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Cosmic Visions
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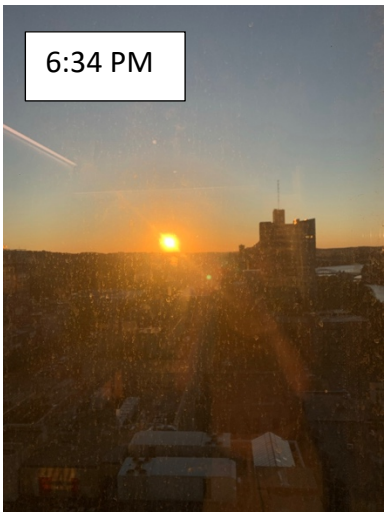
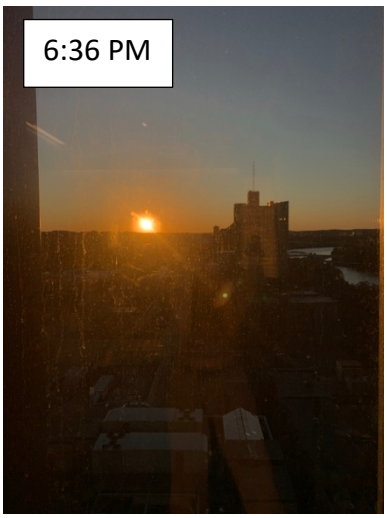
Autumnal Equinox Fieldwork

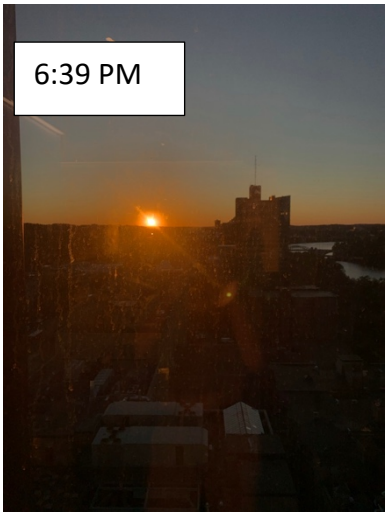
Experimental Procedure:

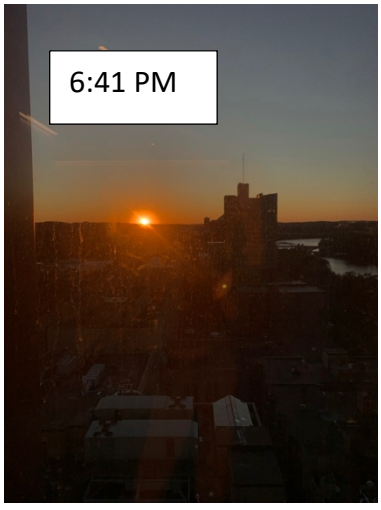
To do my fieldwork for the Autumnal Equinox project, I stood on the northwest side of the 12th floor of the CDS building. Unfortunately, because I had a class on Monday from 4:40-7:25pm, I was not able to take my photos on the Equinox itself, but rather a few days later. I will explain how this affected my results in the "Results" section.

Here are a series of photos I took of the sun setting:









Data Processing:

Reference points:

To better map where the sun set, I chose two buildings to serve as reference points for my photos. I also cross-referenced the sunset photo with a picture I took from the location during the day, to ensure I had the reference point locations correct. The first reference building I chose was the BU Law Building, and the second was the BU Robotics lab, shown below in Figure 1. To determine exactly where the sun set on the map—so I could determine if it was true West—I measured the distance between the edges of each building. I put my sunset picture into Canva and used a ruler tool to measure the distance, which turned out to be 3.2 inches. I then divided this distance into equal thirds. The sun seemed to be setting in the first third. I used this information to map the sun onto my final map.

Mapping the Sun:

To map the sun, I placed a line between my two reference points, as seen in Figure 3. I then measured the first third of distance between the two buildings on the map and placed the sun there. Then, I used a compass on the map to create a 90-degree line from true North and a 180-degree line from true West. I moved the true west line up the true north line until it passed through my location in CDS.

I quickly realized that this line did not match up with where I placed my sun. I created another line (also 180 degrees), and placed its vertex on top of the true West line's vertex (my location in CDS). I tilted the line slightly north until it intersected with the position of the sun in my photo. In Figure 3, I labeled each element for a visual explanation of my process. Each label is color coordinated with the element it represents.

Results:

These results are pretty accurate given the context of my sunset photo. As aforementioned, I was unable to see the equinox on Monday due to a scheduling conflict. Before the equinox, the sun sets slightly to the North, which is what my map shows as well.

Next year, I hope to be able to see the real autumnal equinox. I will be sure not to be in class during sunset! In the future, it would also be helpful to stand in an area where I could use a compass to help me see which direction the sun is setting. Because there is so much iron across CDS, the compass I was trying to use was not giving accurate results. It would be interesting to take a picture of the sunset with a compass in view to show the true direction of the West.

Figure 1:

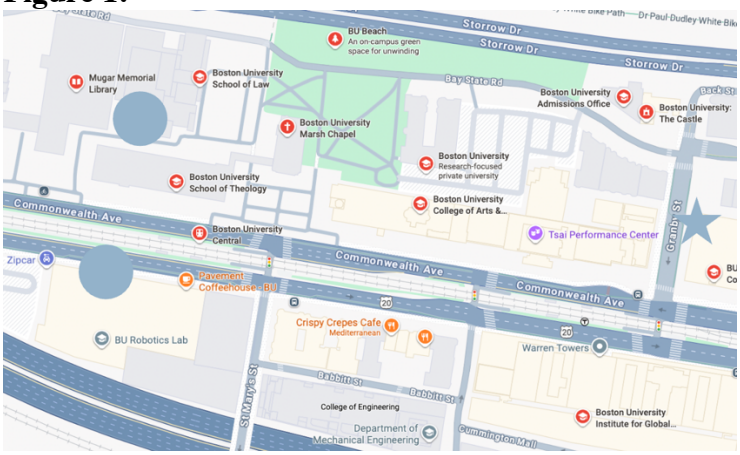


Figure 2:

Figure 3: