The Fresnel Platform for Greater Paris: online tool to Dynamically Manage Multiscale Urban Resilience

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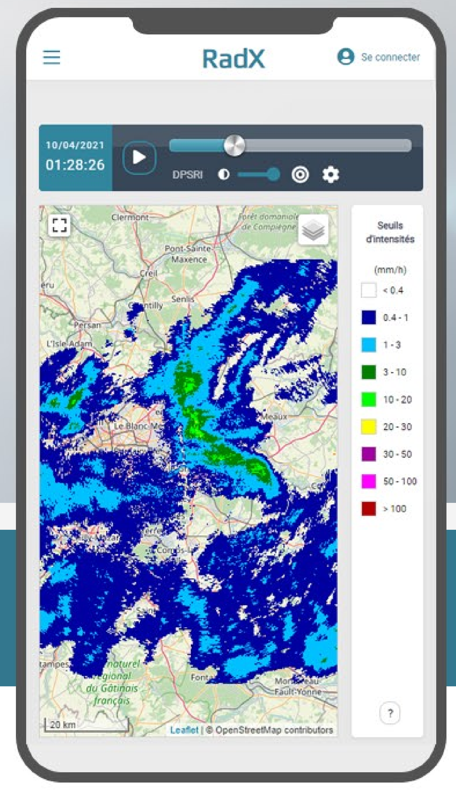


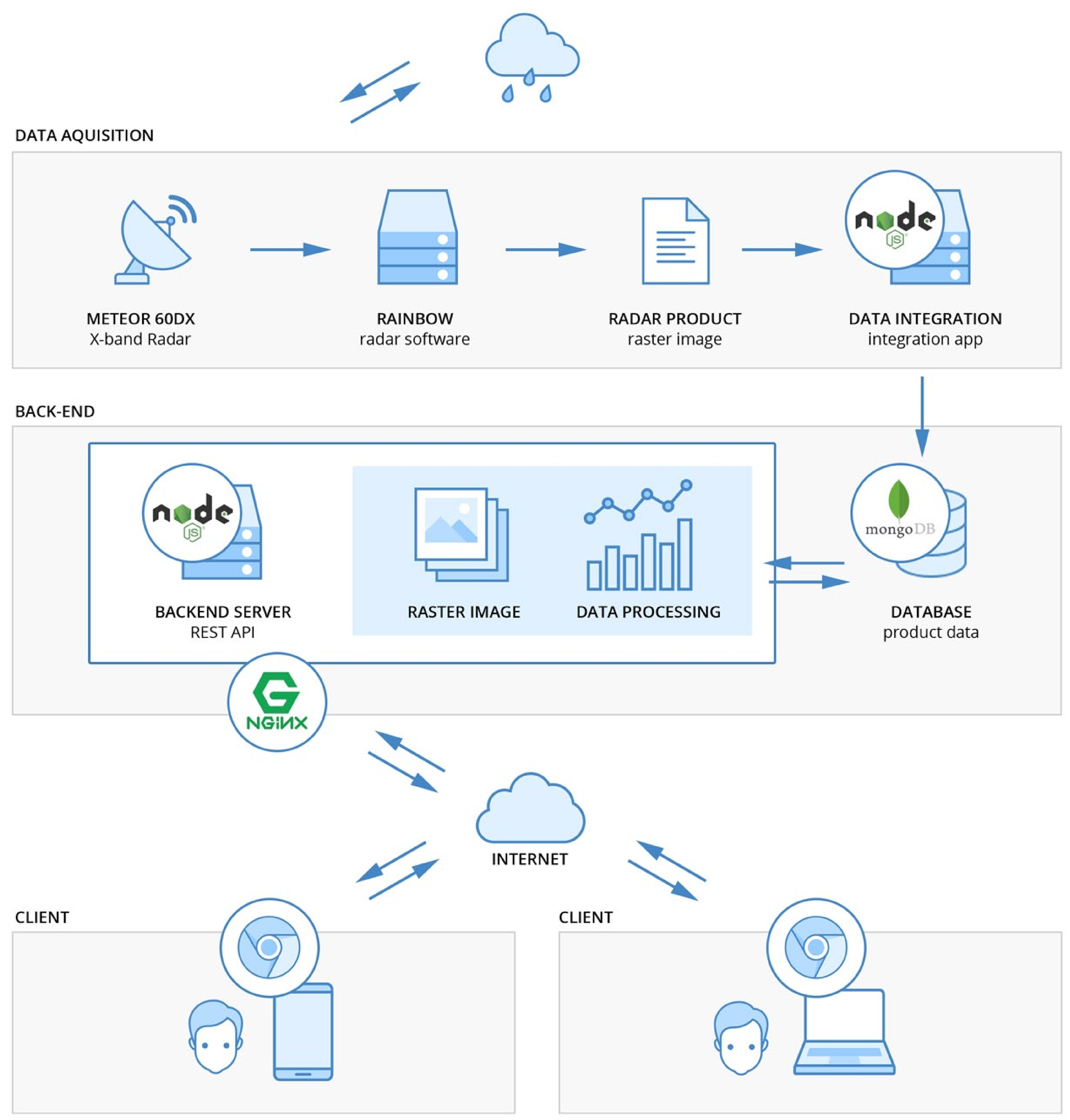
radx.enpc.fr

OBJECTIVES

The general goal of the Fresnel platform of Ecole des Ponts ParisTech is to develop research and innovation on multiscale urban resilience. It is therefore conceived as a SaaS (Sofware as a Service) plaform providing data over a wide range of space-time scales and appropriate softwares to analyse and simulate them over this range. It provides an easy access to various products based on precipitation measurement performed at the radial scale of 128 m by the ENPC polarimetric X-band radar.

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. For a better user experience, the application is fully responsive.

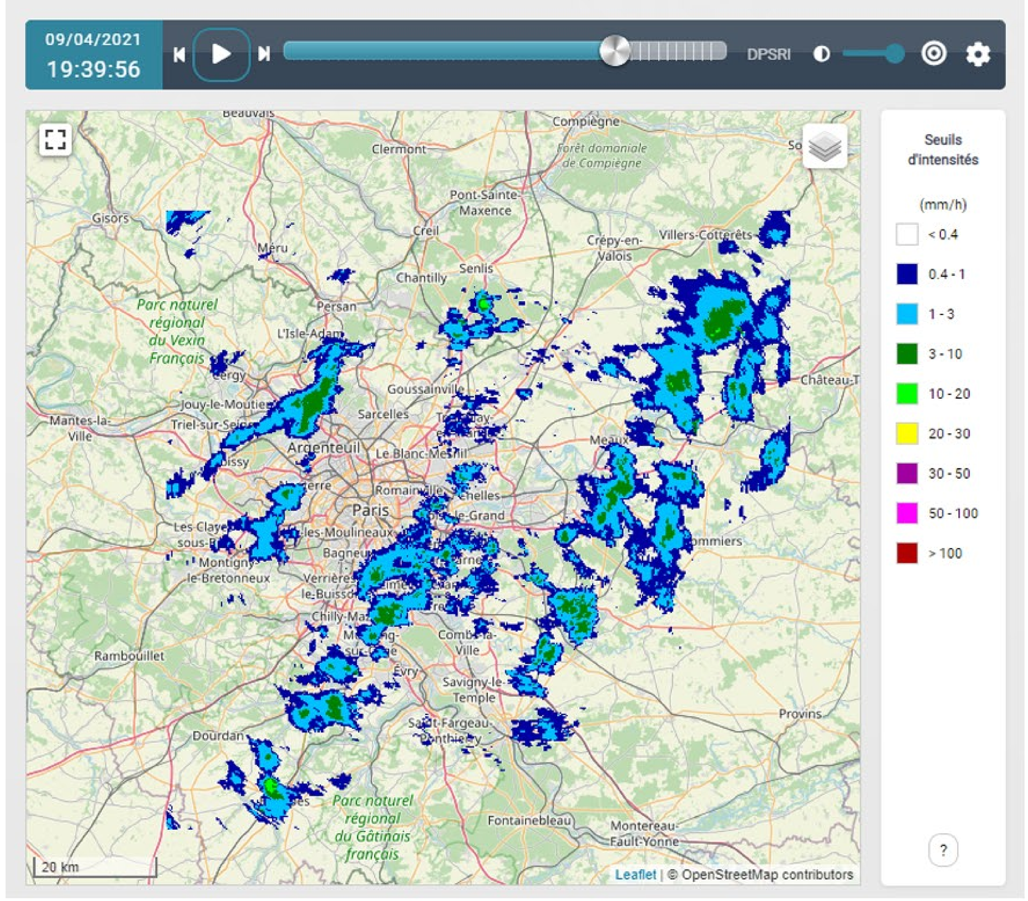


RESULTS

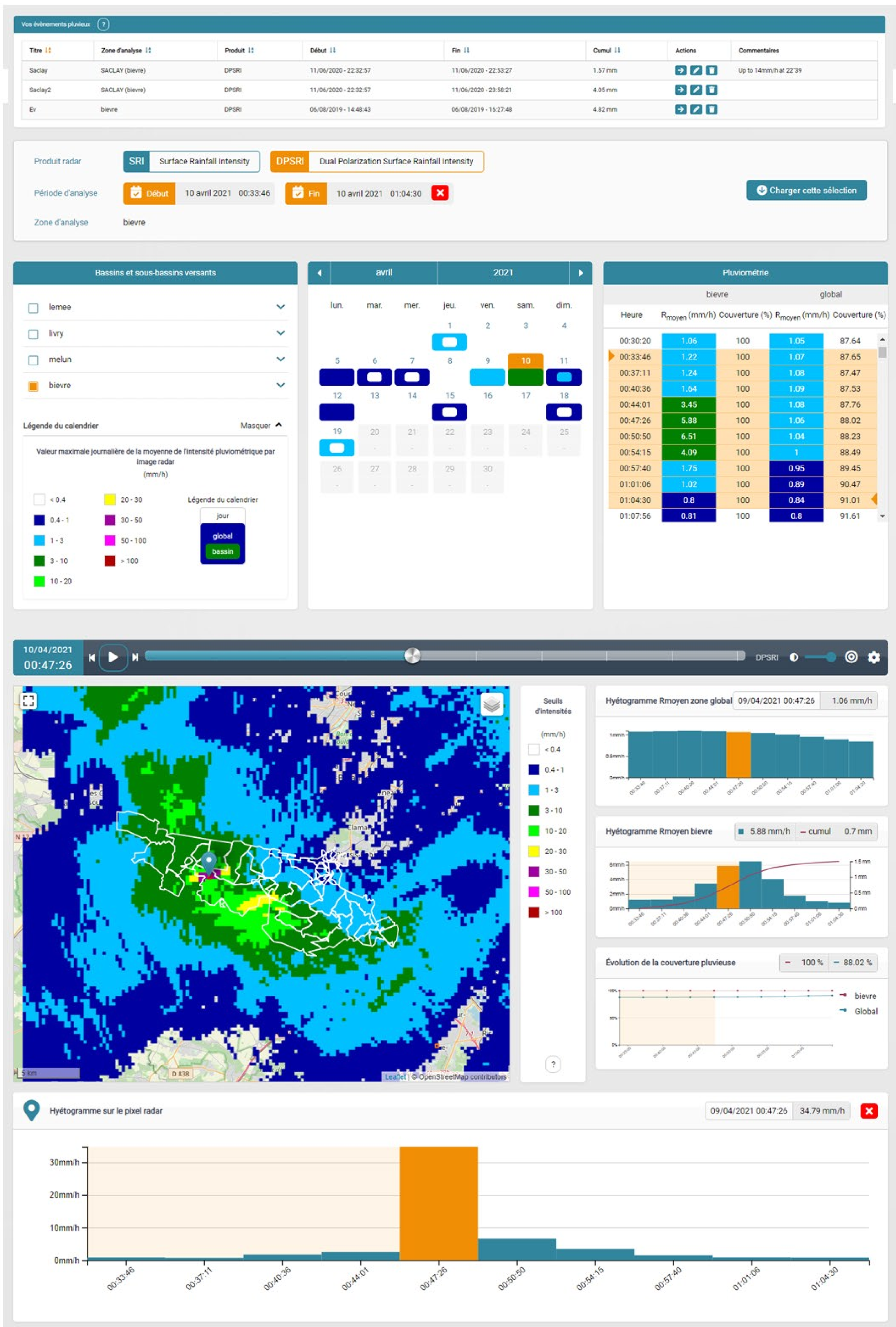
REAL-TIME RADAR

The most recent development is the radar component RadX V3.0 that is now operational at https://radx.enpc.fr. It provides an easy access to various products based on precipitation measurement performed at the radial scale of 128 m by the ENPC polarimetric X-band radar.

Using reliable and open source libraries it features a real-time radar display available to the general public and professionals who can freely access the precipitation data over a large part of Île-de-France region.



HISTORICAL RAINFALL ANALYSIS



A calendar displays the days where meaningful rainfall events can be selected. For more refined spatial analysis users can also introduce their own shapefiles containing catchments and subcatchments. Once their selection loaded, they can also pinpoint a radar pixel to display hyetogram from a local area, this versatily on spatial and temporal selections allows for very precise analysis.

An inbuilt tool enables users to save their selections for faster reuse and better focus on their analysis.

The application allows for different radar product analysis like DPSRI (Dual Polarization Surface Rainfall Intensity) and SRI (Surface Rainfall Intensity). These complementary products enhance the case studies analysis and give weather scientists a fast and steady platform accessible from their web browser on desktop and mobile displays.

CONCLUSIONS

Built in collaboration with the world leader industrial in water management, the Fresnel SaaS cloud-based platform is an example of nowadays IT tools to dynamically enhance urban resilience. Developments are still in progress, in constant request and feedback loops from the scientific and professional world.

ACKNOWLEDGEMENTS

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