New Technologies, Techniques and Tools to Dynamically Manage Urban Resilience: the Fresnel Platform for Greater Paris

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OBJECTIVES

The Fresnel platform, has been purposely set-up to provide the concerned communities with the necessary observation data thanks to an unprecedented deployment of higher resolution sensors, that easily yield Big Data. The objective is now to develop a software as a service (SaaS) to provide a user friendly interface, using the web as the broadcast support.

METHODS

The Fresnel SaaS platform is rooted on an integrated suite of modular components based on an asynchronous event-driven JavaScript runtime environment, using open source librairies.
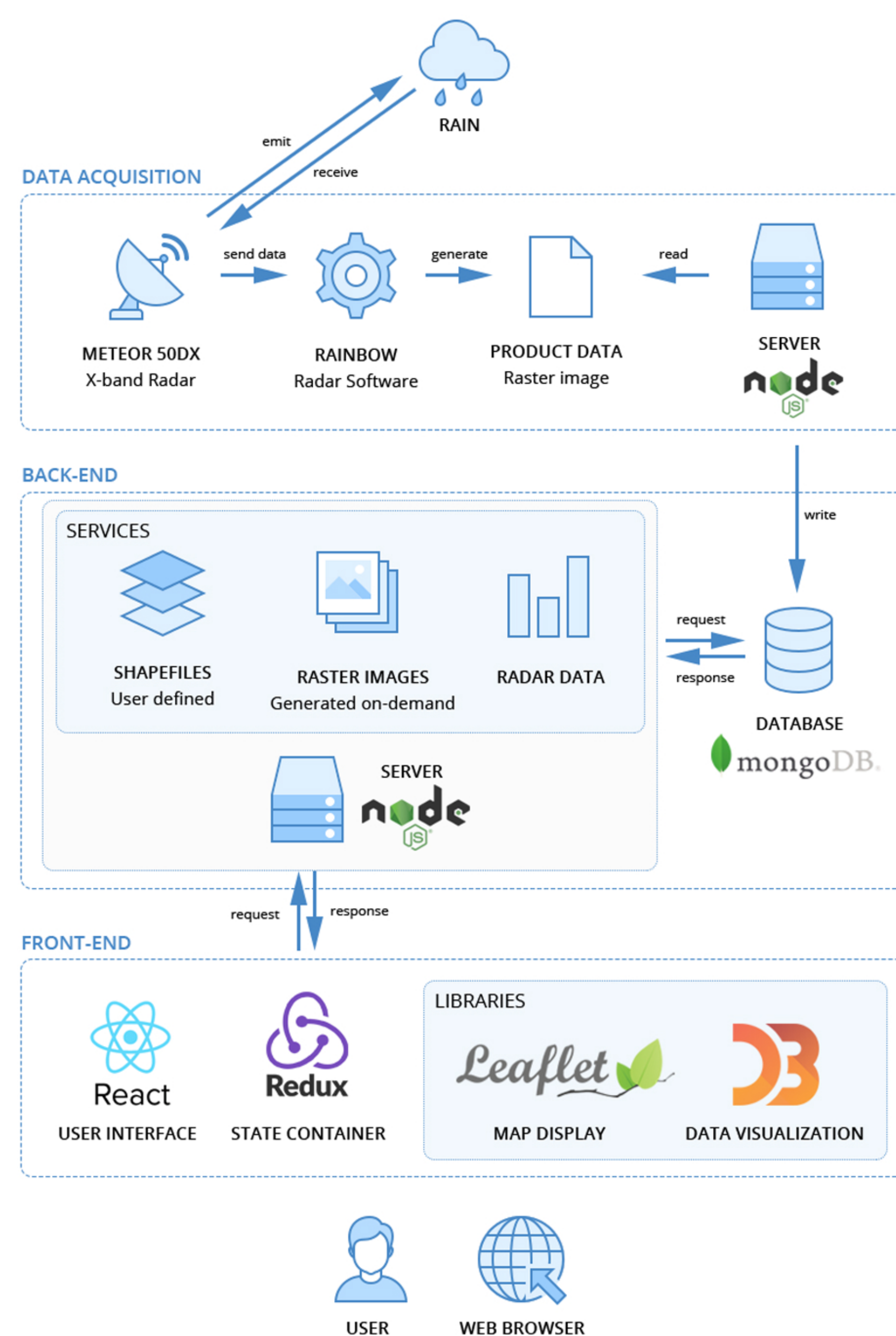

RESULTS

Using the web interface, users can select a radar product and a temporal range for analysis.
Below an exemple with the DPSRI (Dual Polarization Surface Rainfall Intensity) radar product, the map is centered on «Vallée de la Bièvre», displaying a user defined shapefile. Associated with the interactive map is displayed a graphic showing the evolution of the sum of all radar pixel rainfall. The light orange background and highlighted frame are used to show advancement in the temporal range during the animation.

Évolution de la somme de la pluviométrie des pixels radars
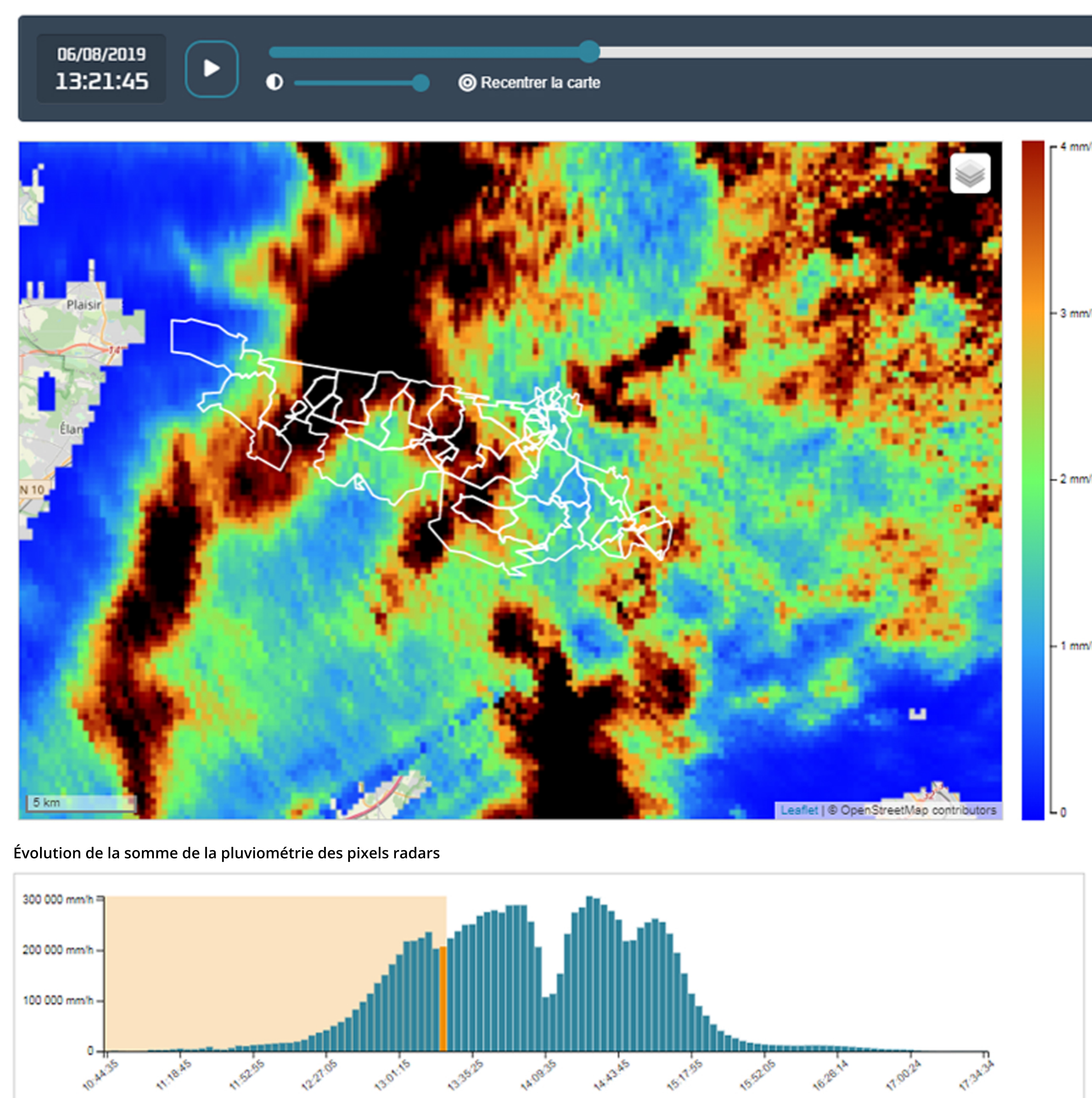

Radar pixel inspection
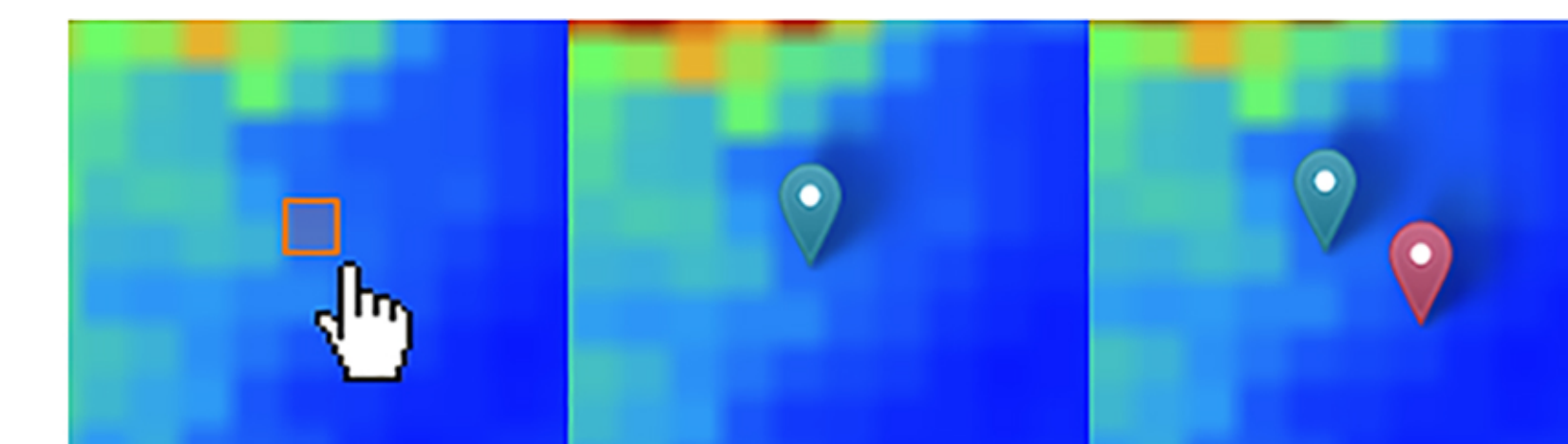
Using the map interface user can select radar pixel for a high spatial resolution analysis, associated graphics are displayed in the interface to show the evolution of the selected radar pixel rainfall.

Évolution de la pluviométrie sur le pixel radar
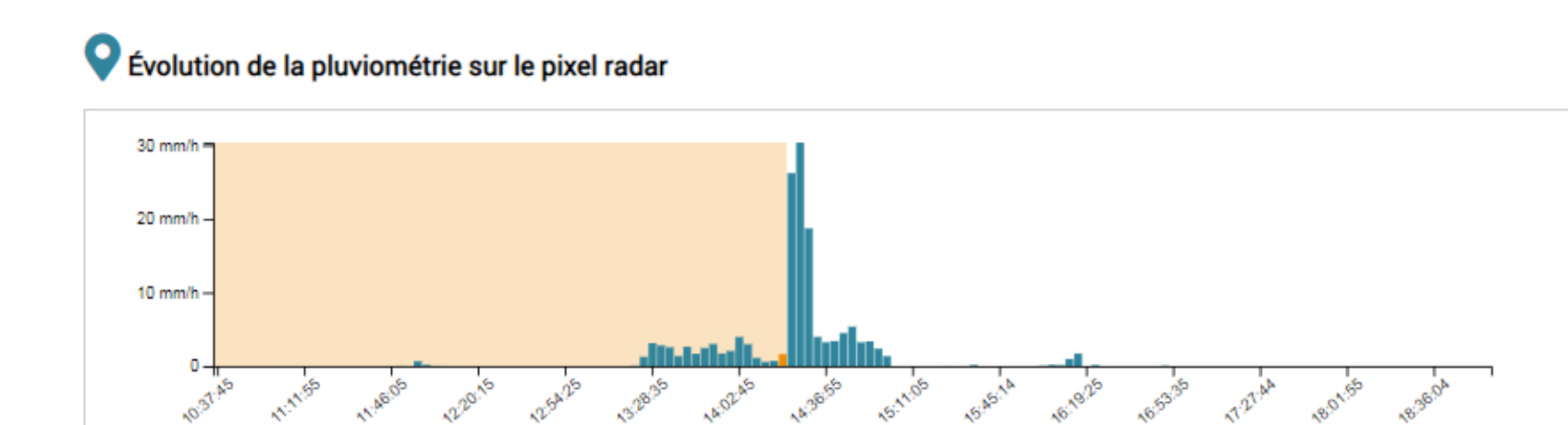
CONCLUSIONS

The developing Fresnel platform with its new SaaS architecture will enable users to have an effecient tool to analyse urban resilience. Specific tools still need to be developped to answer the growing community needs to precisely analyse the past and forecast territory development.

SaaS specificities
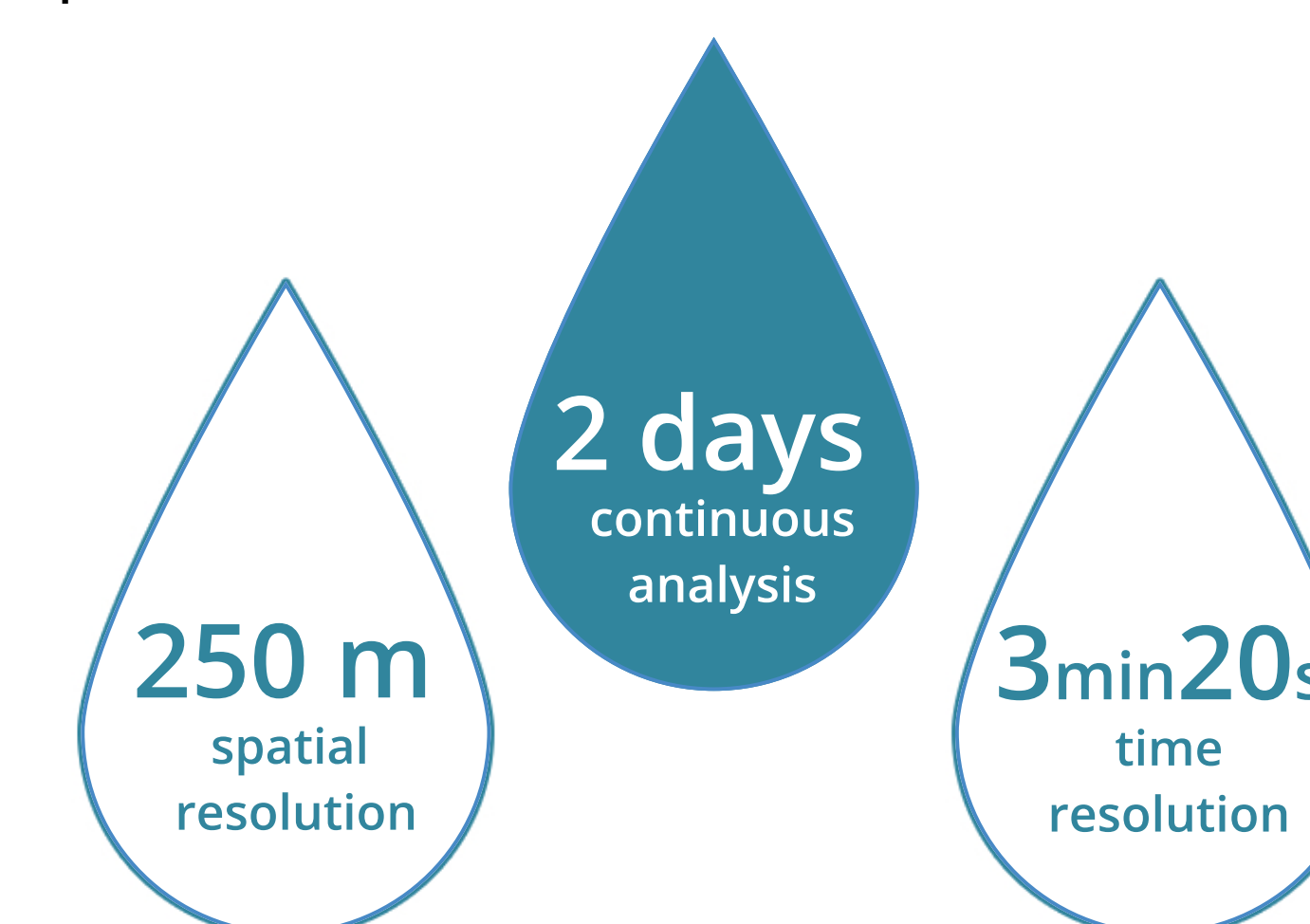
250 m spatial resolution

2 days continuous analysis

3min20s time resolution

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