Earth Science Name

Understanding Patterns of Sunrise and Sunset

Part 1) Sunrise and Sunset in Englewood over a Month

Click on http://www.usno.navy.mil/USNO/astronomical-applications/data-services/rs-one-year-us (or start at http://www.usno.navy.mil/USNO, then select "Astronomical Applications," then "Sun or Moon rise/set table for one year.")

First, type in "Englewood" and select "NJ," then "Get Data."

Complete the information in the spaces below.

Then use the data base to show the pattern of times for sunset (in the upper chart) and sunrise (in the lower chart) for that month by **plotting every third day.** (That is, plot the time for the 1st, 4th, 7th, etc.)

Connect the points.

Finally, check the data base for other dates (such as the 2nd, 5th, etc.) to see if the pattern is correct.

Answer the following questions in the space provided.

What general sunrise/sunset patterns do you observe for your month?

_____

_____

_____

_____

How does your monthly pattern compare with patterns plotted by other students for different months? Examine at least three from other seasons.

_____

_____

_____

_____

Name:

Location name _____ Lat _____ Long _____ Month_____

Sunset pattern:

time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2000																															
1930																															
1900																															
1830																															
1800																															
1730																															
1700																															
1630																															
1600																															

Sunrise pattern

time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0800																															
0730																															
0700																															
0630																															
0600																															
0530																															
0500																															
0430																															
0400																															

Part 2) Sunrise and Sunset in another Location for that Month

Now, return to the US Naval Observatory Astronomical Applications website and select another location. You might want to use a map to find a location at the same latitude or longitude as Englewood, a location very much farther north or south (different latitude), or a place that has special meaning for you.

Plot the pattern for the same month. Note: You will have to include appropriate time labels on the y-axis.

Answer the following questions in the space provided.

Why did you choose this location? How does it compare in latitude and longitude with Englewood?

_____

_____

_____

_____

How does your monthly pattern compare with the sunrise/sunset patterns you observed for Englewood for that month?

_____

_____

_____

_____

Name:

Location name _____ Lat _____ Long _____ Month_____

Sunset pattern:

time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Sunrise pattern

time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Part 3) Searching for Deeper Understanding

Answer the following questions in the space provided.

Explain why sunrise and sunset changes from day to day.

_____

_____

_____

When are the earliest sunrise and latest sunset for Englewood? Your selected location?

_____

_____

_____

When are the latest sunrise and earliest sunset for Englewood? Your selected location?

_____

_____

_____

What Earth-Sun relationships are special about these dates?

_____

_____

_____

_____

Use these charts if you want to study another location.

Name:

Location name _____ Lat _____ Long _____ Month_____

Sunset pattern:

time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Sunrise pattern

time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31