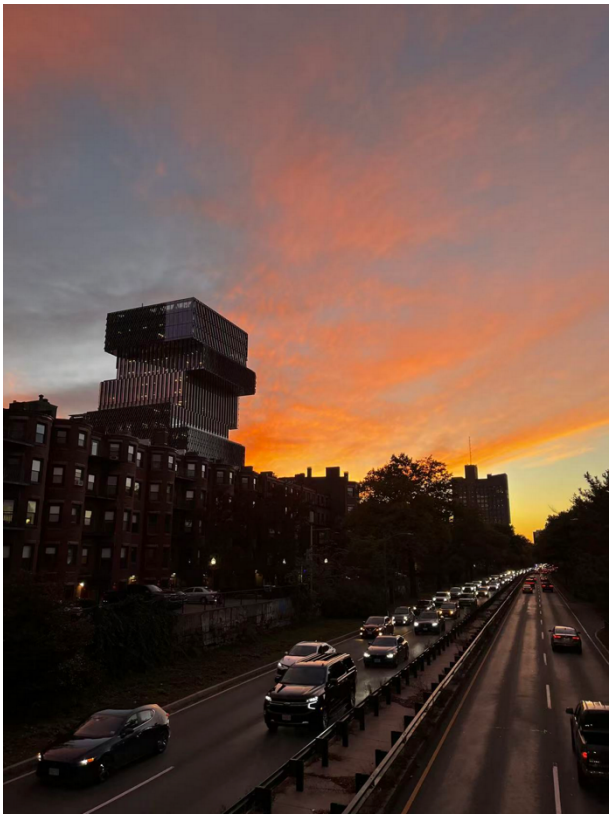
Autumnal Equinox Fieldwork Report

Experimental Procedure

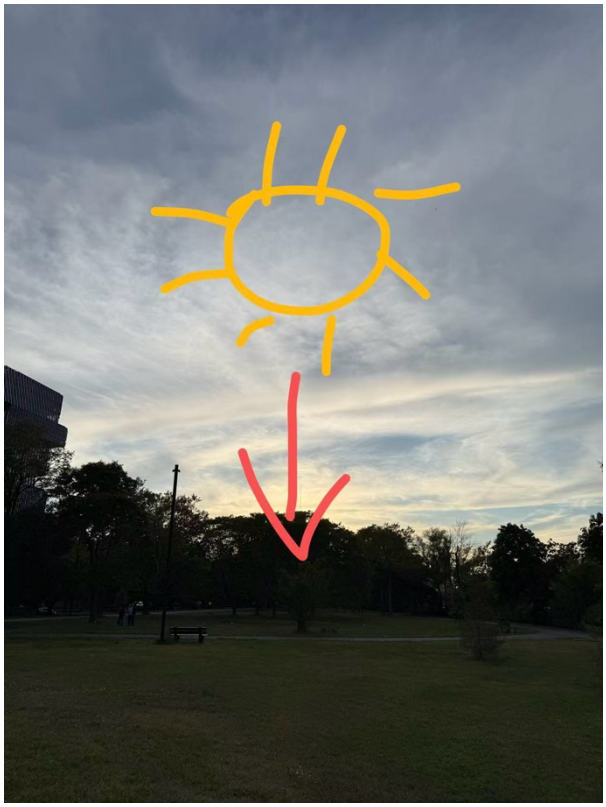
The purpose of this fieldwork was to observe the setting sun on the day of the Autumnal Equinox in order to verify whether it aligned with the theoretical prediction of setting directly in the west. To conduct the experiment, I chose a vantage point near the Boston University campus with an open field that provided a relatively unobstructed view of the horizon. I began by photographing the western sky in the late afternoon, capturing the sun's position as it gradually descended. I then marked my observation point on a map and drew a reference line to indicate the westward direction, which served as the framework for analyzing my photographs. Additional images were taken later as the sun neared the horizon, recording the progression of colors and light intensity. Throughout the observation, I also noted environmental features such as the presence of buildings, trees, and roadways, since these could obstruct or distort the true horizon.



Data Processing

The data collected during the fieldwork consisted of photographs documenting different stages of the sunset as well as a map annotated with the observer's position and orientation

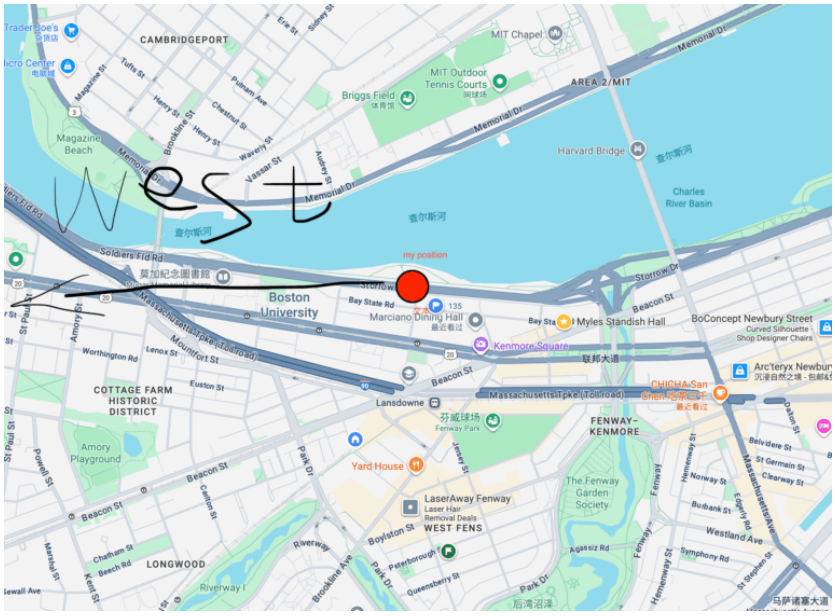
toward the west. To process this data, I aligned each photograph with the mapped direction to ensure the line of sight corresponded to true west. The images revealed a clear progression in the sky, beginning with diffuse pale light and shifting to more vivid orange and red tones as the sun approached the horizon. These transitions in color and brightness were used as



qualitative indicators of the sun's descent. When compared with the annotated map, the photographs confirmed that the sunset occurred almost directly along the westward axis, consistent with astronomical expectations for the equinox. Although the analysis was largely qualitative, the integration of sequential photographs and mapped orientation provided sufficient evidence to verify the westward alignment of the sunset.

Conclusion and Reflection on Accuracy

The results of this experiment confirmed that the sun set very close to due west on the Autumnal Equinox, in accordance with



the astronomical model. The photographs, when compared to the mapped orientation, demonstrated the predicted alignment, showing that even with simple observational tools, the equinox sunset can be effectively documented. However, the accuracy of the results was limited by several factors. Tall buildings and trees along the Charles River obscured parts of the horizon, making it difficult to identify the exact point where the sun crossed below. Atmospheric scattering of light further diffused the visual cues of the sunset, which introduced uncertainty into the analysis. Additionally, the lack of precise time-stamped intervals and the absence of compass-based azimuth readings reduced the ability to measure exact bearings.

Looking forward, the experiment could be improved in several ways if repeated next year. Using a compass or a smartphone application capable of recording azimuth angles would allow for precise documentation of the sun's bearing throughout its descent. Taking photographs at fixed time intervals would create a more systematic dataset for analysis. Choosing a location with a fully unobstructed view of the western horizon would also reduce the interference caused by buildings and trees. Finally, comparing the observational data with

predictions from astronomical software would provide a benchmark to validate the results. Together, these adjustments would enhance both the accuracy and reliability of the experiment, making it a more rigorous test of equinox sunset alignment.