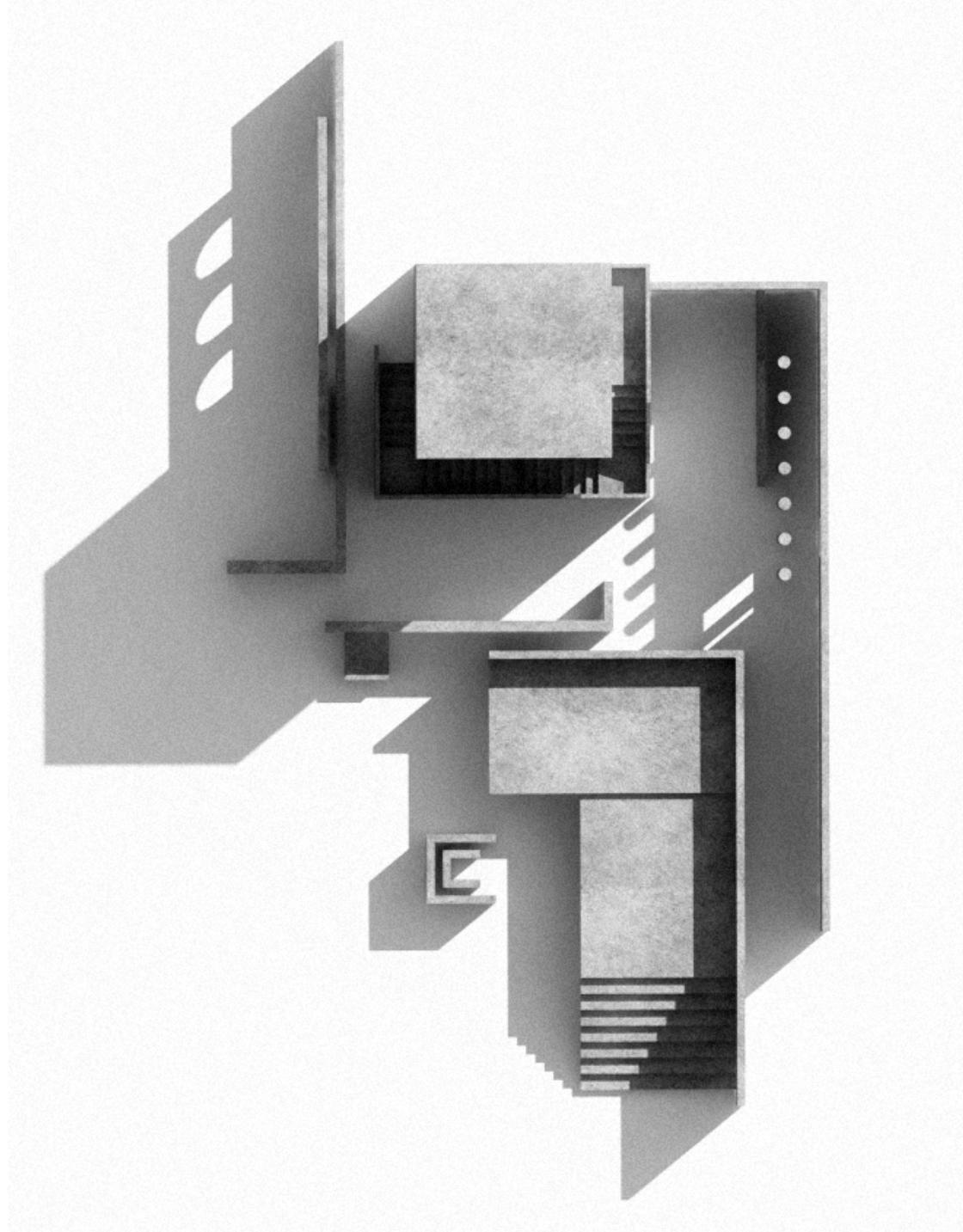


LIGHT SIGNATURES

Data Vis & Info Aesthetics

Claire Song



"Architecture From a Dream"
by Douglas Ramos

LIGHT VISUALIZATION PROPOSAL

Introduction:

This project is purposed to examine historical architectures around the world through the lens of the light quality of the site. I will work with various daylight data like the amount of sunshine, skylight conditions, or solar path. The goal of the visualization is to create a unique light signature for each historical site.

Not many built constructions have been examined in terms of the light condition of the site. However, light is one of the most important elements of the space that creates the architectural experience of the moment. Visualizations that show the changes in light of a specific site would not only be interesting but also be useful for a better understanding of the construction and the site.

Some of the questions that I have are:

- Is there a structure that was initially designed based on the much consideration of annual daylight?
- If so, what is the annual light quality of the architectural site like, and how was it applied to the architecture?
- Is there any close relationship between the light quality of the site and the qualities of apertures on the wall?
(The number or the direction of apertures, the shade form, etc.)

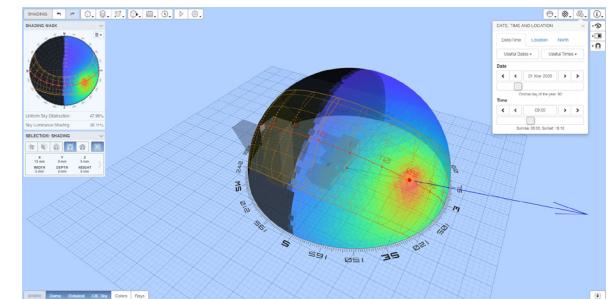
Visualization Plan:

I am going to set a list of monuments around the world as a research scope, and first collect the precise location data(latitude and longitude) of each architecture. There are many applications and software such as 'sun surveyor' or 'Climate consultant,' that I can use with location data, and they would be the main data source for the project. (Figure 1) I would collect various light data of the site such as the length of daytime or an annual sun path of a certain location on the earth. The final visualization will be a calendar-like chart with x and y-axis. The X-axis indicates months and the y-axis indicates times of a day. I would also collect the data about the building aperture and examine how the two data sets are related to each other. Based on the careful observation of the two data sets, I would include the new findings and facts to the previous daylight chart in proper visualizations.

Precedent & Reference:

I was inspired by the "Hello, sun" project by a design company Small Multiples. It is a graphic clock that shows how the sun and the moon move during a day in various cities around the world. I think the visualization is not only aesthetically successful, but it also provides solar path information with an intuitive format that makes the chart readable and fun. "Shooting signature" is another inspirational precedent. I like the idea of creating a visual signature of different player's shooting style. Referencing those precedents, I also want to create a series of light signatures that represent the light quality of an architectural site.

(Figure 1)



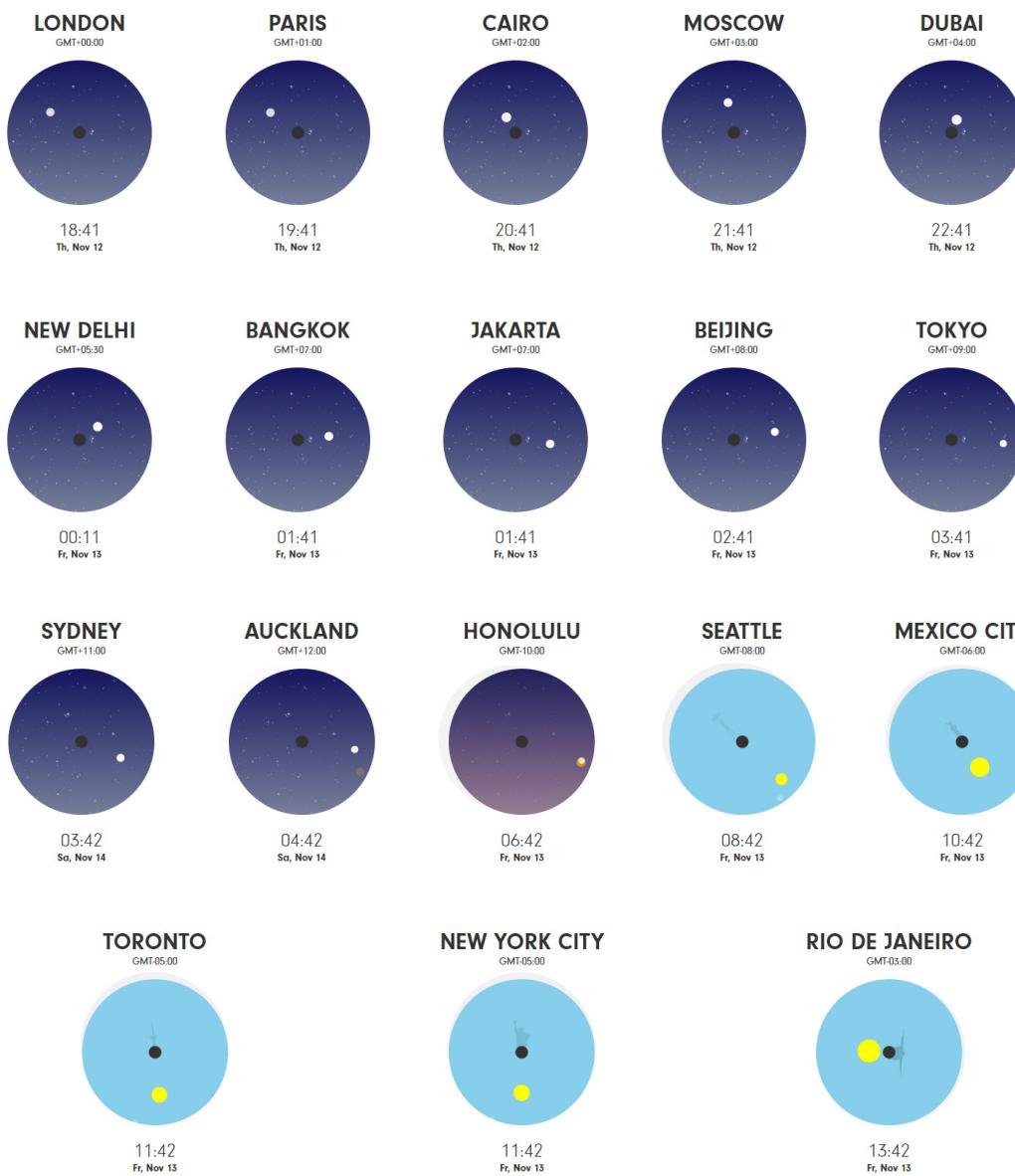
RELATED WORK

Shooting Signatures

2013-14 Top Scorers



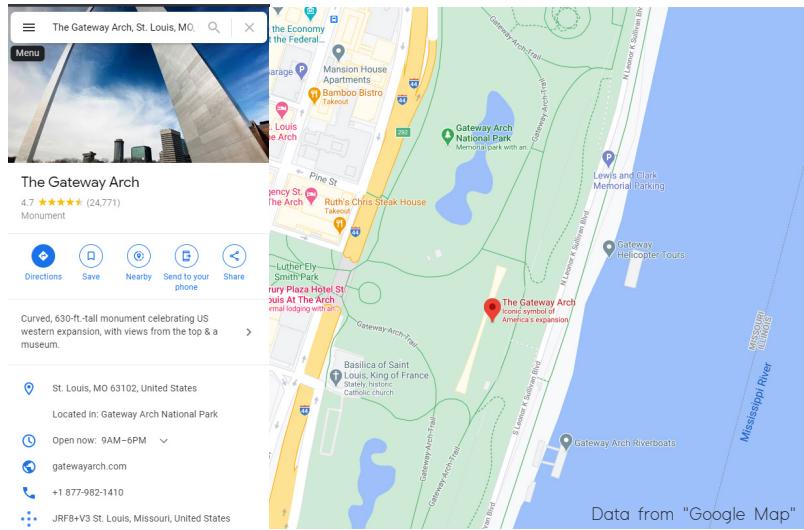
"Shooting Signature" Project by Peter Beshai
<https://twitter.com/pbesh/status/551135847911661568>



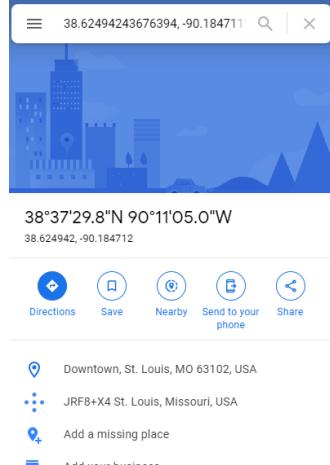
“Hello, sun” Project by SMALL MULTIPLES
<https://smu-sundials.netlify.app/>

DATA SOURCE

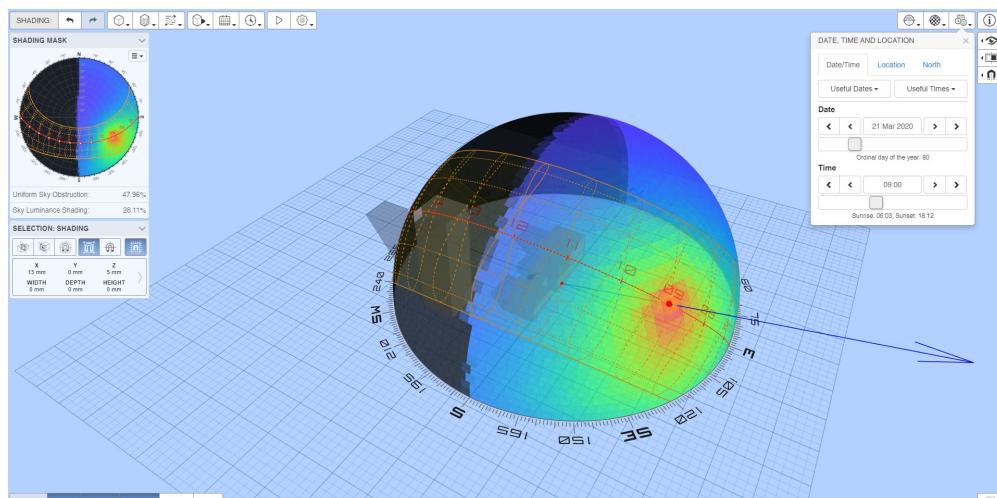
Location Data



Latitude / Longitude



Sun Path & Shadow Simulation



Sun Rise/Set Time Data

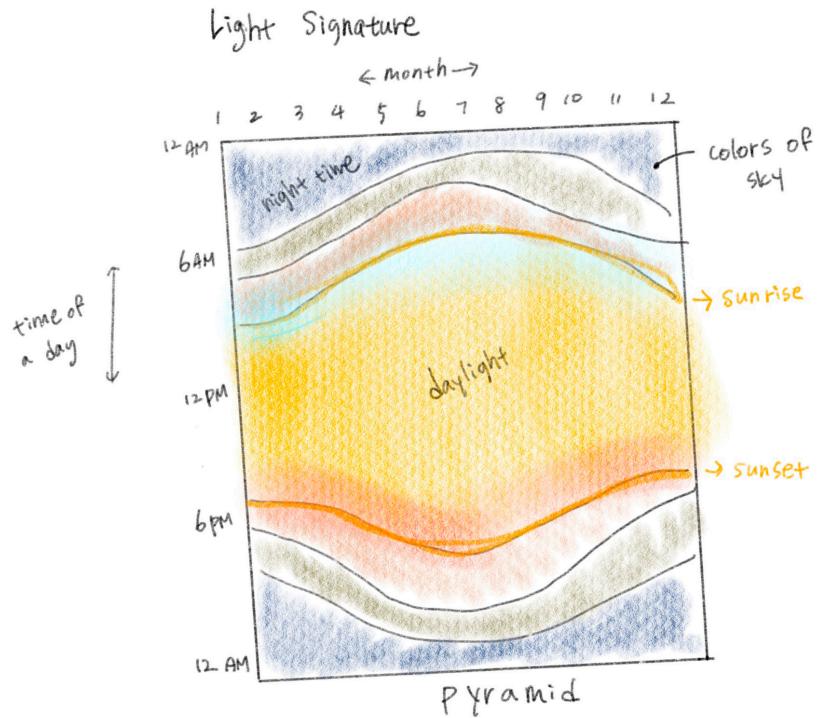
37.477196°N 126.978955°E			
1044-17 Sadang 1(il)-dong, Dongjak-gu, Seoul, South Korea · GMT+9*			
SUN	↑ ↓	Day Length	+/-
2020/02/23	7:12 AM	6:18 PM	11h 6m 4s +2m 18s
2020/02/24	7:11 AM	6:19 PM	11h 8m 24s +2m 20s
2020/02/25	7:10 AM	6:20 PM	11h 10m 43s +2m 20s
2020/02/26	7:08 AM	6:21 PM	11h 13m 3s +2m 20s
2020/02/27	7:07 AM	6:22 PM	11h 15m 24s +2m 20s
2020/02/28	7:06 AM	6:23 PM	11h 17m 45s +2m 21s
2020/02/29	7:04 AM	6:24 PM	11h 20m 7s +2m 22s
2020/03/01	7:03 AM	6:25 PM	11h 22m 29s +2m 22s
2020/03/02	7:02 AM	6:26 PM	11h 24m 51s +2m 22s
2020/03/03	7:00 AM	6:27 PM	11h 27m 14s +2m 23s
WED DEC 2 2020 6:25 PM			
24h	12 PM	6 PM	9 PM

Color Palette

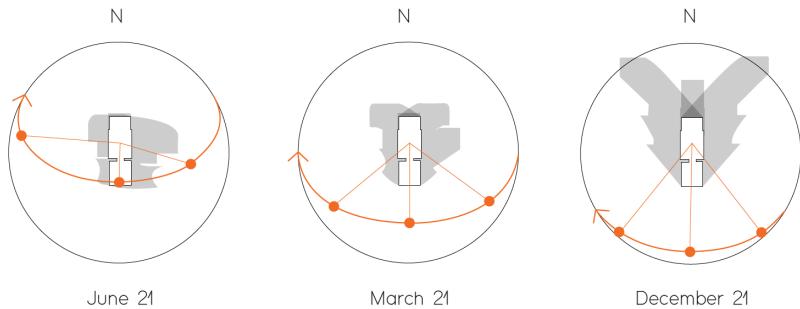


DESIGN PROCESS

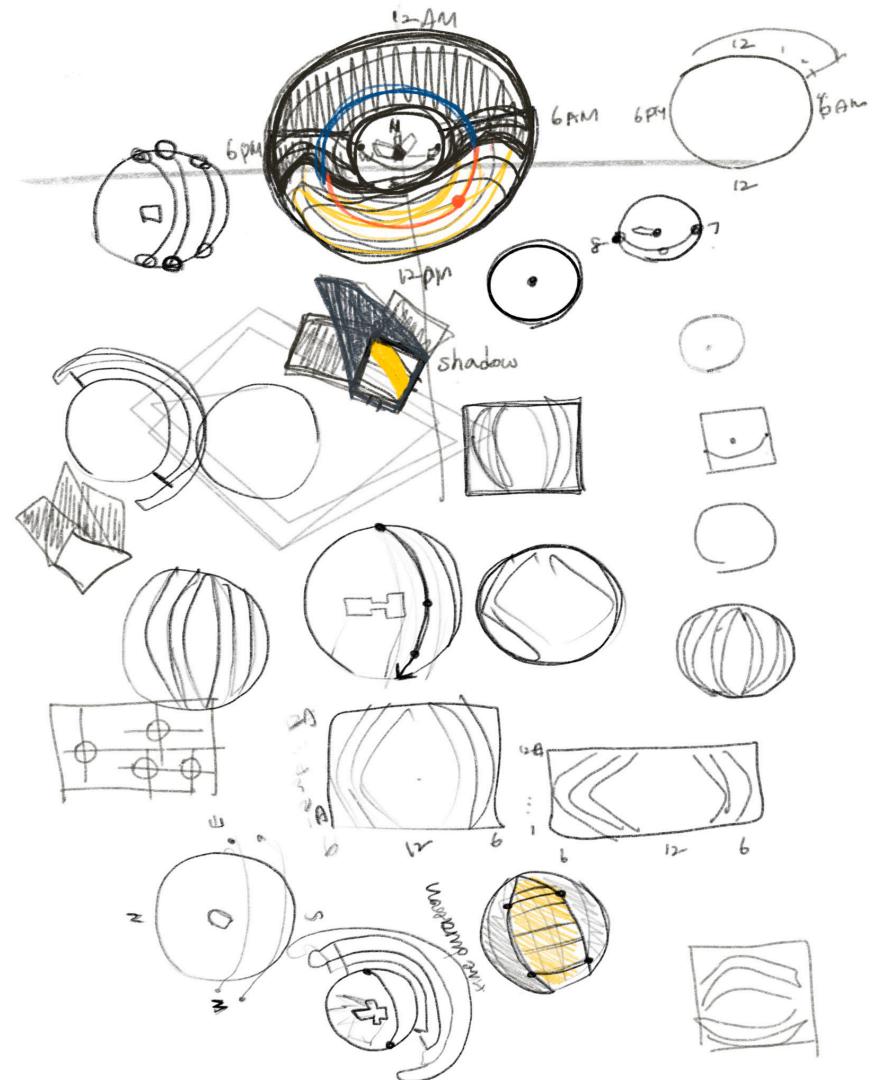
The Annual Sun Set/Rise Schedule with Hourly Variation of Skylight Color



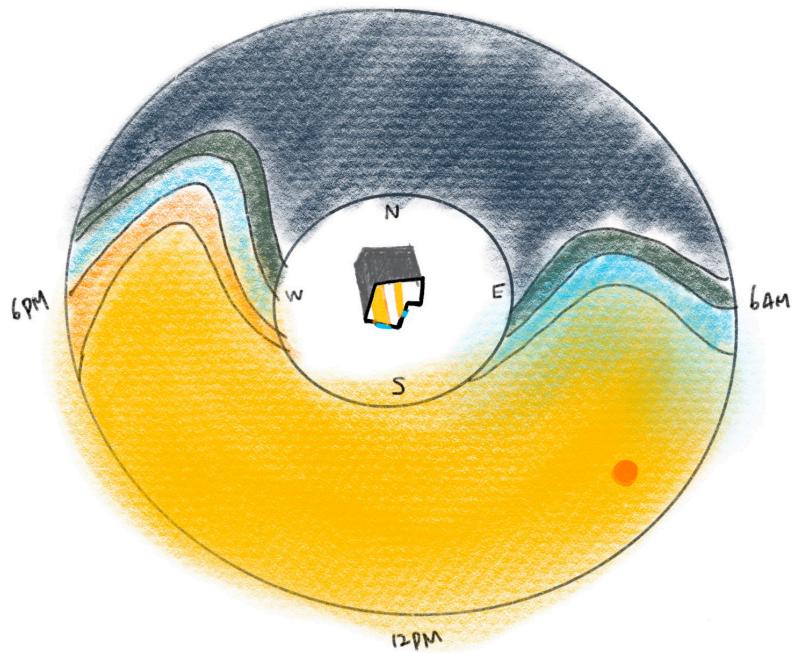
The Sun Path of a day corresponding to the structure location
(on Equinoxes and Solstices)
The change of the shadow that the structure casts on the ground



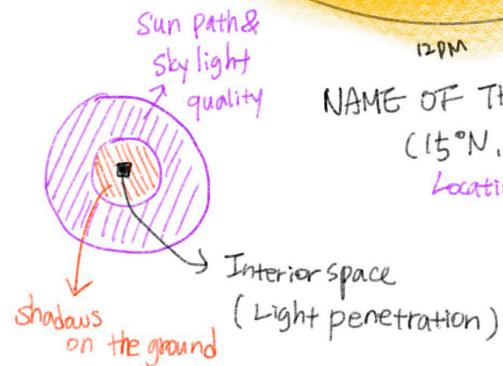
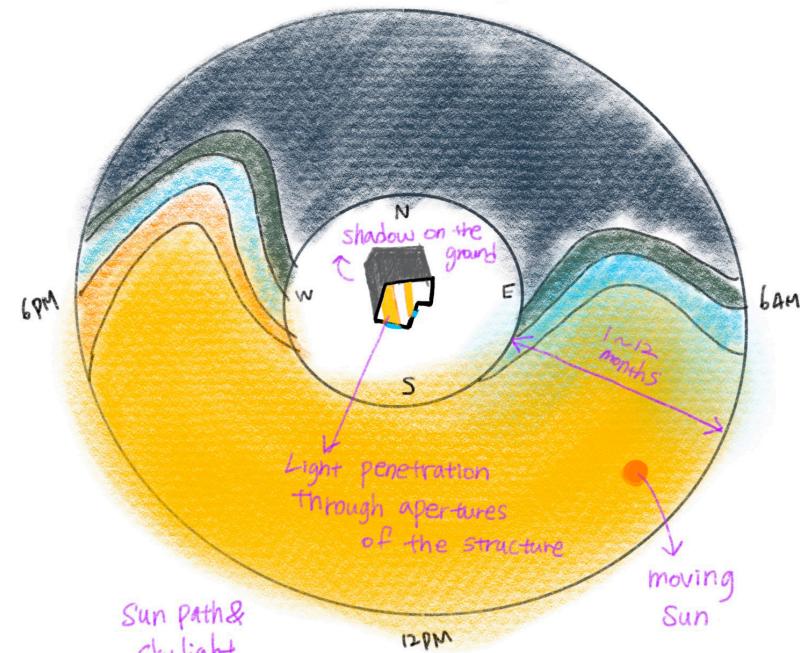
Encoding Idea Sketches

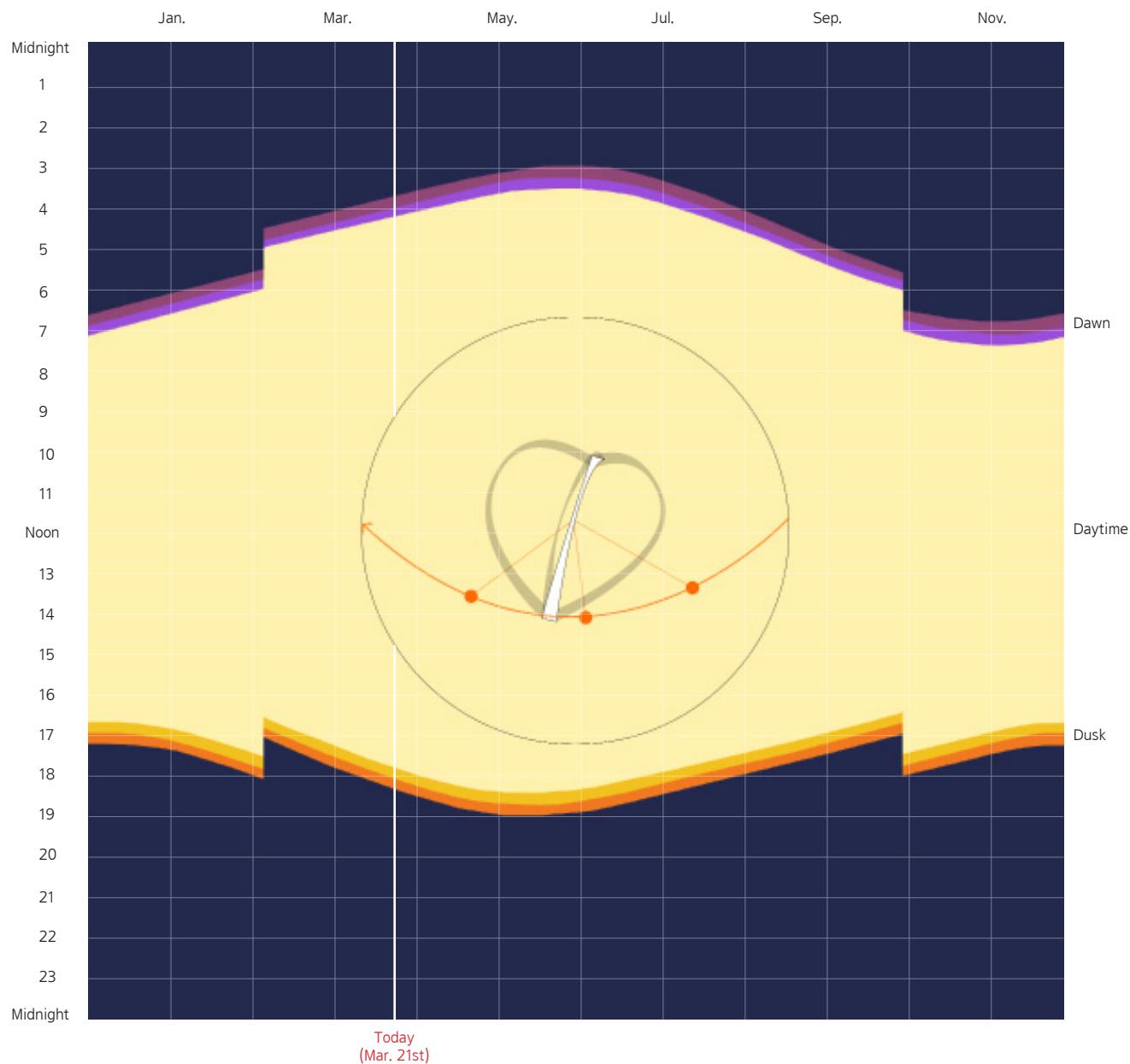


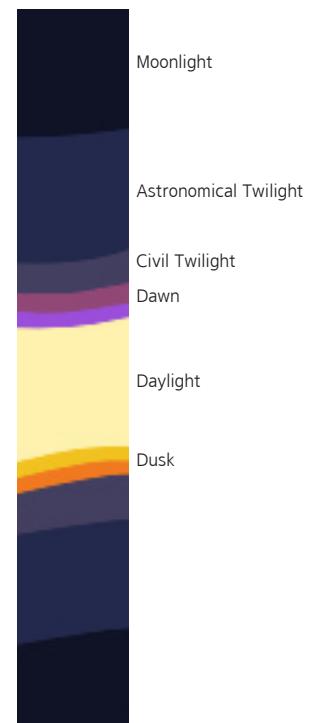
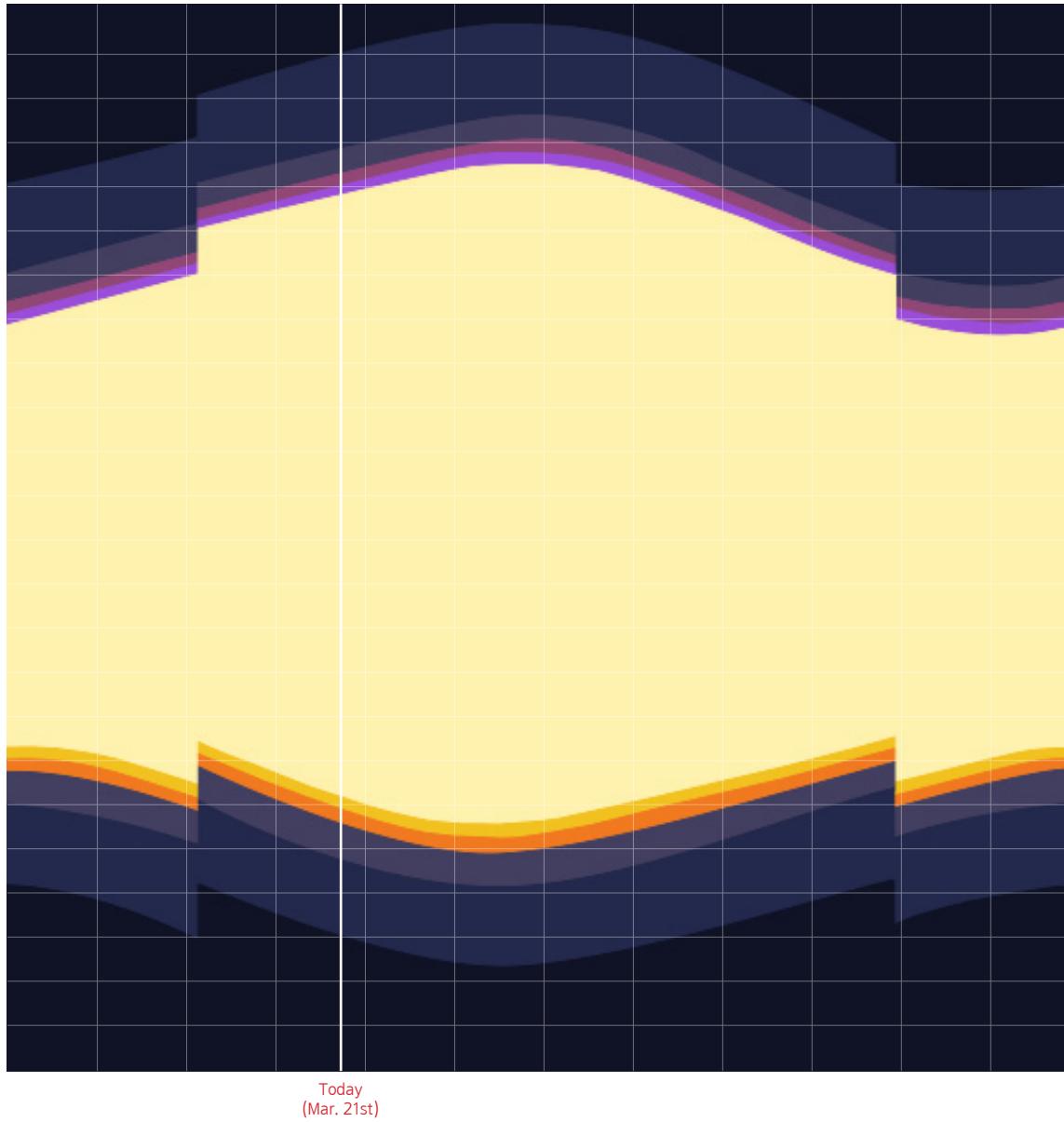
Visualization Idea & Prototype



NAME OF THE PLACE
(15°N , 30°E)







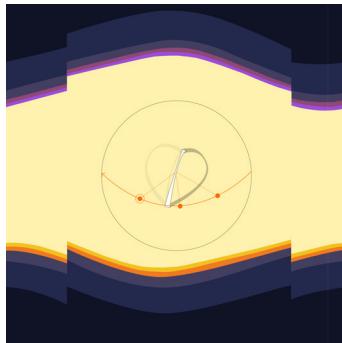
LIGHT SIGNATURES

Your Local Time is

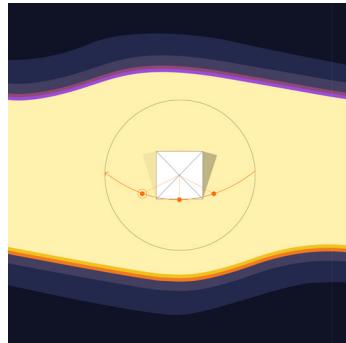
19:00

Dec. 16th 2020

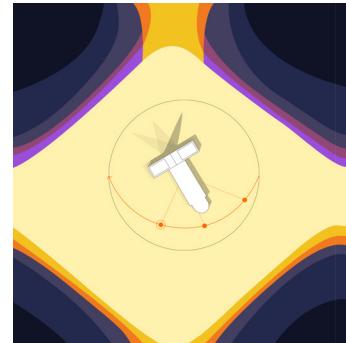
Explore the skylight and the paths of the Sun



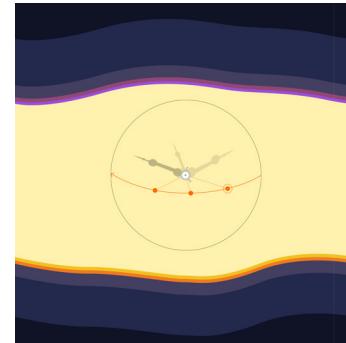
The Gateway Arch



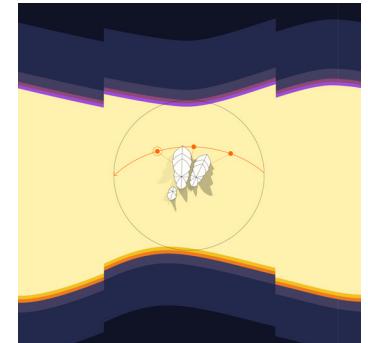
The Great Pyramid of Giza



Hallgrímskirkja Church



Oriental Pearl TV Tower

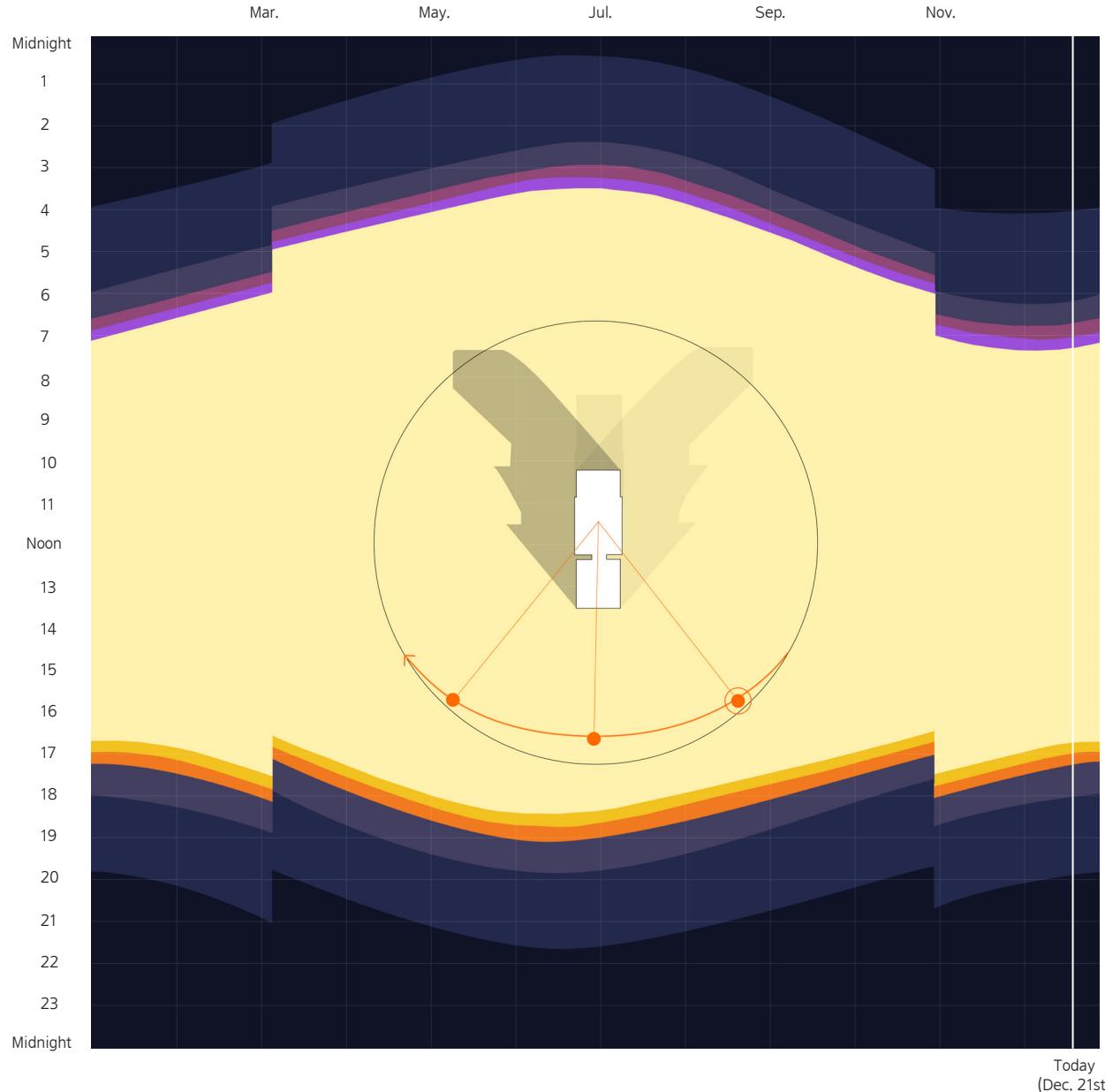


Sydney Opera House

NAME OF THE STRUCTURE

Date-Local Time

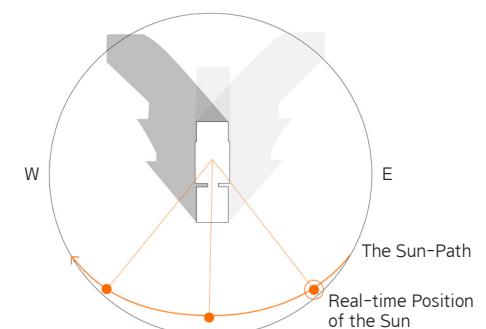
Location of the Site



SKY LIGHT



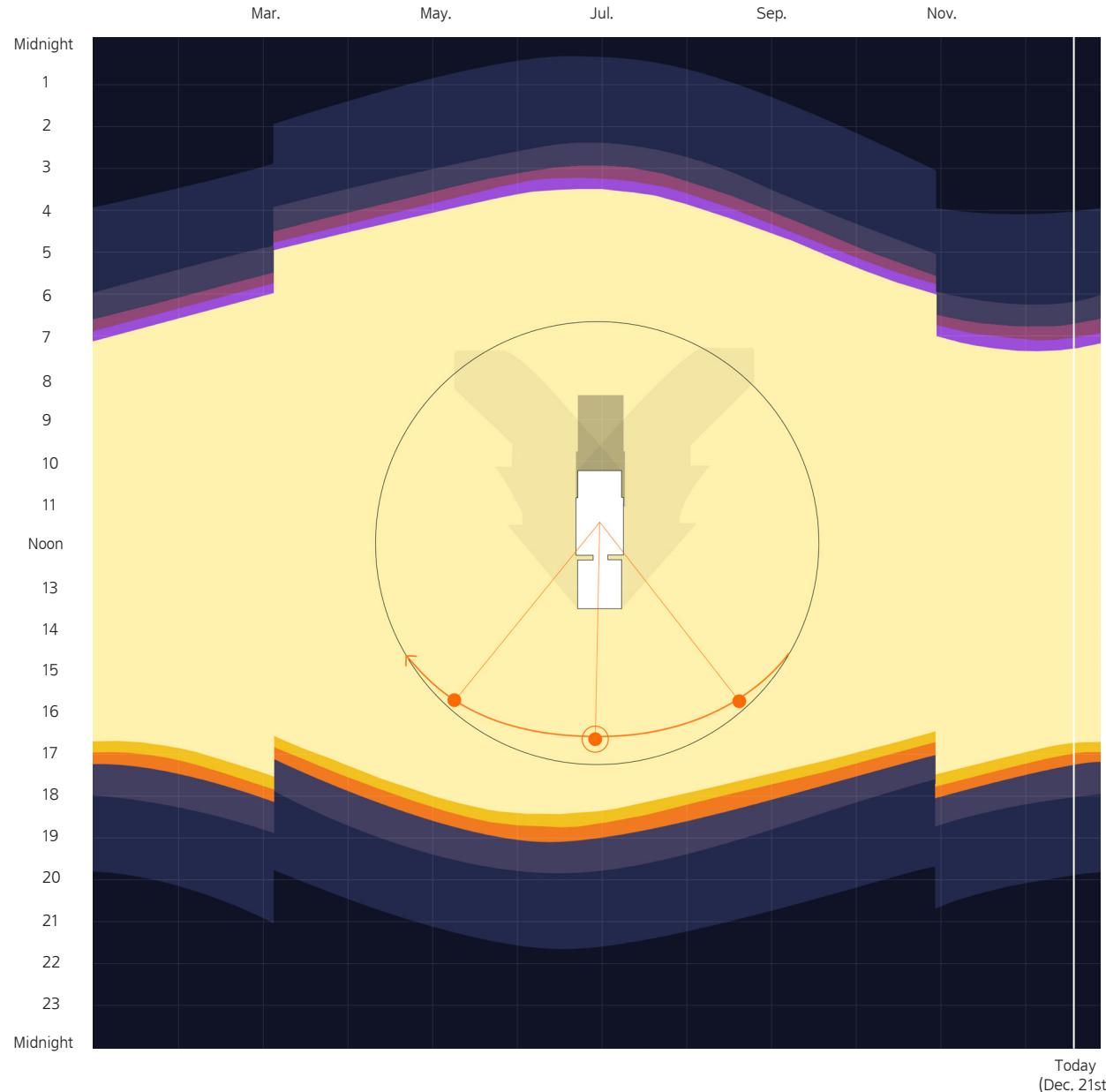
Sun Path



NAME OF THE STRUCTURE

Date-Local Time

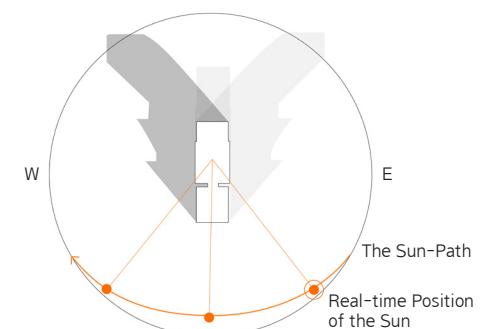
Location of the Site



SKY LIGHT



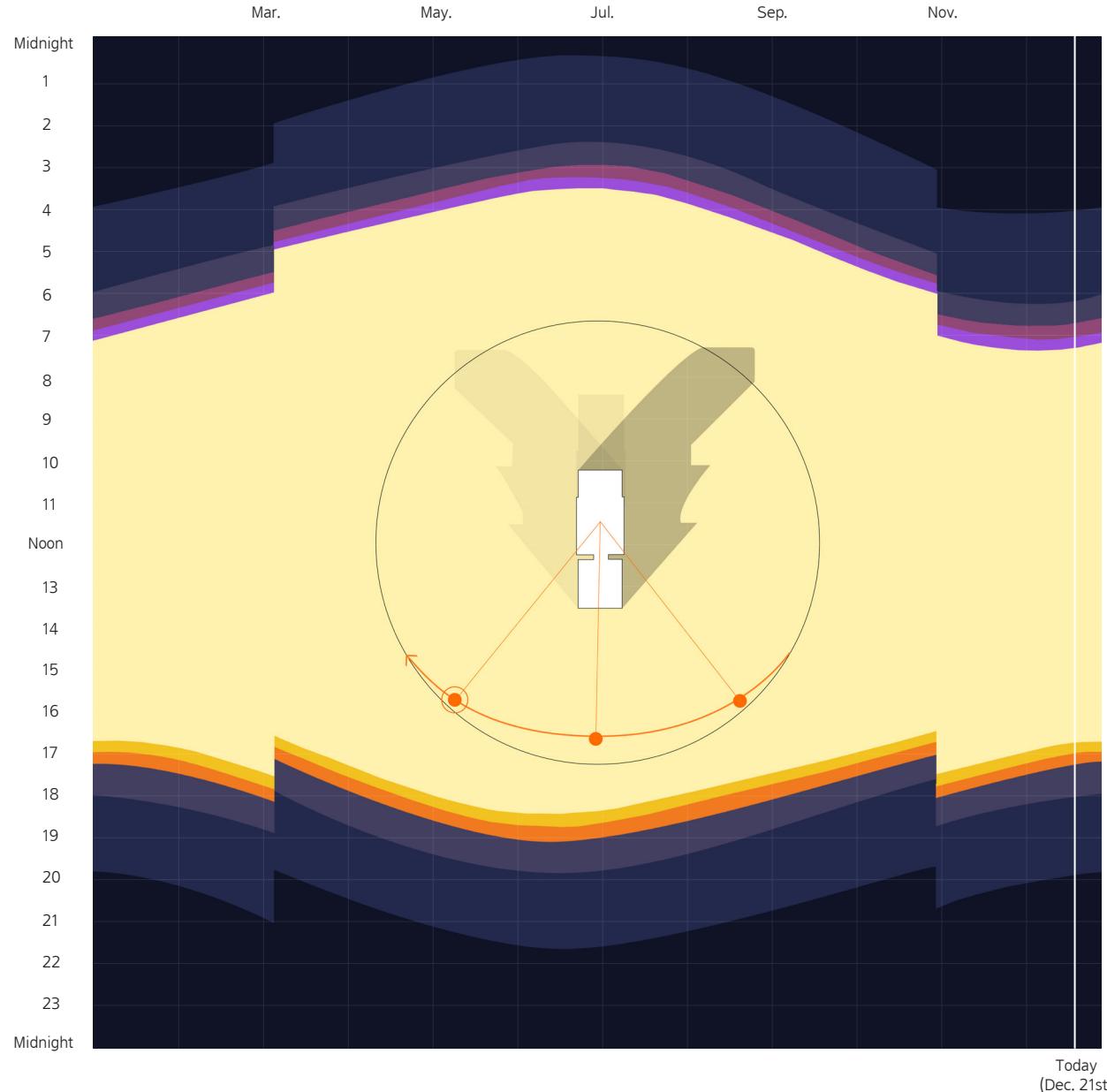
Sun Path



NAME OF THE STRUCTURE

Date-Local Time

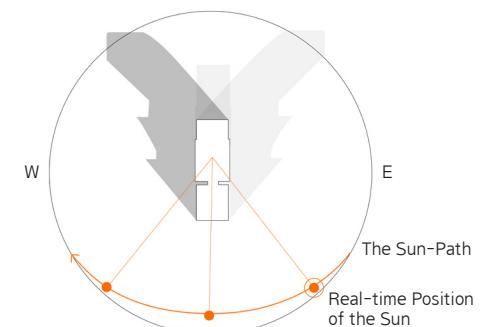
Location of the Site



SKY LIGHT



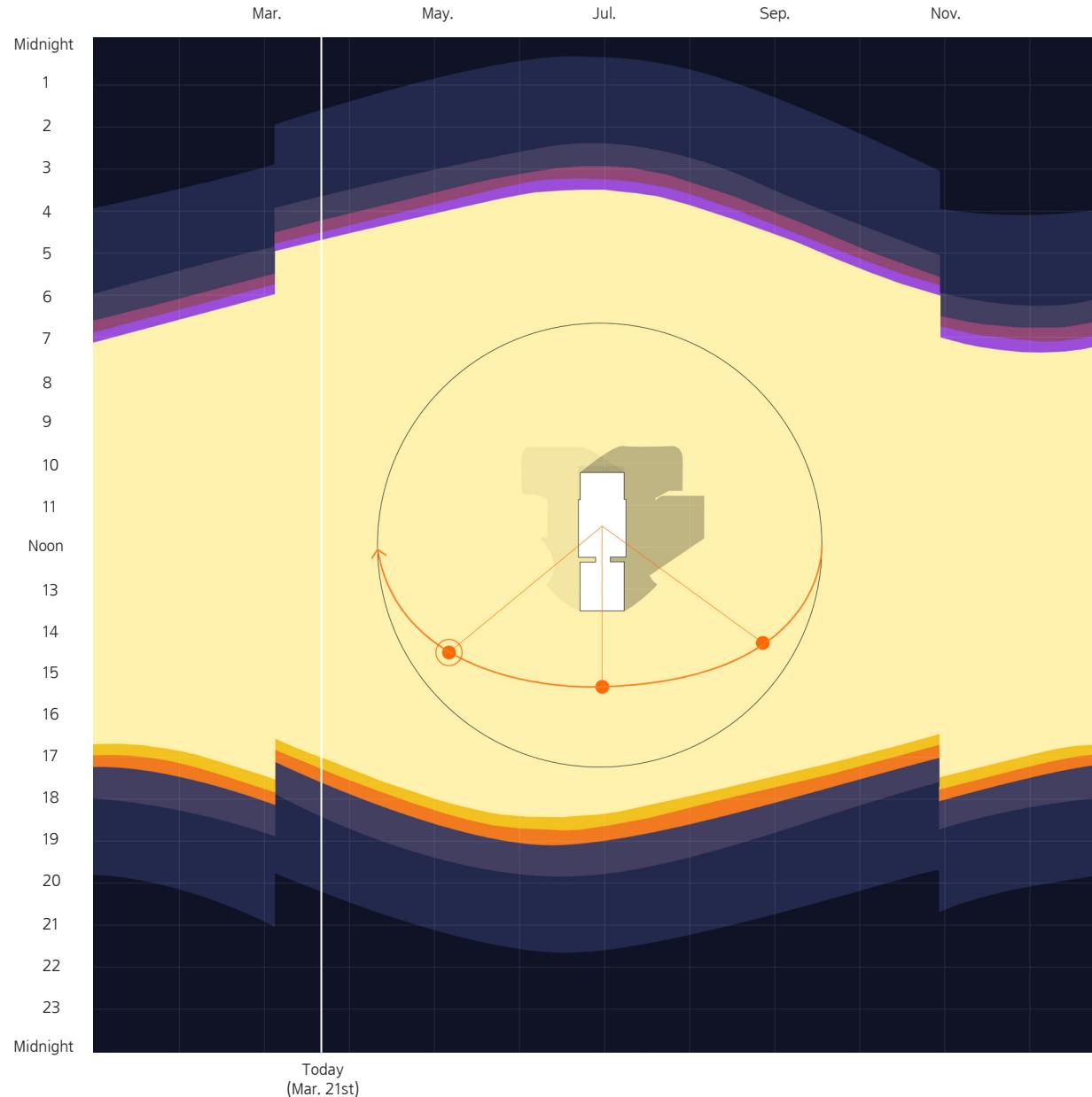
Sun Path



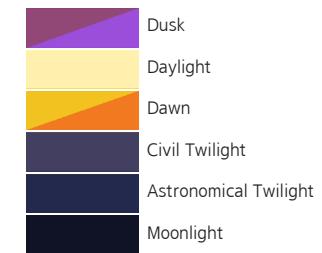
NAME OF THE STRUCTURE

Date-Local Time

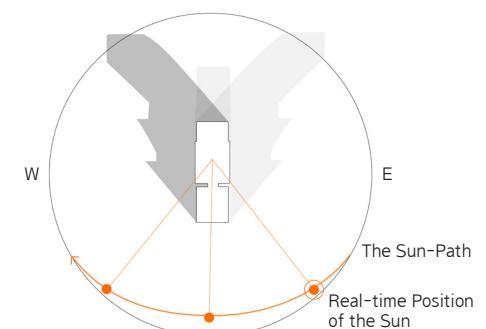
Location of the Site



SKY LIGHT



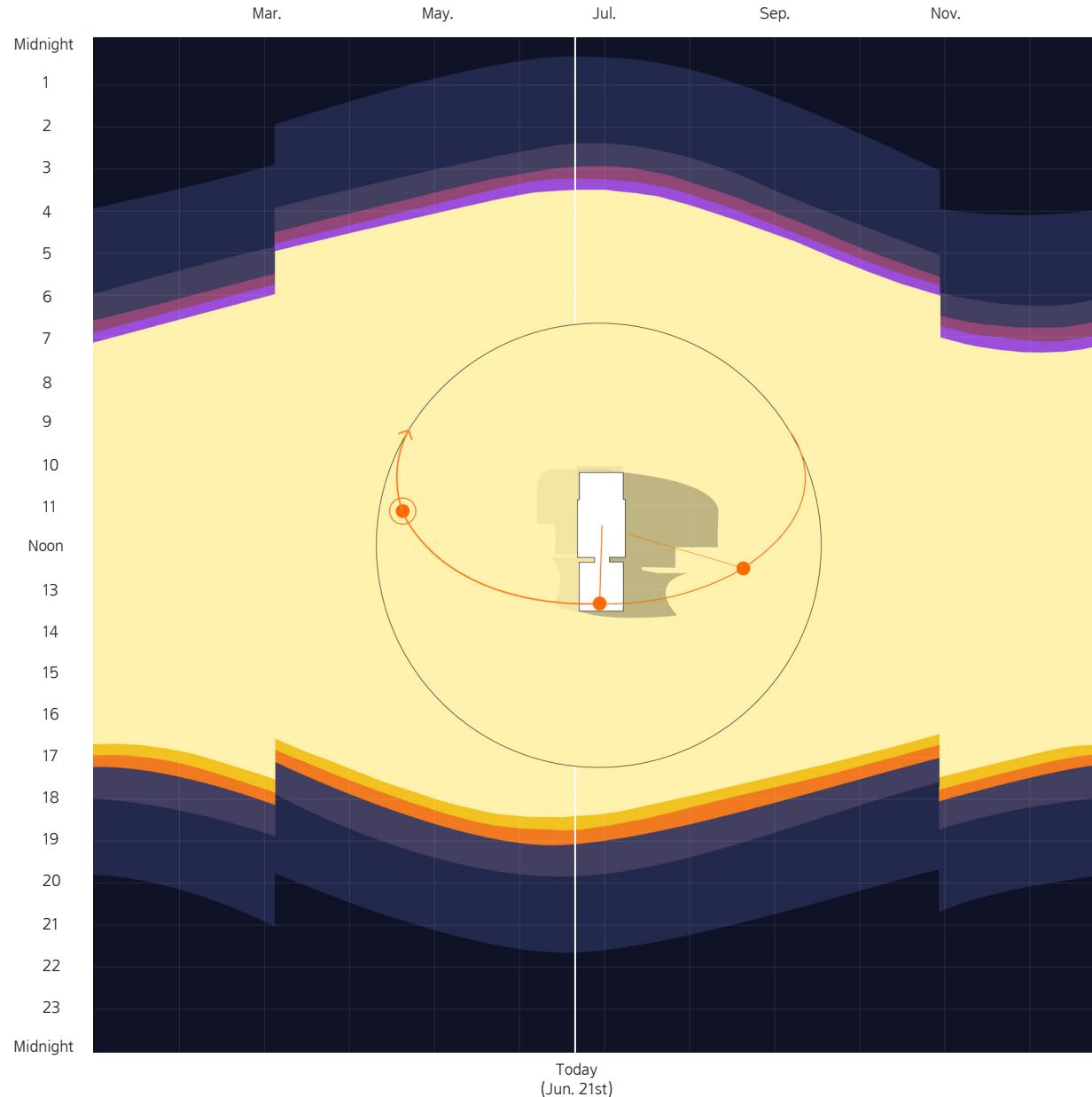
Sun Path



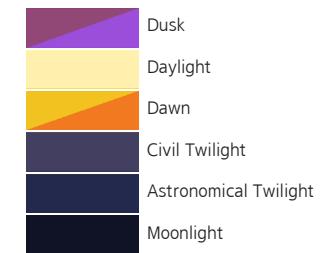
NAME OF THE STRUCTURE

Date-Local Time

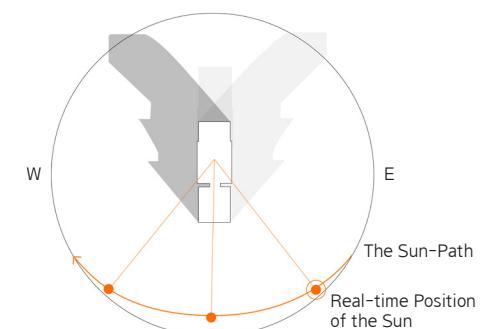
Location of the Site



SKY LIGHT



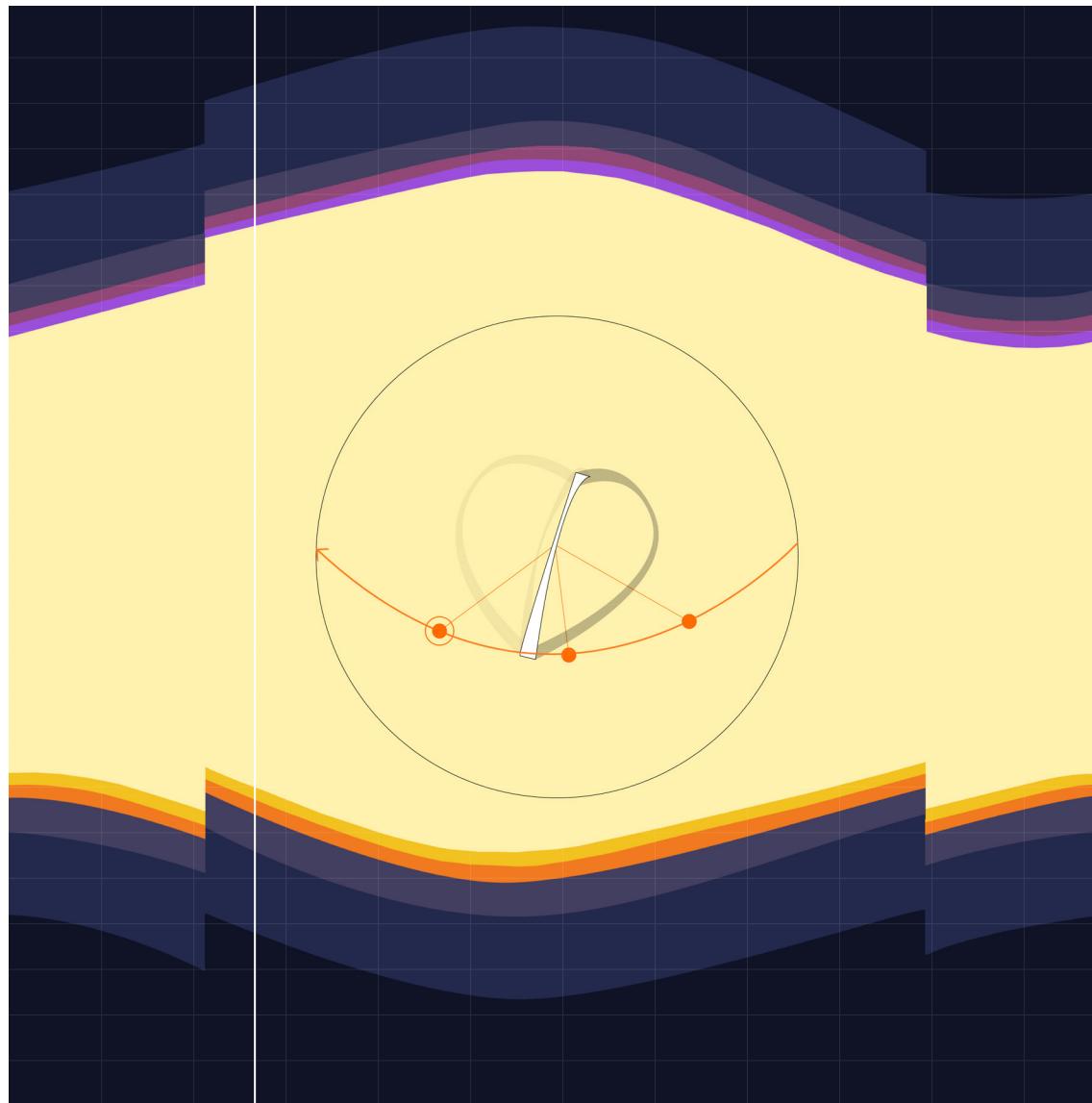
Sun Path



The Gateway Arch

Mar. 21st - 15:00

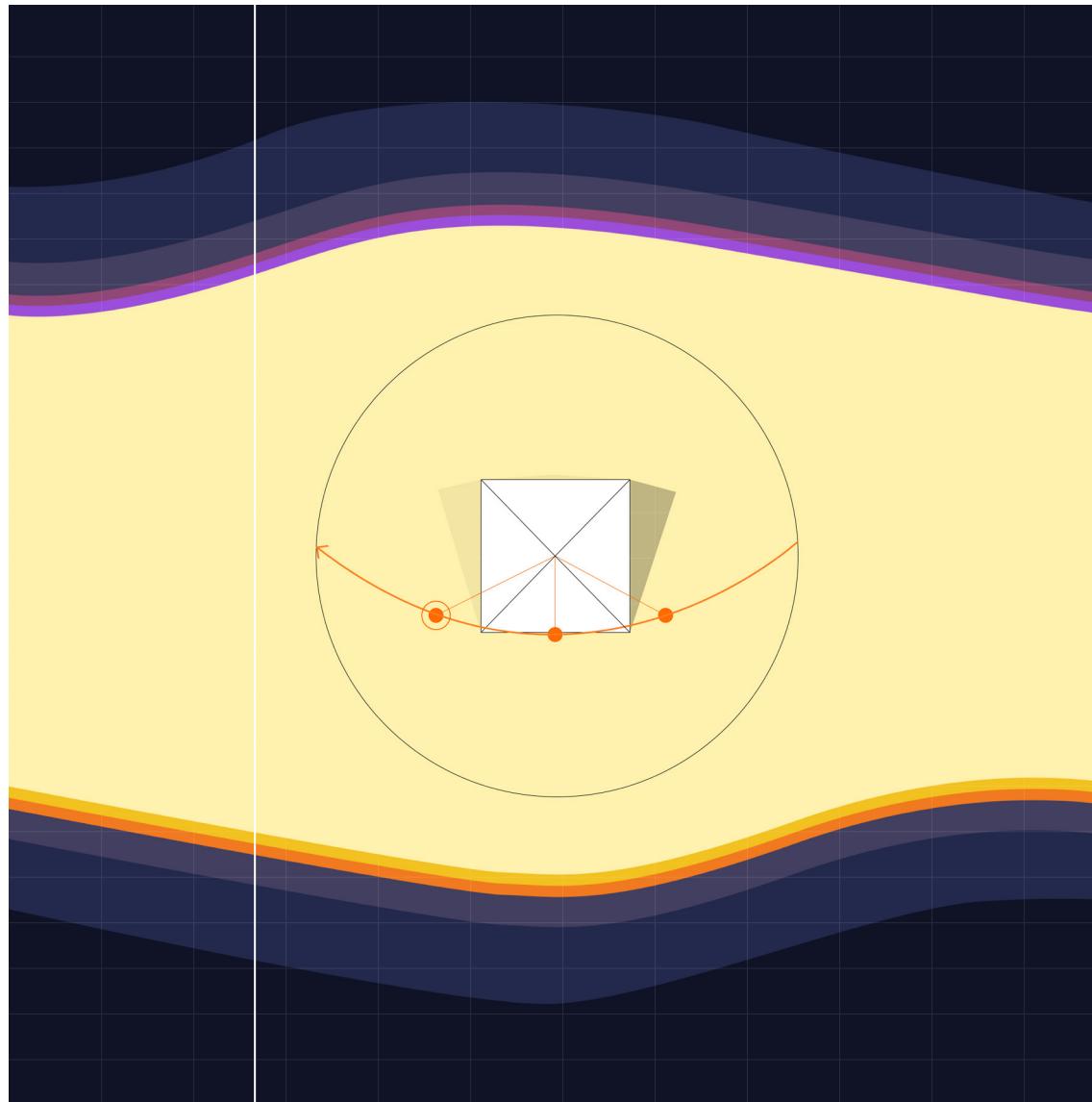
St. Louis, MO, United States



The Great Pyramid of Giza

Mar. 21st - 15:00

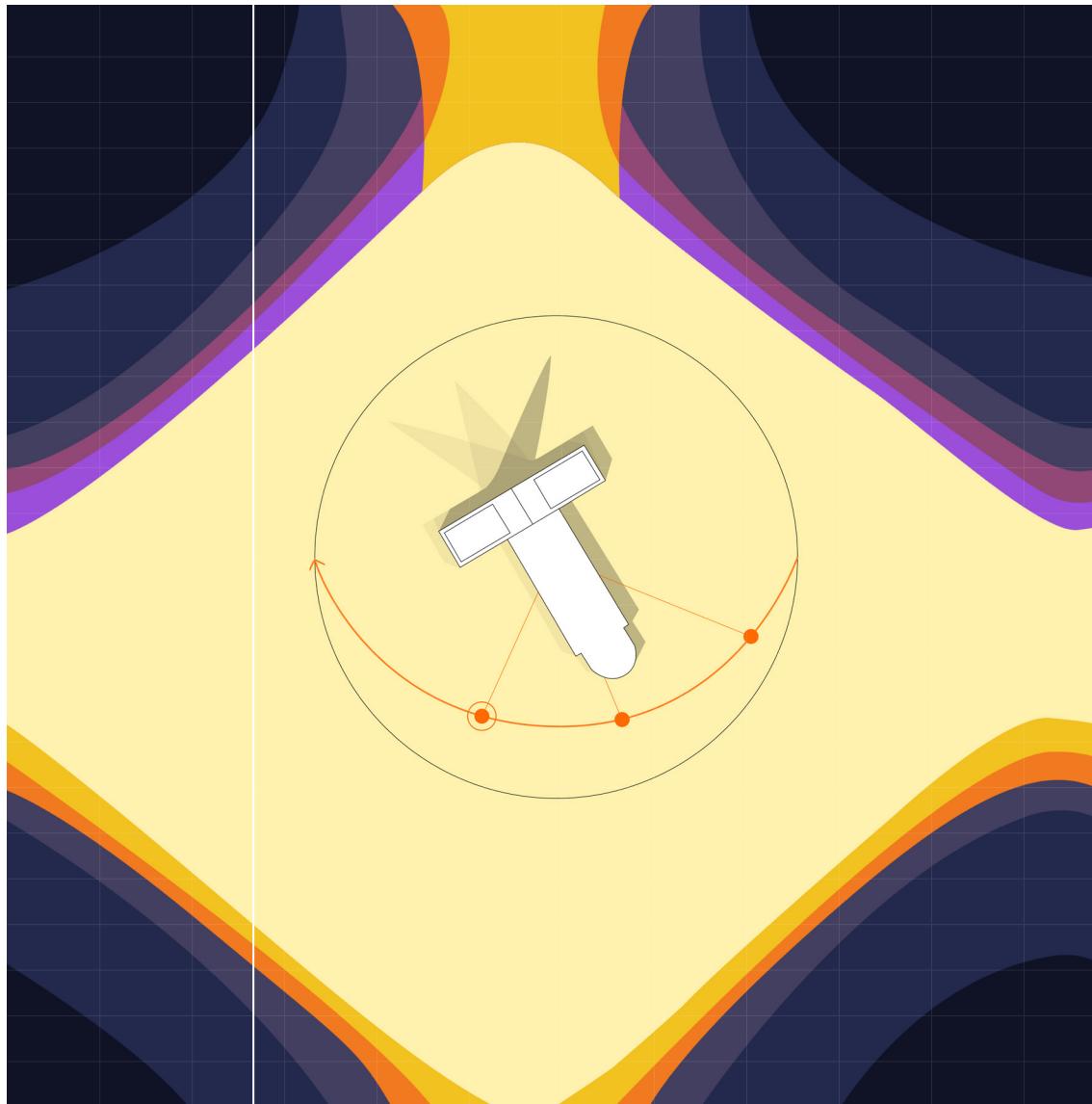
Al Giza Desert, Giza Governorate, Egypt



Hallgrímskirkja Church

Mar. 21st - 15:00

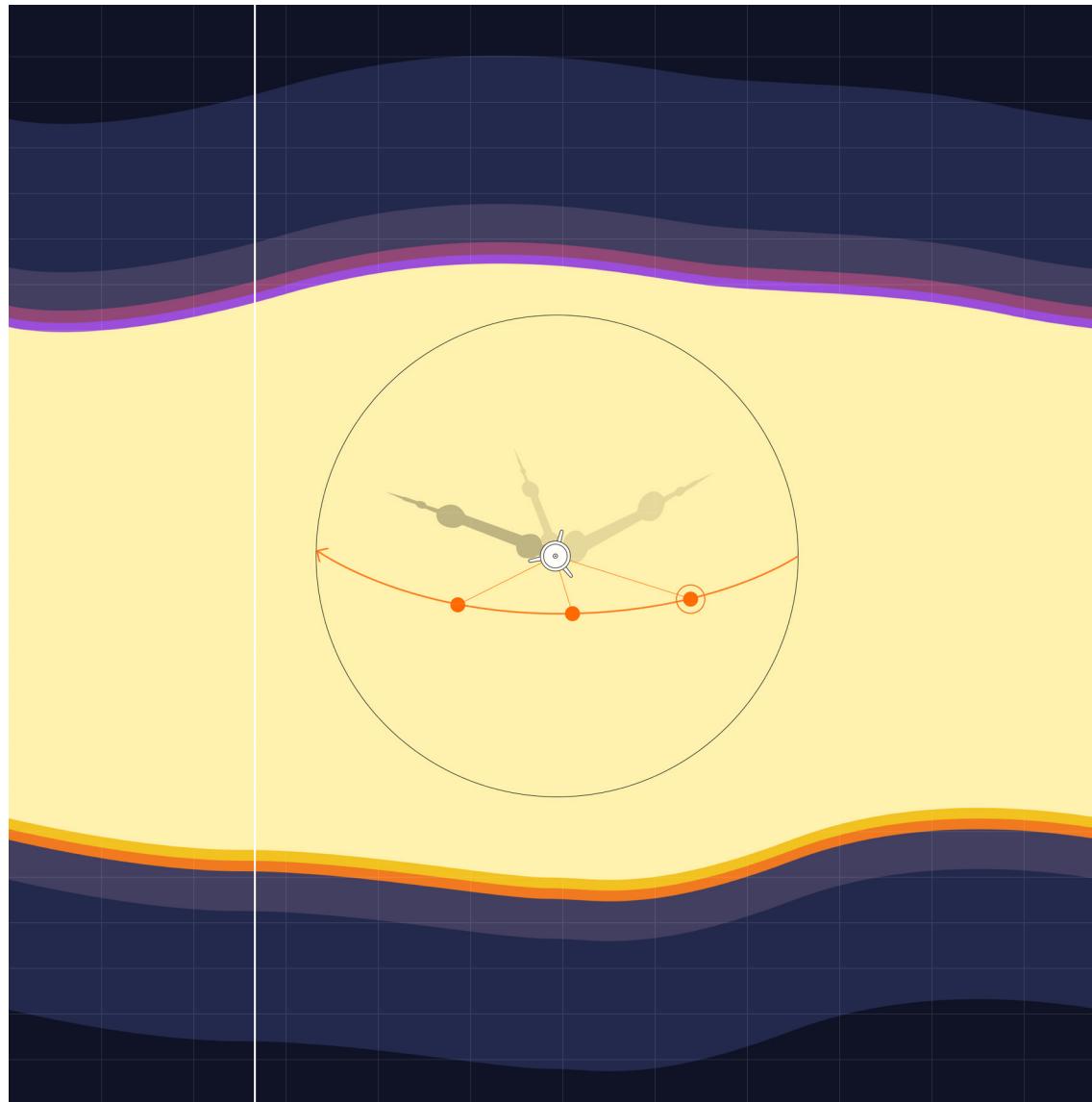
101 Reykjavik, Iceland



Oriental Pearl TV Tower

Mar. 21st - 15:00

Shanghai, China



Sydney Opera House

Mar. 21st - 15:00

Sydney, Australia

