

# Climate Analysis of Philadelphia

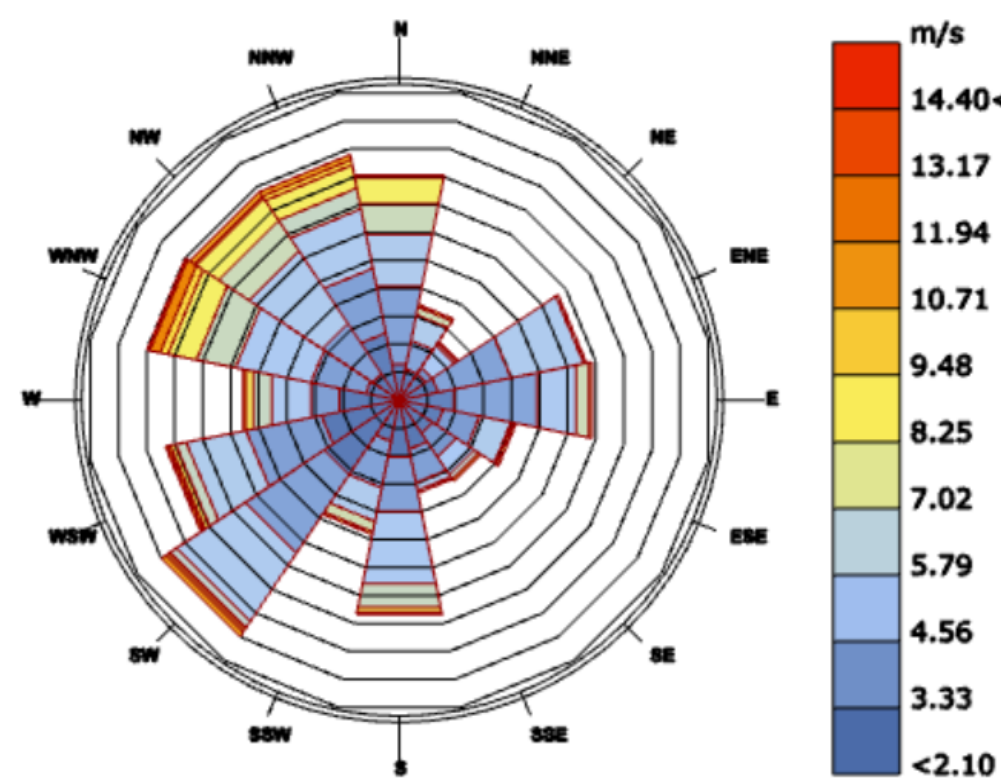
Yunqian Li

The three most important passive strategies in this climate for my "dream room" are thermal mass, passive shading, and natural ventilation.

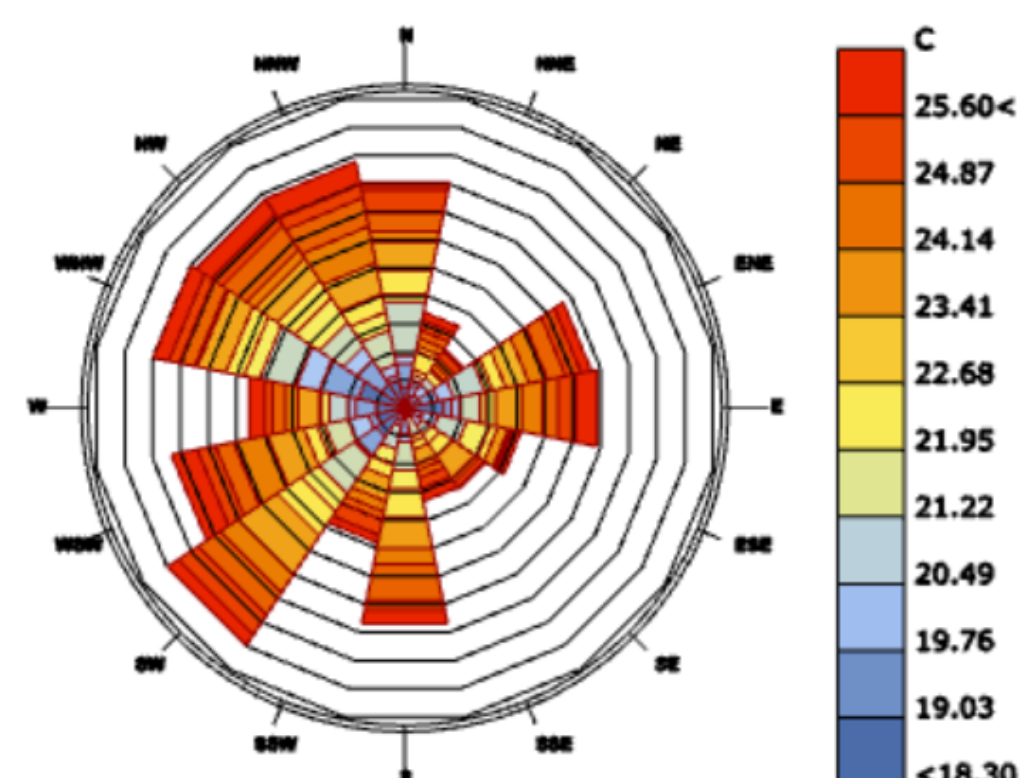
The dry-bulb temperature in Philadelphia ranges from -3 to 33 Celcius degree. The relative humidity ranges from 5% to 90%.

My ideal dry bulb temperature is 20-25 Celcius degree, and <80% humidity. The wind should help natural ventilation in the summer.

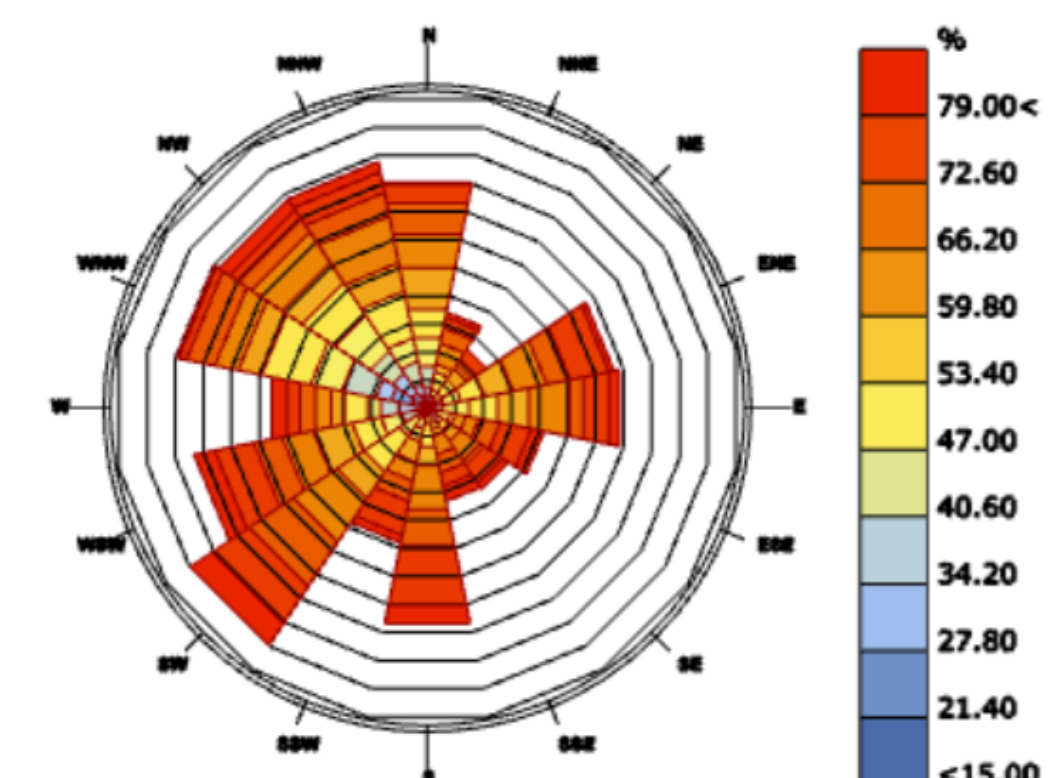
According to the windrose below, the ideal direction of wind of my "dream room" is from northwest or northeast. Both direction is good for natural ventilation in the summer.



Wind-Rose  
Philadelphia International Ap\_PA\_USA  
1 APR 1:00 - 30 SEP 24:00  
Hourly Data: Wind Speed (m/s)  
Calm for 0.00% of the time = 0 hours.  
Each closed polyline shows frequency of 0.2%. = 10 hours.  
...  
Conditional Selection Applied:  
18 < Dry Bulb Temperature < 26  
and Relative Humidity < 80  
and Wind Speed > 2  
1095.0 hours of total 8760.0 hours (12.50%).  
1095.0 hours of analysis period 4392.0 hours (24.93%).

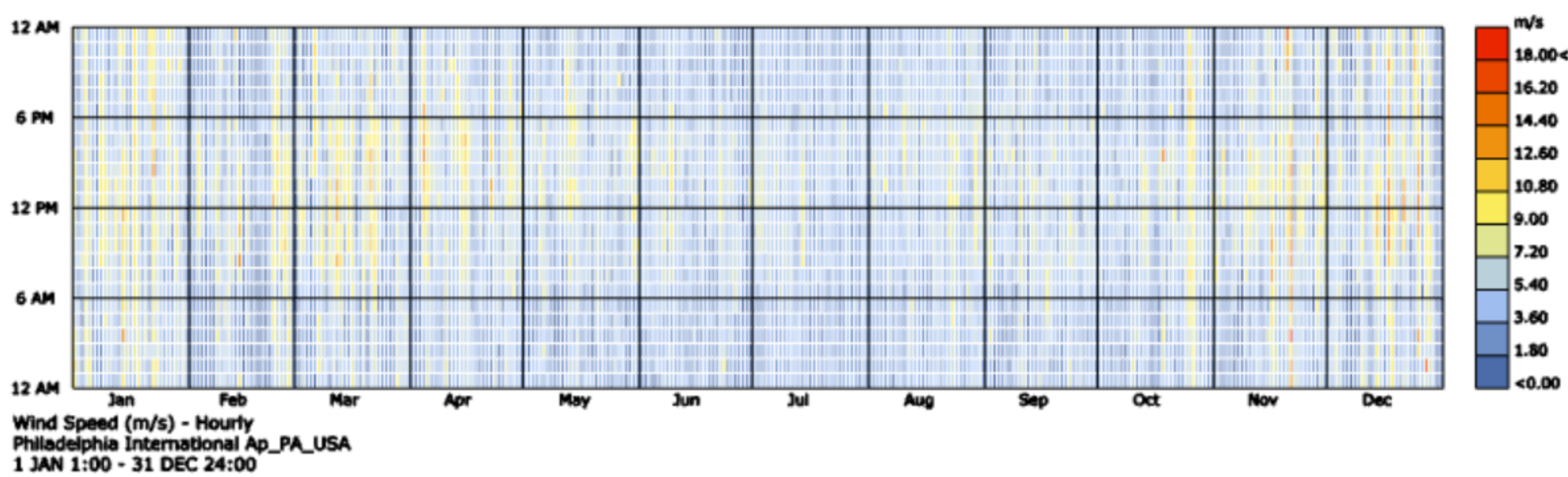
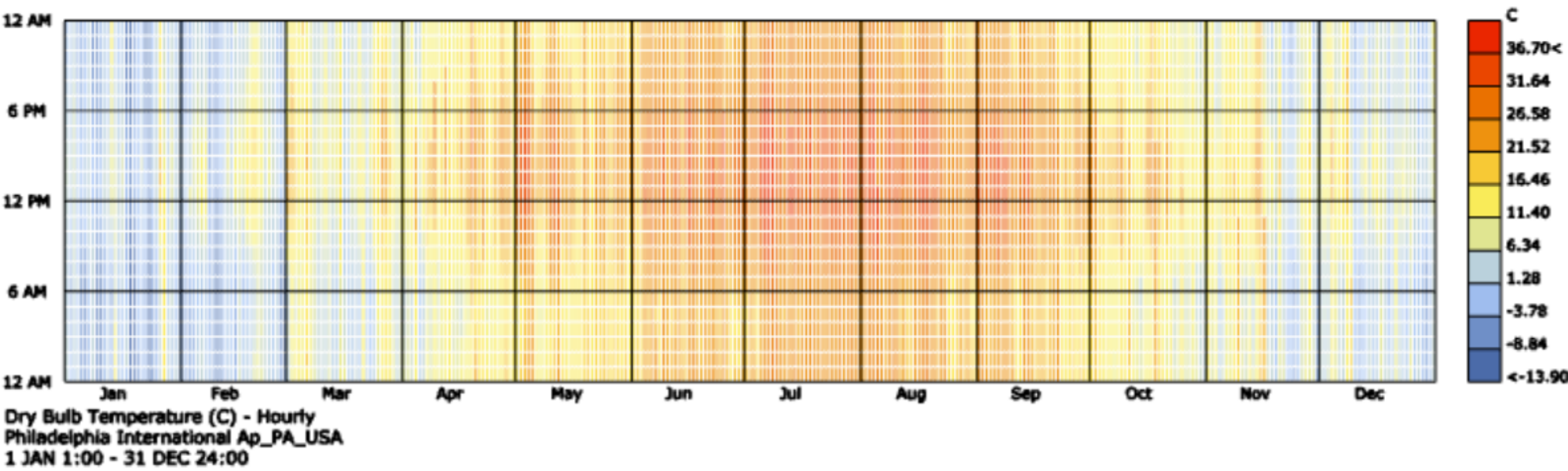
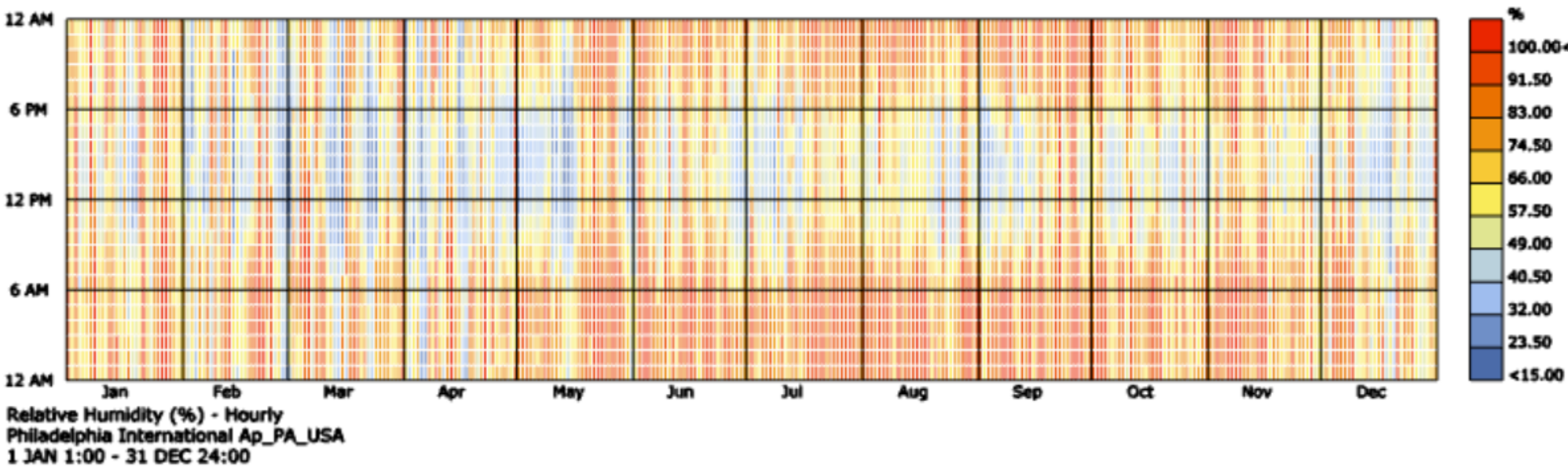


Wind-Rose  
Philadelphia International Ap\_PA\_USA  
1 APR 1:00 - 30 SEP 24:00  
Hourly Data: Dry Bulb Temperature (C)  
Calm for 0.00% of the time = 0 hours.  
Each closed polyline shows frequency of 0.2%. = 10 hours.  
...  
Conditional Selection Applied:  
18 < Dry Bulb Temperature < 26  
and Relative Humidity < 80  
and Wind Speed > 2  
1095.0 hours of total 8760.0 hours (12.50%).  
1095.0 hours of analysis period 4392.0 hours (24.93%).



Wind-Rose  
Philadelphia International Ap\_PA\_USA  
1 APR 1:00 - 30 SEP 24:00  
Hourly Data: Relative Humidity (%)  
Calm for 0.00% of the time = 0 hours.  
Each closed polyline shows frequency of 0.2%. = 10 hours.  
...  
Conditional Selection Applied:  
18 < Dry Bulb Temperature < 26  
and Relative Humidity < 80  
and Wind Speed > 2  
1095.0 hours of total 8760.0 hours (12.50%).  
1095.0 hours of analysis period 4392.0 hours (24.93%).





Psychrometric Chart  
Philadelphia International Ap\_PA\_USA  
1 JAN 1:00 - 31 DEC 24:00

