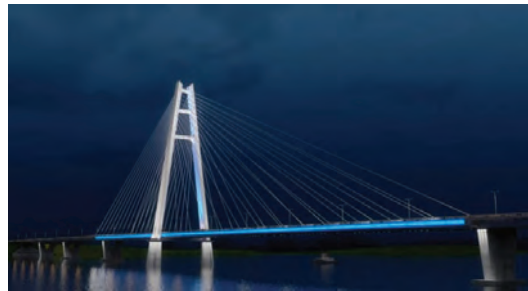


CONTEXT

- > New architectural techniques
- > Help innovation and competitiveness
- > Assure the safety level of sustainable building
- > Increasing aversion to risk
- > Update of international standards.



HUMAN AND ECONOMIC LOSSES

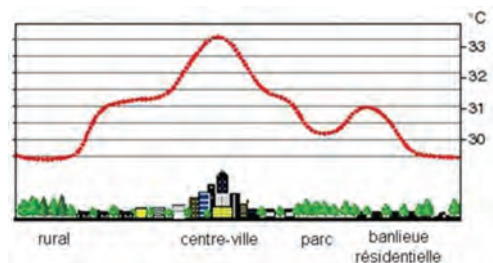
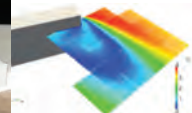
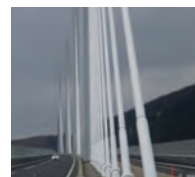
- > Losses due to Xynthia (2010) and Klaus (2009): > 50 fatalities and 2.9 bn€
- > Losses due to Martin and Lothar in 1999: 100 fatalities and 8.2 bn€
- > Losses due to floods over the period 1973-2002 : 2626 fatalities, losses >10bn€ in DE, SP and IT and >5bn€ in UK, PO and FR (<http://www.climateadaptation.eu/>)

28/09/2015 - Auteur Nom / 1

CLIMATE HAZARD ASSESSMENT - IDENTIFICATION OF VULNERABILITIES

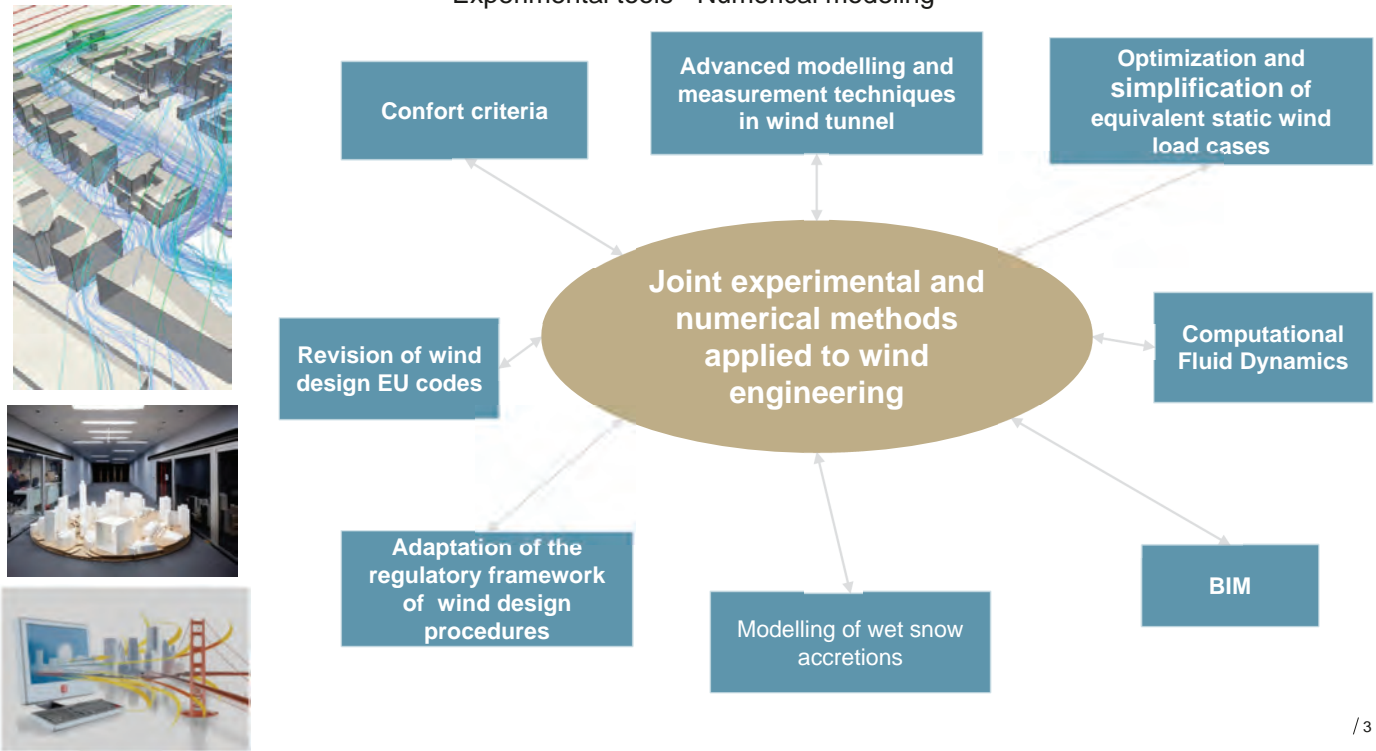
Risk assessment - Components and systems

- > Wind effects on particular structures
 - Double skin façades
 - Porous canopies and structures
 - Tower cranes
 - Vortex shedding around chimneys and pylons
 - Cable stay vibrations – dry galloping
 - Inflatable structures
- > Impact of severe precipitations on buildings and structures
 - Measurement of extreme rain events
 - Driving rain in open architectures
 - Atmospheric icing of structures
- > Impact of heat waves
 - Human hazard perception
 - Assessment of mitigation strategies
 - Adaptation of design principles

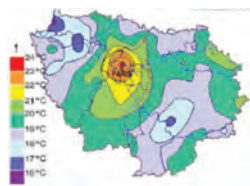


TOOLS AND METHODS TO ANALYZE AND REDUCE VULNERABILITY

Experimental tools - Numerical modeling



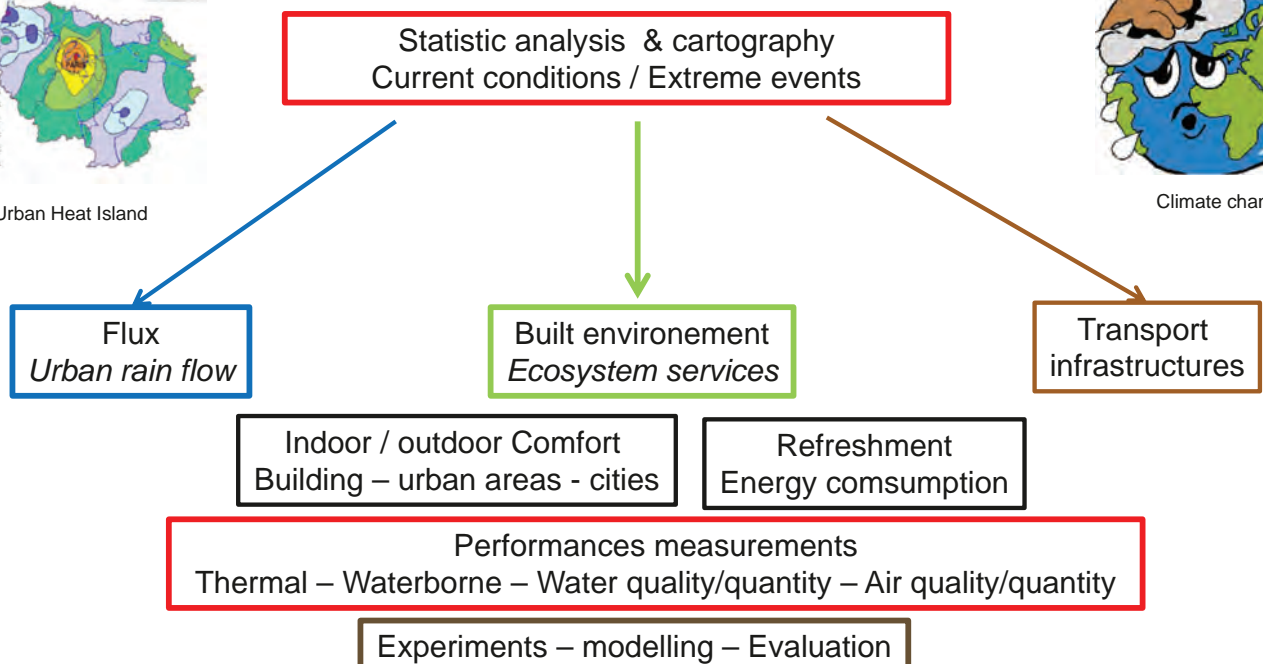
Improving the resilience of cities facing heat waves

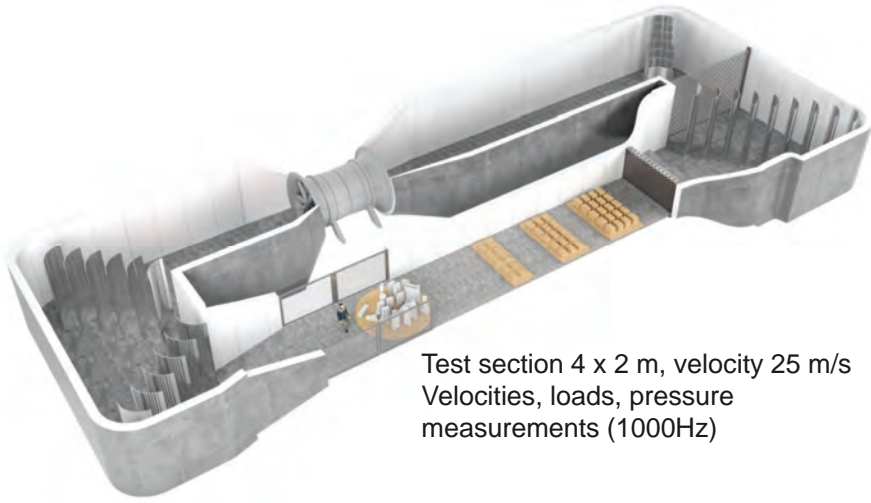


Urban Heat Island

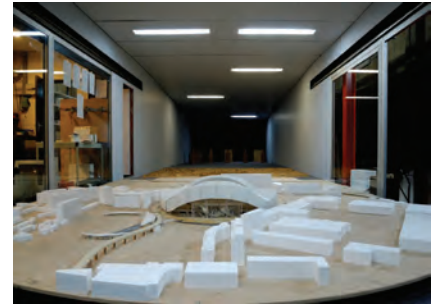
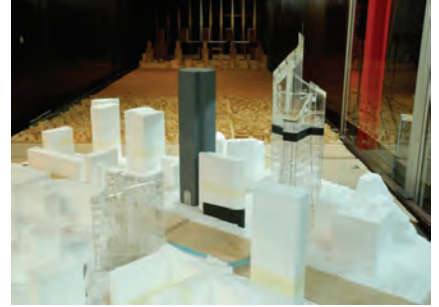


Climate change

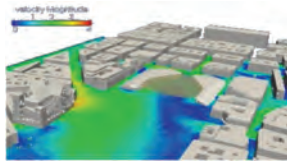




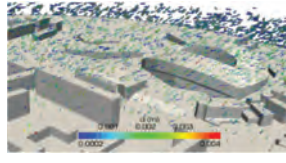
Test section 4 x 2 m, velocity 25 m/s
Velocities, loads, pressure measurements (1000Hz)



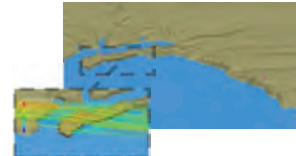
A#r6xwlrq#E lvshwlrq



A#shghwlbq#E lq frp irw



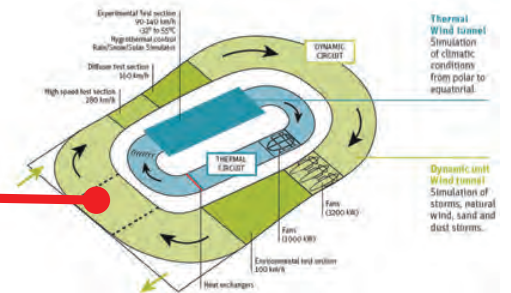
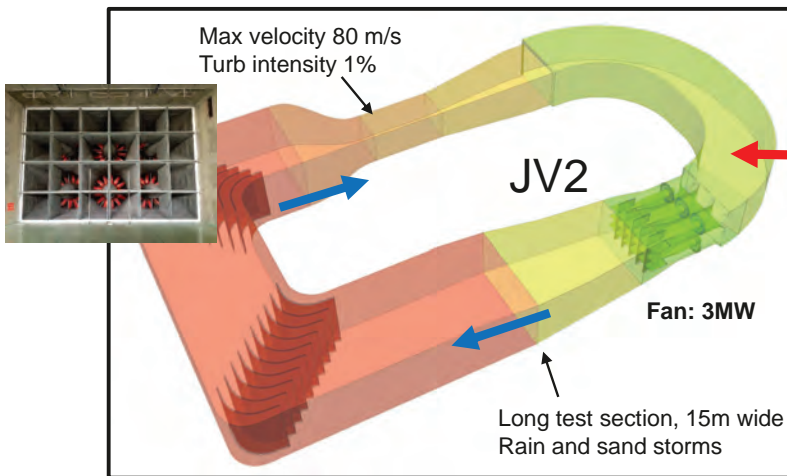
A#sulylj udq ũ jdfqhv dgg#shq# exlq#ljv



A#drfdq#E dlf frqglwlrqv#vP h# vdwlrq#hfrngv

D#FOIPDWH#TP XODWRU#LRU#LXOO#FDOH#HVWQJ

> DYNAMIC WIND TUNNEL, Evolution 2018



> THERMAL WIND TUNNEL

