

3D image of a storm produced with high-resolution data from a dual polarisation X-band radar (source: Rainbow DART-Selex).

OUR CITIES ARE HIGHLY VULNERABLE TO EXTREME WEATHER and urban flooding remains the most expensive natural disaster in France.

Chair Hydrology for Resilient Cities

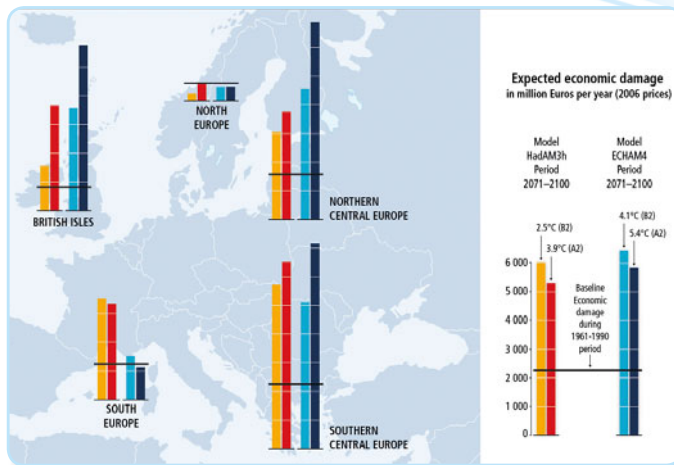
RESEARCH AND INNOVATION TO BE WEATHER READY

RESILIENCE TO CLIMATE CHANGE REQUIRES PROFOUND RENOVATION IN URBAN HYDROLOGY

and socio-technical changes in urban water management, as well as in regulation.

Higher resolution data, more sophisticated models and decision tools are the drivers of innovation and the core of the Chair Hydrology for Resilient Cities.

The dual polarisation X-band radar of École des Ponts Paris Tech.



Impact of climate change by 2071-2100 on flood risk in Europe (IPCC, 2011).

Climate change, should lead to more frequent extreme climate-related events according to the IPCC.

Weather extremes and the pursuit of urban development are likely to deeply alter the water cycle in urban environment.

Flash floods, and a reduced recharge of the phreatic tables are two major risks that our cities are facing.



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The Chair is developing an advanced observation platform. Weather data from X-band radar, C-band radar, disdrometers, and satellite will be the first information to be used for research and innovation purposes. New devices, such as wind profilers, UAV and a Ku-band radar, will complete this multi-scale observatory.

The Chair has the ambition to create at École des Ponts ParisTech an international centre of excellence in education and research for engineers, researchers and top managers to take up the technical challenges of the city of tomorrow and improve its resilience to extreme weather.

Experiments take a large place: the Chair exploits the recent technological innovation of the hydro-meteorological polarimetric X-band radars, as well as those of disdrometer and lidars.

The Chair is therefore involved in the European projects Interreg NWE IVB RainGain and Climate-KIC Blue Green Dream, as well as in the project TOMACS of the World Meteorological Organisation.

THE CHAIR WAS FOUNDED IN 2010 AND CORRESPONDS TO A LONG TERM (10 YEAR) PARTNERSHIP between VEOLIA, Ponts Foundation and École des Ponts ParisTech.

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