

HYGROTHERMAL BEHAVIOUR OF ETICS NUMERICAL AND EXPERIMENTAL STUDY

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PRESENTATION

- I. THE PROBLEM
- II. THE CAUSES
- III. EXPERIMENTAL STUDY
- IV. NUMERICAL SIMULATION
- V. CONCLUSIONS

I

THE PROBLEM

THE PROBLEM



II

THE CAUSES

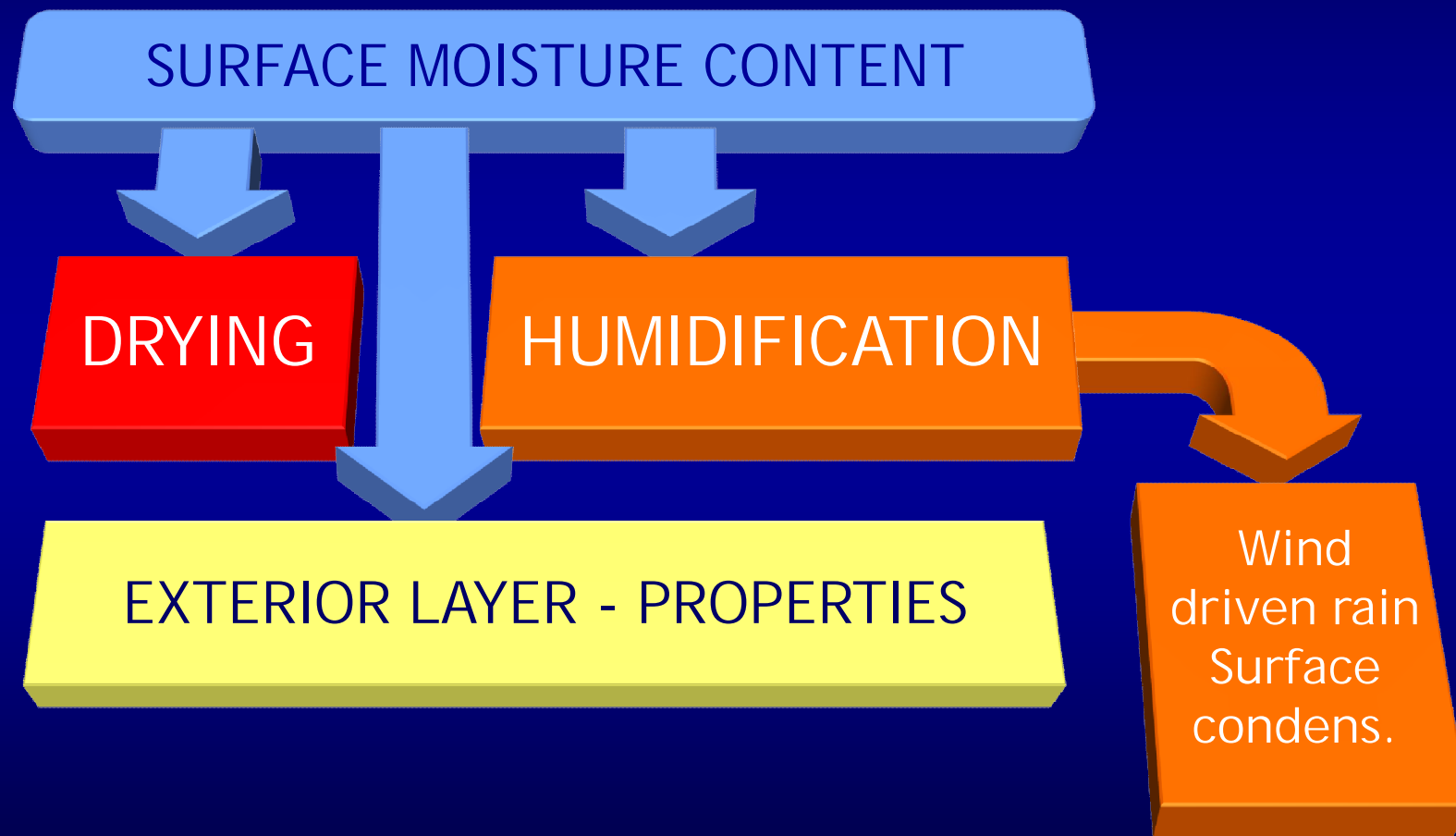
THE CAUSES

SURFACE MOISTURE CONTENT

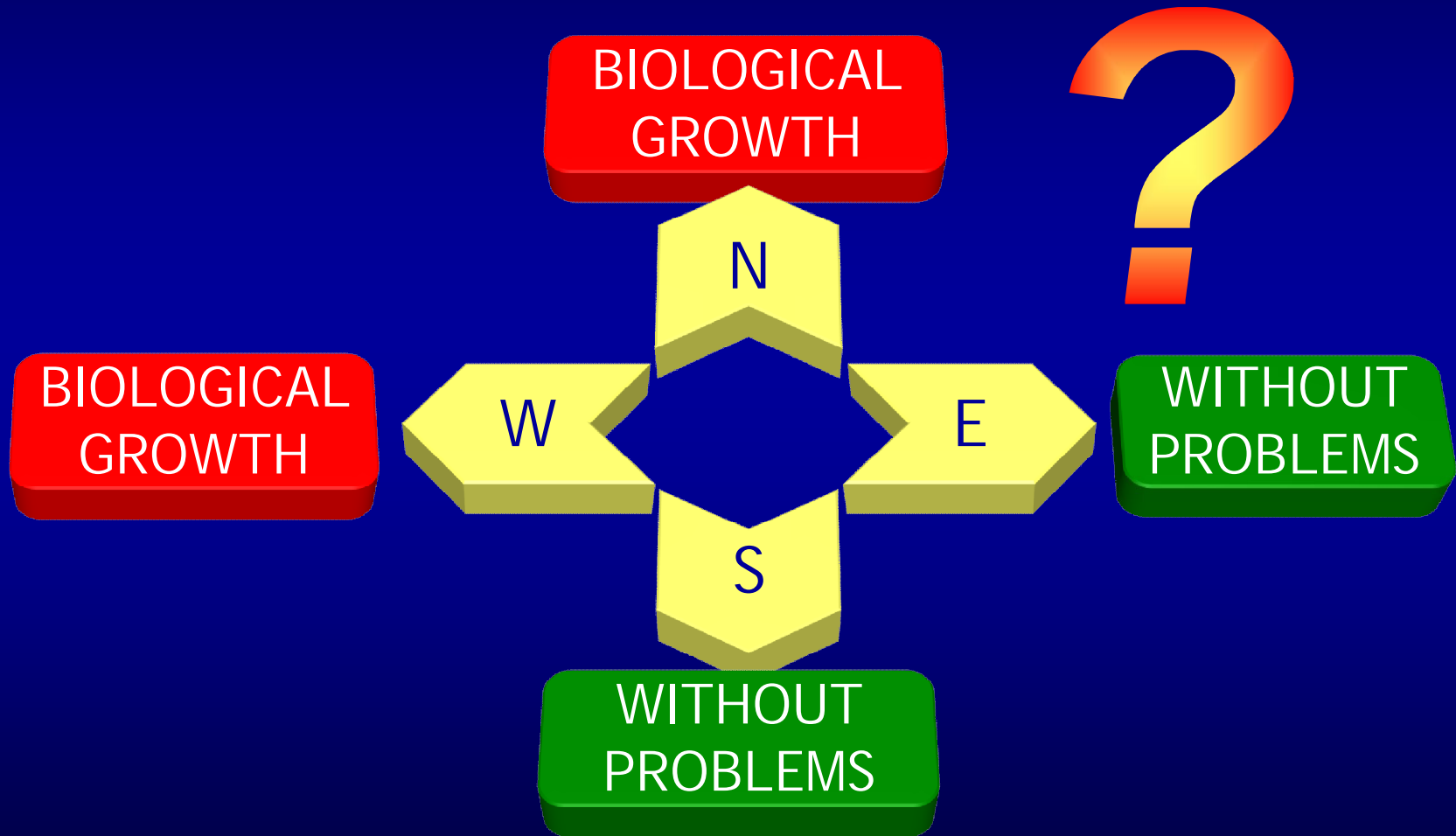


MICROBIOLOGICAL GROWTH ON ETICS

THE CAUSES



THE CAUSES



III

EXPERIMENTAL STUDY

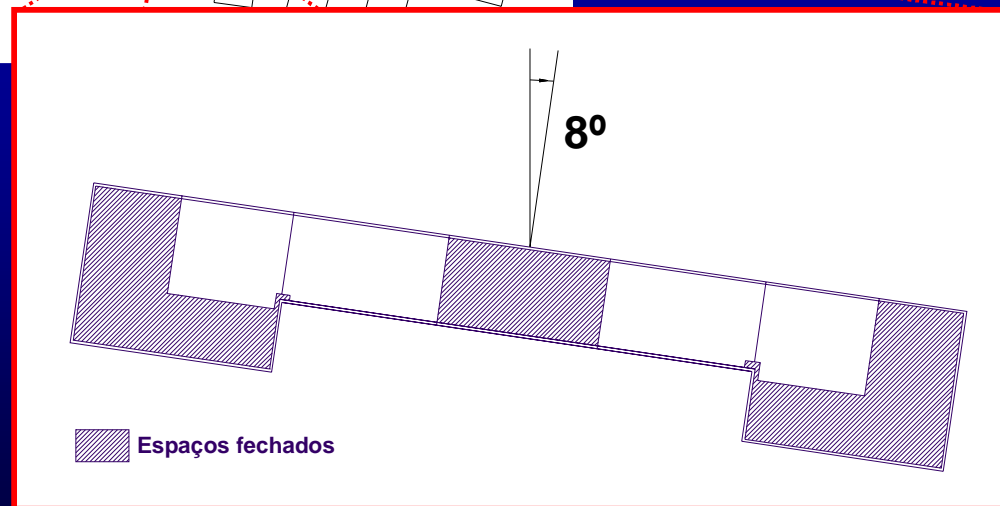
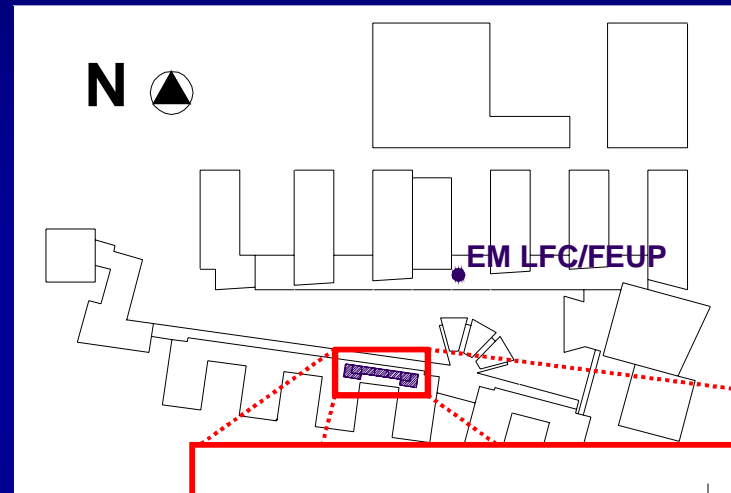
EXPERIMENTAL STUDY

Building under study



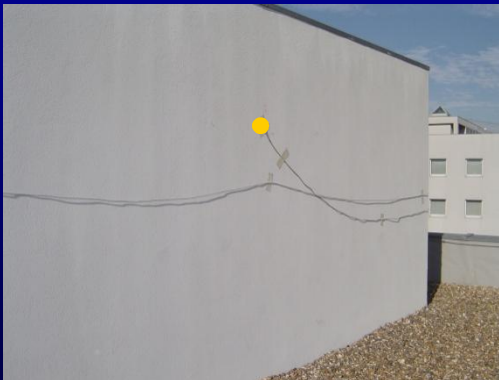
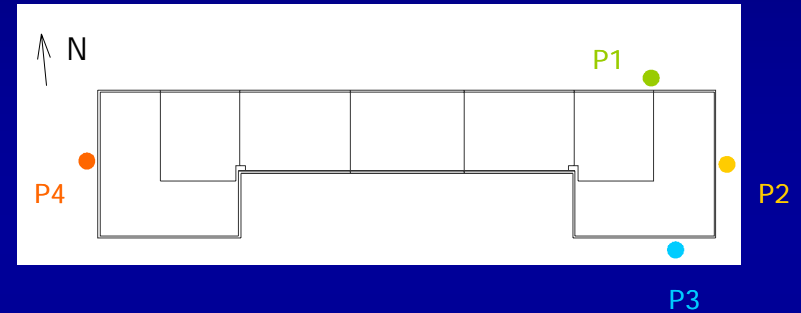
EXPERIMENTAL STUDY

Building under study



EXPERIMENTAL STUDY

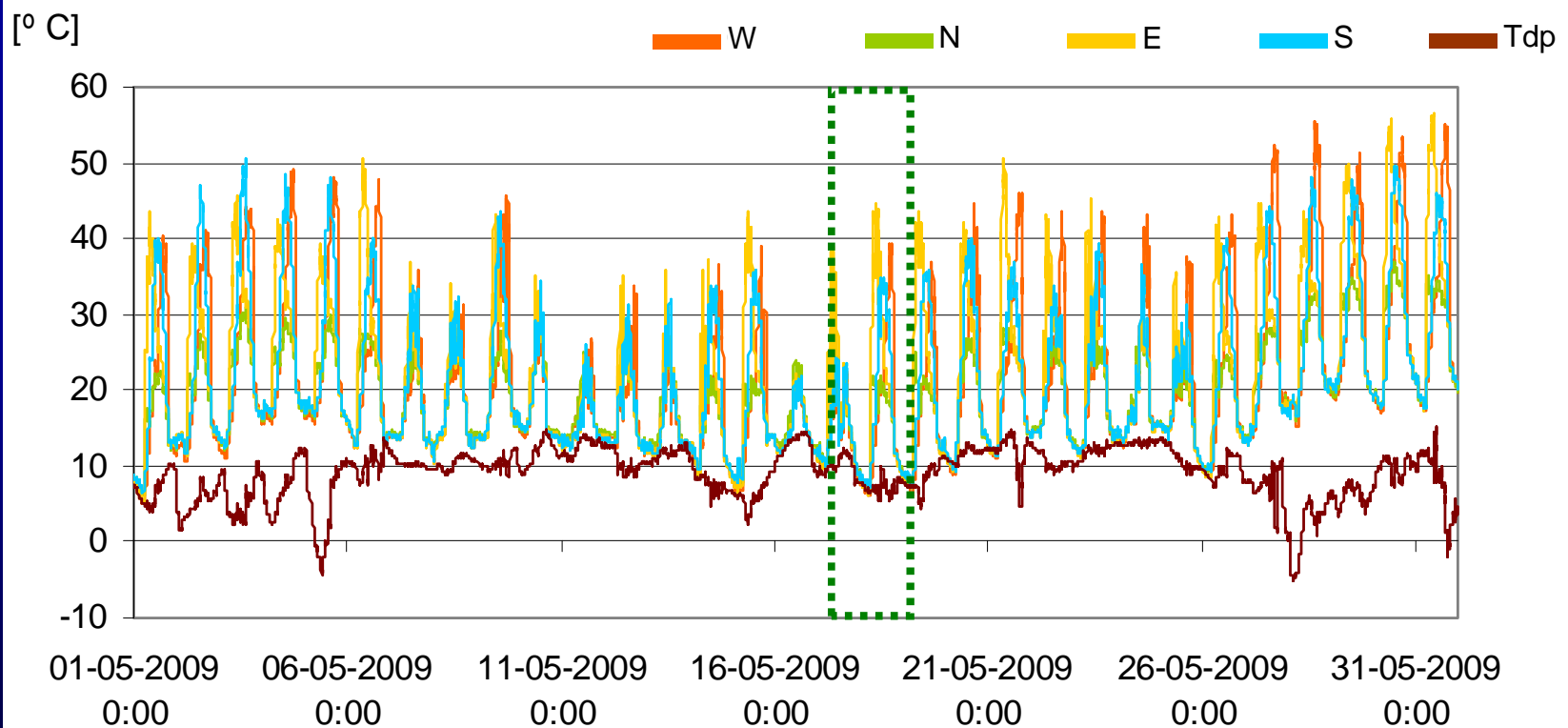
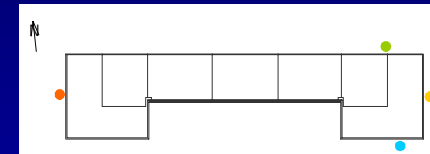
Setting up the test



EXPERIMENTAL STUDY

Measurements - Surface temperature

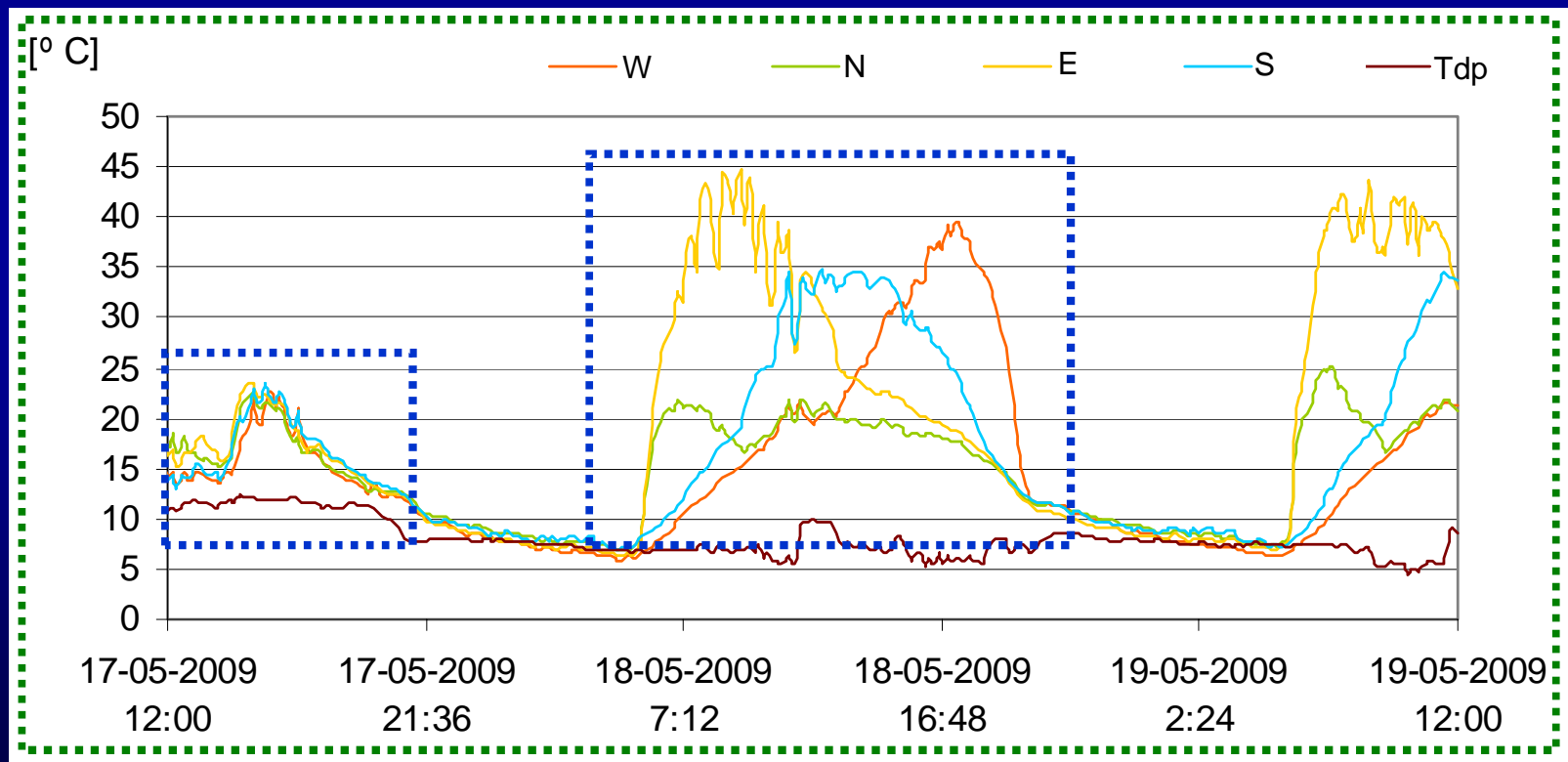
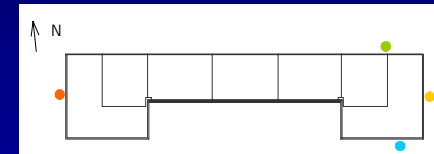
Ts and Tdp - MAY 2009



EXPERIMENTAL STUDY

Measurements - Surface temperature

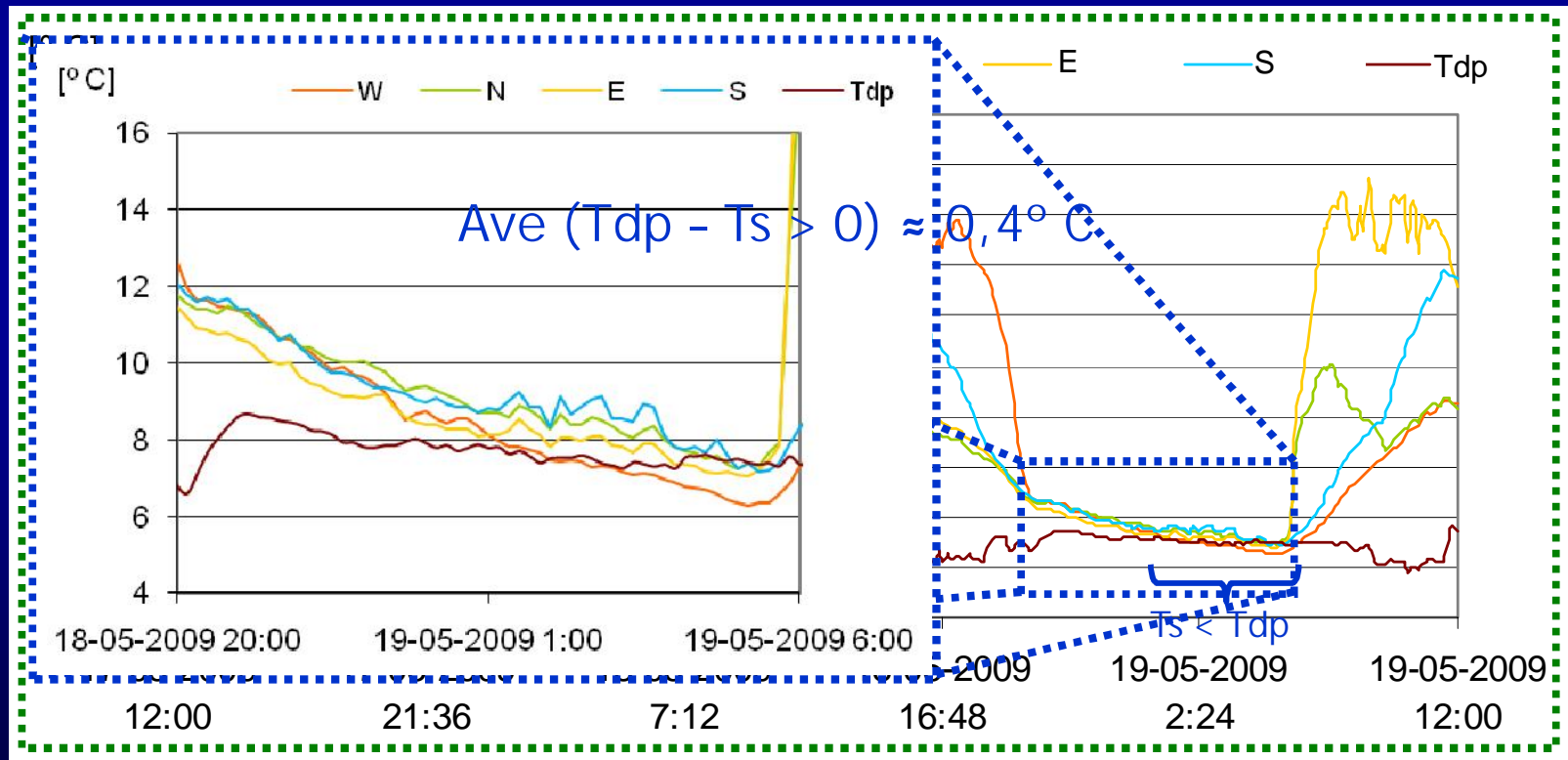
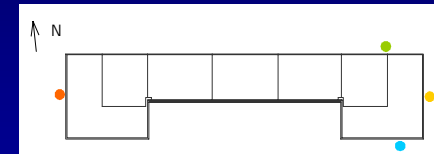
Ts and Tdp - MAY 2009



EXPERIMENTAL STUDY

Measurements - Surface temperature

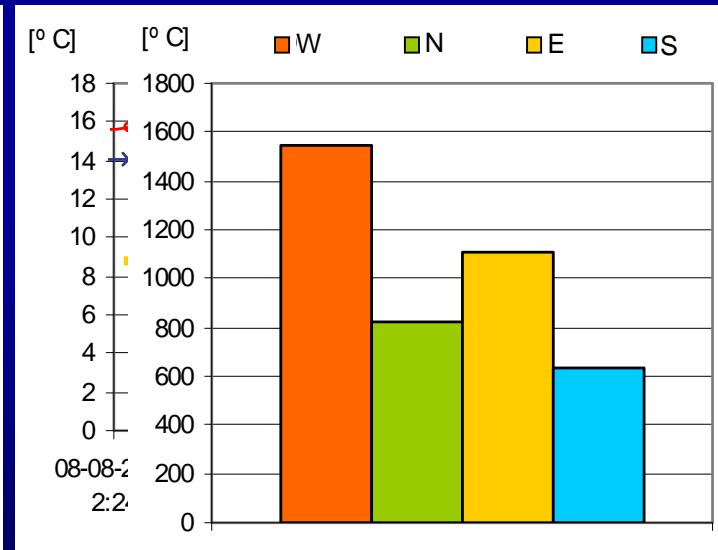
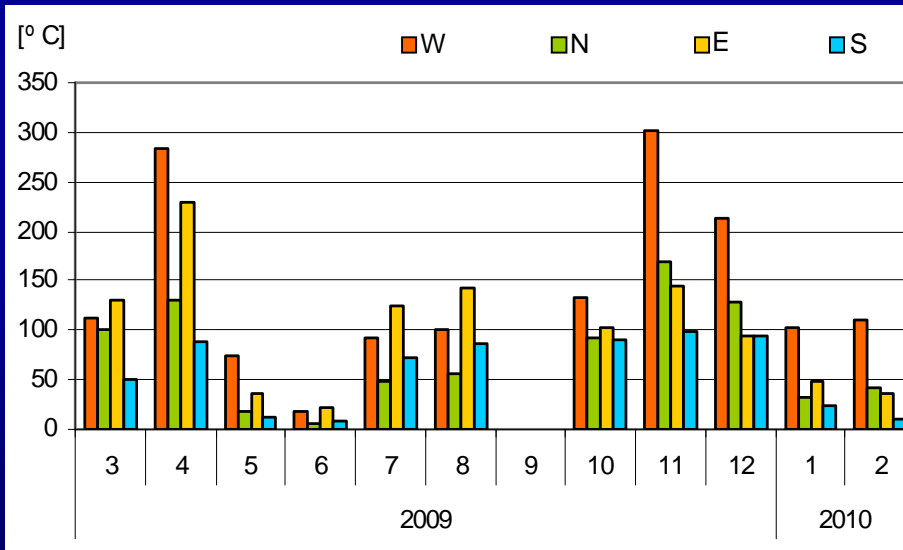
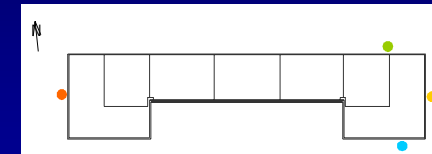
Ts and Tdp - MAY 2009



EXPERIMENTAL STUDY

Measurements - Surface condensation

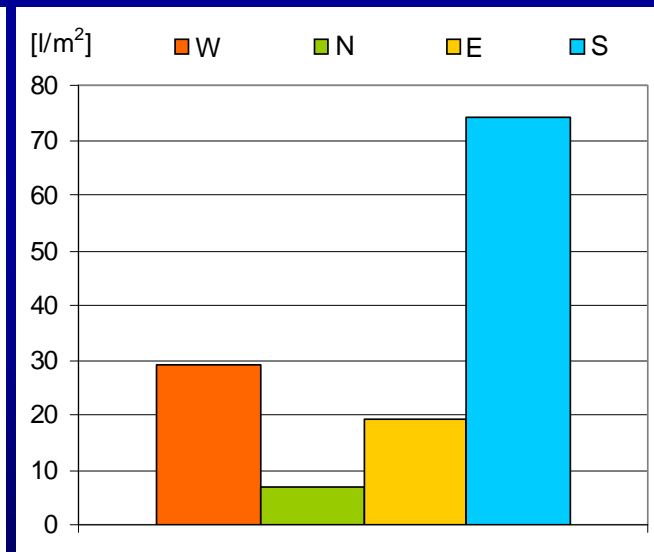
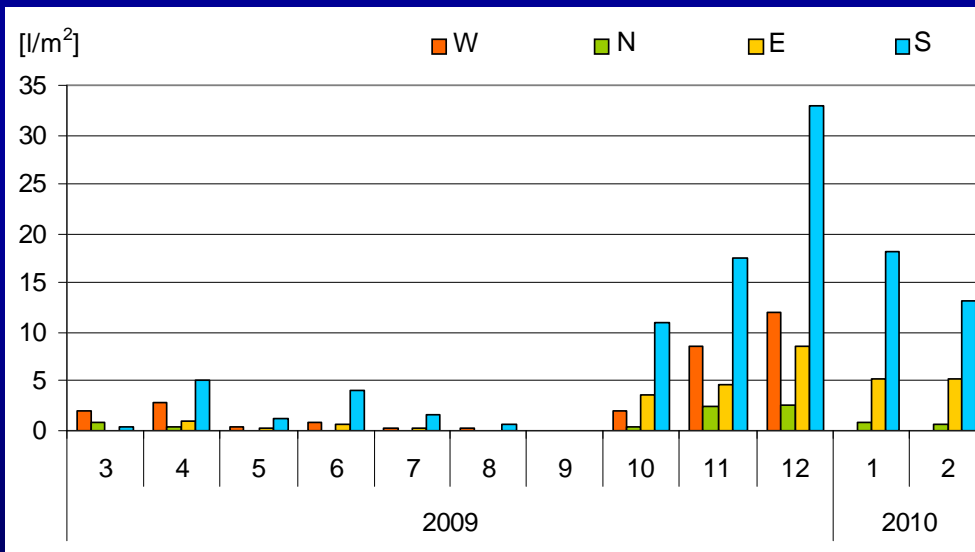
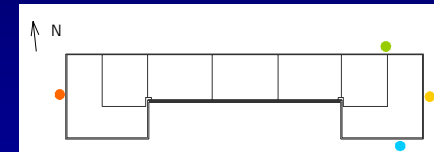
$\Sigma (T_{dp} - T_s > 0)$ - 01/03/2009 to 28/02/2010



EXPERIMENTAL STUDY

Measurements - WDR

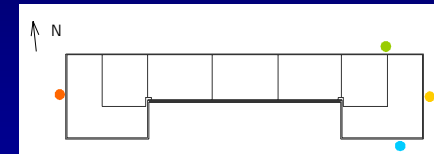
WDR - 01/03/2009 to 28/02/2010



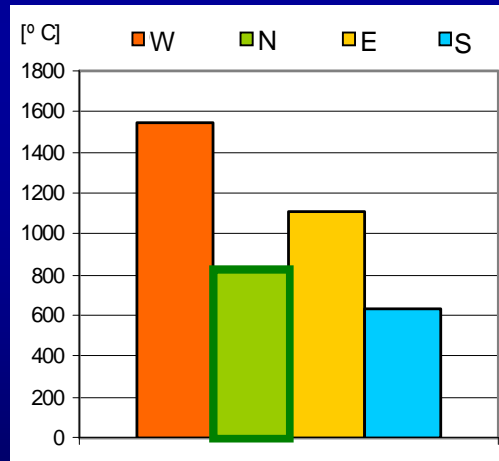
EXPERIMENTAL STUDY

Measurements - Discussion of the results

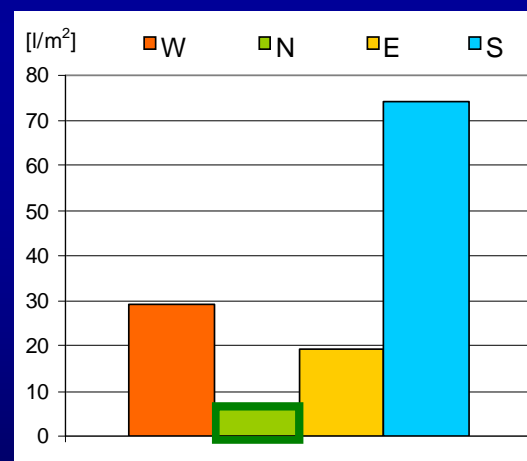
01/03/2009 to 28/02/2010



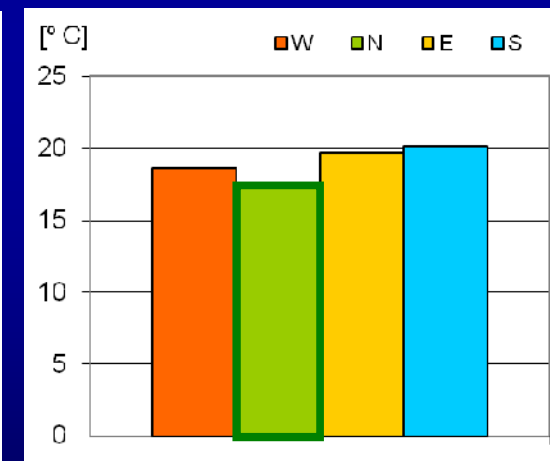
Surface condensation



WDR



Surface temperature (ave)



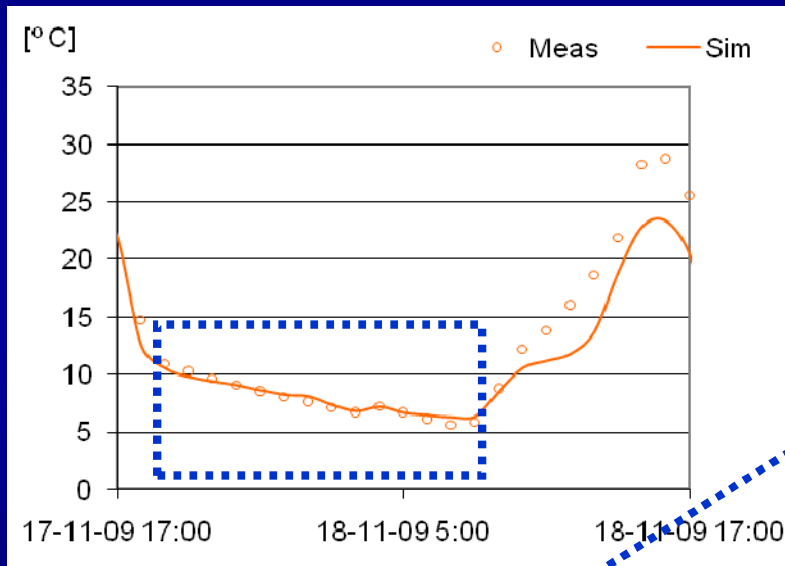
IV

NUMERICAL SIMULATION

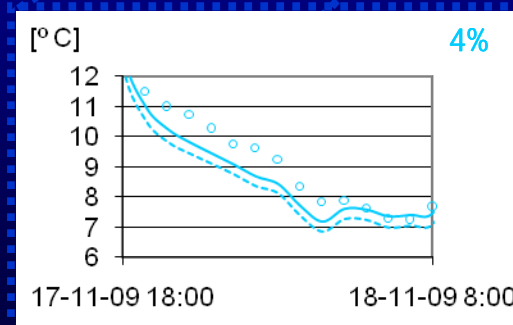
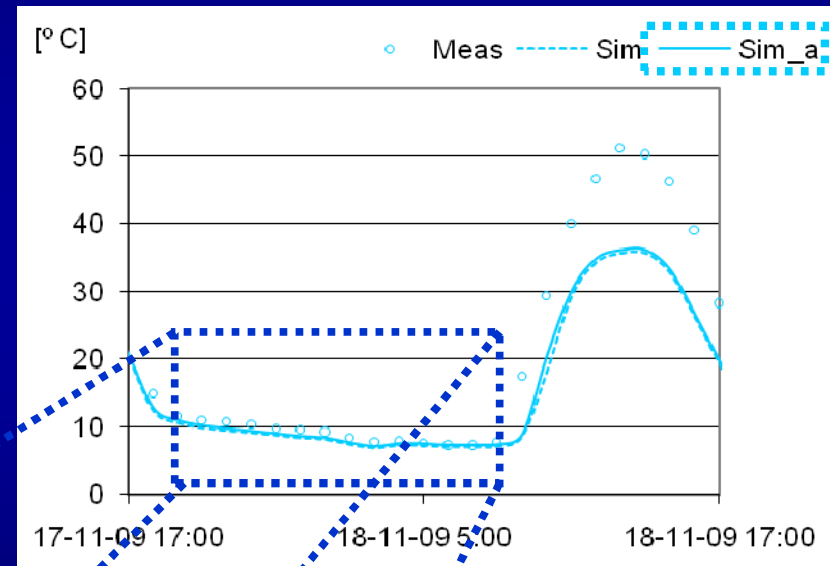
NUMERICAL SIMULATION

Simulation / Measurements - Surface temperature

West façade



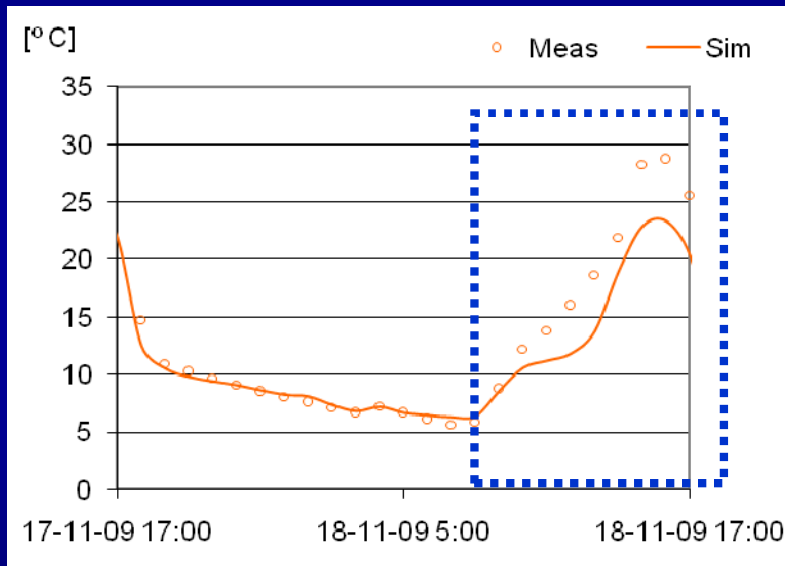
South façade



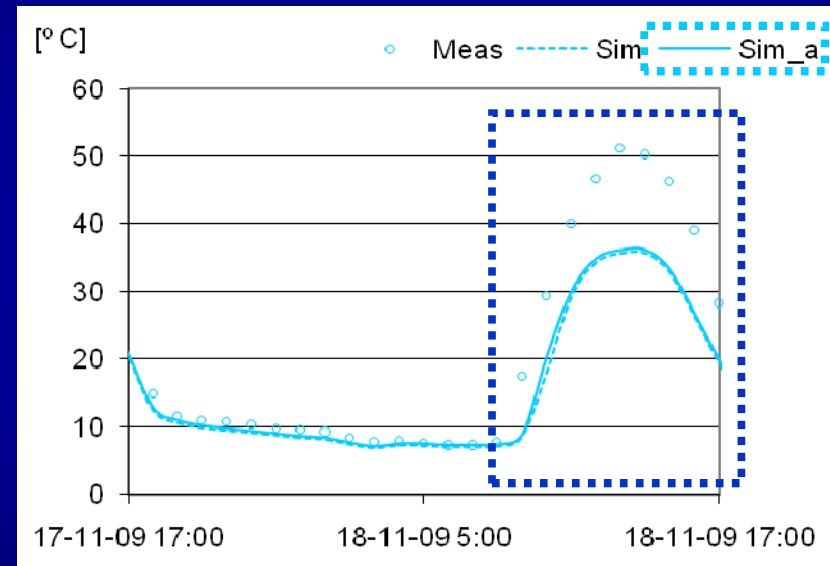
NUMERICAL SIMULATION

Simulation / Measurements - Surface temperature

West façade



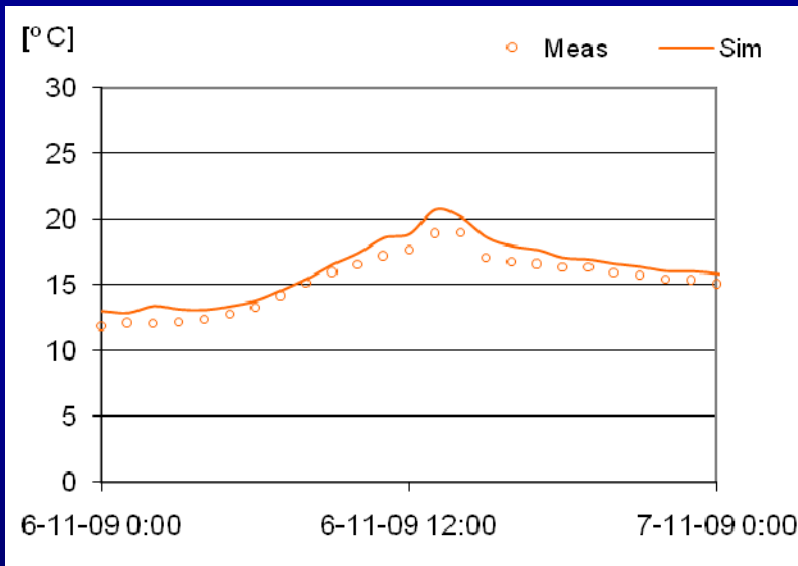
South façade



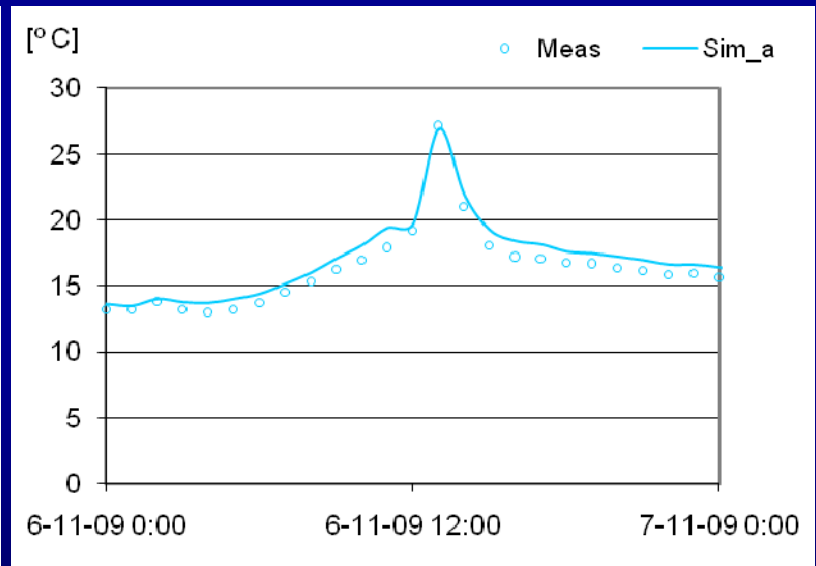
NUMERICAL SIMULATION

Simulation / Measurements - Surface temperature

West façade

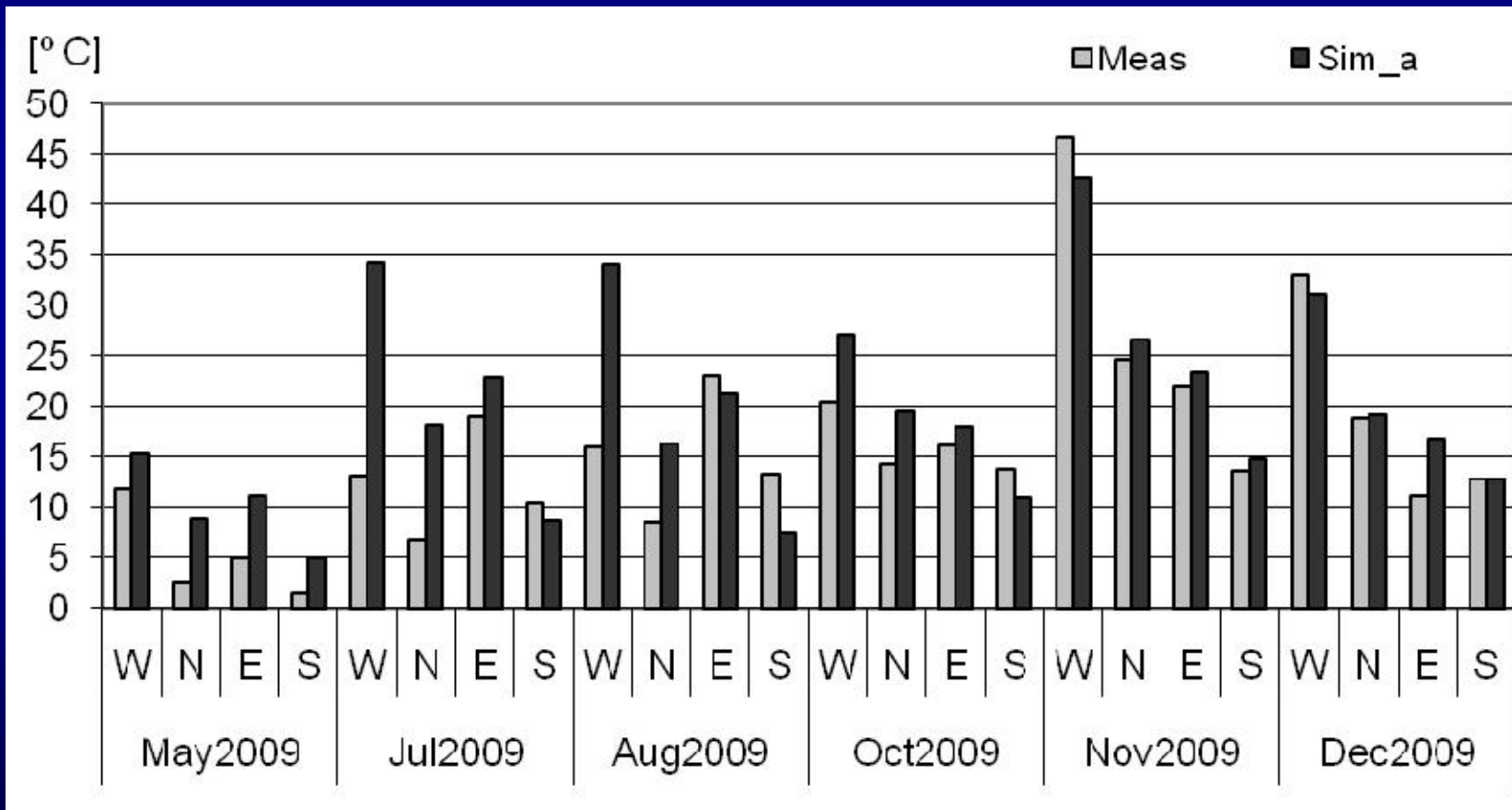


South façade



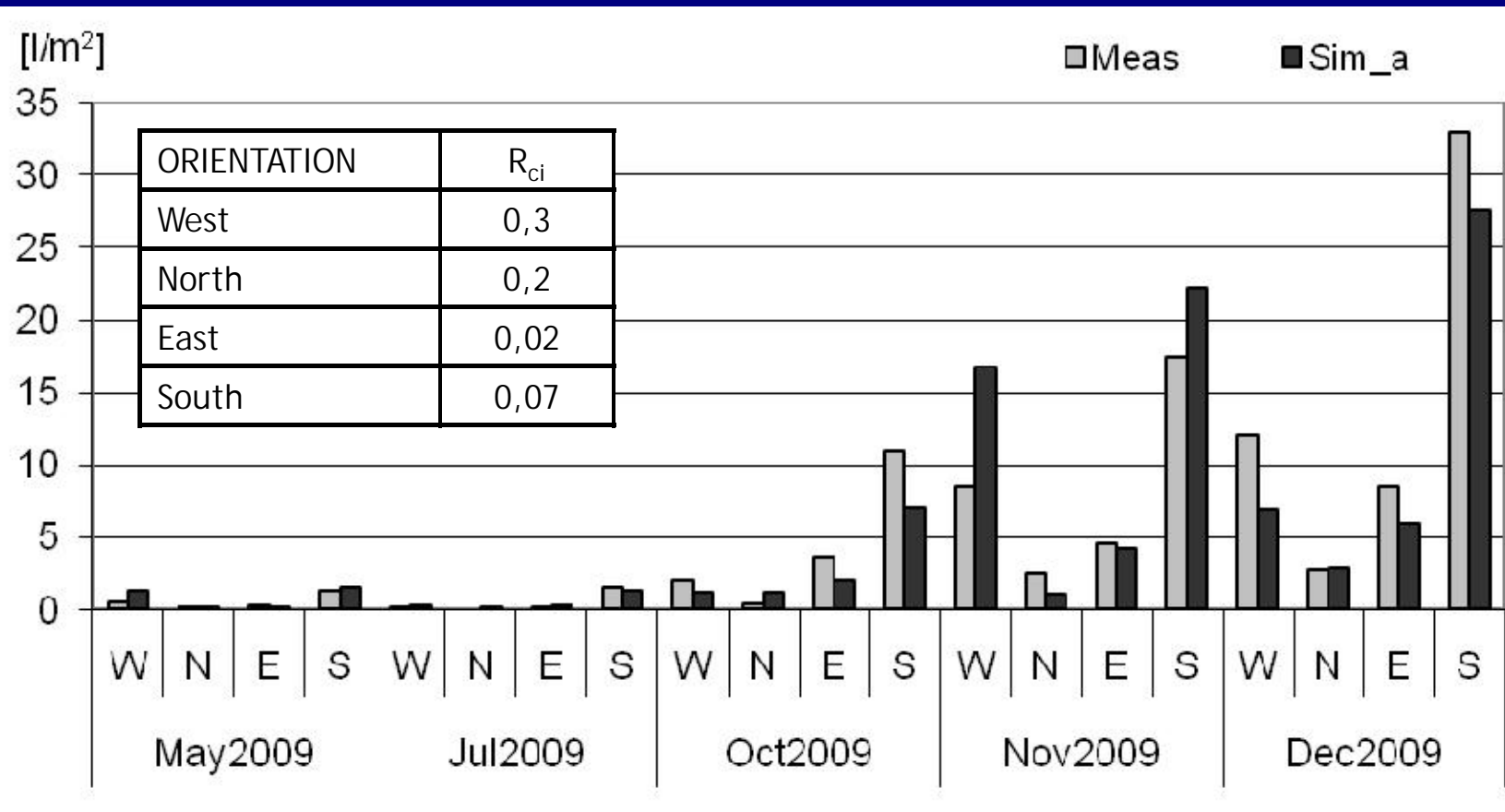
NUMERICAL SIMULATION

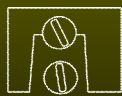
Simulation / Measurements - Condensation



NUMERICAL SIMULATION

Simulation / Measurements - WDR





V

CONCLUSIONS

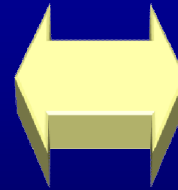
CONCLUSIONS

- ▷ The results of the “in situ” tests campaign allowed understanding the effect of orientation on external surface condensation and WDR
- ▷ It was possible to point that biological growth depends not only on condensation and WDR but also on the drying process



CONCLUSIONS

- ▷ The tests results allowed evaluating the performance of a commercial HAM model



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