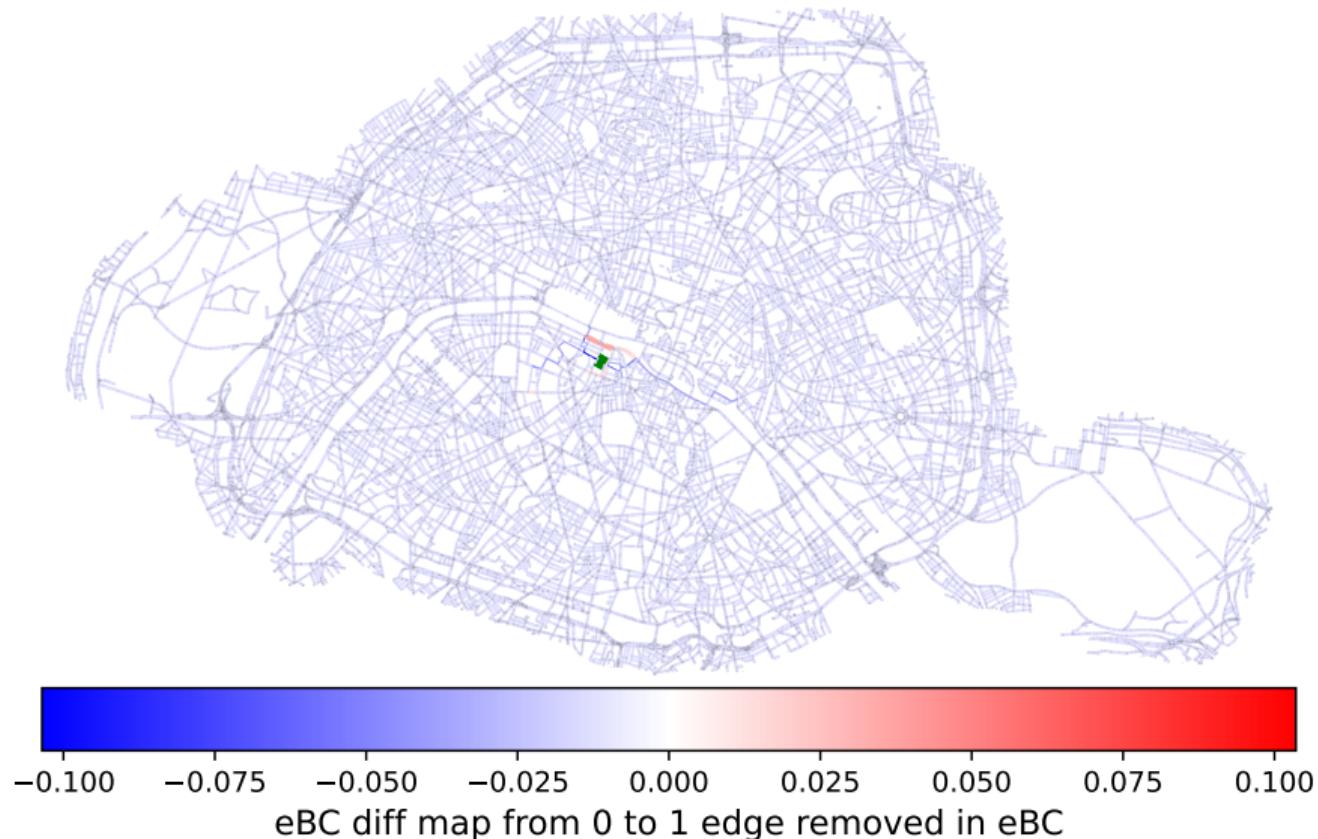
## Visuel des eBC de base



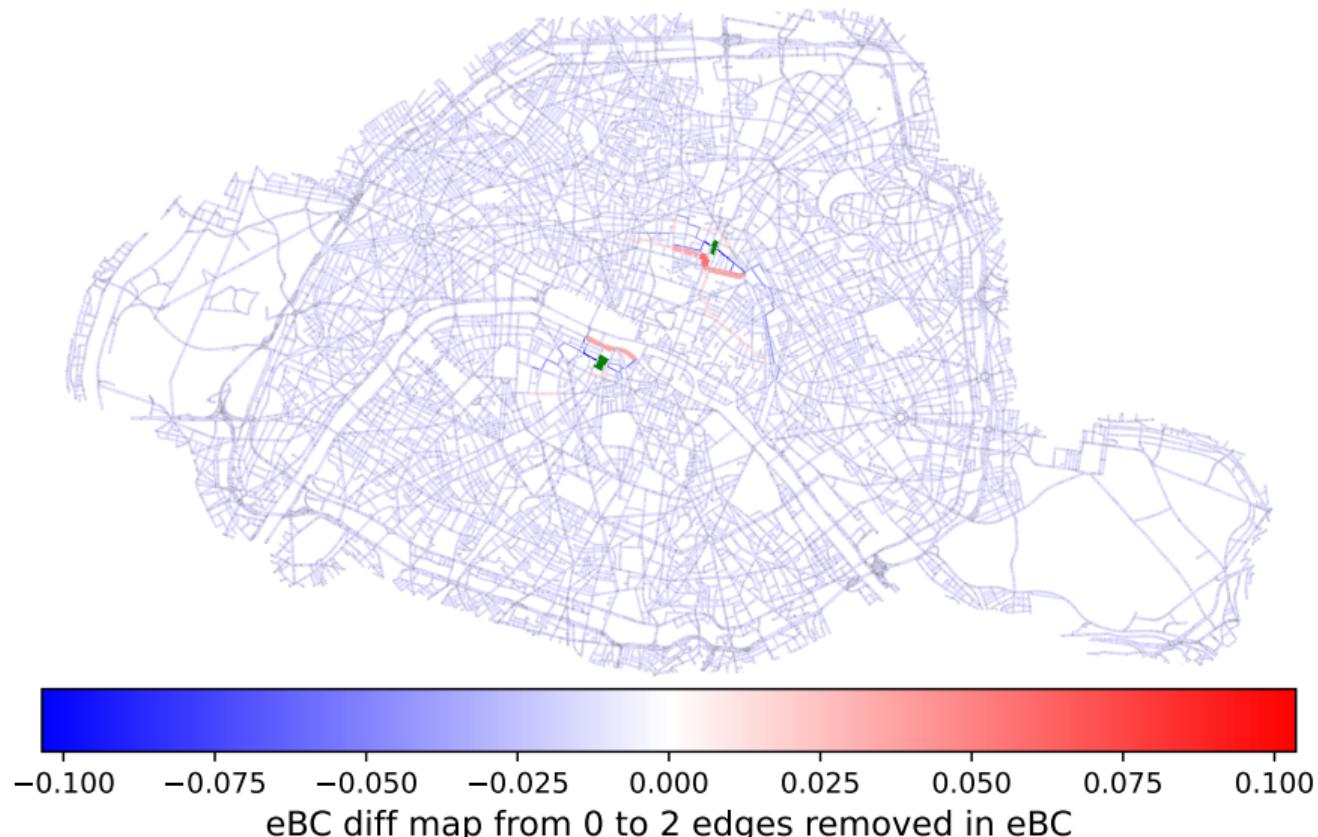
0.02 0.04 0.06 0.08 0.10  
eBC map after removing 0 edges in the eBC order

## **Ordre eBC**

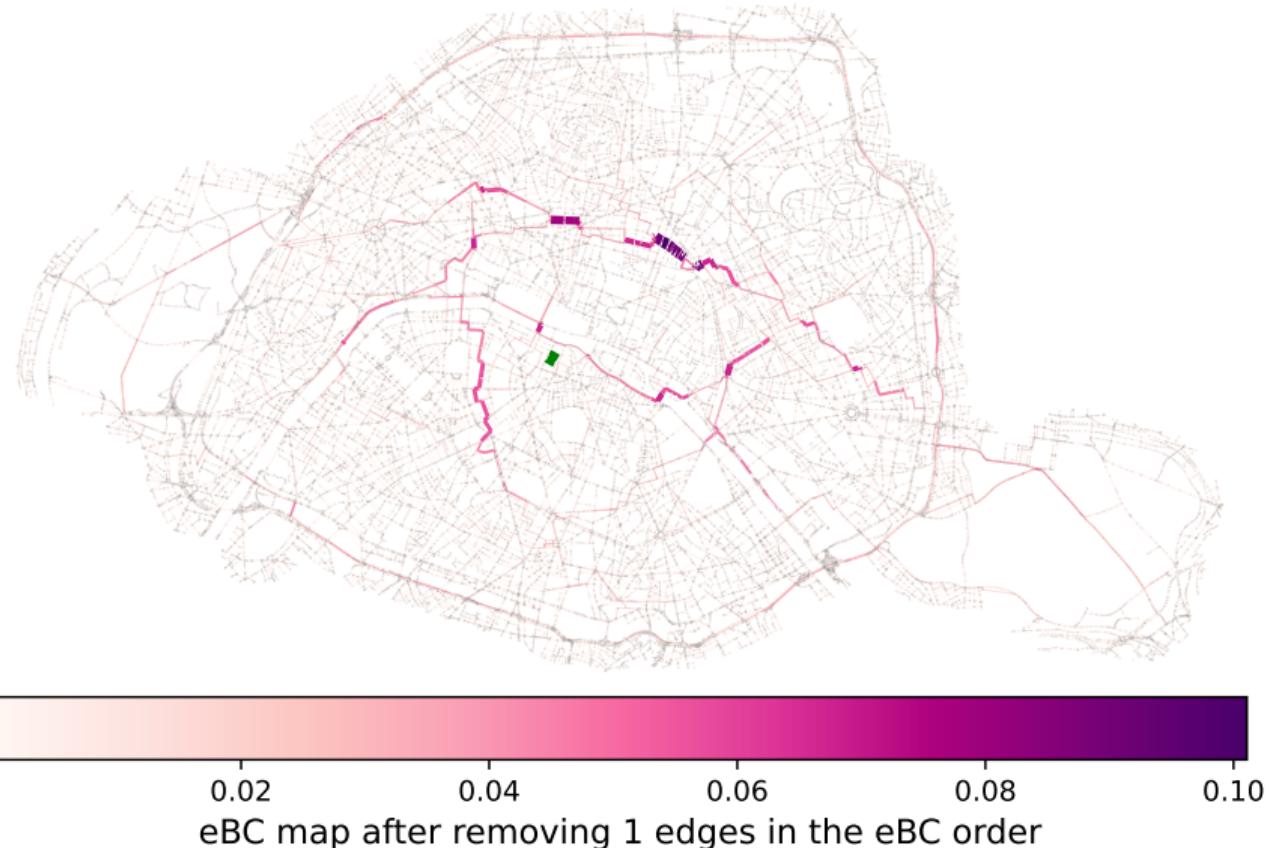
## Des influences locales (1)



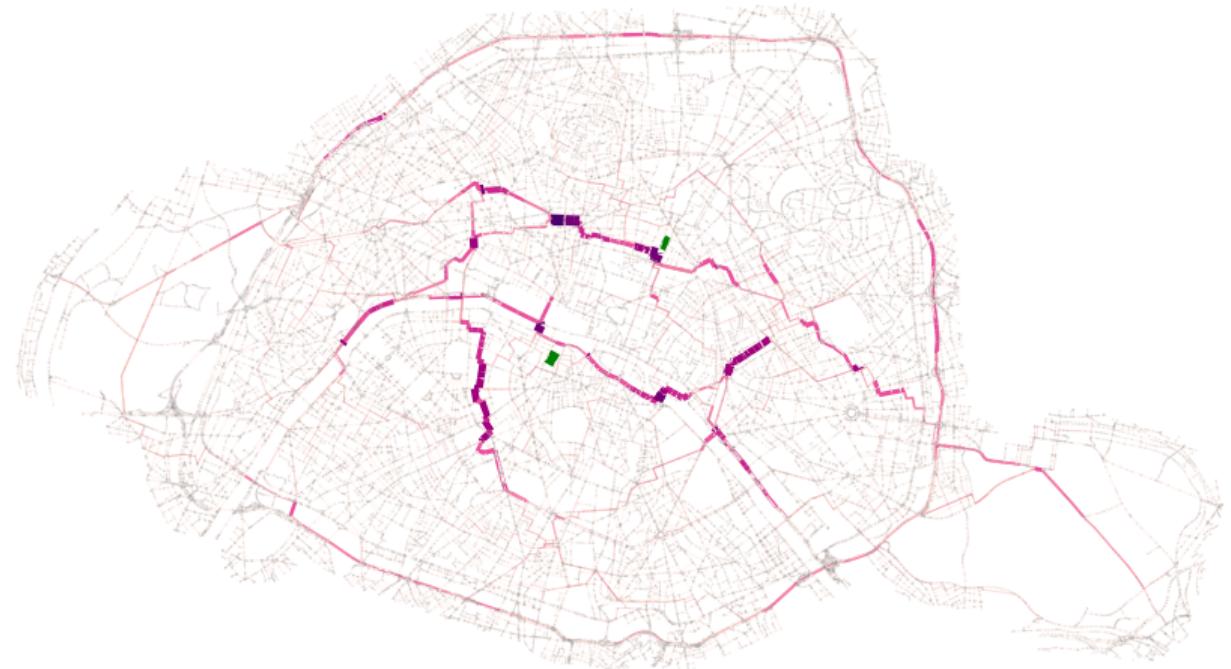
## Des influences locales (2)



## intérêt de la eBC itérative: chaque attaque influence les prochaines (1)



## intérêt de la eBC itérative: chaque attaque influence les prochaines (2)



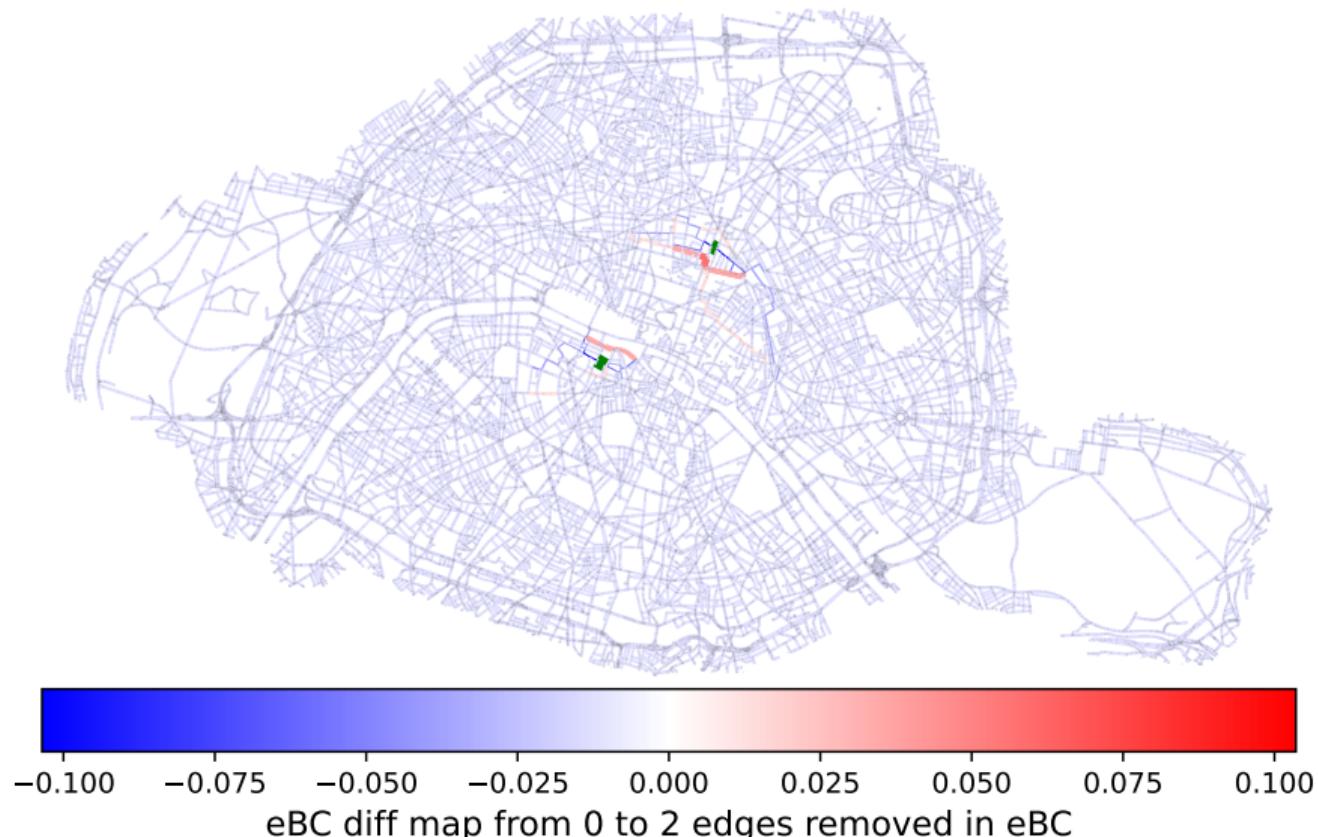
0.01 0.02 0.03 0.04 0.05 0.06 0.07  
eBC map after removing 2 edges in the eBC order

## intérêt de la eBC itérative: chaque attaque influence les prochaines (3)

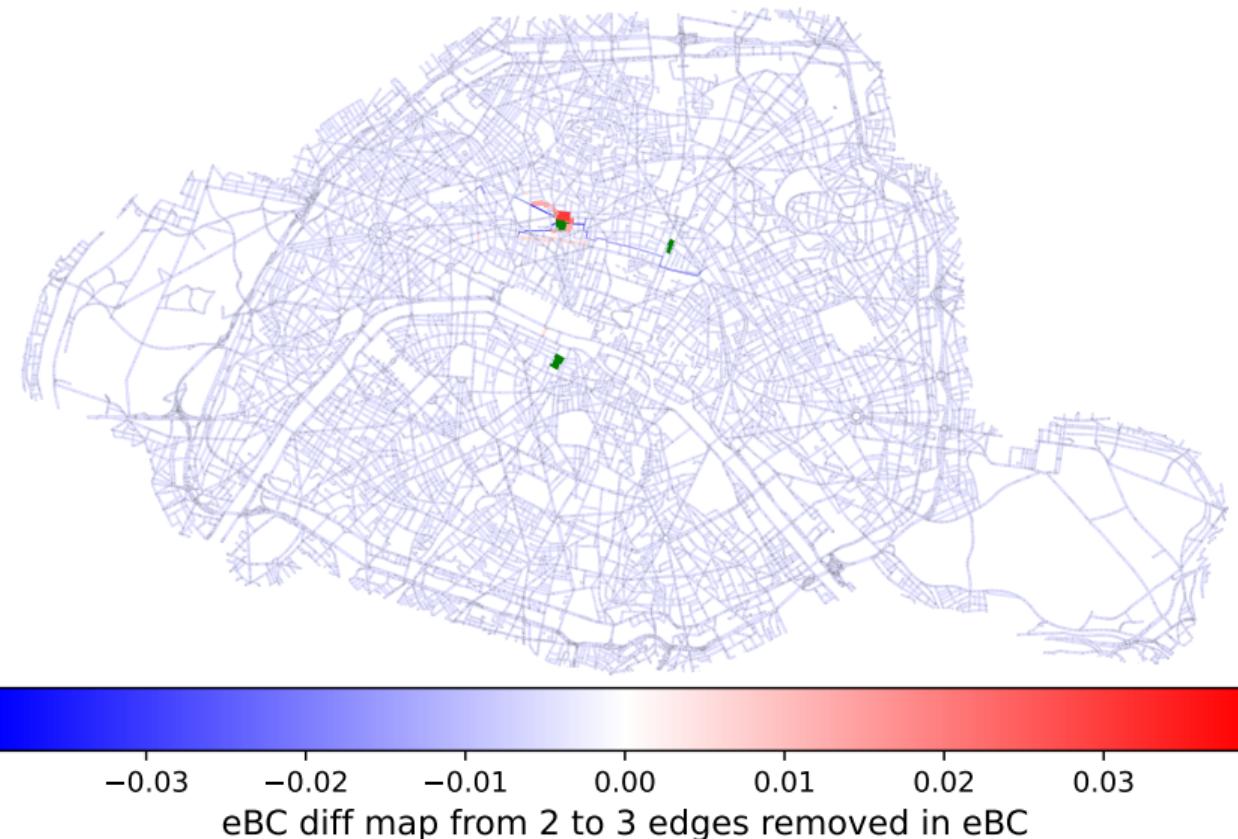


0.01 0.02 0.03 0.04 0.05 0.06 0.07  
eBC map after removing 3 edges in the eBC order

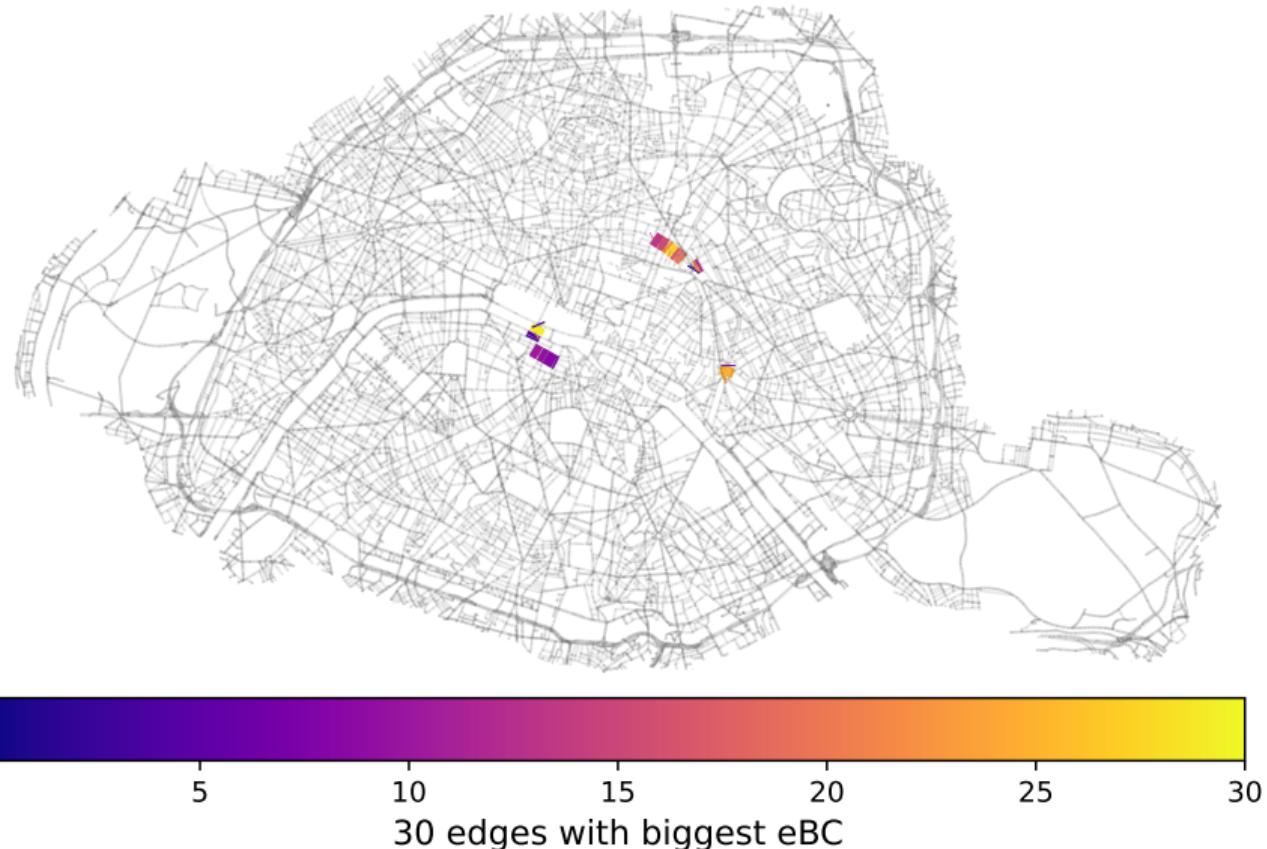
## intérêt de la eBC itérative: chaque attaque influence les prochaines (1)



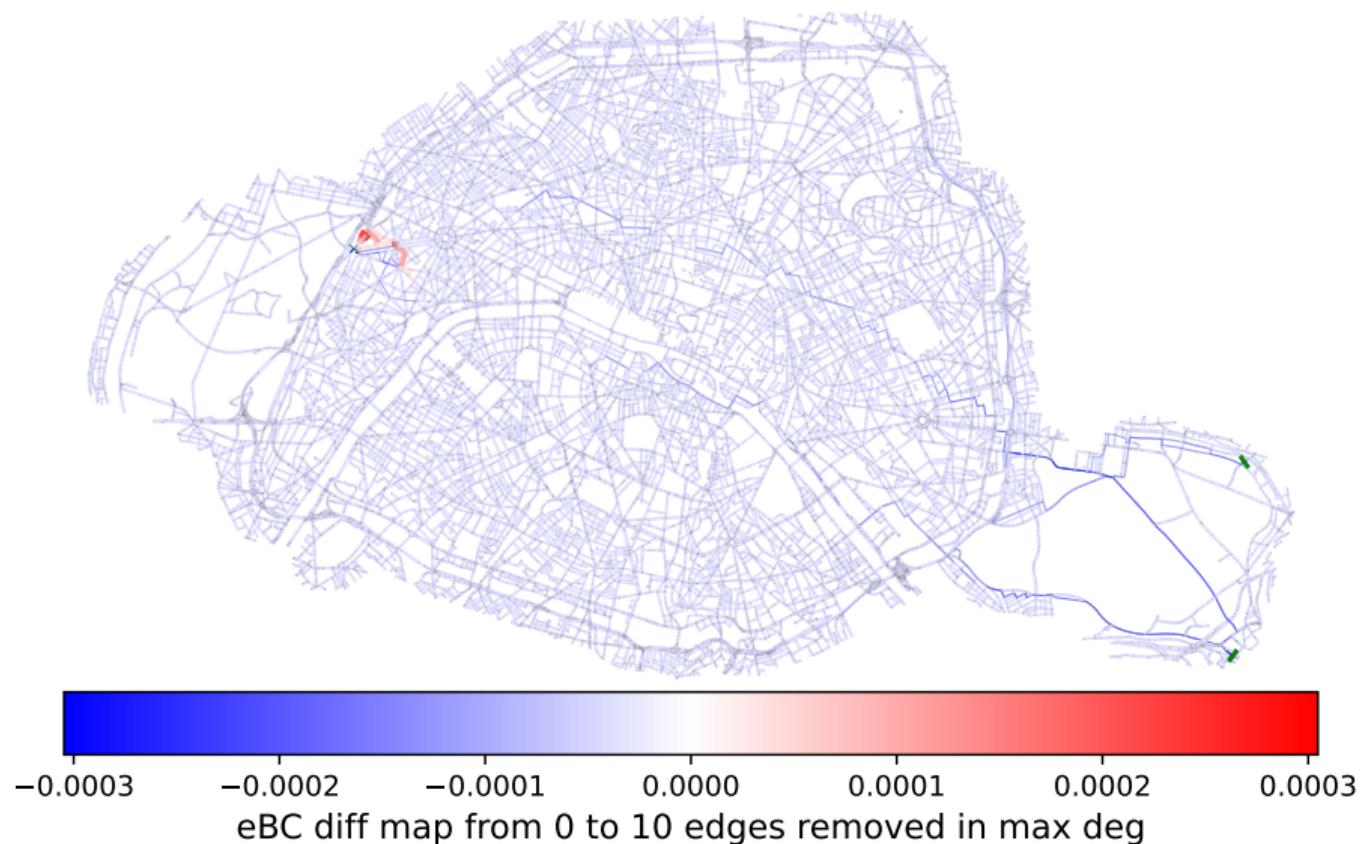
## intérêt de la eBC itérative: chaque attaque influence les prochaines (2)



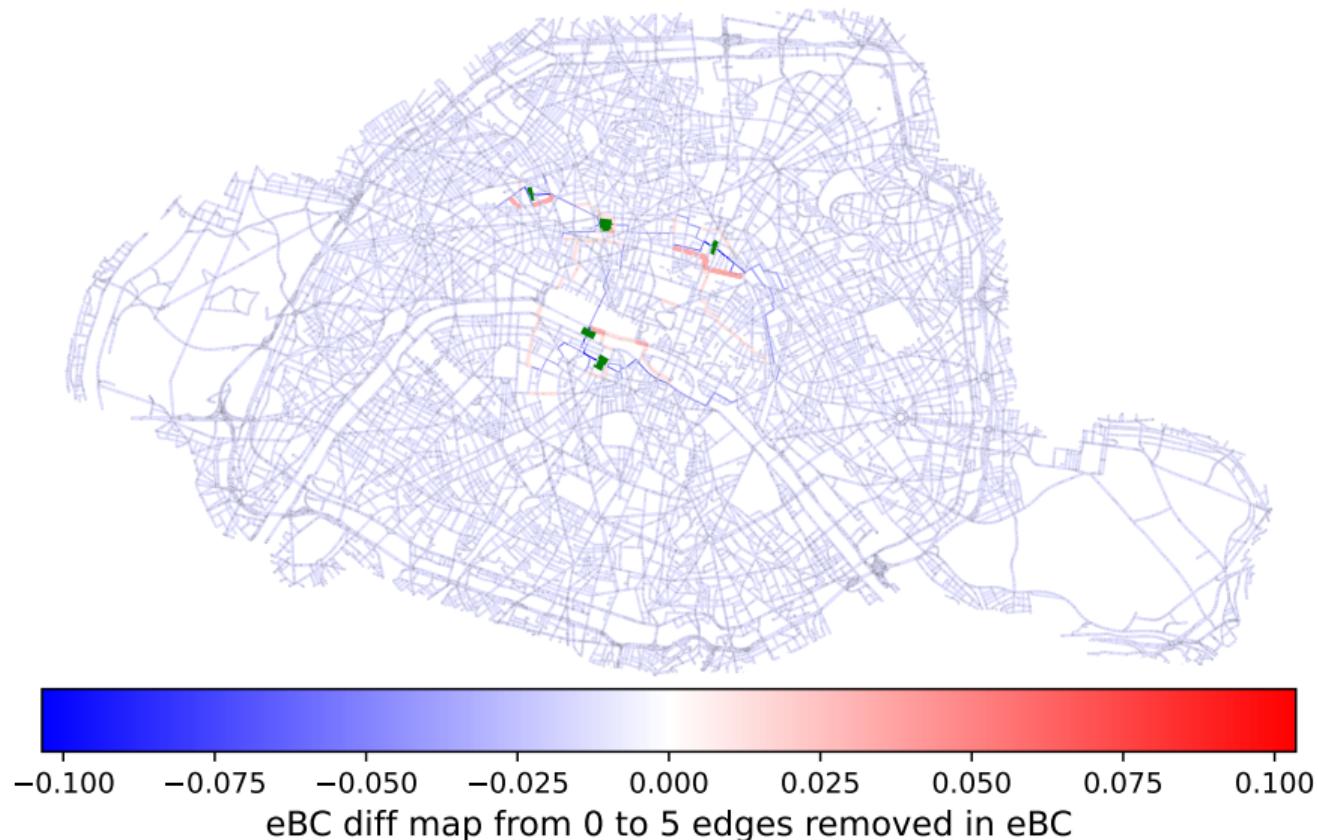
# Contrairement à une attaque qui ne s'adapterai pas



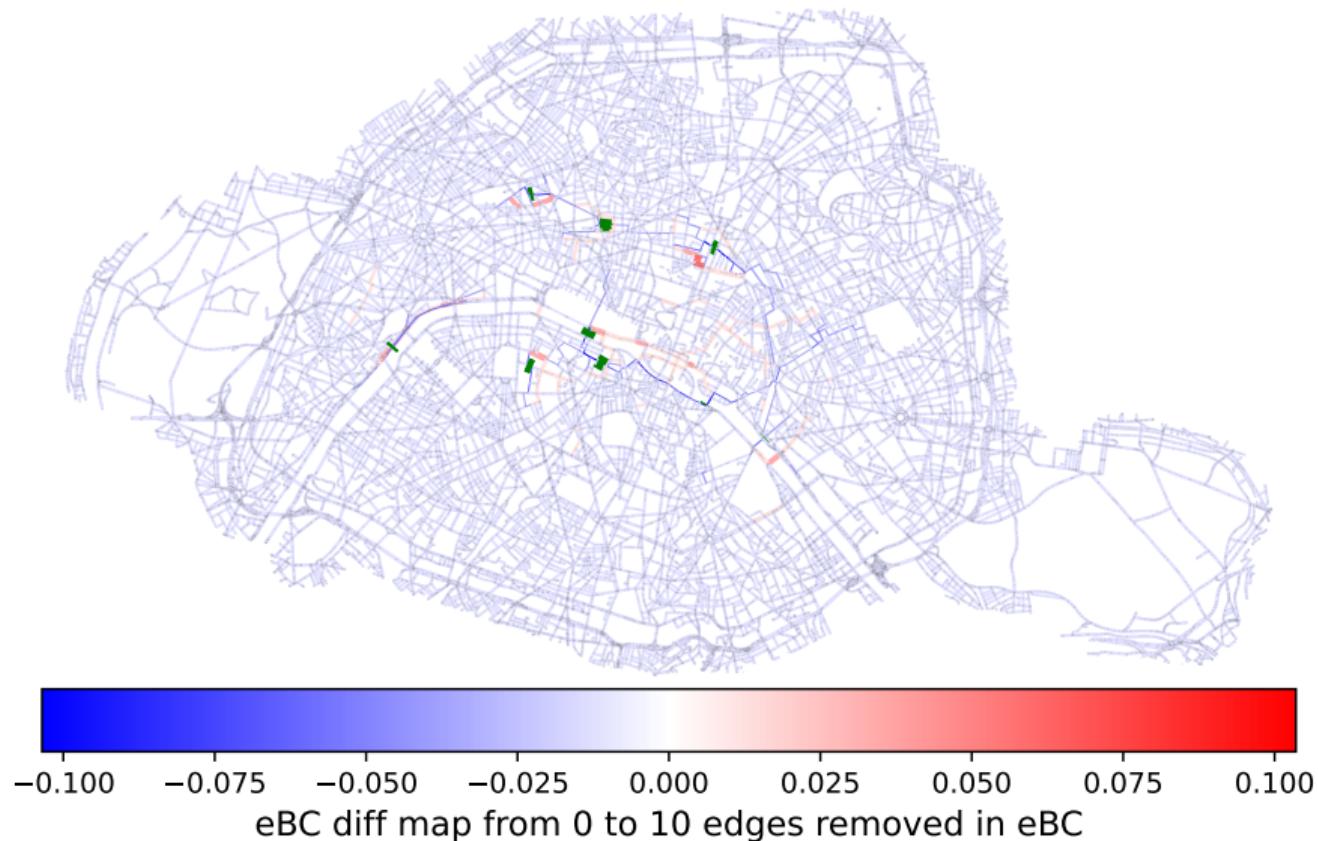
## eBC: un ordre efficace... quand on mesure en eBC



## Des perturbations qui s'aggrave (1)

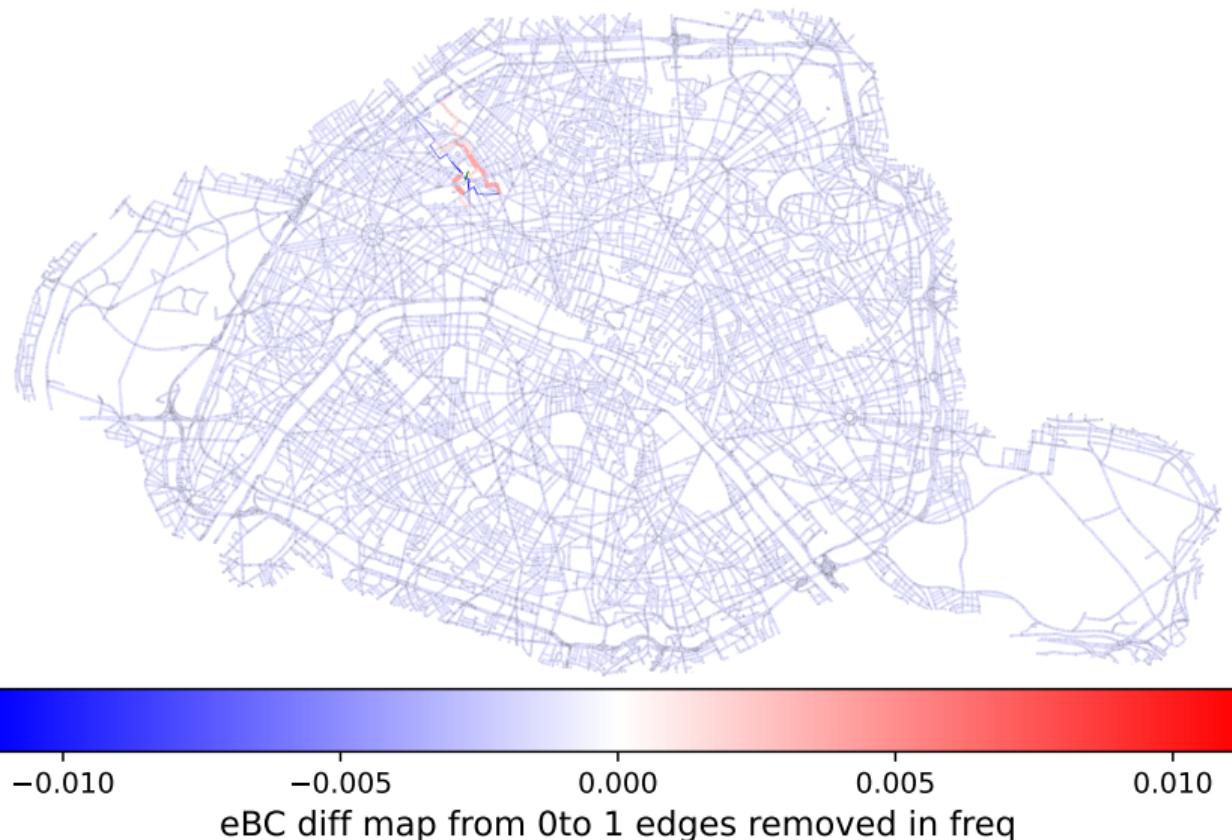


## Des perturbations qui s'aggrave (2)

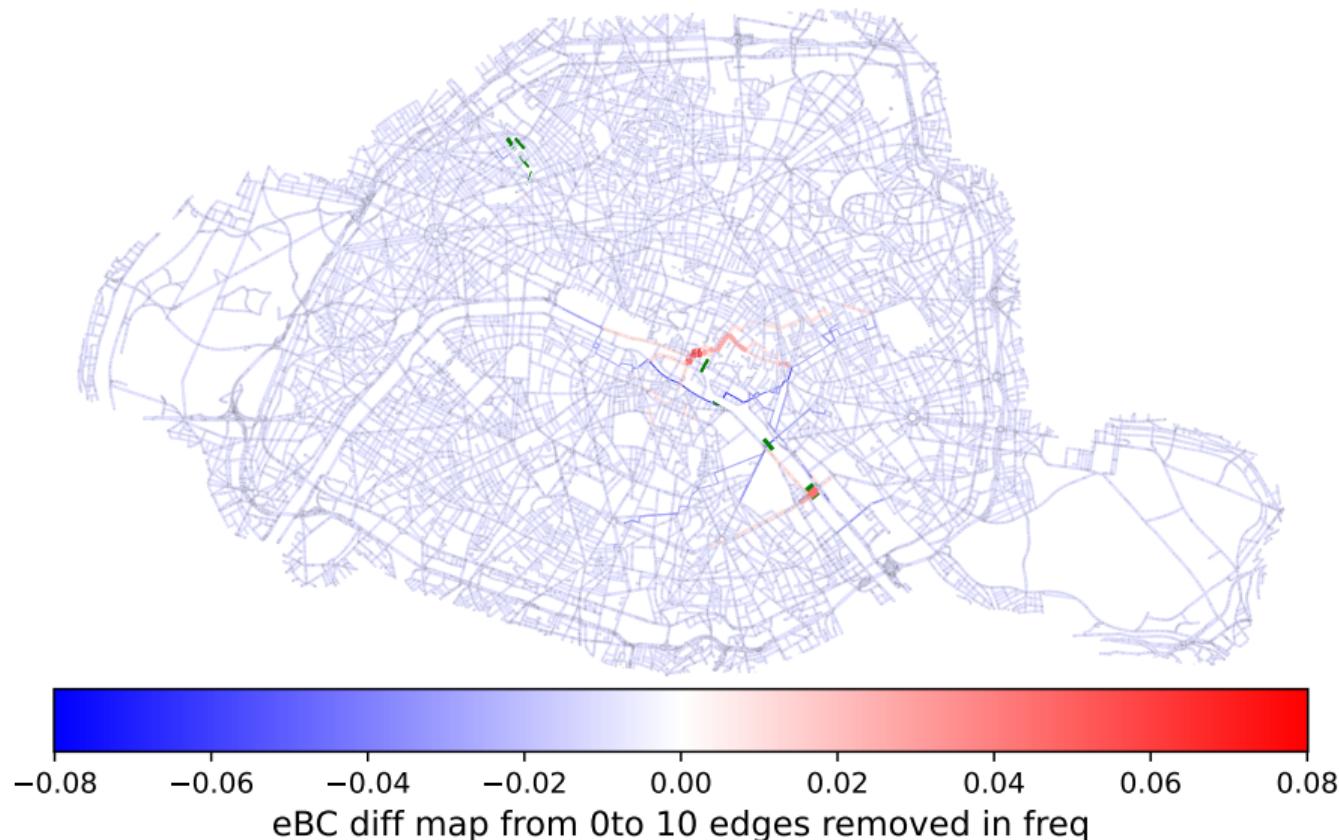


**Ordre freq**

## La fréquence: des perturbations locales assez faibles

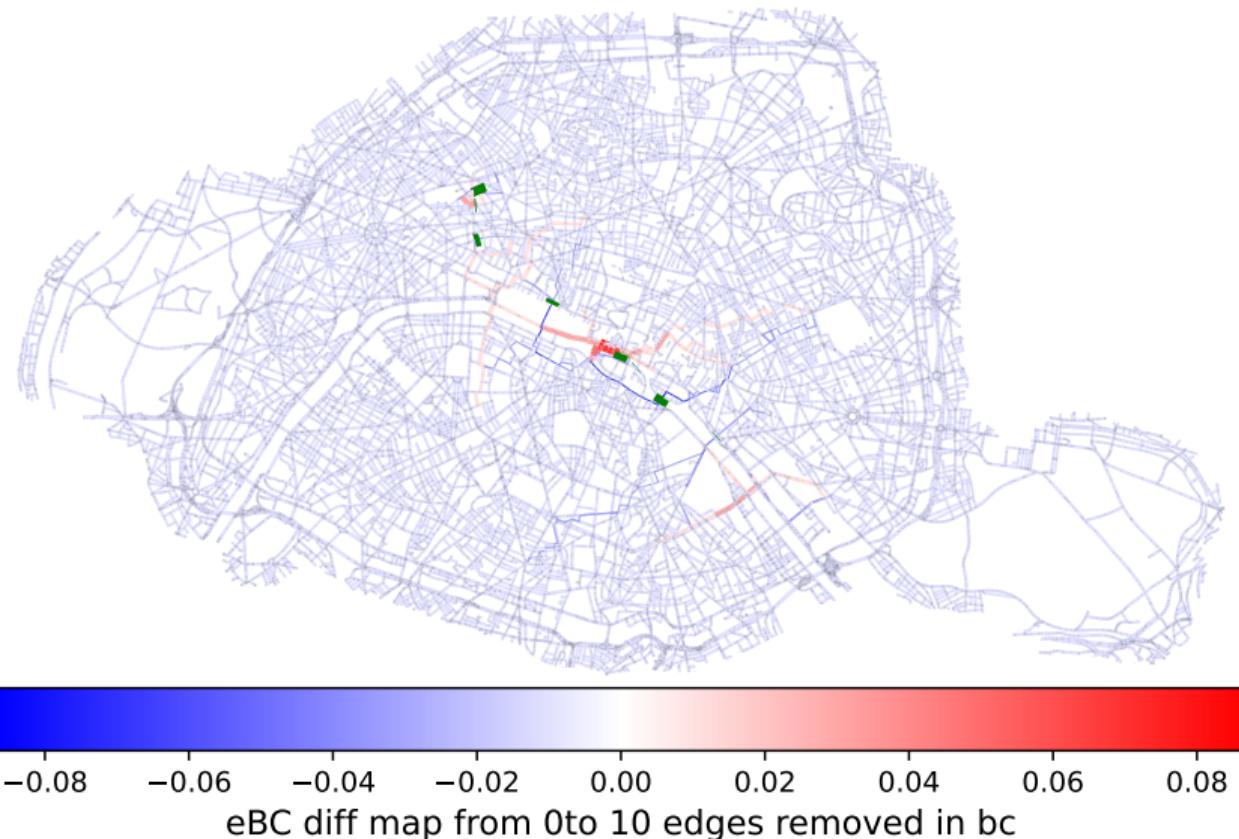


## La fréquence: un indicateur biaisé mais apparition d'une stratégie de coupe

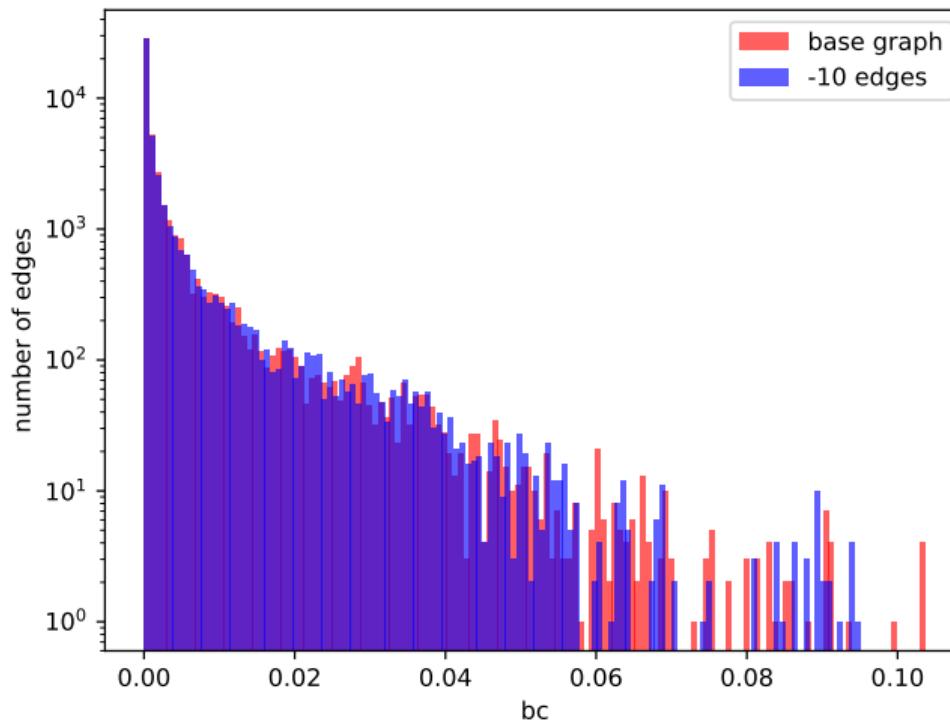


## **Ordre eBC dans une coupe**

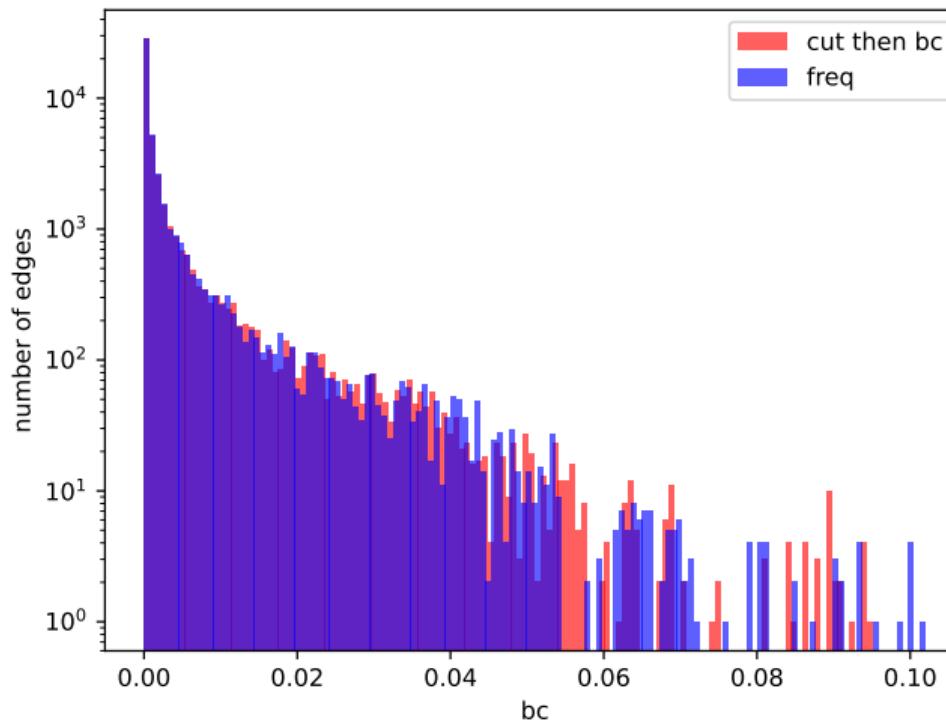
## Type de coupe majoritaire



## Evolutions des distributions des eBC



## Comparaison des distributions: cut (eBC) vs freq



## Comparaison des scores: average eBC

Average eBC evolution for 3 different attacks

