Seasonal variations due to Axial tilt

Institution The City College of New York
Group: Ahmed Attia, Yoselin Sanchez, Alejandro Mendez
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Abstract

Have you ever wondered why we experience different seasons across different latitudes, and times of the year. Well a popular assumption is it's due to the proximity to the sun at different times of the year, however while this hypothesis is not a completely invalid one. Through testing this hypothesis is debunked, and today the real reason sunlight dispersion changes will be revealed. As previously mentioned this research group has come to its own hypothesis and put it to the test, this led to the confirmation of the key factor of seasonal changes, Axial tilt something many may be shocked by but the earth is in fact not perfectly set at a 0% angle, rather it is tilted to 23.5% degrees and we will proceed to reveal the significance of this piece of information when considering sunlight dispersion.

Introduction: Why do the seasons occur?

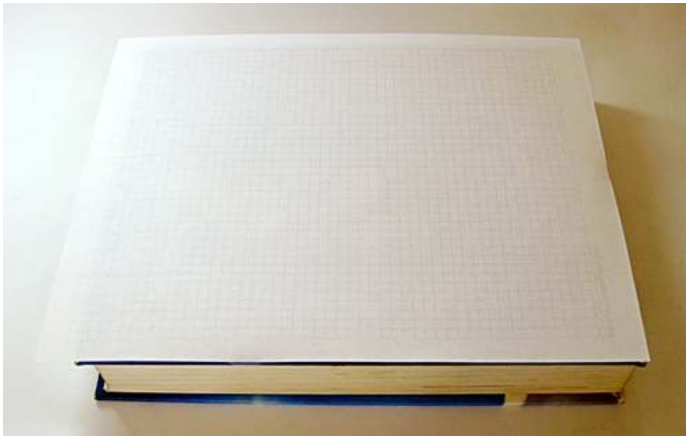
. This presentation will focus on how the Earth's axial tilt affects the amount of sunlight the different regions on Earth receive at different points of the year.

. The experiment conducted by my team concluded that as was previously confirmed and validated by other scientists that although our orbit around the sun is a factor in seasonal variations, it is in fact our axial tilt that more greatly affects our observable seasons, and sunlight dispersion throughout the year.

Materials

The experiment conducted made use of the following materials:

- ....Tape
- ....Flashlight (1)
- ....Graphing paper (3)
- ....Cardboard box (1)
- ....Standard textbook. (1)



Methods:Axial tilt to the test

- Once turned on the flashlight was adjusted to illuminate a circle of approximately five centimeters of length
- the circle was outlined and the paper tilted to the following degrees 0,10,20,30,40
- After each circle was outlined the boxes inside the circles were counted and tallied
- Finally the results were made into a comprehensive graph.

Results/Findings

- The graph on the right hand side shows the parallel relationship of the angle, and the boxes illuminated.
- The experiment was replicated three times for accuracy.
- As the results show prior experiments conducted showed similar results in so doing confirmed the hypothesis that the Earth's axial tilt is the driving factor involved in sunlight dispersion throughout the observable year.

Degrees of Tilt	Graph 1	Graph 2	Graph 3	The average number of squares
0 degrees	95	93	97	95
10 degrees	124	122	126	124
20 degrees	134	132	136	134
30 degrees	142	140	144	142
40 degrees	170	168	172	170

Discussion: Is Axial tilt Significant?

In conclusion, this experiment provided valuable insights into the intricate dynamics of Earth's axial tilt and its impact on sunlight dispersion, elucidating the phenomenon of seasonal variations across different latitudes. The hypothesis regarding the relationship between tilt angles and sunlight exposure was supported by the observed increase in illuminated boxes as tilt angles increased.

Audio recording of presentation