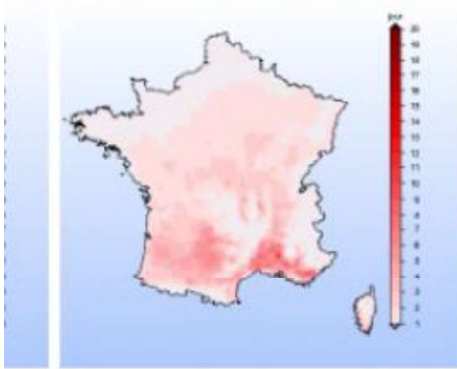
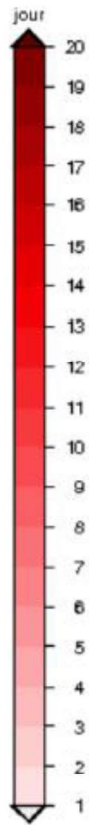
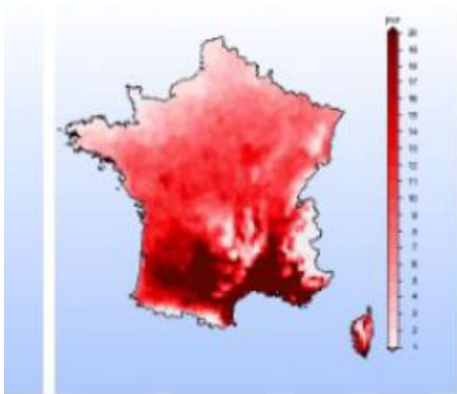


Horizon lointain (2071-2100)



Horizon lointain (2071-2100)



Works on summer comfort

2023

CSTB
le futur en construction

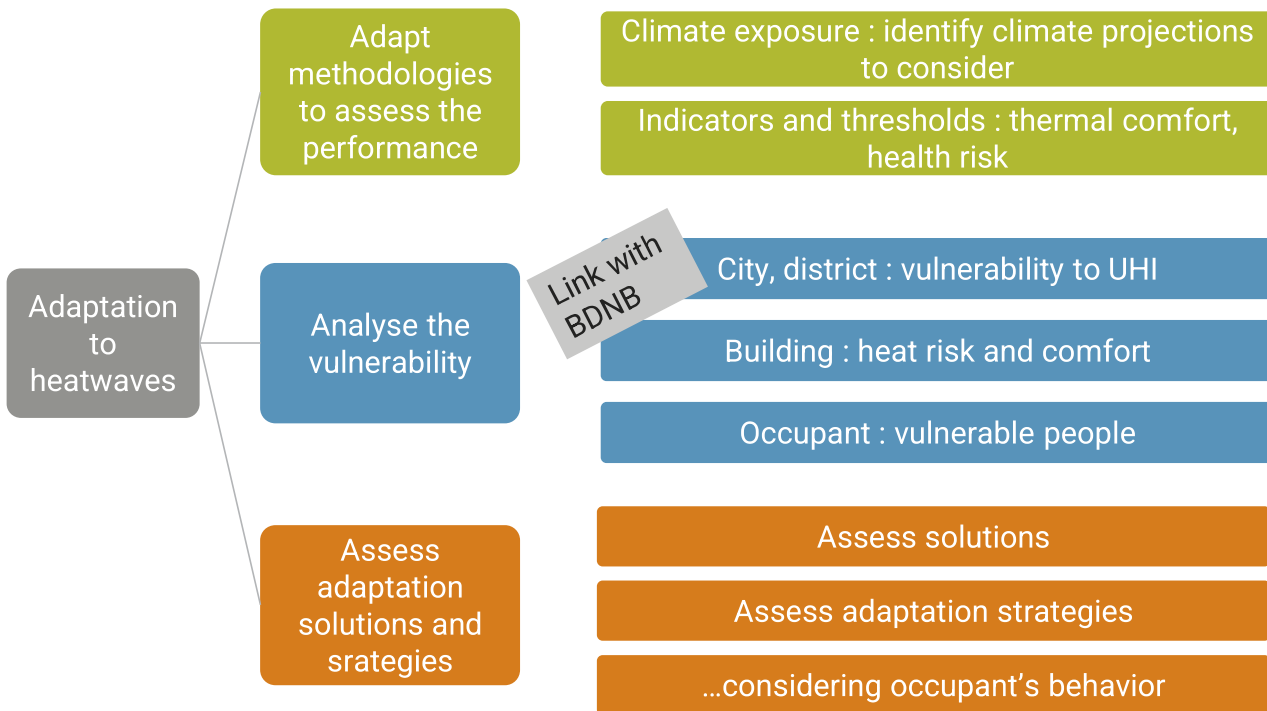
CSTB
le futur en construction



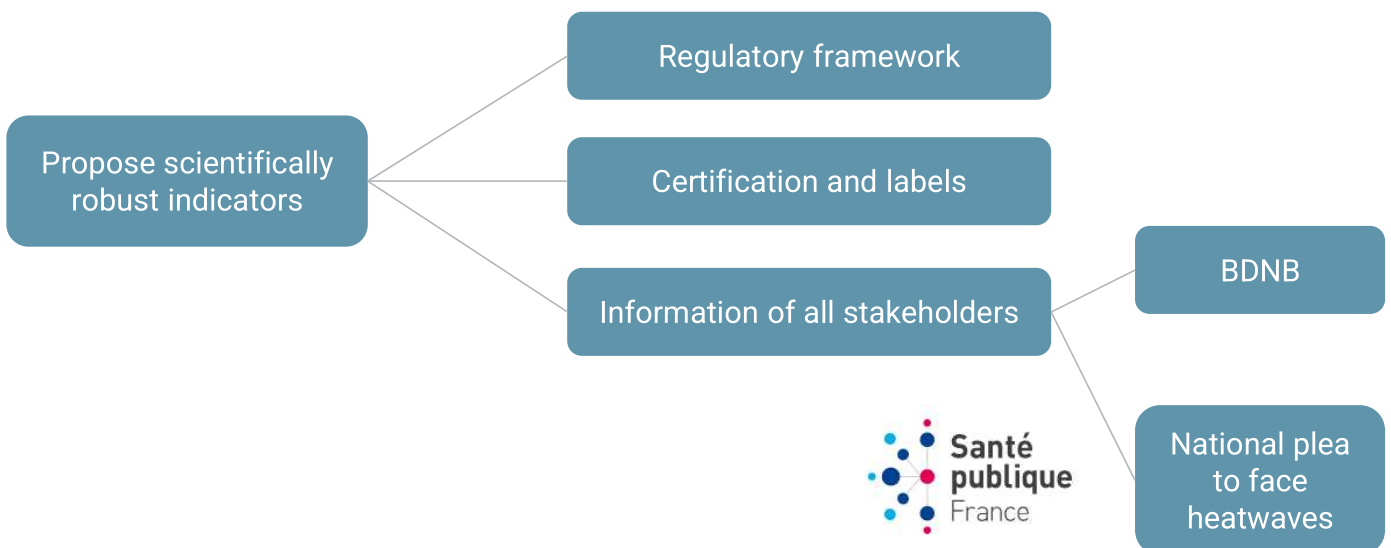
Nicolas NAVILLE, MSc

Project leader – uses of data and BIM

Coordinator of research activities on
climate adaptation



Indicators : information, incentives, rules



Summer comfort in the new environmental building regulation (RE2020)

Beyond the current regulation : works on summer comfort indicators

Focus on climate projections for building simulations

01/12/2021 - ANDRIEUX Franck / 5

Climate mitigation

- Improved energy efficiency, and use of renewable and recovered energy
- New rules for low-carbon construction and materials

Resources

- Promote circular economy

Climate adaptation

- Ensure thermal comfort, including during heatwaves



- Foster energy efficiency
- Beyond the previous regulation (RT2012)



- Reduce the carbon impact of buildings across their lifecycle and promote the use of biosourced materials
- Use of renewable and recovered energy
- Take into account the biogenic carbon storage capacity of materials during the lifecycle of the building



- Improve consideration of summer comfort
- Including severe heatwaves

Summer comfort : main changes in the new regulation

The only regulation integrating **adaptative comfort** during a heatwave

New indicator : Degrés-heures d'inconfort
Annual sum of time x degrees above a defined comfort threshold

Meteorological data : integration of a heatwave
Meteorological sequence corresponding to the record 2003 heatwave, for calculating the indicator

22/03/2023 – Charles Pelé et Anais Machard

/ 7

Summer comfort indicator calculation

Degrees x hours of incomfort cumulated over the year

Lower threshold
350 DH

Upper threshold
1250 DH

Comfortable building

Acceptable comfort, but probable subsequent installation of air conditioner

Non-compliant building

Addition of a conventional energy consumption for cooling

Need to modify the project

/ 8

Summer comfort in the new environmental building regulation (RE2020)

Beyond the current regulation : works on summer comfort

Focus on climate projections for building simulations

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Exposure

+

Vulnerability

=

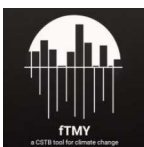
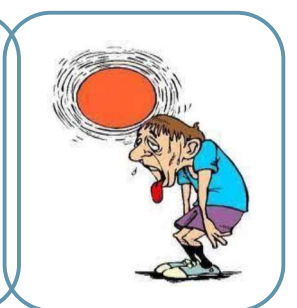
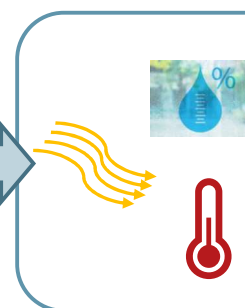
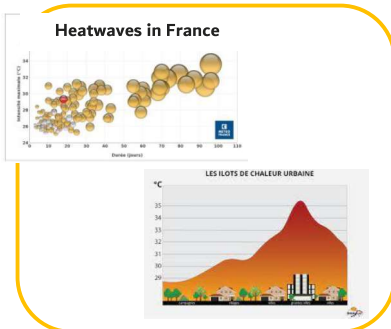
Risk

Climatic and urban context

Building features

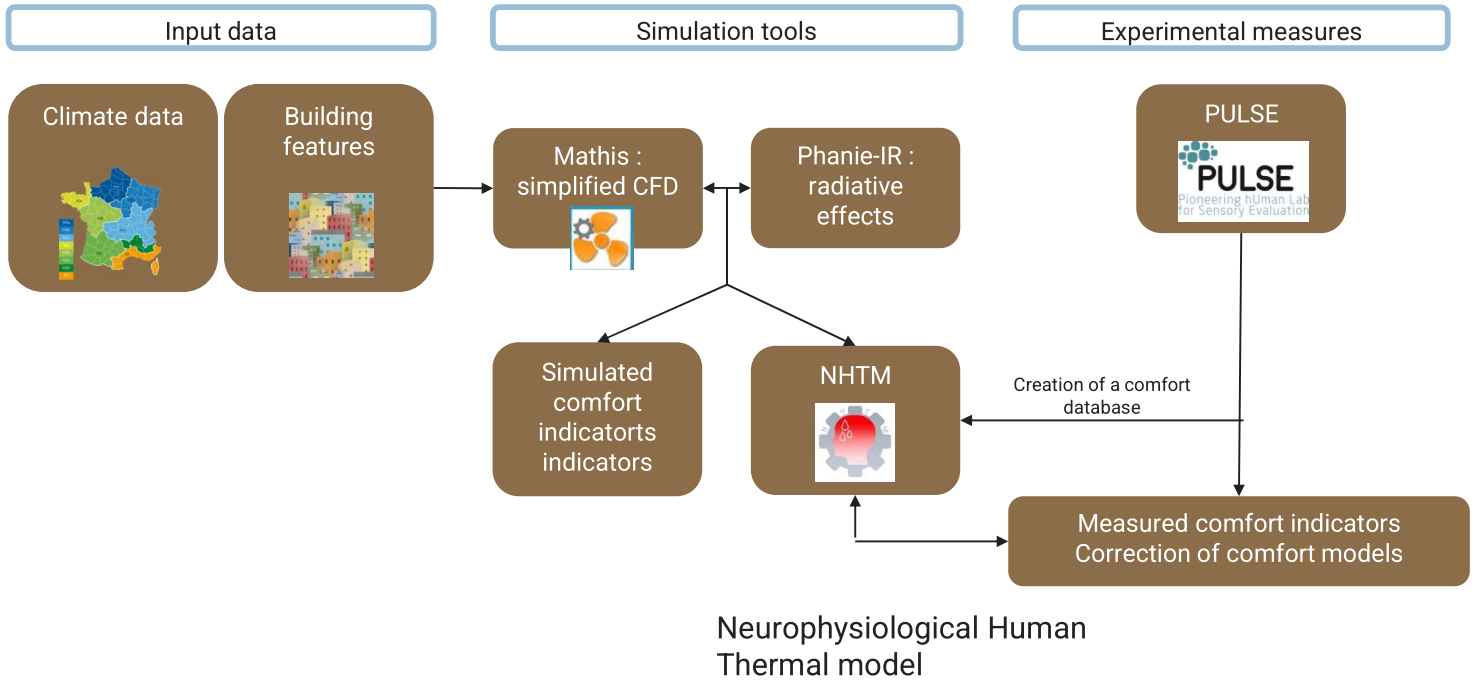
Indoor environment

Comfort, physiological impact



NHTM

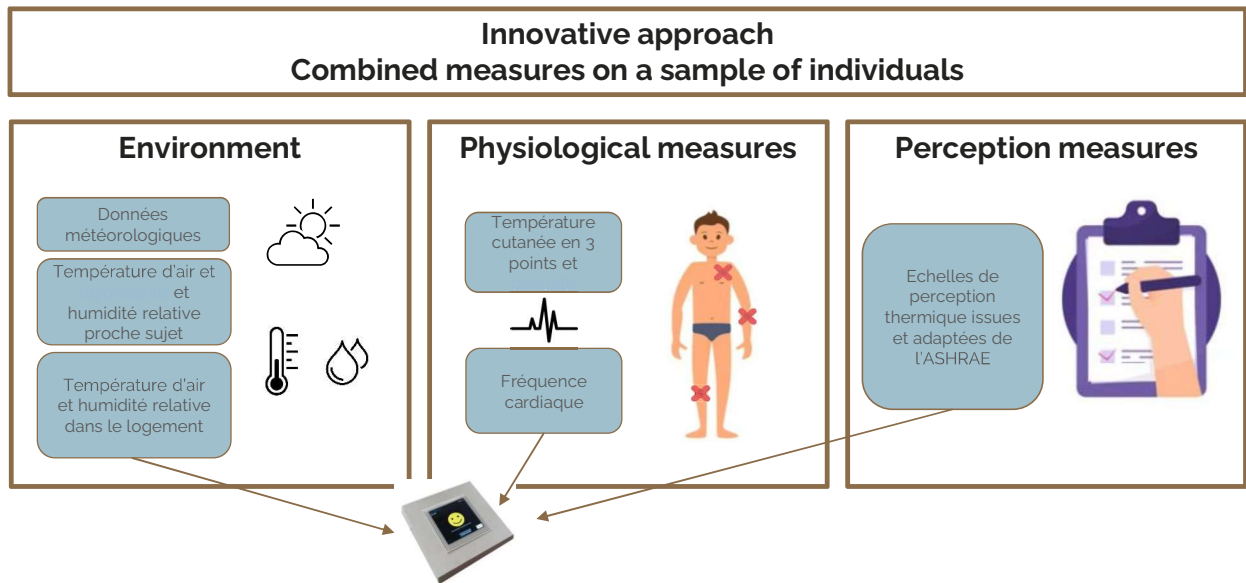




- « Pioneering », a method based on a **patent**
- « hUman », a measurement method placing **human** at the center
- « Lab », a method used for **experiments**
- « Sensory Evaluation », a method to measure **perception**



A multi-sensory approach



Summer comfort in the new environmental building regulation (RE2020)

Beyond the current regulation : works on summer comfort

Focus on climate projections for building simulations



Objective : a harmonized national methodology

- > Select climate scenarios and models
- > Select typical years and extreme events (eg heatwaves)
- > Debias, downscale and complete (additional variables) climate projections for building simulations

National Adaptation Plan :
+2°C
+4°C

Make climate projections widely available for building simulations

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Thank you for your attention