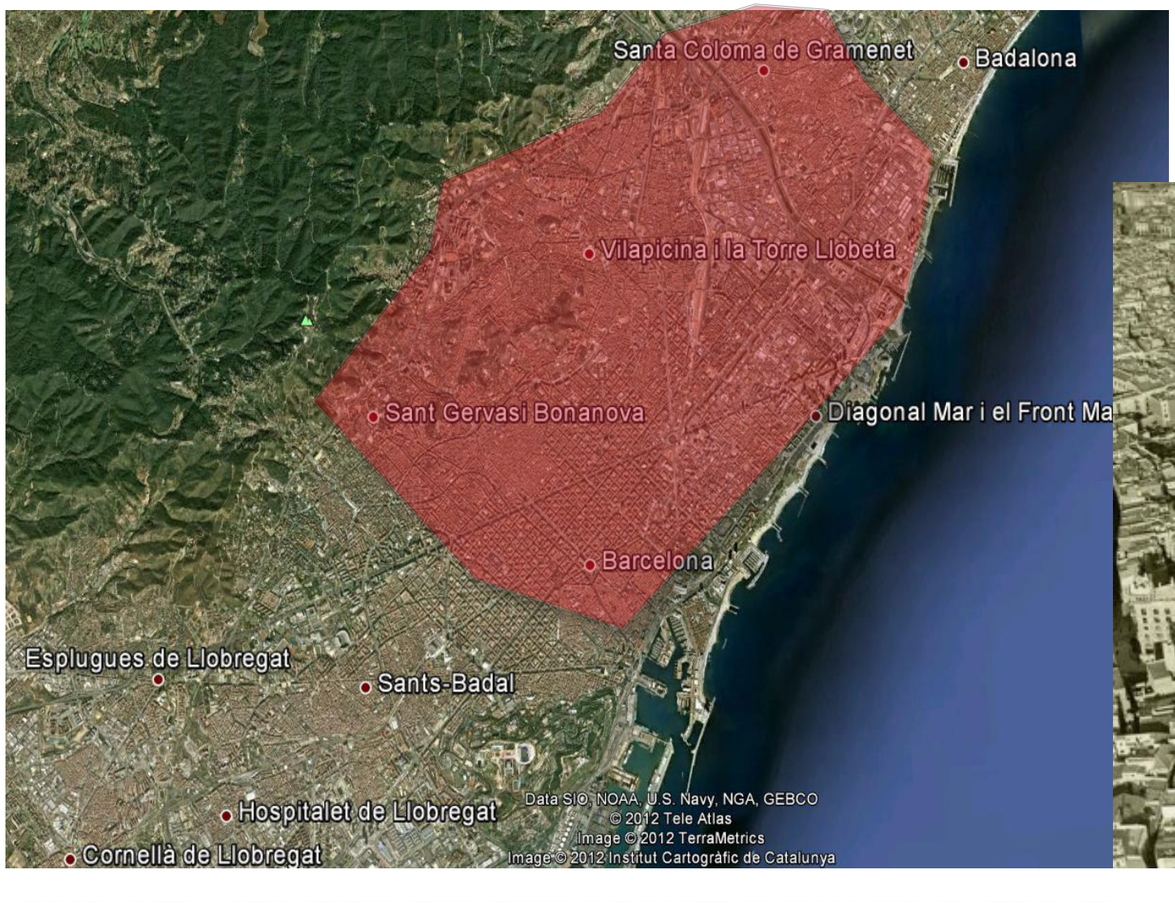
ecotect analysis

tutor: spyros stavoravdis

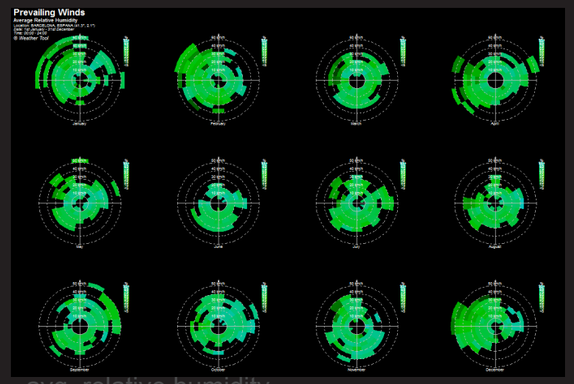


This Ecotect study is related to the studio of Barcelona Smart Public Spaces, my focus is to study the climatic responsiveness, as my site is a touristic attraction so its very important to see when is the space for shaded and also check what is the best orientation of a structure for to be most shaded and ventilated. I am using Ecotect as a tool for the same.

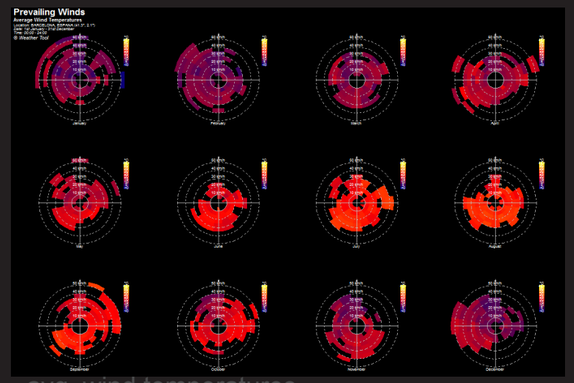
yogesh karekar

ecotect analysis

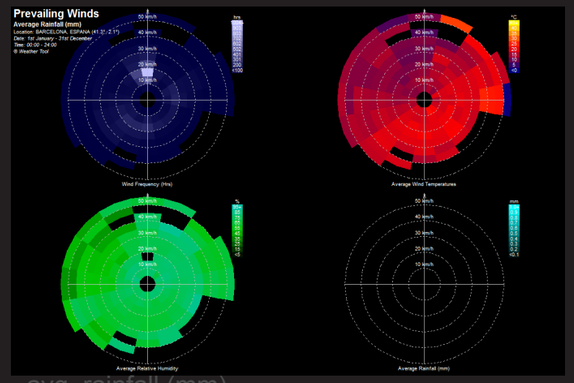
climate analysis



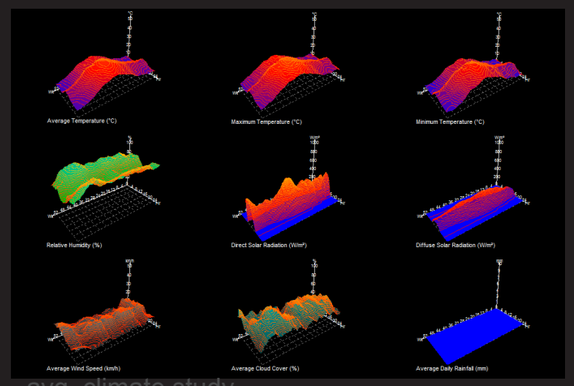
avg. relative humidity



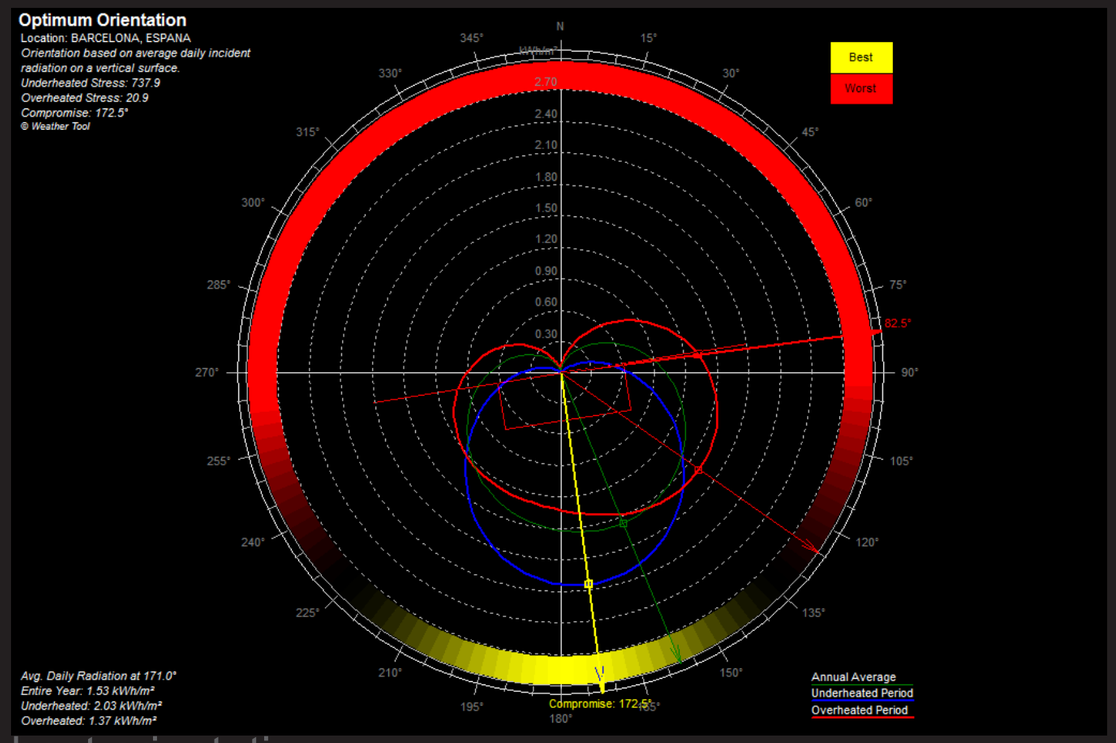
avg. wind temperatures



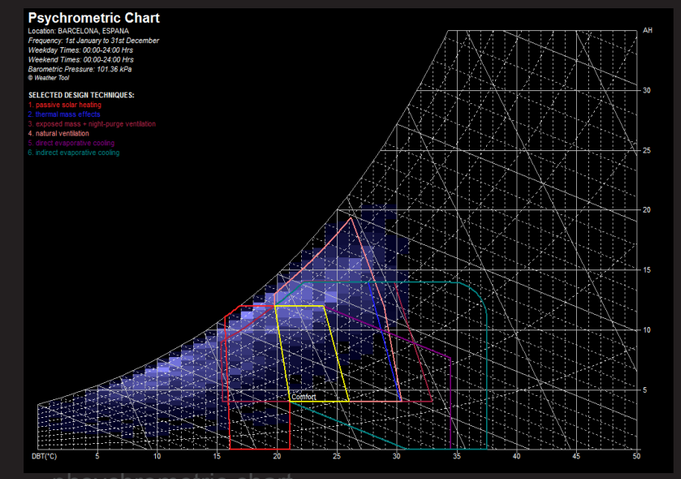
avg. rainfall (mm)



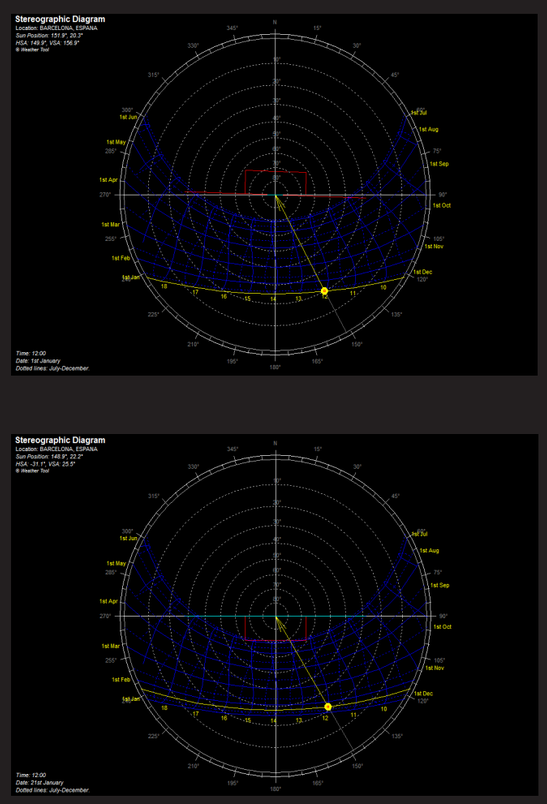
avg. climate study

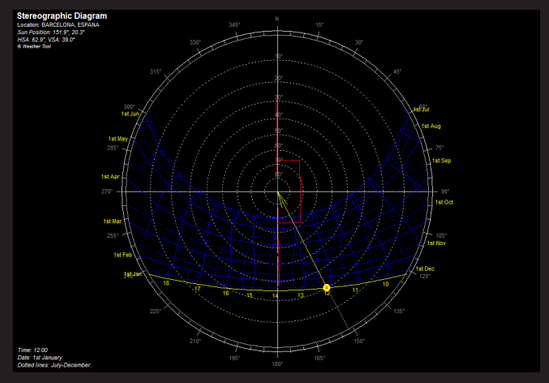


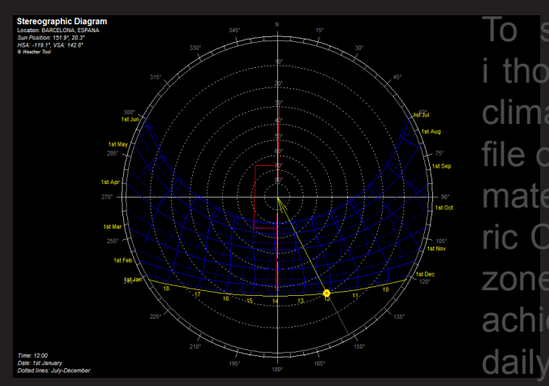
best orientation

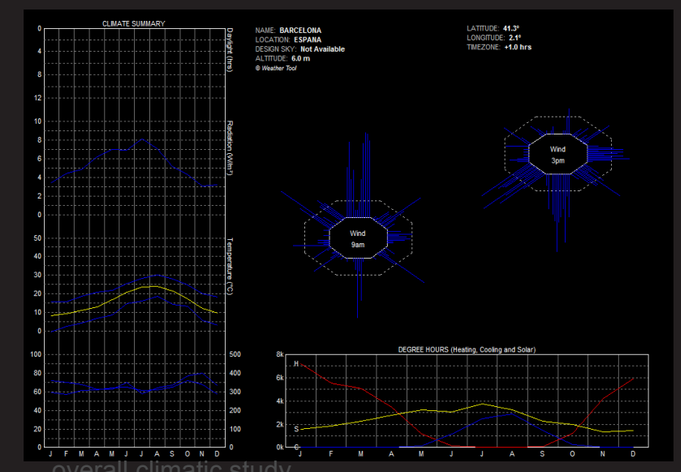


phsychrometric chart









overall climatic study

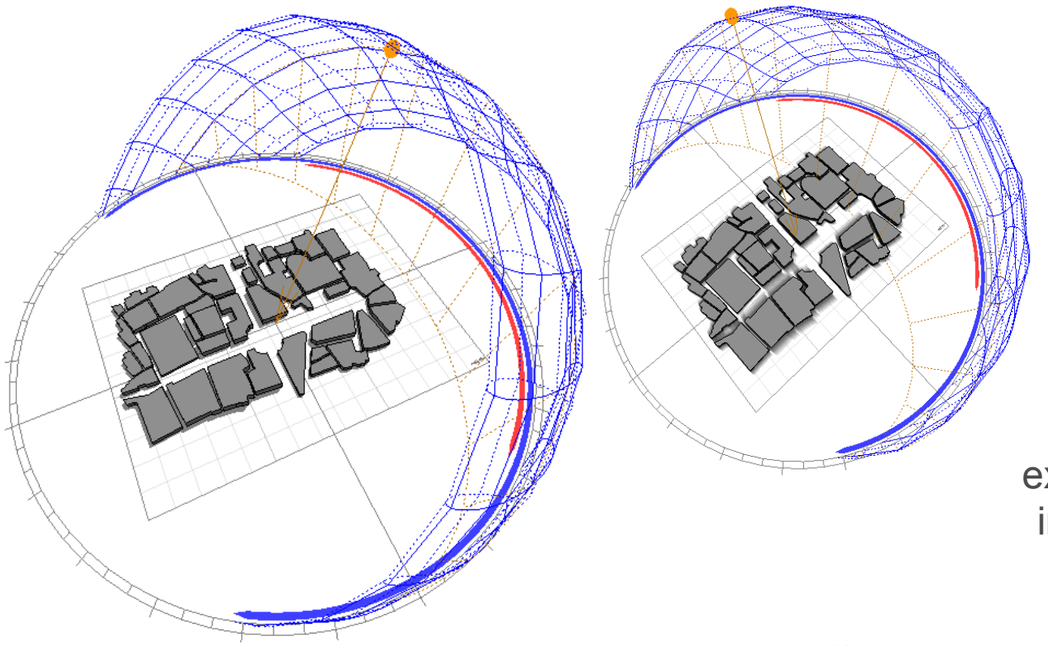
To start off with the analysis of the project i thought it will be appropriate to start with the climate study of Barcelona. So from the .epw file of barcelona containing information of its climate; through weather tool from Psychrometric Chart I learned the specific times of comfort zone and from the solar position i couldalso achieve the best orientation based on avg. daily incident radiation on a vertical surface

yogesh karekar

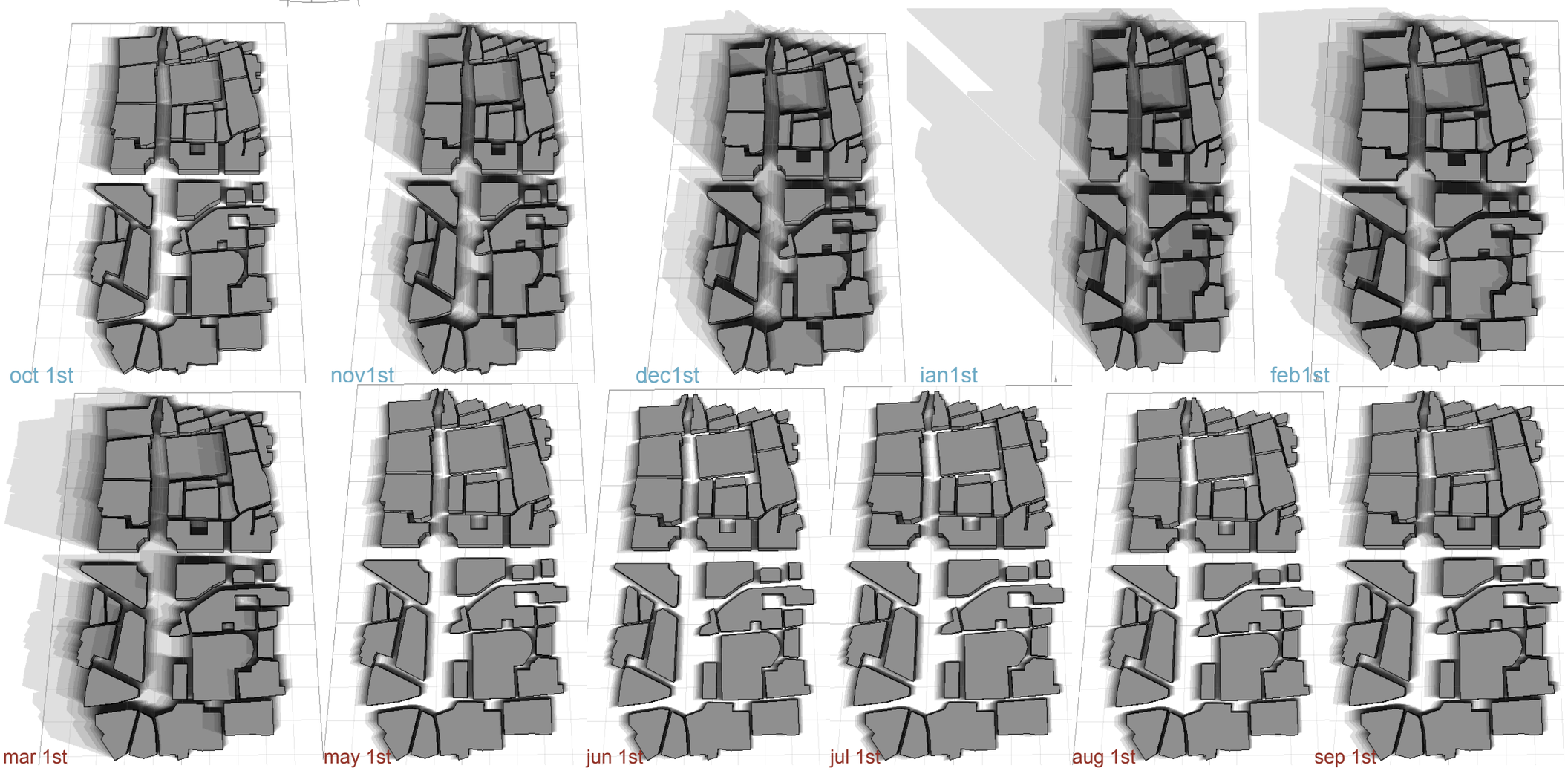
ecotect analysis

annual shadow analysis

annual sun patshowing sun
on 1st april at 12:30pm



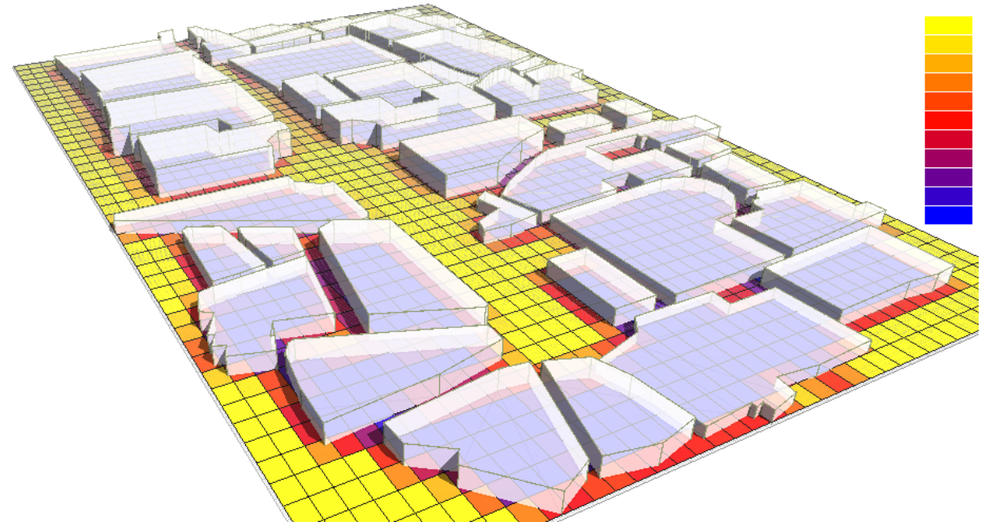
The study here done is to reduce the amount of shading on an exterior surfaces of the buildings by the surroundings. This helps in taking measures related to passive heating and cooling effect of the space.

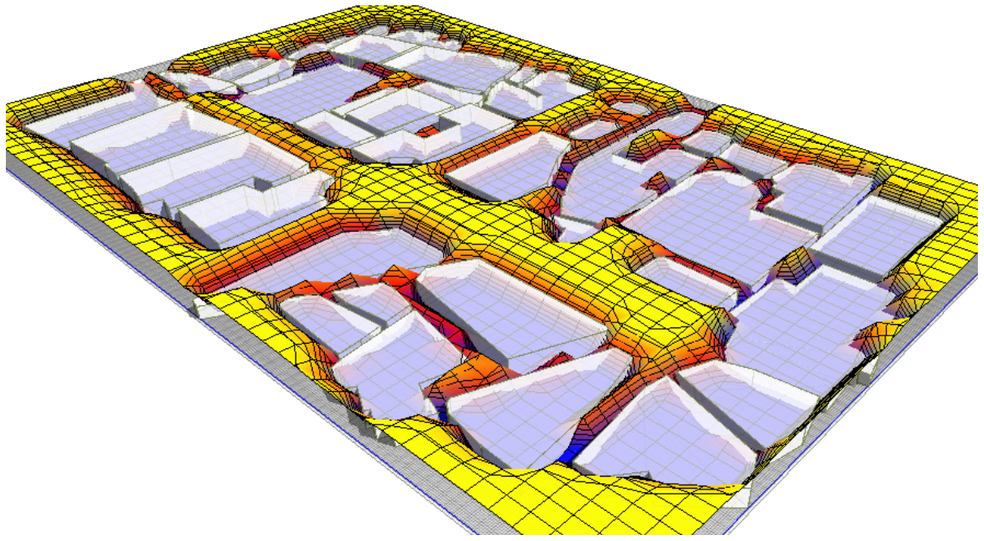


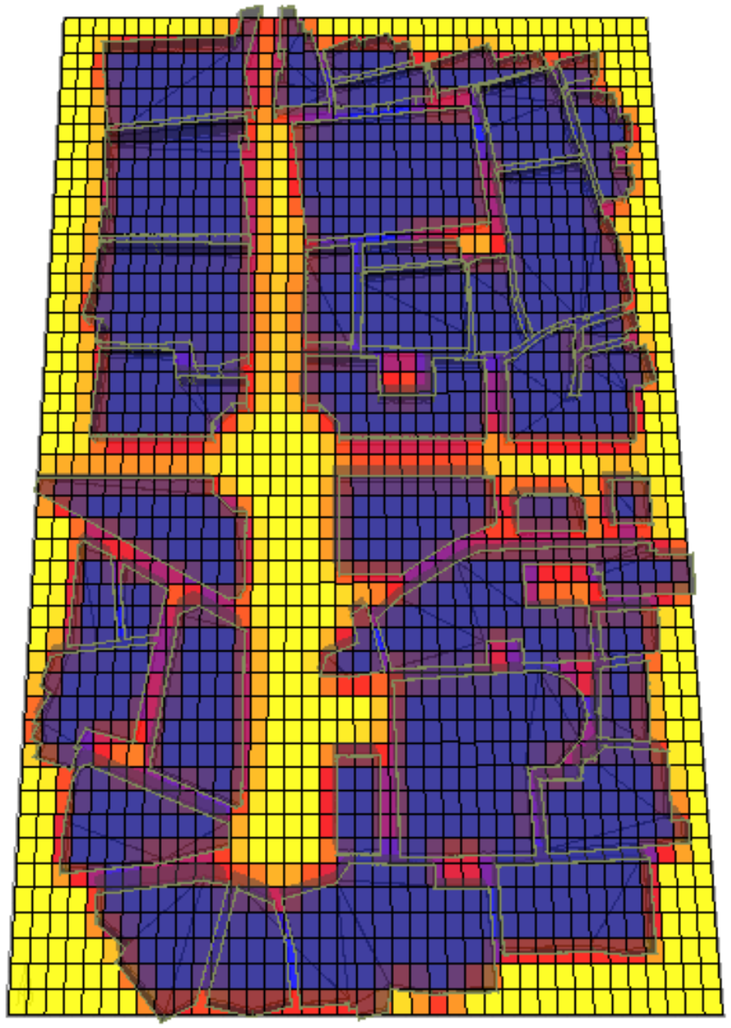
shadow analysis in cold months

shadow analysis in hot months

yogesh karekar





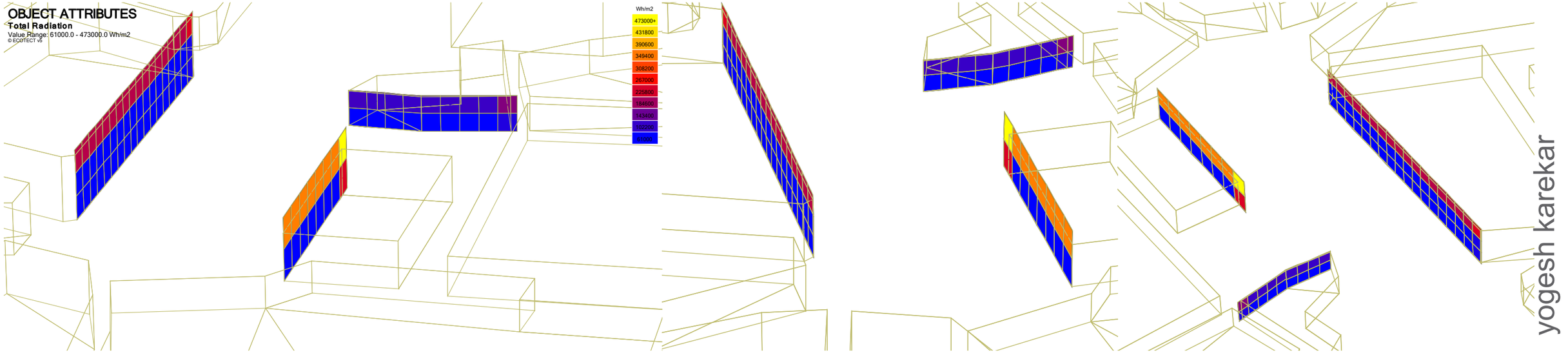


ecotect analysis

solar analysis

The solar radiation is more in the bigger open space as compared to the smaller. This can be easily read from the variation of colours, also the space between adjacent buildings dont receive sufficient amount of sunlight.

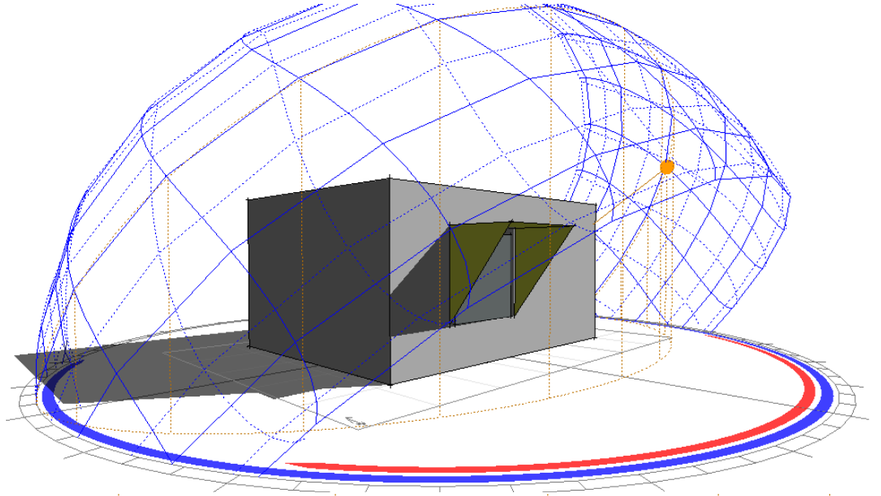
The three facades are all overlooking open space but due to the shading we can see that they are not getting enough direct sunlight , as it is mostly blue but one surface is yellow as it is not shaded thus get good direct sunlight.

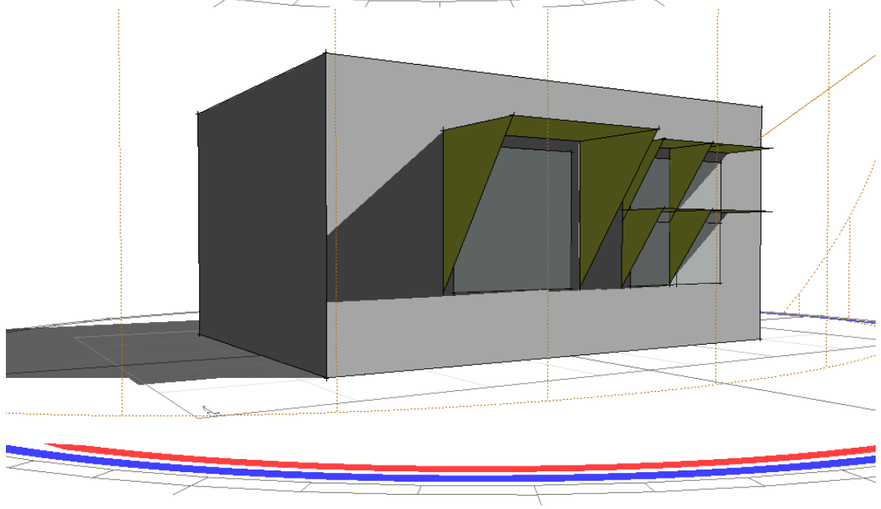


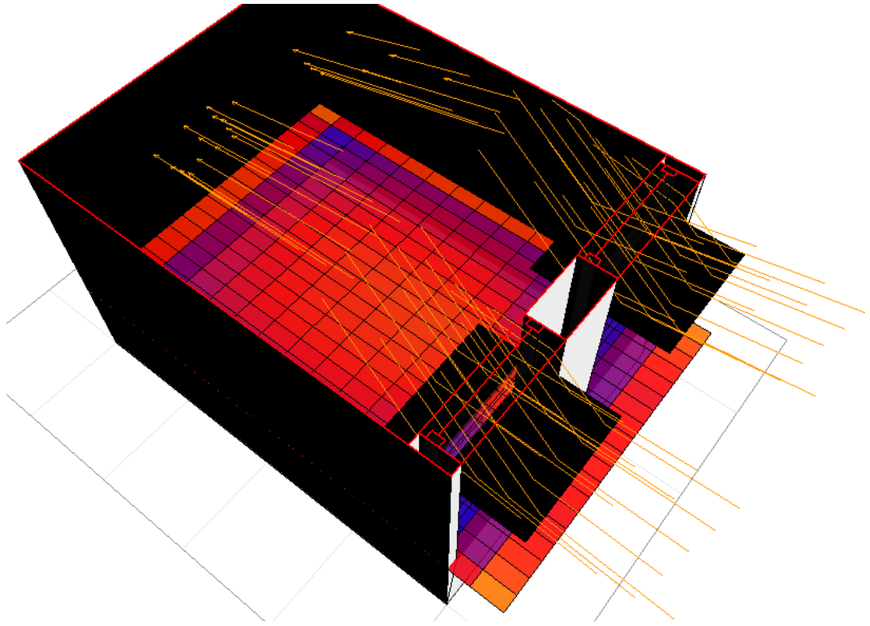
yogesh karekar

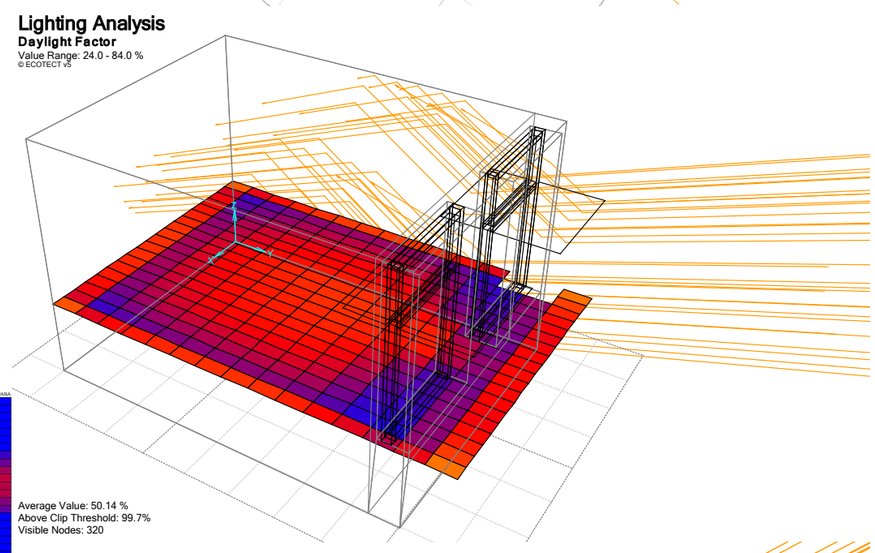
ecotect analysis

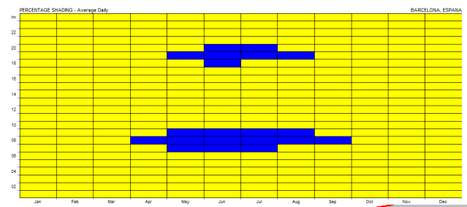
solar rays for a room

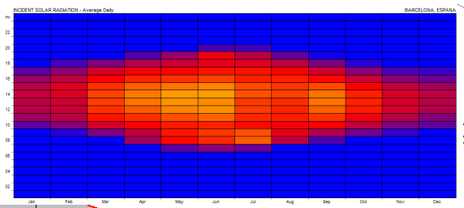




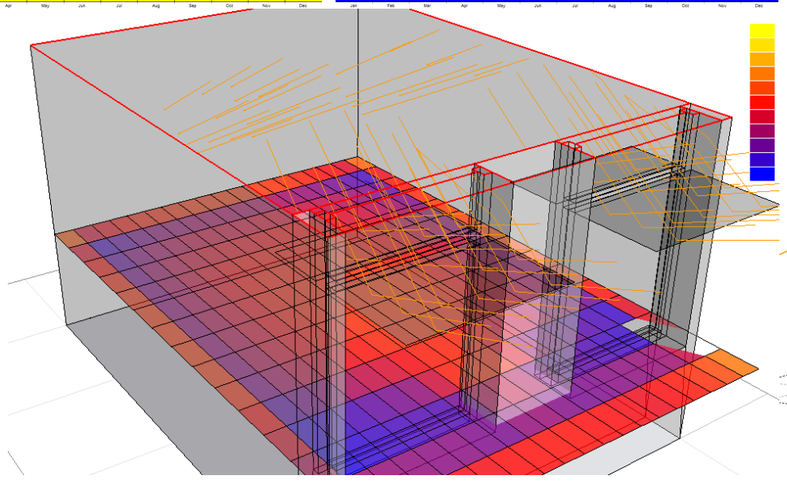


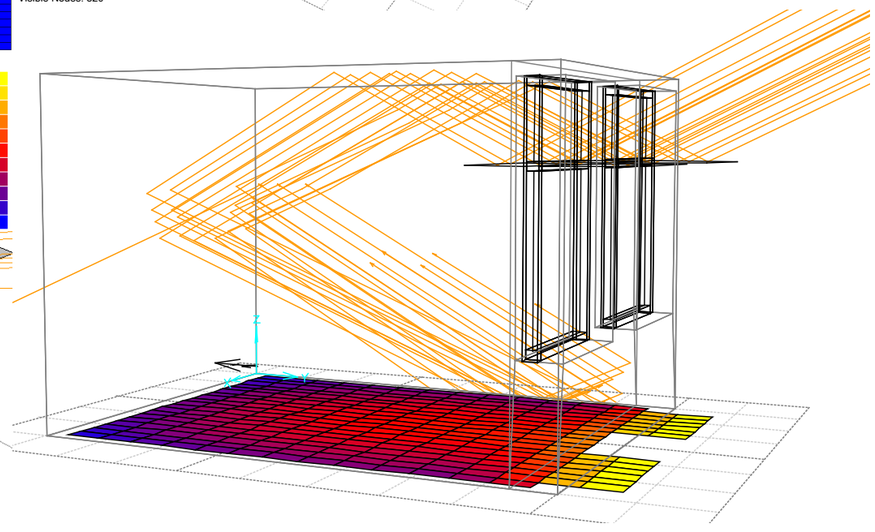






Average Value: 50.14 %
Above Clip Threshold: 99.7%
Visible Nodes: 320





This was the study for calculating the solar radiation for the room. I designed a stand alone room on the same site with some windows on the north side. In the first half I tried to study the shading through the windows, then put the best shading device given by ecotect. There are two option in first we can see one whole window with the shading and then when the window was divided into four parts how it gave the solution.

The last one was to design the light shelf to get more sufficient light I designed a horizontal louvre in the windows which acts as reflector for the room which helps the room get lit well as you can see the sun rays reflecting on the surface bouncing on the ceiling and reaches the end of the room.

yogesh karekar