



Evaluation the thermal comfort from an urbanized area.

Realized by: **Madalina Bucur**

Coordinated by: **Jesus Cuadrado**

Index

1. Abstract.....	page 3
2. Introduction.....	page 4
3. Methodology.....	page 6
3.1 ENVI-Met.....	page 6
3.1.1 Spaces.....	page 7
3.1.2 ConfigWizard.....	page 8
3.1.3 Processor of simulation.....	Page 9
3.1.4 Leonardo 2014.....	Page 10
3.2 RayMan.....	page 13
4. Simulations and results.....	page 14
5. Conclusion.....	page 21
6. Bibliography.....	page 22
7. Acknowledgment	page 22

1 .Abstract

This paper's name is "Evaluation the thermal comfort from an urbanized area" and is realized during the Erasmus internship at Universidad del Pais Vasco with the guidance of the professor Jesus Cuadrado. In the following pages you will be introduced on the subject of thermal comfort in the city of Bilbao and afterwards, it will be focused on the area of San Mames Stadium in Bilbao.

The research pursues thermal comfort for different types of people, taking into account age, clothing, and activity. To determine the temperature, the simulations and calculations were done using as the main software the program ENVI-Met. After the simulations in ENVI-Met, we know the temperature values and introduce them in another software called RayMan. This software helps us to determine the PET values using information about the people (clothes, activity, age, height, weight, sex) and the temperature values.

6. Bibliography

1. Emilio Castejon Vilella, Confort termico- Metodo de Fanger para su evaluacion, 1983
2. <https://es.wikipedia.org/wiki/Bilbao>
3. https://en.wikipedia.org/wiki/Clothing_insulation
4. <https://sustainabilityworkshop.autodesk.com/buildings/human-thermal-comfort>
5. <http://www.hse.gov.uk/temperature/thermal/measuring.htm>
6. https://en.wikipedia.org/wiki/Thermal_comfort
7. <http://www.hse.gov.uk/temperature/thermal/factors.htm>

7. Acknowledge

The authors are deeply grateful to the Basque Government, which funded this research through project IT781-13.