

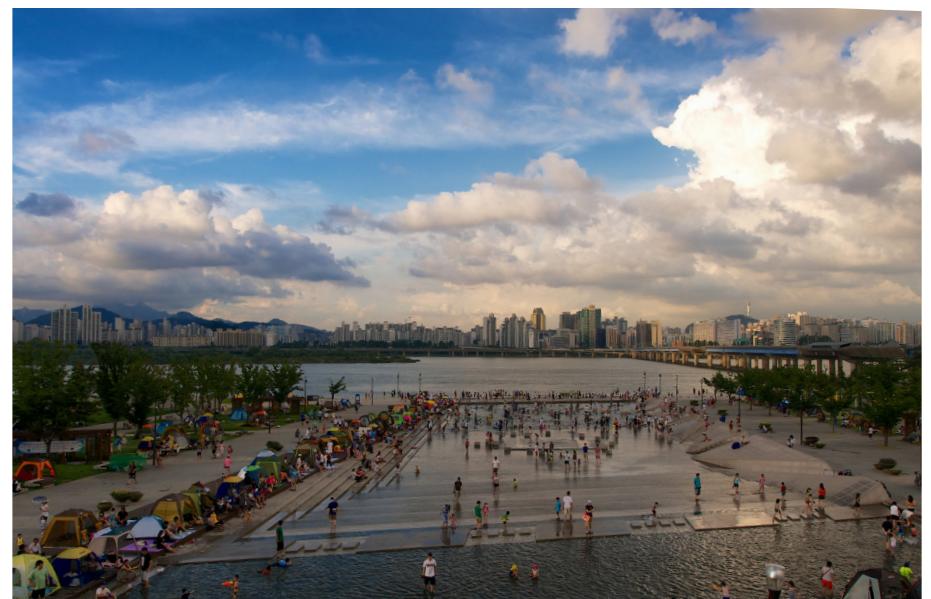
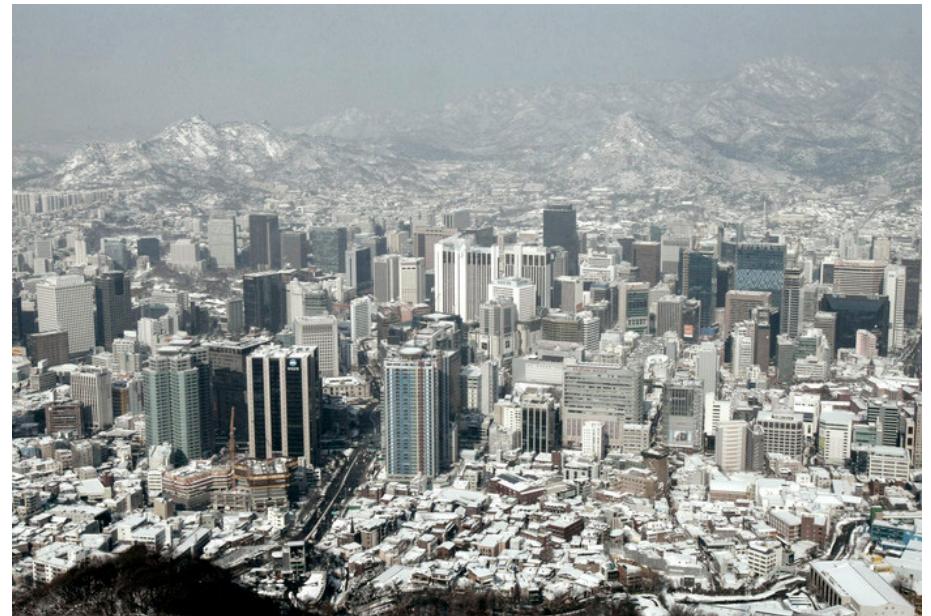


## Seoul Weather Analysis for Passive Design Strategies *Mixed Use*

by Rajika Maheshwari | Arch 753

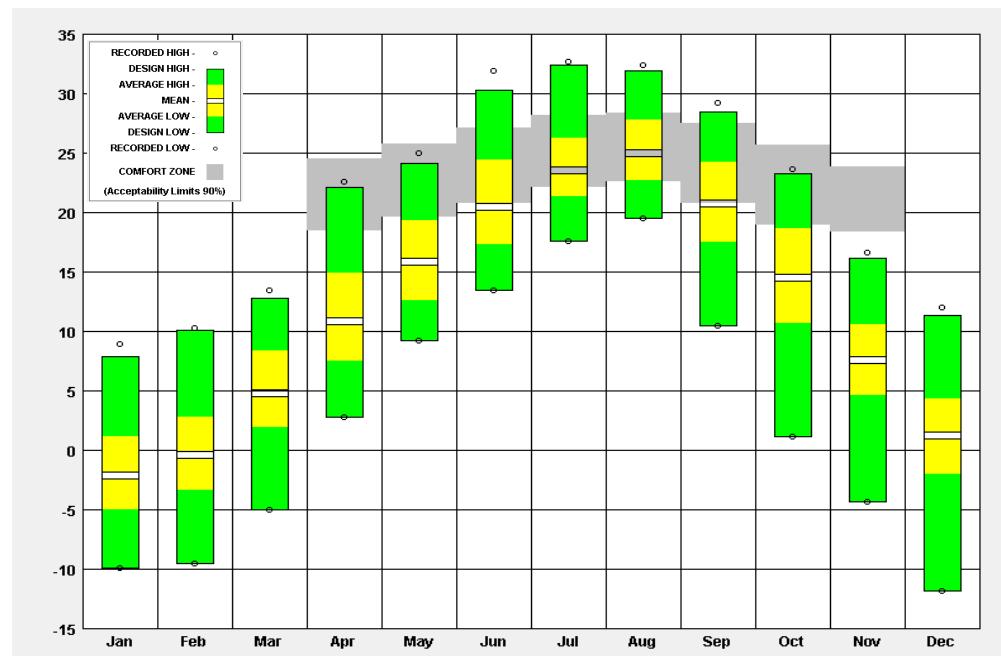
# Location & Project Information

- Seoul is the capital of the Republic of Korea and occupies the southern portion of the Korean Peninsula in Asia
- This mountainous peninsula is flanked by the Yellow Sea to the west, and Sea of Japan to the east
- South Korea has humid continental climate and a humid subtropical climate
- It is affected annually by the East Asian monsoon, with precipitation heavier in summer during a short rainy season in June and July.
- The building will be a mixed use medium scale in the heart of Seoul's Yeongdeungpo neighborhood.
- We are designing for offices and residential units

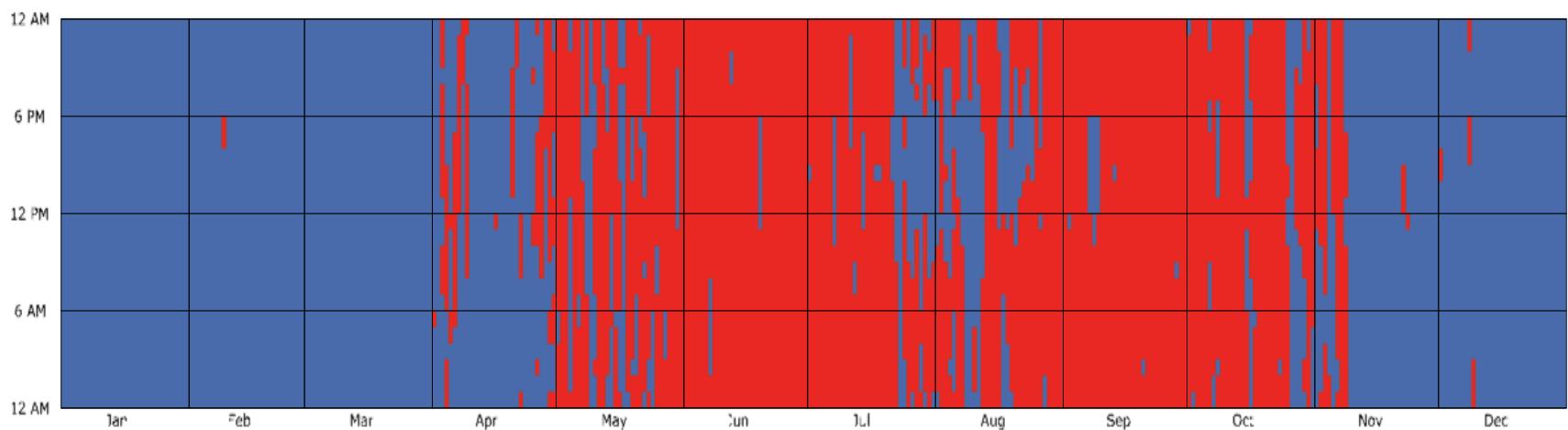


# Temperature & Outdoor Comfort

- Winters can be extremely cold, in Seoul the average January temperature range is -6 to 3 °C
- Summer can be uncomfortably hot and humid, the average August temperature range is 22 to 30 °C.
- November-April will require additional heating to reach the comfortable indoor temperatures
- Peak summer months of July and August will require cooling to maintain comfortable.



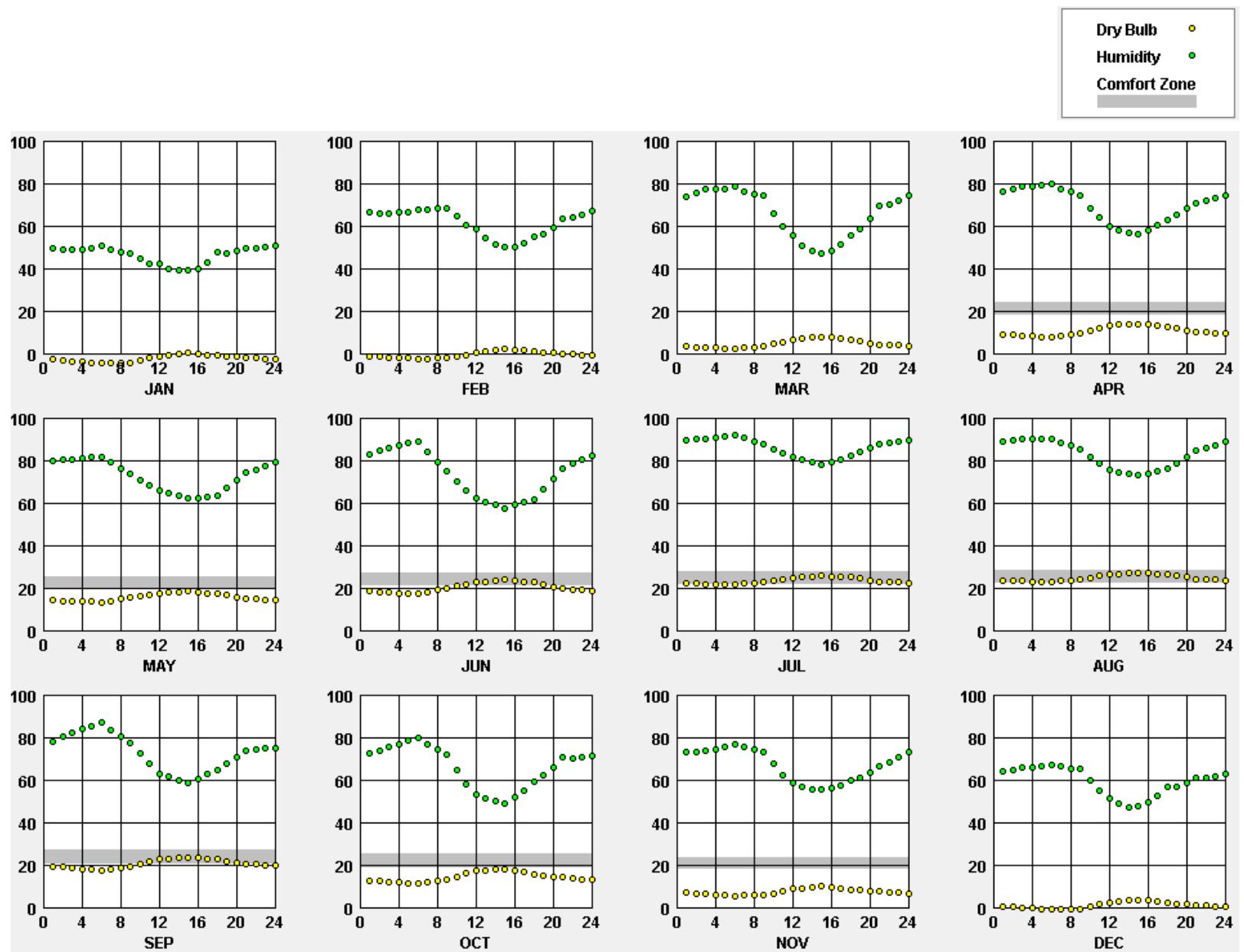
Comfortable or Not ?





## Humidity

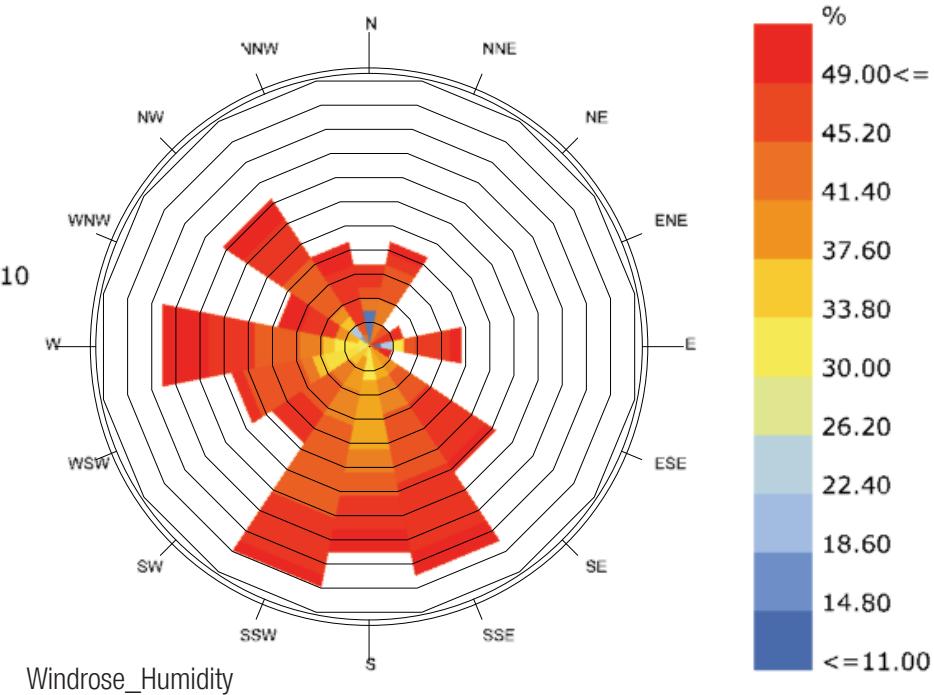
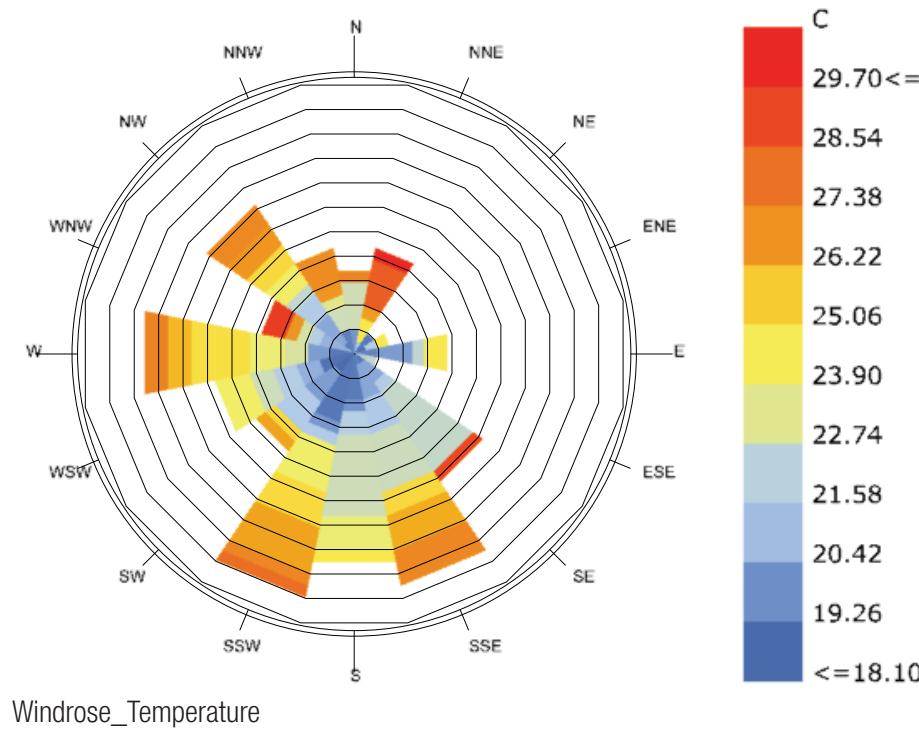
- Average annual humidity in Seoul is 68.7%, getting as high as 95% in the summer months.
- Dehumidification will be required in the summer



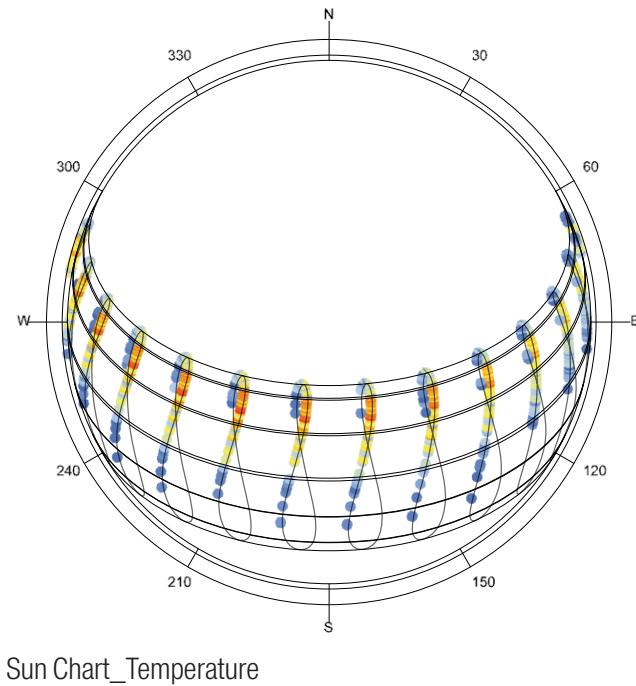


## Wind & Ventilation

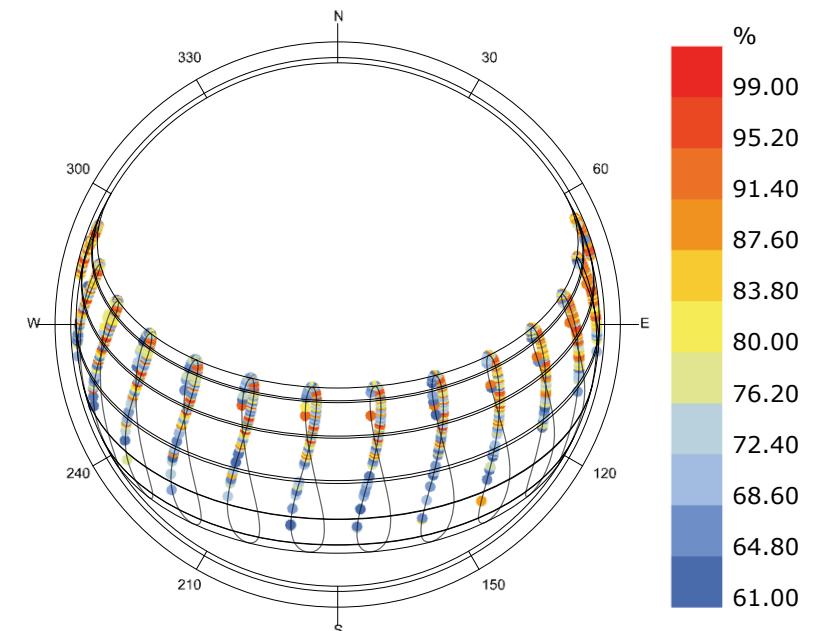
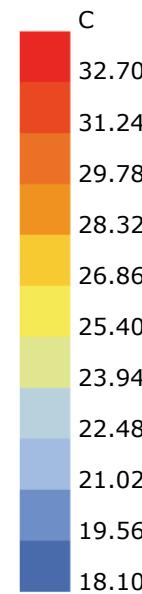
- Seoul experiences strong, cool winds from the South.
- In early summer months, natural ventilation can be used to cool building if they are oriented on the North-South axis and are well shaded



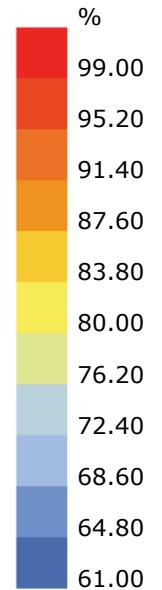
# Sun Charts



Sun Chart\_Temperature



Sun Chart\_Humidity



## Passive Design Strategies

- Climate is pleasant in the summer months and extremely uncomfortable in the winter months. Hence building should employ thermal mass to keep the building warm during those frigid months
- Using the windrose we see that Seoul faces strong and relatively cool winds from the south. Hence the proposed buiding should face south to take advantage of natural ventilation in the summer months.
- The sun chart shows the time when the sun is at its peak and can provide inputs for calculating external shading and awnings that can help keep the building cool in the summer months