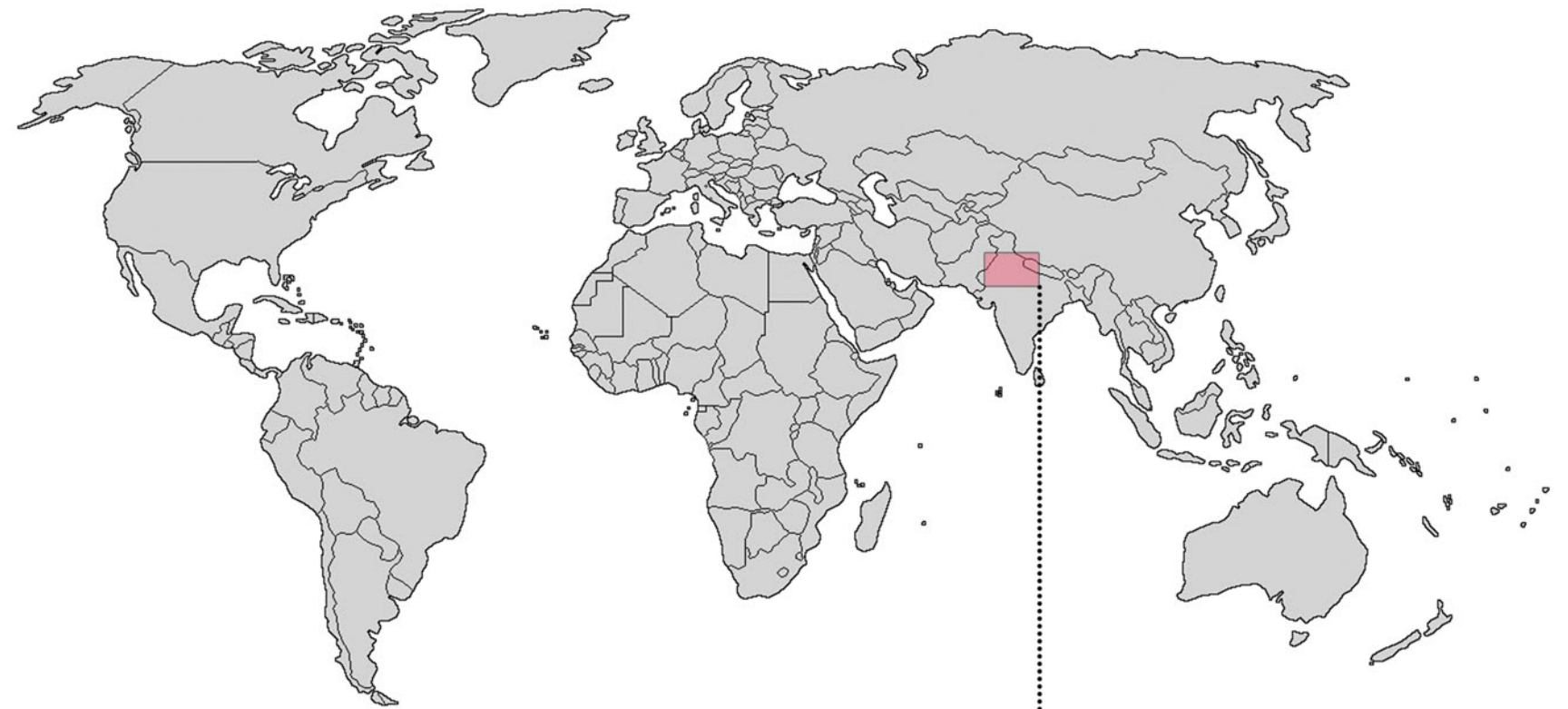


CLIMATE ANALYSIS OF DREAM ROOM NEW DELHI

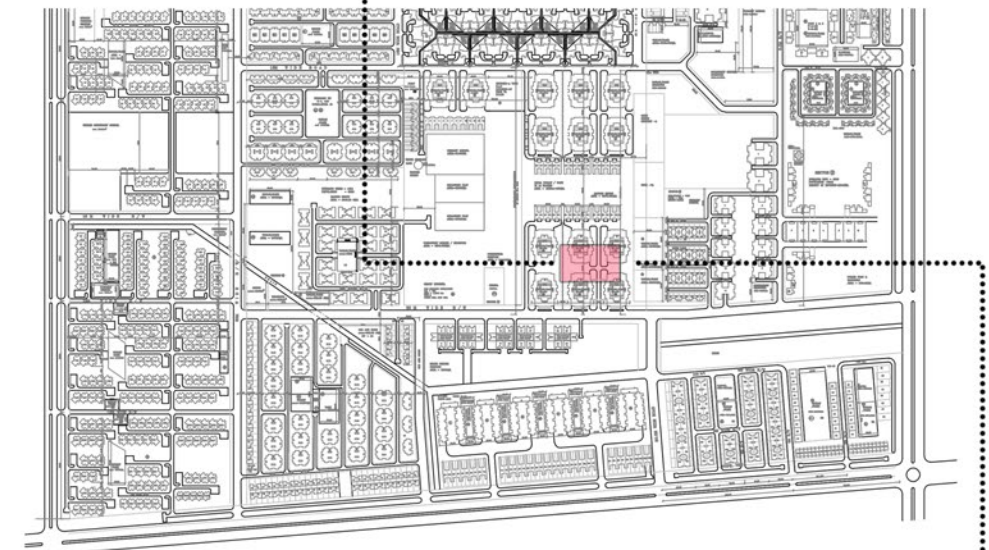


Latitude and longitude of new
delhi

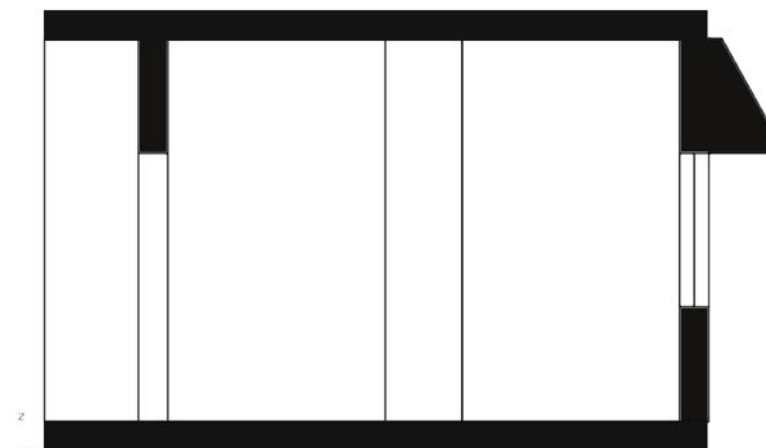
28.6139° N, 77.2090° E

Area of the room : 14 sq.m

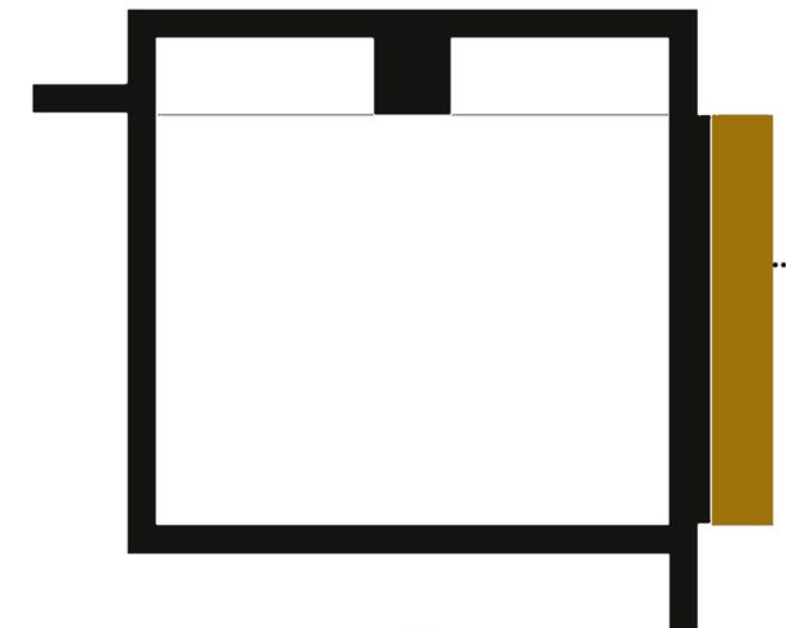
Windows are facing south east



New Delhi



Section



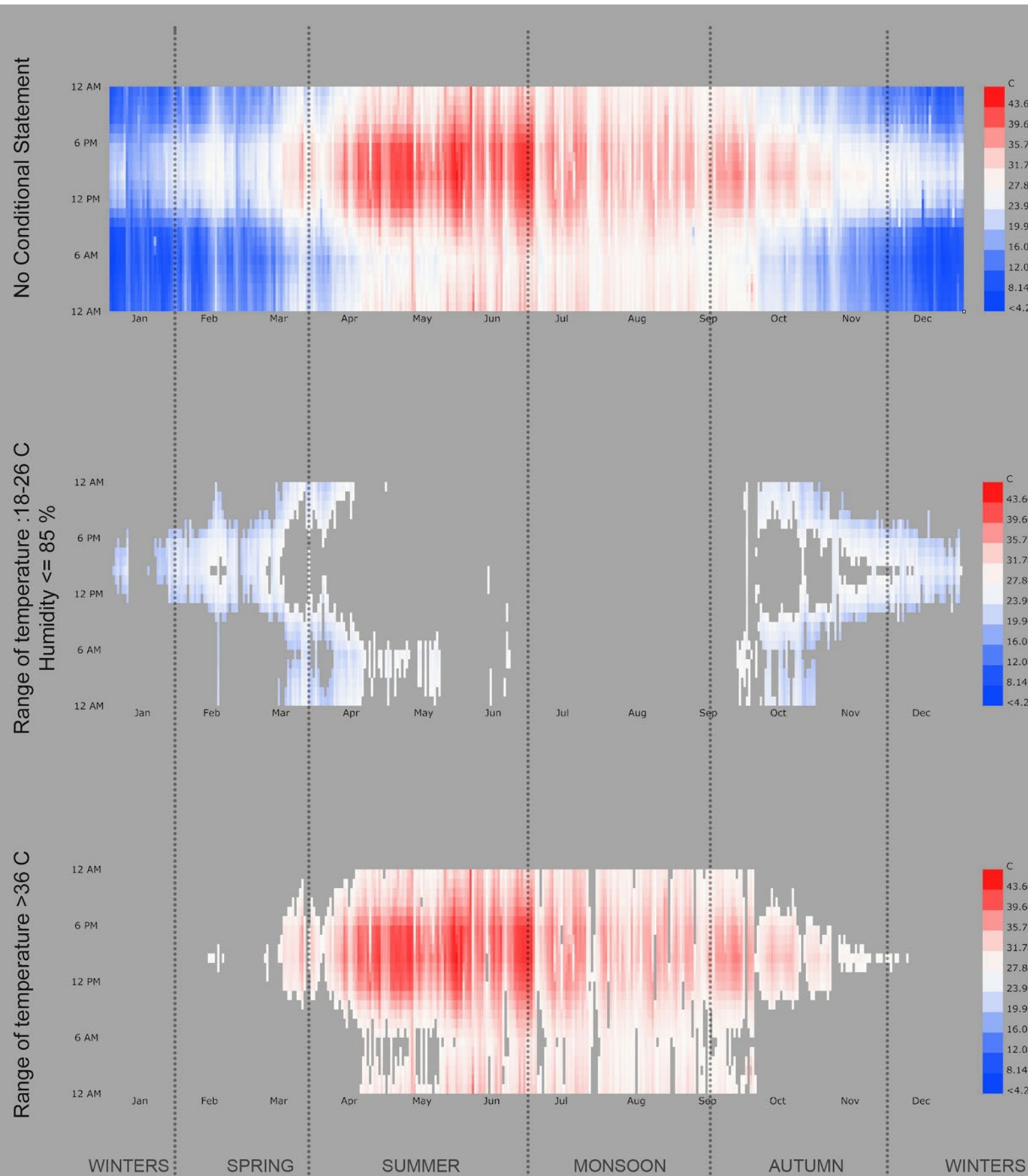
Plan



Dry Bulb Temperature

Temperature in Delhi ranges from 3 to 44 C

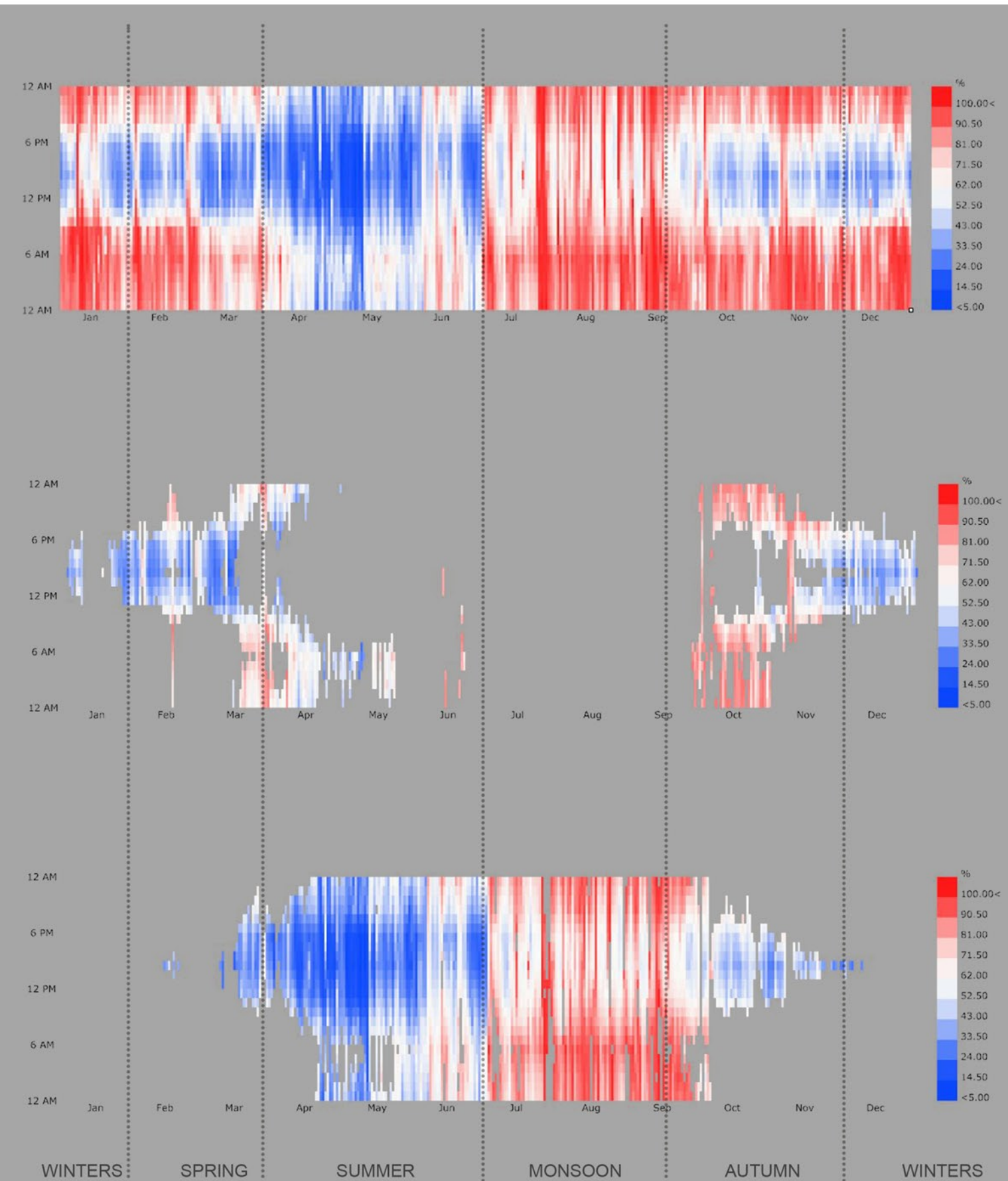
The comfortable range can be only obtained during the months:
February to April and October to November.
The most uncomfortable and hottest months are April mid to summer.

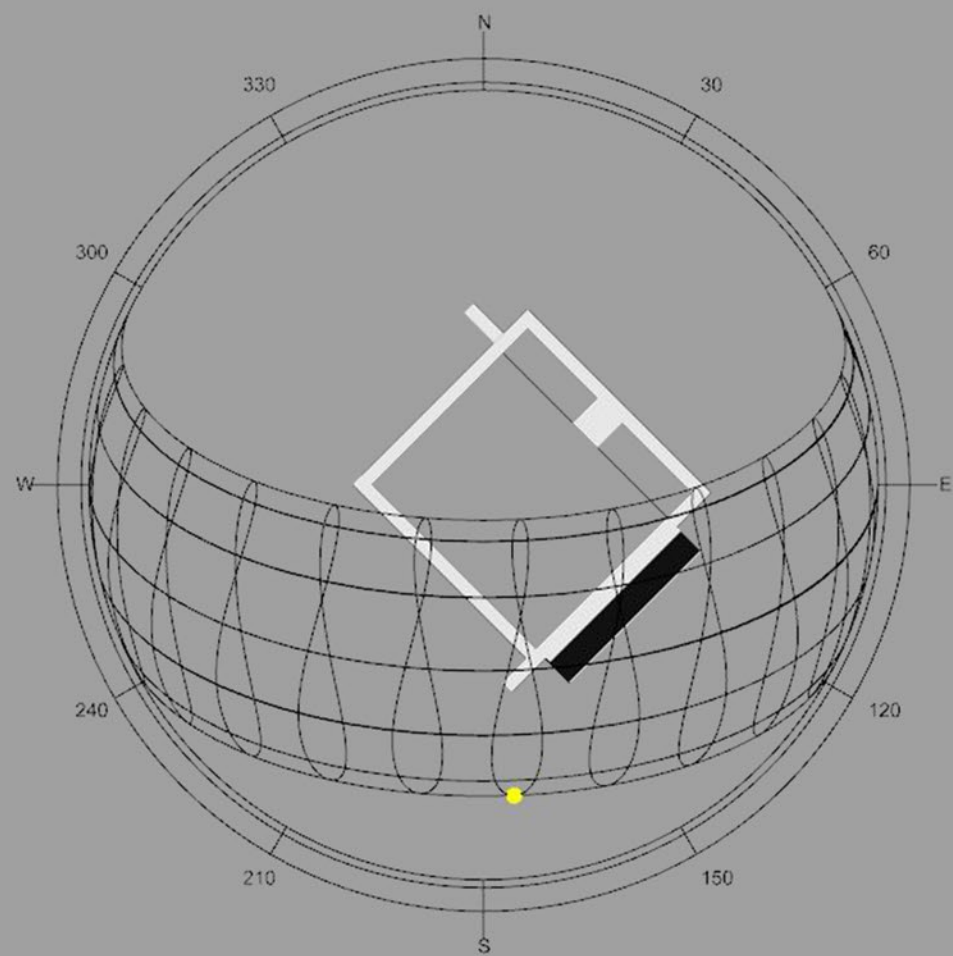


Relative Humidity

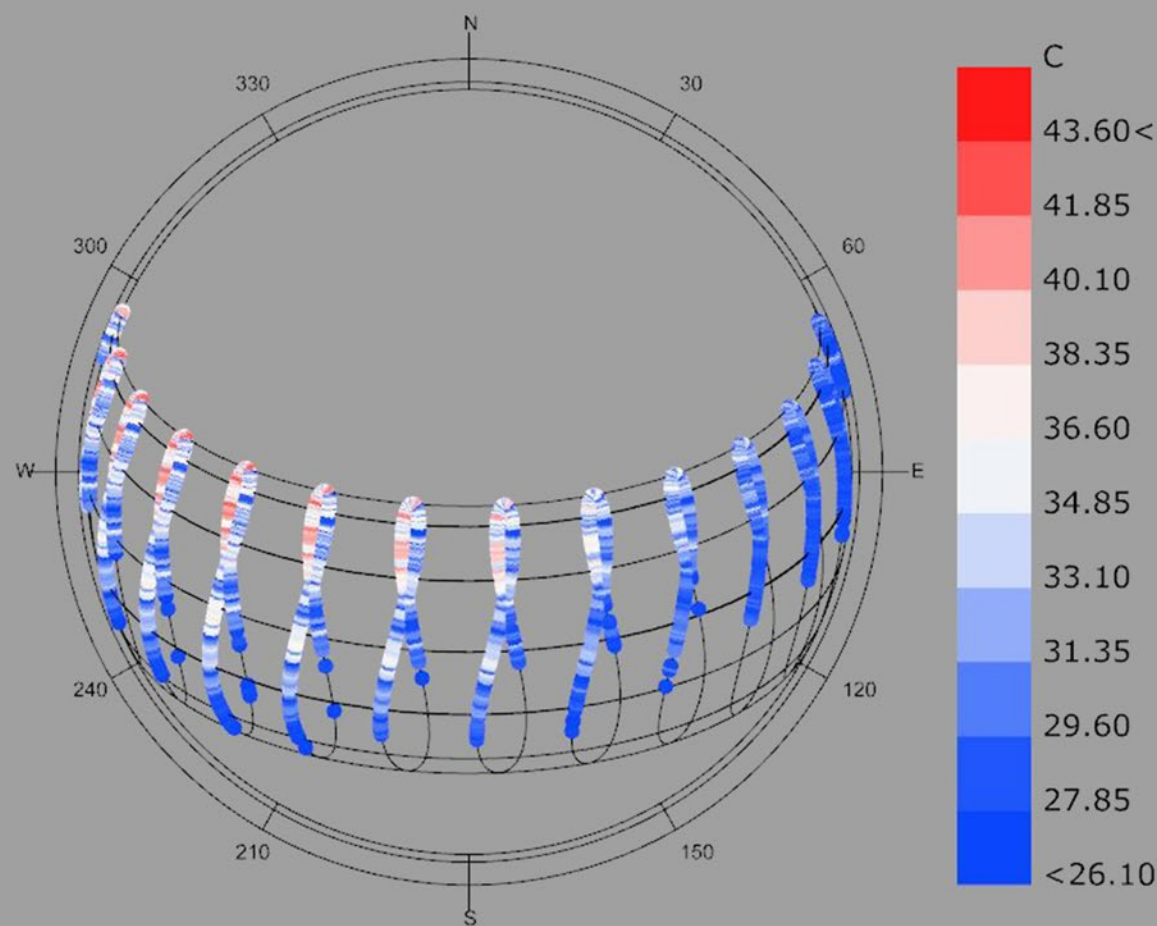
It ranges from 5 to 100 %

During the months February to April and September to November, we can use ventilation to cool the house. But during the hottest months, we need to avoid the direction of the wind.

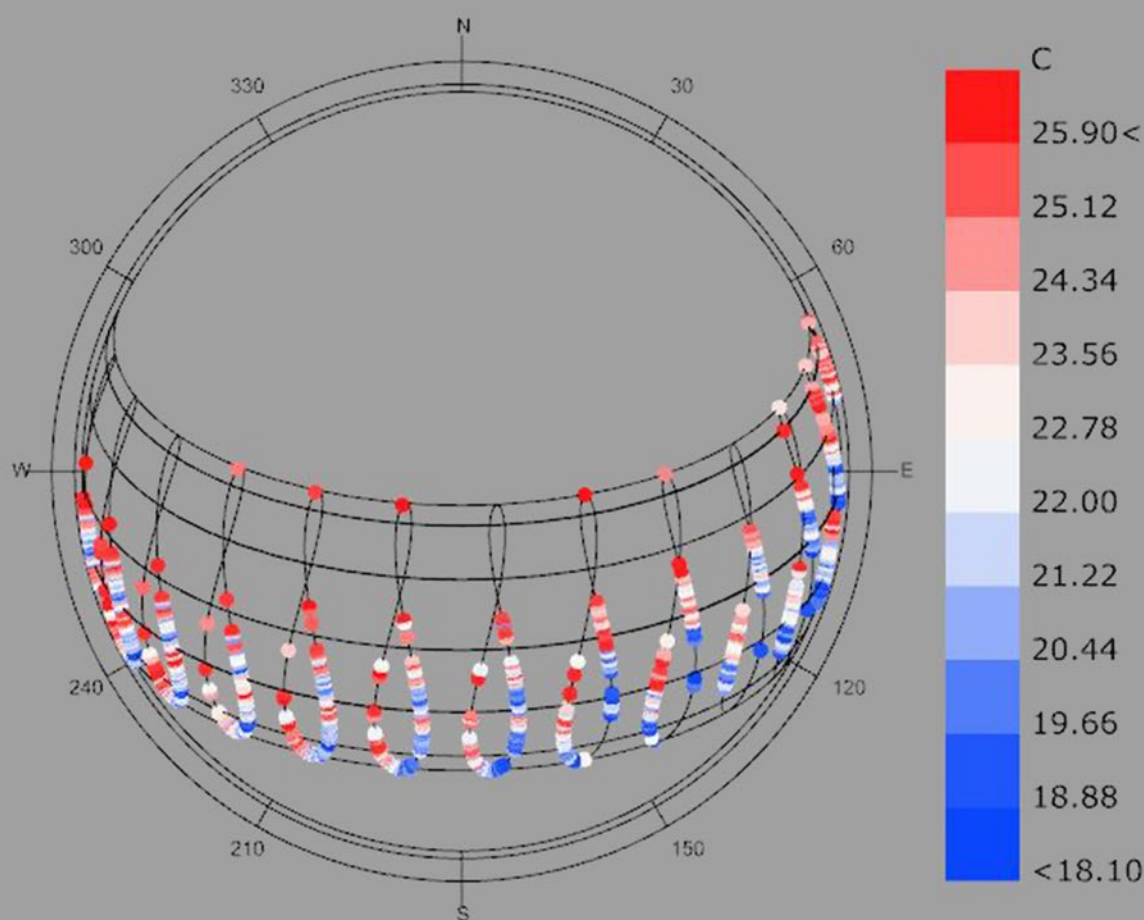




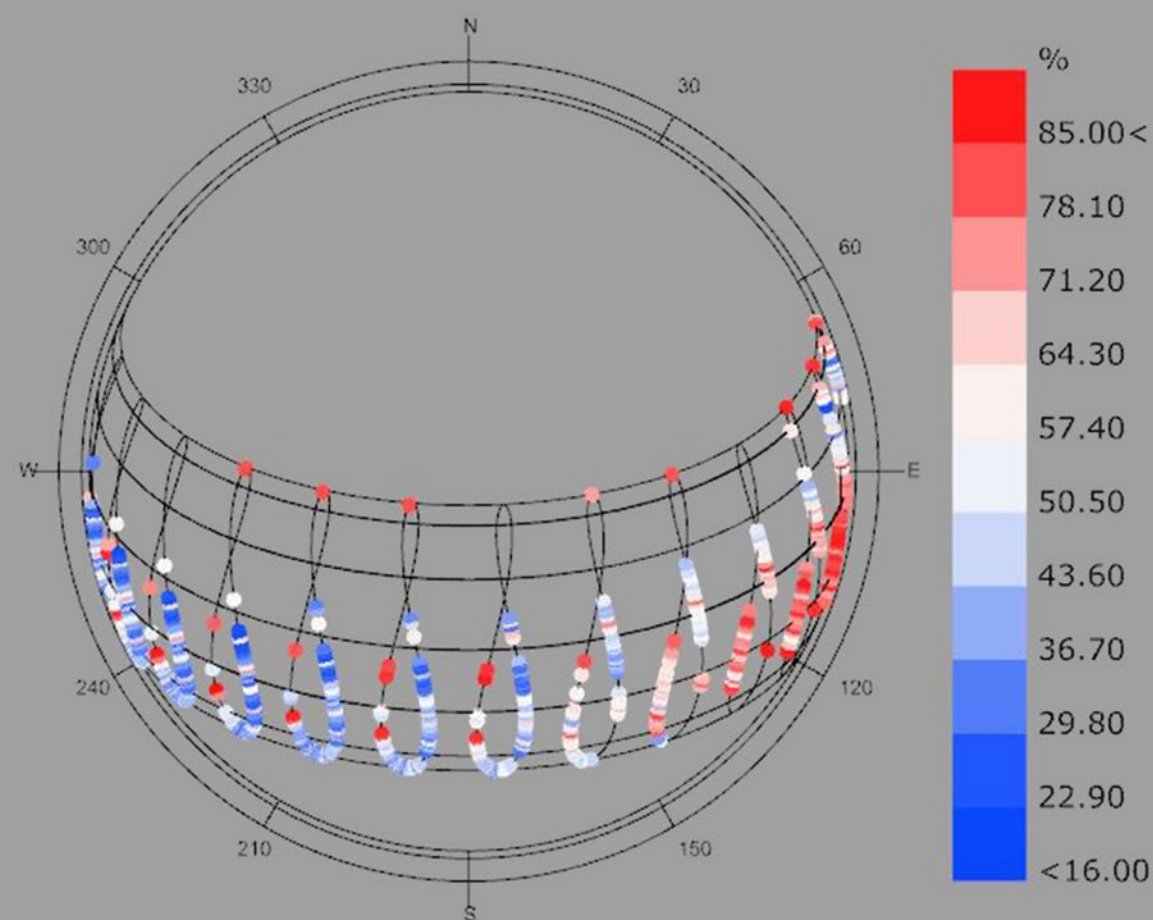
Sun path overlaid on the room



Sun Path when Dry Bulb Temperature : >26 C



Sun Path when Dry Bulb Temperature : 18-26 C



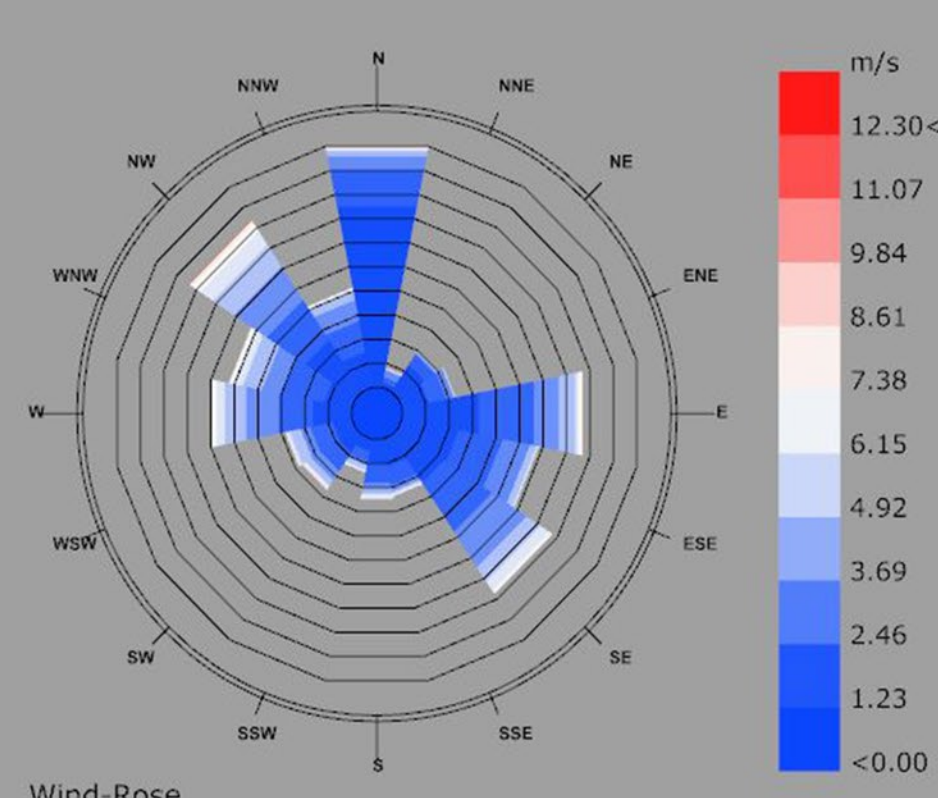
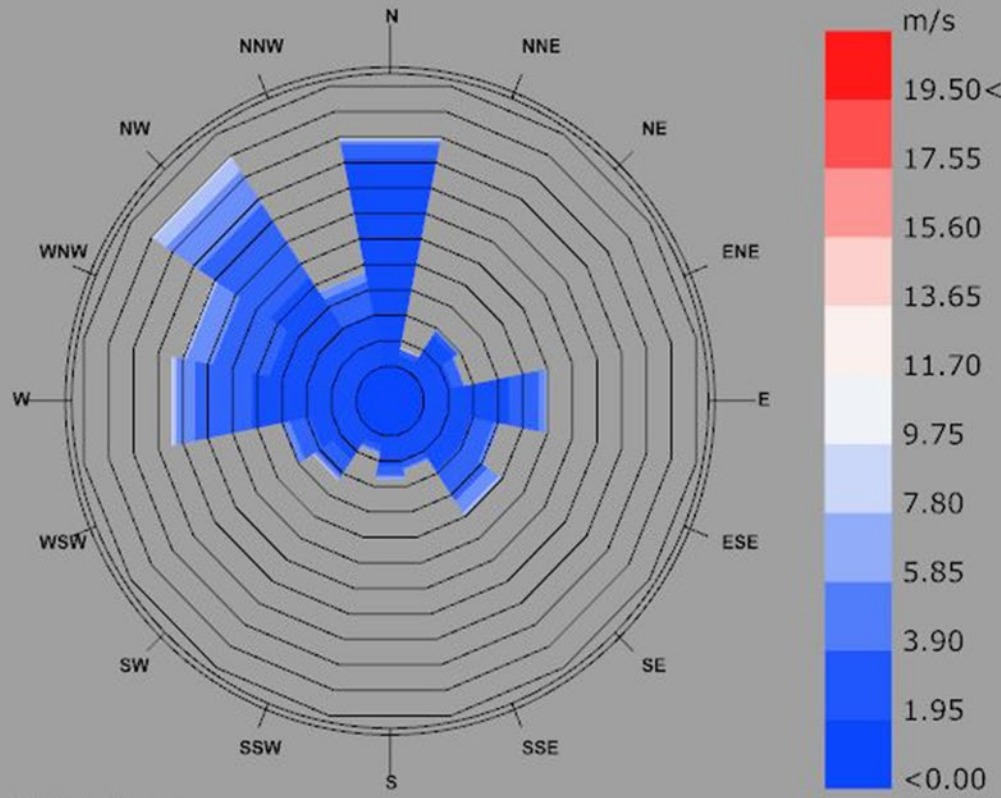
Sun Path when Relative Humidity <85%

Sun Path

The sun path showed that during the hottest months, we get most sun after noon, we need to avoid the sun during that time in these months.

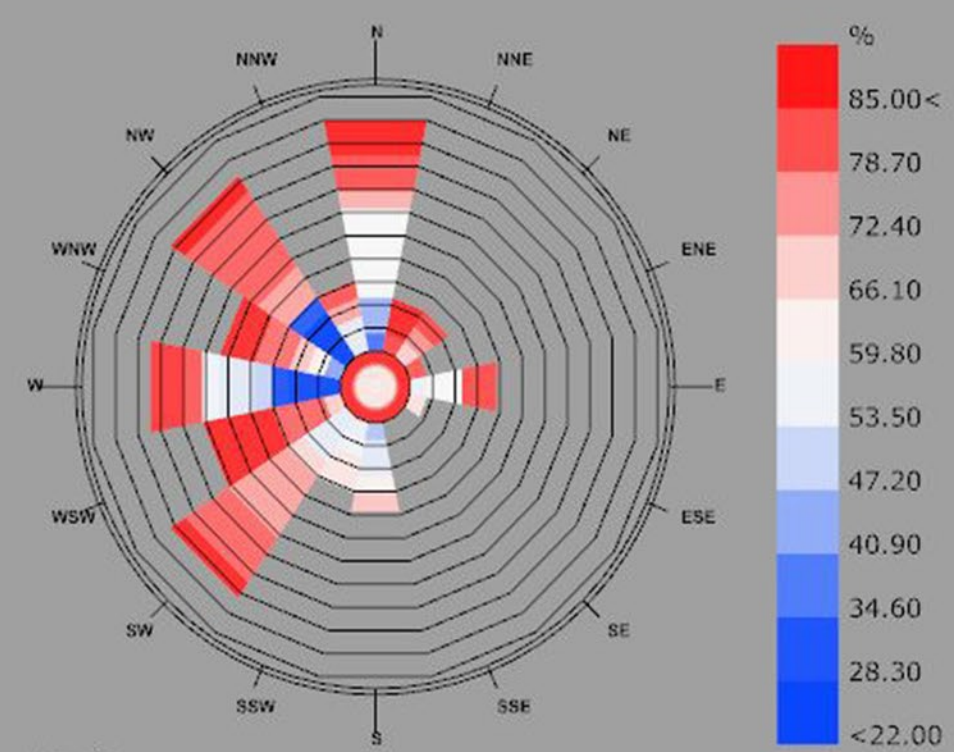
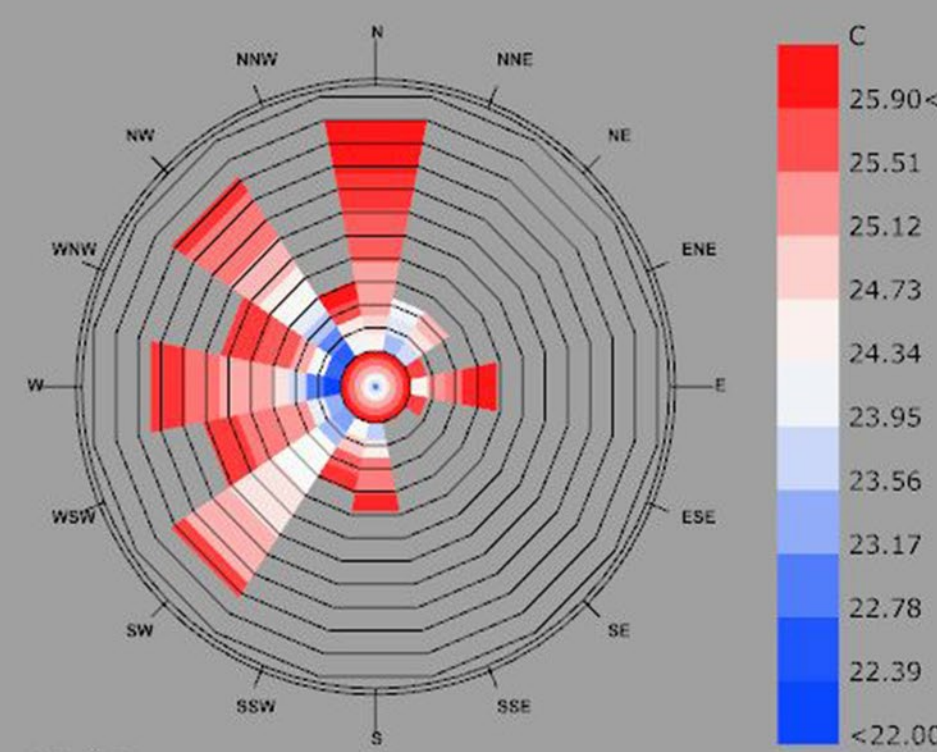
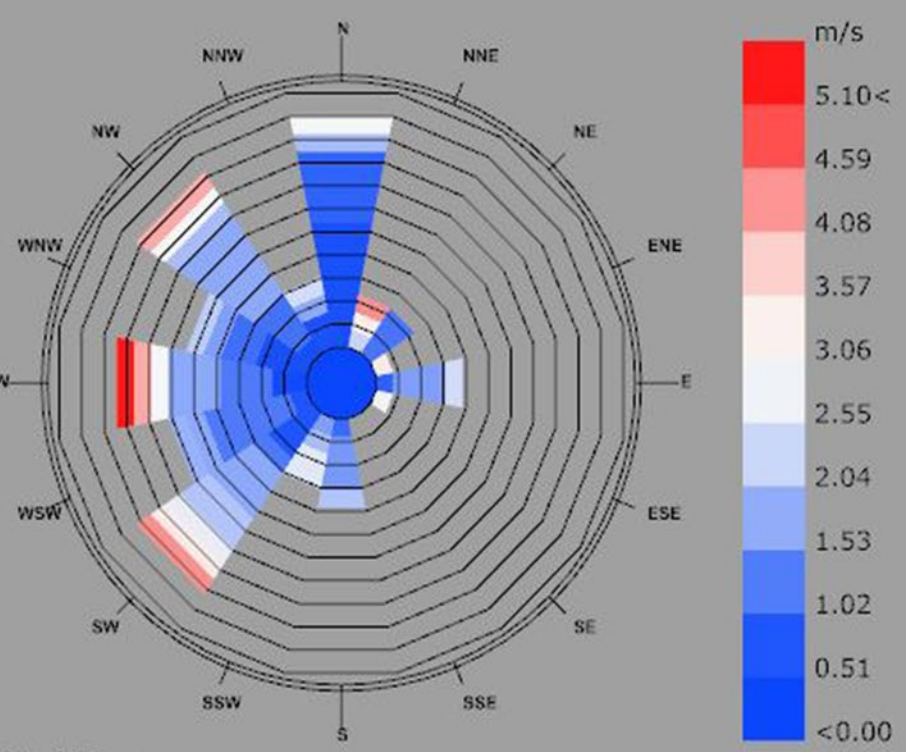
Thus it has more radiation during this time. It is better to provide sun shade facilities to cool down the temperature of the room.

During the comfortable time period in the year, the required sunshine is more before noon, we can capture the sun radiation before noon.



Wind Rose Diagram

The predominant wind during the year is from the North and North West directions. During the hottest months, we also have winds from the Southeast and east Direction, these are the winds which we need to avoid. During the comfortable period of these months, we get winds from the direction of west and north. But the Windows of the room does not lie in this direction.

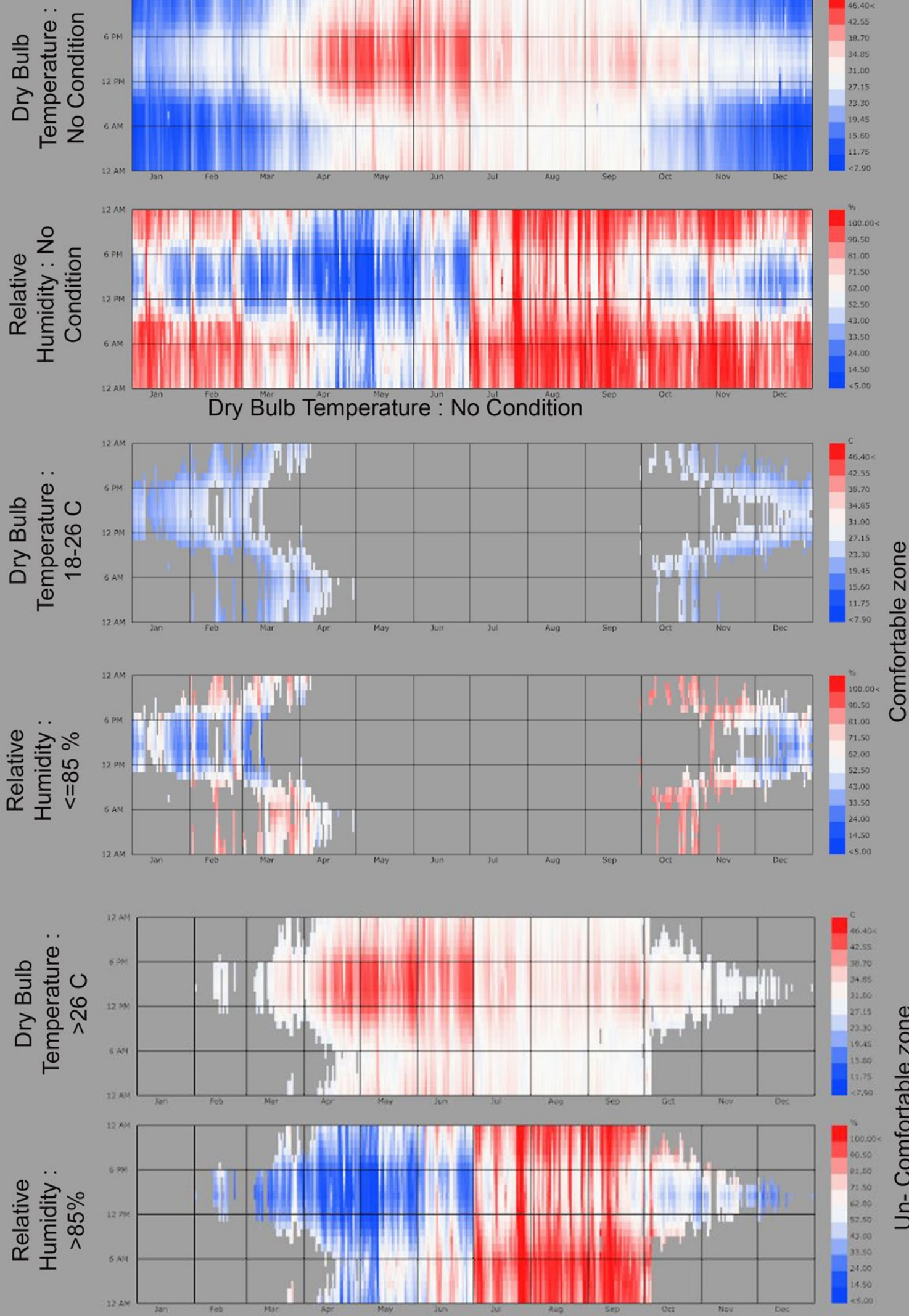


Conditional Selection Applied:
18<Dry Bulb Temperature<26
and Relative Humidity<=85
121.0 hours of total 8760.0 hours (1.38%).
121.0 hours of analysis period 3672.0 hours (3.30%).

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18<Dry Bulb Temperature<26
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18<Dry Bulb Temperature<26
and Relative Humidity<=85
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121.0 hours of analysis period 3672.0 hours (3.30%).

Data for 2050



Recommendations

The three passive strategies to make the environment more comfortable can be :

1. To keep the windows open until noon to have fresh air inside the room and close these windows after noon to avoid hot air flowing from the direction of Southeast.
2. Provide vertical overhangs along with the horizontal overhangs to reduce the penetration of heat and also to use to smart glasses or reflective glasses instead of normal glass.
3. we can provide a strip of greenery along the windows so that it can provide shade and help air to cool down before entering.

Effect of Climate Change

(referred 2050 data)

The recommendation would be altered with the change in climate. we would need to keep windows closed before noon as well, to avoid solar heat gains. The length of hottest months would increase and we need some of these recommendations for longer time period (April to October) We need to provide shading to cover sun after 9 am. Also, we cannot provide water body in front of the window as humidity tend to increase in future.

Sunpath Diagram

