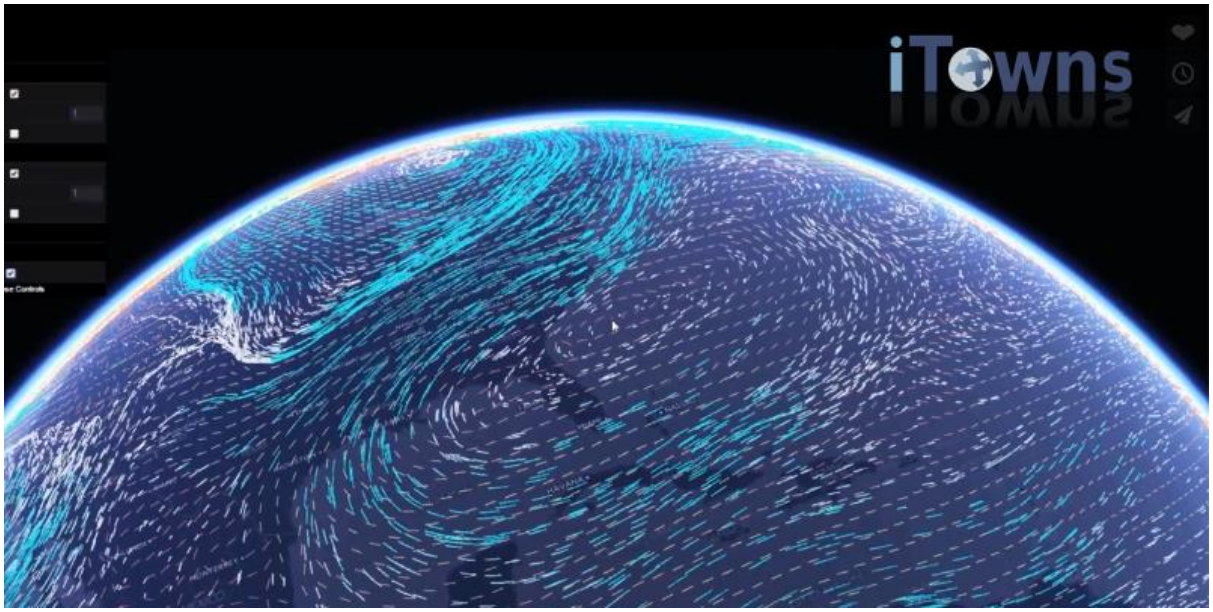
Postdoc - Climate data visualization – 18 months.

Geovisualization of climate data and their uncertainties, for global climate change understanding.

Motivation

We are seeking a postdoc in **spatial data visualization** for the ERA4CS European project **URban CLIMate Services** (URCLIM).
The purpose of URCLIM is to design methods and tools to assess the impacts of the climate change on urban spaces, based on the analysis of such complex and imprecise phenomena, through space and time.
Researchers in Meteorology and in Geographic Information sciences (GI sciences) converge to visually integrate, interact with and analyze, both geographic data describing the urban spaces and data simulating the climate. Visualizing and interacting with such **heterogeneous data**, in scale, temporality, precision and dimension, requires methods to favor their **co-visualization**, to facilitate the **graphic representation of uncertainties** from data acquisition and underlying physical models and simulations, and to help the **interaction** through **exploration and navigation between data, models** and representations. Finally, optimization and personalization of visualization media should be enable regarding various stakeholders (scientists, citizens, practitioners, etc.), and various possible uses (observation, communication, spatio-temporal analysis, decision making).



Task

The task is to **design and implement visualization, representation and interaction methods adapted to climate data and models, favouring visual analysis of urban climate phenomena.** These methods will be implemented in the open source iTowns geovisualization platform, based on three.js library to manipulate and render 3D data.

Expected profile

PhD thesis in Geographic Information Sciences, Information Visualization, or Computer Graphics.

Skills

Geovisualization, information visualization, graphic semiology, interactive realtime rendering, Web Visualization (Javascript, WebGL, ...).
Interests for climate change and meteorological simulations.

Conditions

The postdoc is funded by the ERA4CS URCLIM project and will take place at the LaSTIG lab of IGN, GeoVIS team, in Saint-Mandé (94, close to Paris), France.
18 months, starting in Autumn 2018.

Applications

To apply, please submit a CV, a motivation letter and a link to the PhD thesis and main publications to Sidonie Christophe: sidonie.christophe@ign.fr **before December, 1st, 2018**.

References

M. Brasebin, S. Christophe, F. Jacquinod, A. Vinesse, and H. Mahon. 3D geovisualization and stylization to manage comprehensive and participative local urban plans, *ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci*., IV-2-W1, 83-91, doi:10.5194/isprs-annals-IV-2-W1-83-2016, 2016

Devaux, A., C. Hoarau, M. Brédif and S. Christophe (2018) 3D urban geovisualization: in situ augmented and mixed reality experiments, ISPRS Annals of *the Photogrammetry, Remote Sensing and Spatial Information Sciences.*

Helbig, C., Bauer, HS., Rink, K. et al. Concept and workflow for 3D visualization of atmospheric data in a virtual reality environment for analytical approaches. *Environ Earth Sci* (2014) 72: 3767. https://doi.org/10.1007/s12665-014-3136-6

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Mellado N., Vanderhaeghe D., Hoarau C., Christophe S., Brédif M., Barthe L. (2017). Constrained Palette-Space Exploration, *ACM Trans. Graph.* 36, 4, Article 0304 (July 2017), 14 pages. http://dx.doi.org/10.1145/3072959.3073650.

Pinson L., Ruas A., Masson V., Chancibault K.. Reconstruction de l'objet canicule : modélisation et représentation graphique. *SAGEO 2015, 11ème Conférence internationale Spatial Analysis and GEOmatics*, Nov 2015, Hammamet, Tunisie. Actes de la 11ème Conférence internationale Spatial Analysis and GEOmatics, 13p, 2015.