

Arabesque

Application d'exploration et de géovisualisation de données de flux et de réseaux

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Flux, réseaux et mouvements dans le geoweb

Site web du projet : <https://geoflowiz.hypotheses.org/>

IFSTTAR direction scientifique – collaboration CNRS

Projet fédérateur MobTransNum & AP GEOWEB (GDR Magis)

2 objectifs :

- Recenser les applications web (carto)graphiques de données décrivant des mobilités spatio-temporelles
- Développer une application web de géovisualisation de flux, de réseaux et de mouvements



Arabesque

- *Arabesque*, application libre de cartographie thématique de flux et réseaux
- <http://arabesque.ifsttar.fr/>
- Son code source est disponible sur le dépôt : <https://github.com/gflowiz/arabesque>
- Bibliothèques et données :





Objectifs



- Traiter de **grands jeux** de **données multiscalaires** tels des matrices O/D
- **Calculer** des **indicateurs de base** sur les réseaux et les flux : indegree, outdegree, volume, solde
- **Paramétrer** la géométrie, le style des figurés et leur sémiologie (taille, couleur, valeur, orientation...)
- **Filtrer l'information** de façon interactive (liens, nœuds, attributs)
- **Choisir sa projection** cartographique et son **fond de carte**
- **Exporter** une carte vectorielle légendée respectant les principes de sémiologie graphique

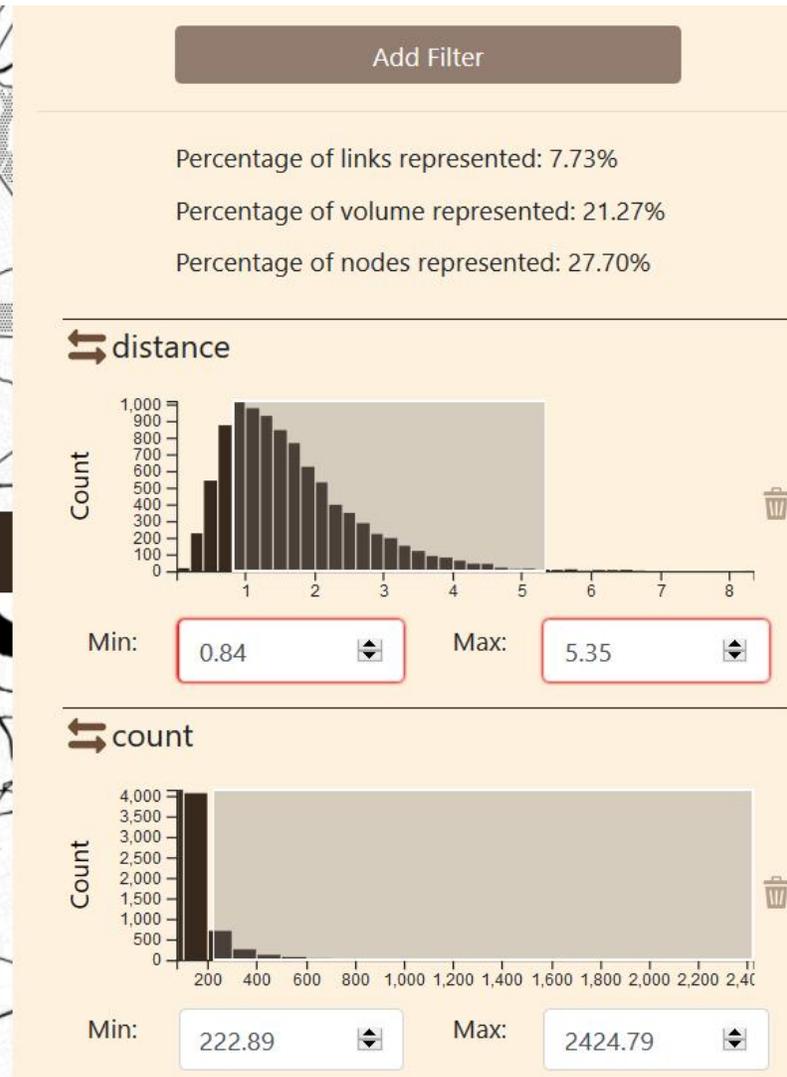
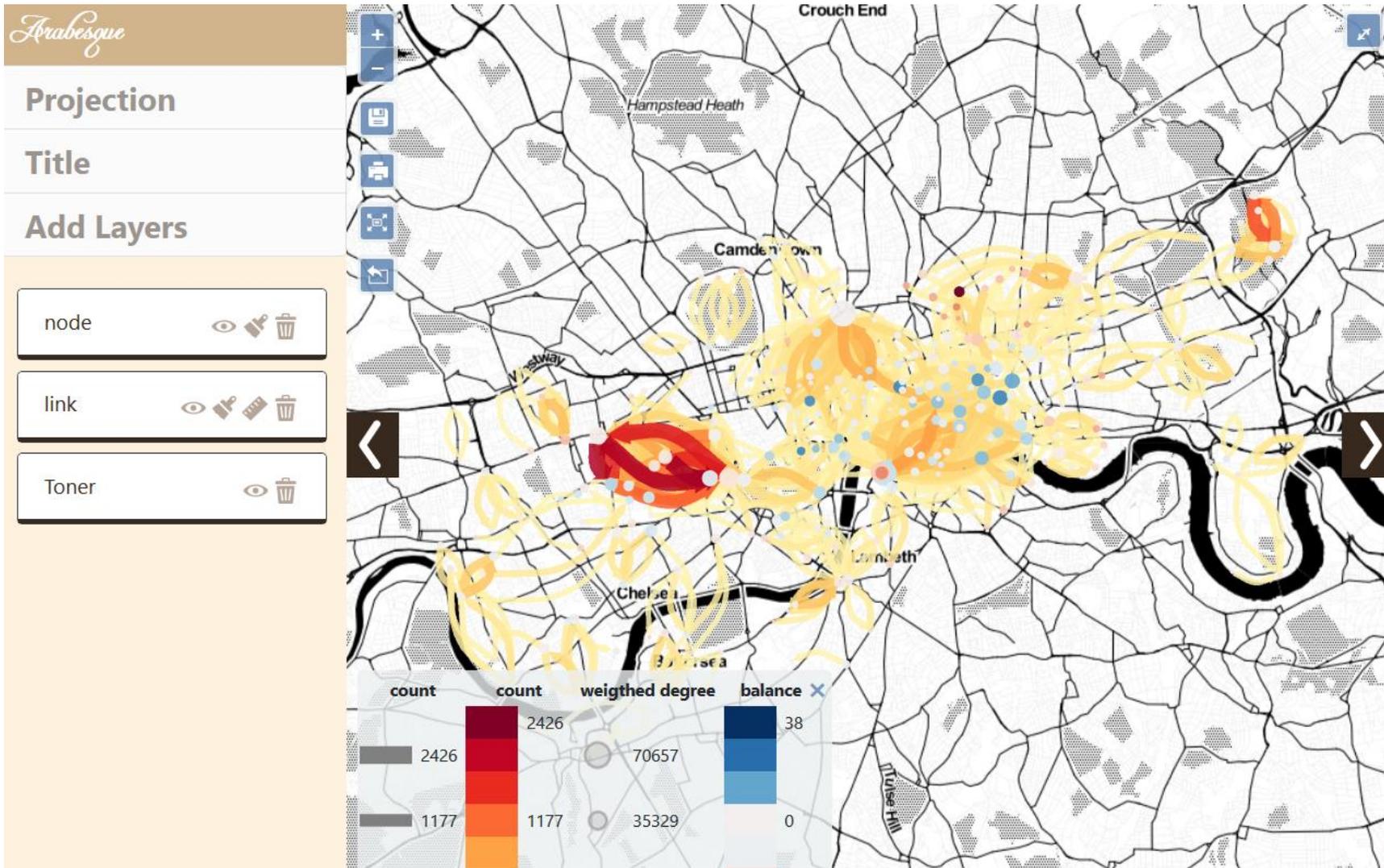


5 grandes étapes

- 1. Importer** des données (liens et/ou nœuds)
 - 2. Traiter** (création d'indicateurs statistiques)
 - 3. Explorer et filtrer**
 - 4. Symboliser**
 - 5. Sauver et exporter**
- 

Données de démo
Bike Sharing
Niveau Local

L'interface



Données RICardo
International trade
Niveau mondial

Visualisation par défaut

Arabesque

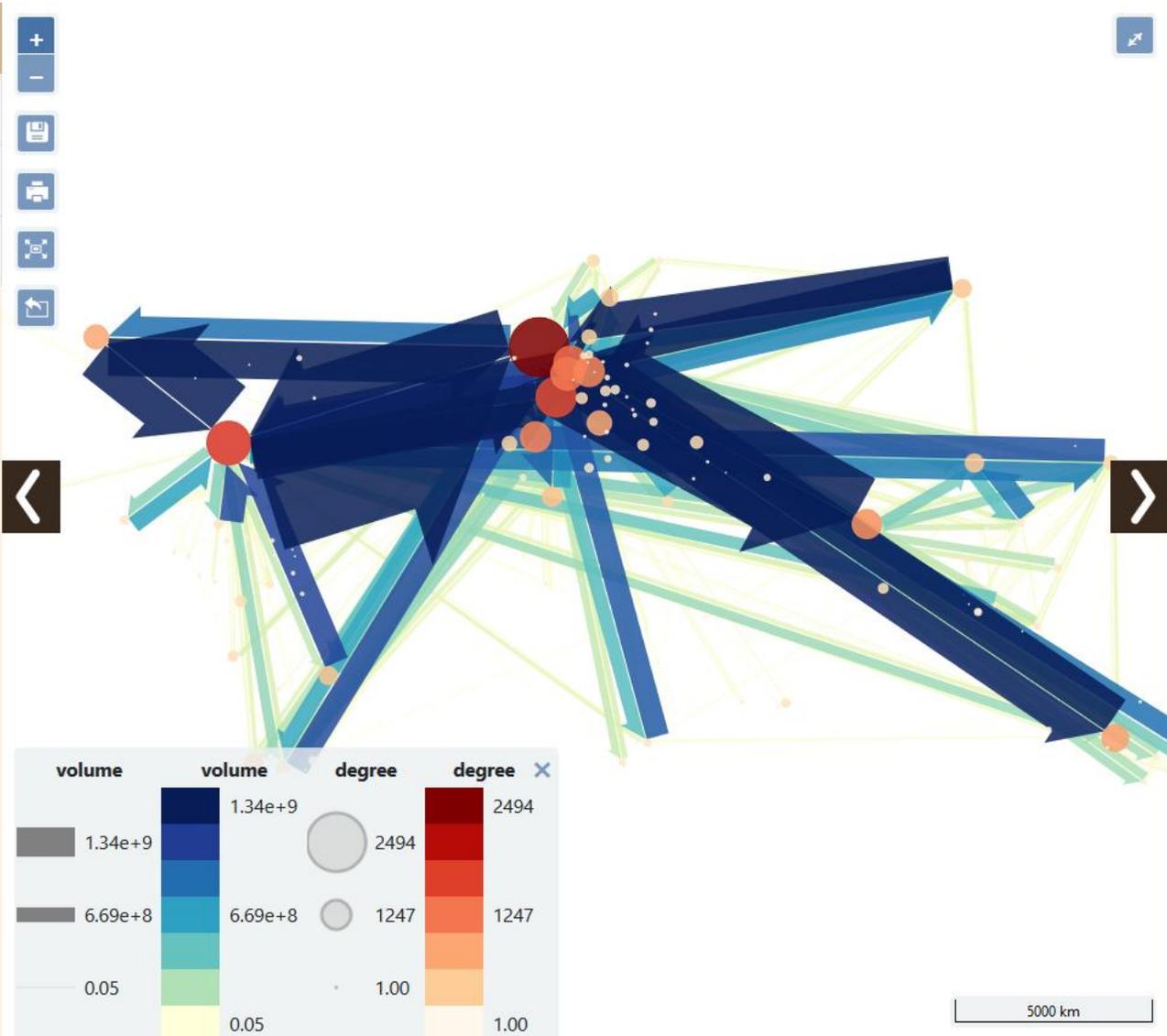
Projection

Title

Add Layers

link

node



Add Filter

Percentage of links represented: 10.00%

Percentage of volume represented: 83.57%

Percentage of nodes represented: 36.69%

volume

Count

Min: 12190351.87

Max: 1338359556.27

Visualisation par défaut

Arabesque

Projection

Title

Add Layers

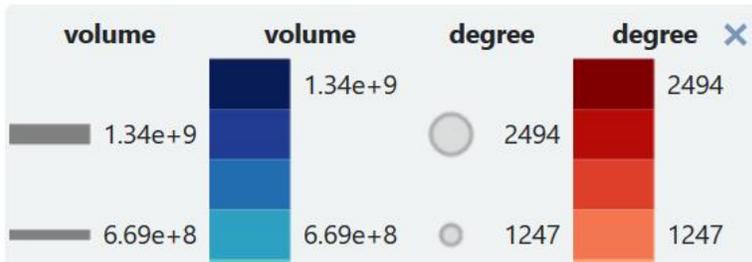
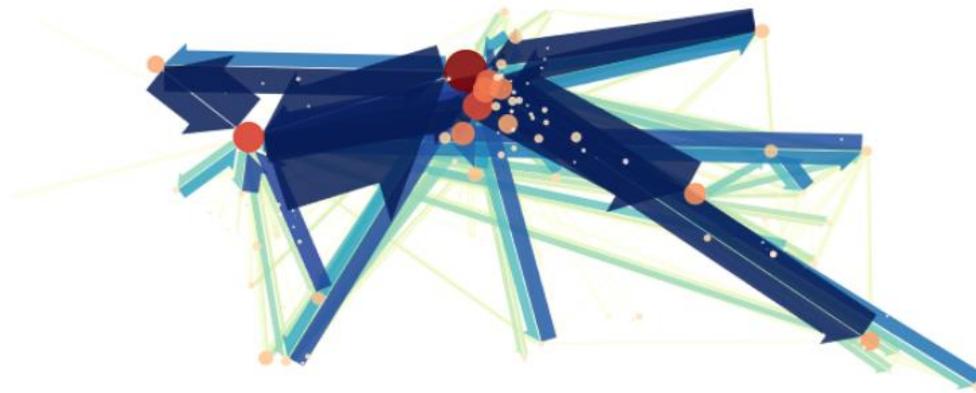
link    

node   

+
-







Add Filter

Percentage of links represented:
10.00%

Percentage of volume represented:
83.57%

Percentage of nodes represented:
36.69%

↕ volume



Min: Max:

Démo

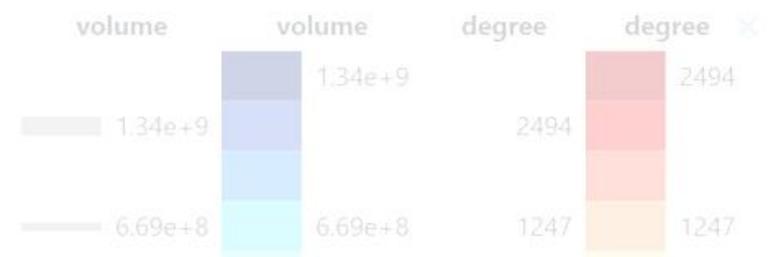
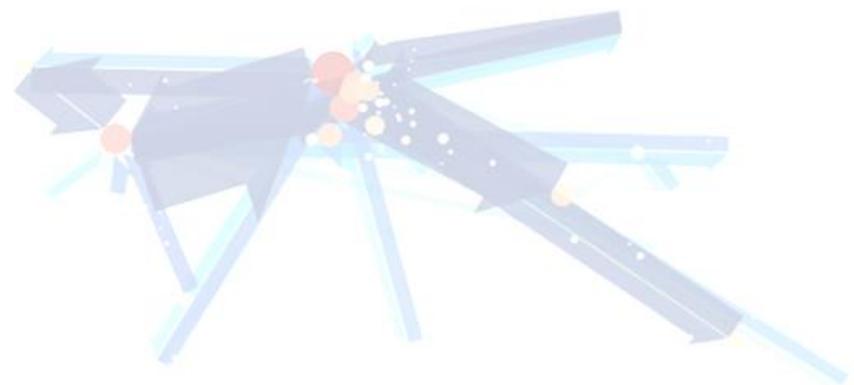
Projection

Title

Add Layers

link

node



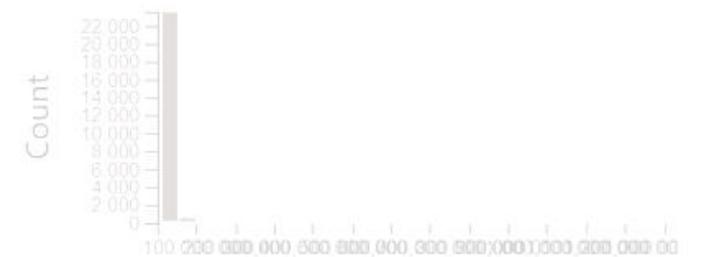
Add Filter

Percentage of links represented:
10.00%

Percentage of volume represented:
83.57%

Percentage of nodes represented:
36.69%

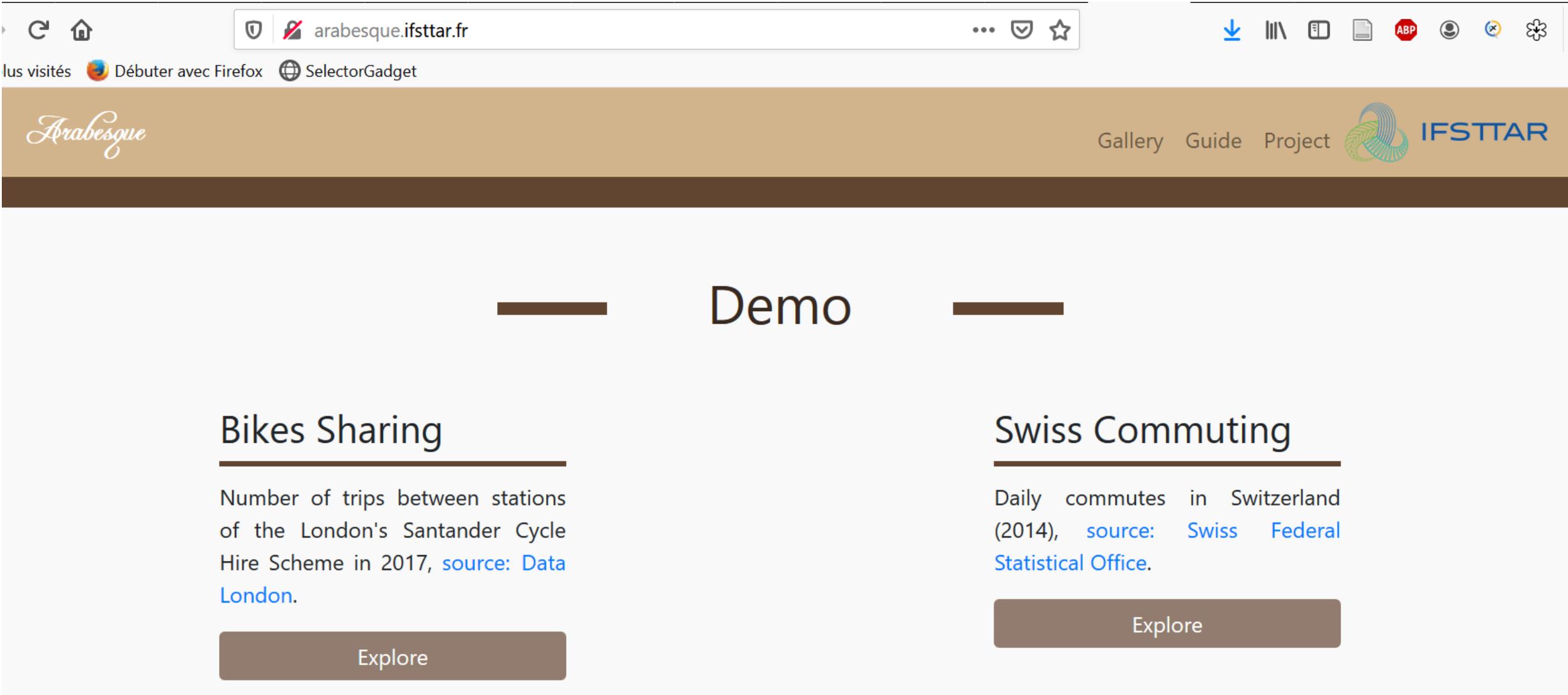
volume



Min: 12190351

Max: 13383595

Deux jeux de données de demo



Arabesque

Gallery Guide Project IFSTAR

Demo

Bikes Sharing

Number of trips between stations of the London's Santander Cycle Hire Scheme in 2017, [source: Data London](#).

Explore

Swiss Commuting

Daily commutes in Switzerland (2014), [source: Swiss Federal Statistical Office](#).

Explore

Importation d'une liste de liens

The screenshot shows a web browser window with the address bar displaying `arabesque.ifsttar.fr`. The browser's toolbar includes navigation buttons (back, forward, refresh, home), a security indicator, and various extension icons. The website's header features the 'Arabesque' logo and navigation links for 'Gallery', 'Guide', and 'Project'. The main content area is partially obscured by a 'Flow Import' dialog box. This dialog box contains the following fields:

- ID Origin:** A dropdown menu with the value 'idorigine' selected.
- ID Dest:** A dropdown menu with the value 'iddestination' selected.
- Volume:** A dropdown menu with the value 'volume' selected.
- Aggregation Function:** A dropdown menu with a list of options: 'Sum', 'Mean', 'Median', 'Max', and 'Min'. The 'Mean' option is currently selected and highlighted in blue.

At the bottom of the dialog box, there is a button labeled 'Import Location'. The background of the website shows a map interface with a 'Begin new map' button and a file upload area containing a file named 'SAGEO_RICardo_mall.csv'.

Demo

Ajouter un filtre

Arabesque

Projection

Title

Add Layers

link

node

+

-

New Filter

Layer

Link

Variable

Choose...

Choose...

idorigine

iddestination

decennie

volume

distance

Add Filter

Percentage of links represented:
10.00%

Percentage of volume represented:
83.57%

Percentage of nodes represented:
36.69%

volume

Count

22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0

100, 200, 400, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000, 2200, 2400

Min: 12190351

Max: 13383595

volume

1.34e+9

degree

2494

Ajouter un fond de carte

The image shows a software interface for adding a base layer. On the left, a sidebar contains the following elements:

- Logo: *Arabesque*
- Projection
- Title
- Add Layers
- Buttons: Add Node Features, Add Link Features, Add Base Layer, Add Tile Layers (OSM), Import GeoJson Layers
- Navigation: +, -, Save, Print, Full Screen, Home, Back arrow

The main dialog box, titled "Add New Base Layer", contains the following controls:

- Layer: A dropdown menu currently showing "countries".
- Opacity: A horizontal slider with a blue knob.
- Fill: A color selection bar showing a purple color.
- Stroke: A color selection bar showing a dark purple color.
- Import From Url: A button.
- ADD LAYER: A large button at the bottom of the dialog.

Changer de projection

Arabesque

Projection

Choc ▾ Change

- Choose...
- Mercator / EPSG:3857
- Sphere Mollweide / ESRI:53009**
- RGF93 / Lambert-93 -- France
- ETRS89 / LAEA Europe
- World Azimuthal Equidistant
- Transversal Mercator
- Gnomonic
- EPSG:23032
- EPSG:5479
- World Mollweide / EPSG:54009
- Quadrilateralized Spherical Cube
- PeirceQuincuncial

Percentage of links represented: 0.84%

Percentage of volume represented: 6.56%

Percentage of nodes represented: 15.69%

↕ volume

Count

Min: 1219035 Max: 1338359

↕ decennie

1890

Paramétrer l'apparence des liens

The interface is divided into a left sidebar and a main control panel.

Projection: Sphere Mercator (Change)

EPSG.io: 4326, France... (Search)

Title:

Add Layers: countries, link, node

Color:

- Varied
- Variable: volume
- Type: quantitative
- Inverse
- Color palettes: Diverging, Sequential, Multi Hue, Single Hue, Extra Palettes

Size:

- Varied
- Variable: volume
- Scale: Square
- Ratio: 100

Opacity:

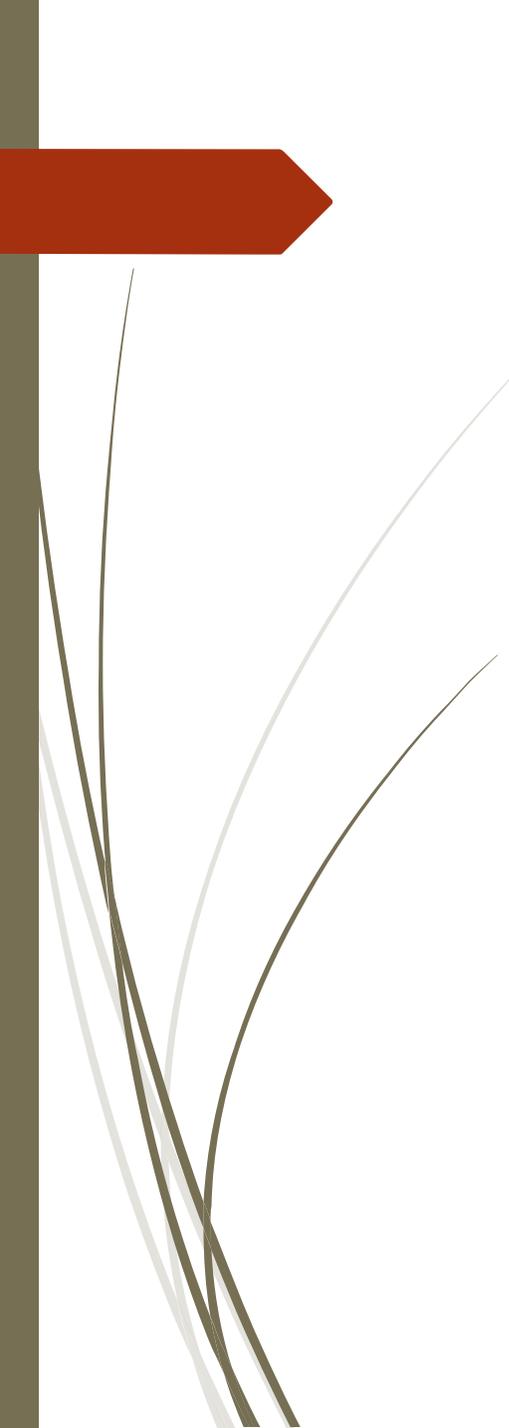
- Fixed
- Value: 0.85

Ajouter un titre, une légende...

The image shows a web-based map application interface. On the left, a sidebar contains the following elements:

- A header with the word "Arabesque" in a cursive font.
- A "Projection" section.
- A "Title" section with a text input field containing "Commerce international".
- An "Add Layers" section with three layers listed: "node", "countries", and "link". Each layer has icons for visibility, pan, and delete.

The main map area displays a world map with a network of nodes and links. The nodes are represented by circles of varying sizes and colors (red, orange, yellow) connected by thin lines. A scale bar at the bottom right indicates 5000 km. The text "Made with Natural Earth." is visible in the bottom right corner.

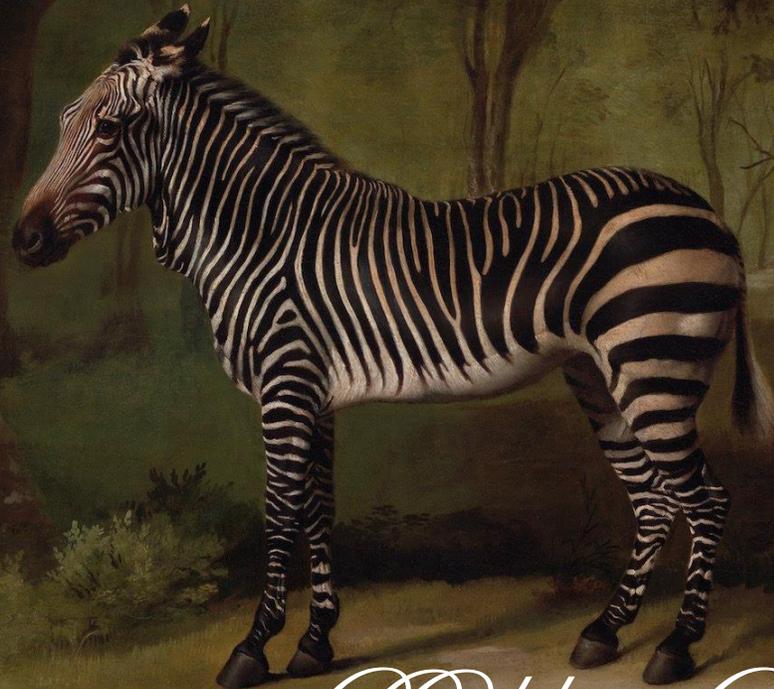


Perspectives

- Poursuivre le développement en ajoutant des fonctionnalités (indicateurs sur les liens, filtrage spatial, calculatrice de champs...)
- Prendre en compte les données de graphes bipartites
- Défi de l'export vectoriel
- **N'hésitez pas à contribuer !**

<https://github.com/gflowiz/arabesque>

Merci pour votre attention !



<http://arabesque.ifstar.fr/>