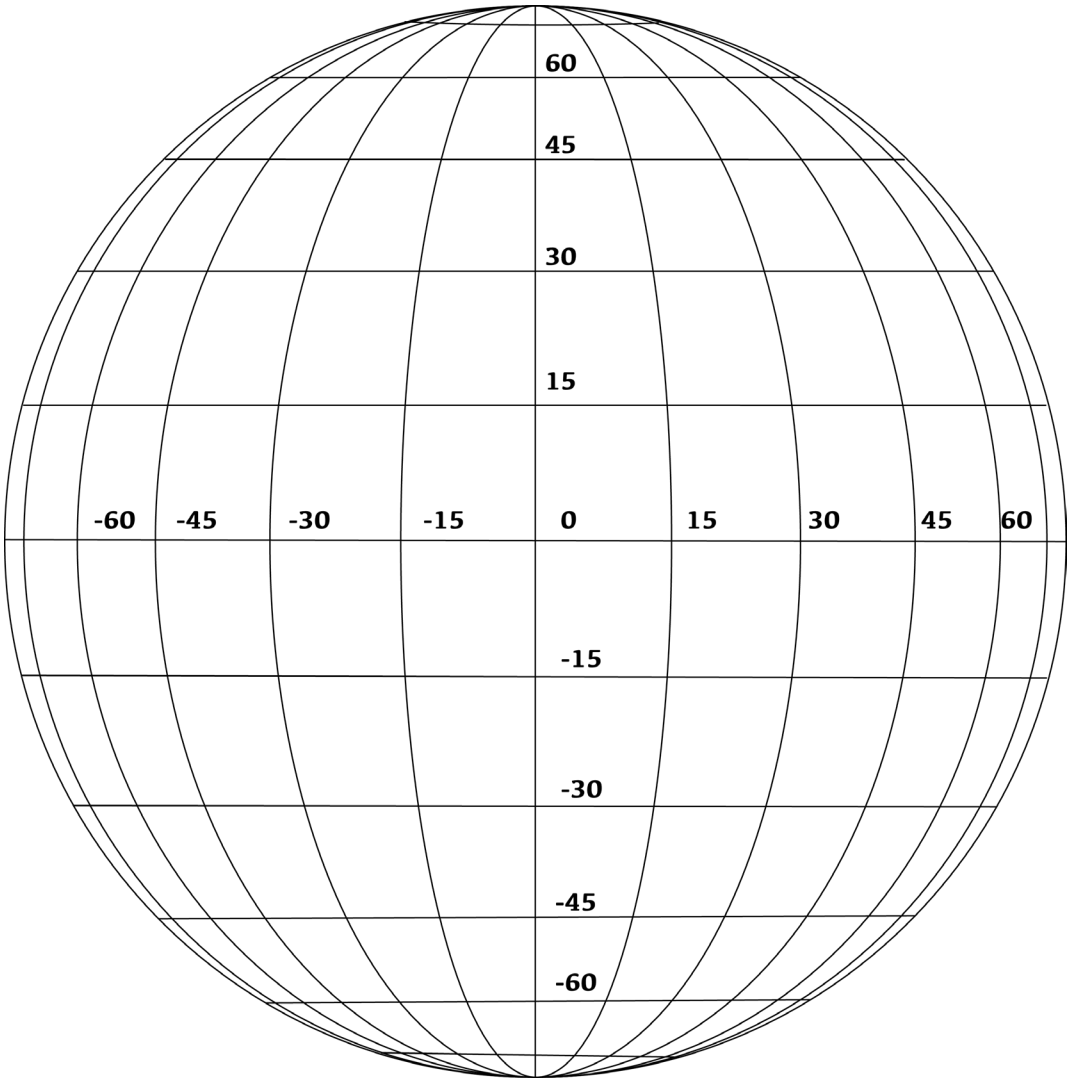
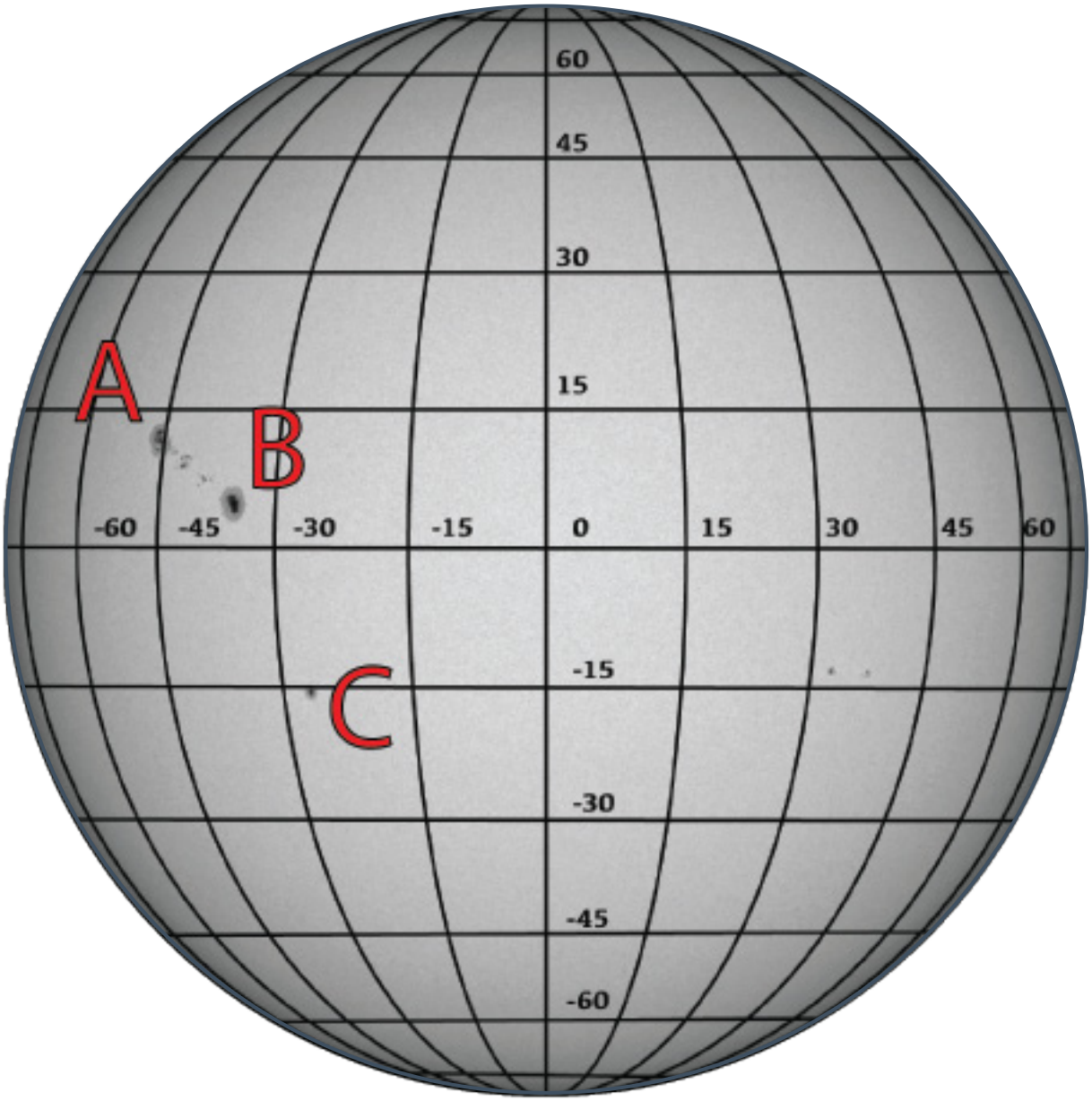
SUNSPOT TRACKING - STUDENT DATA SHEET

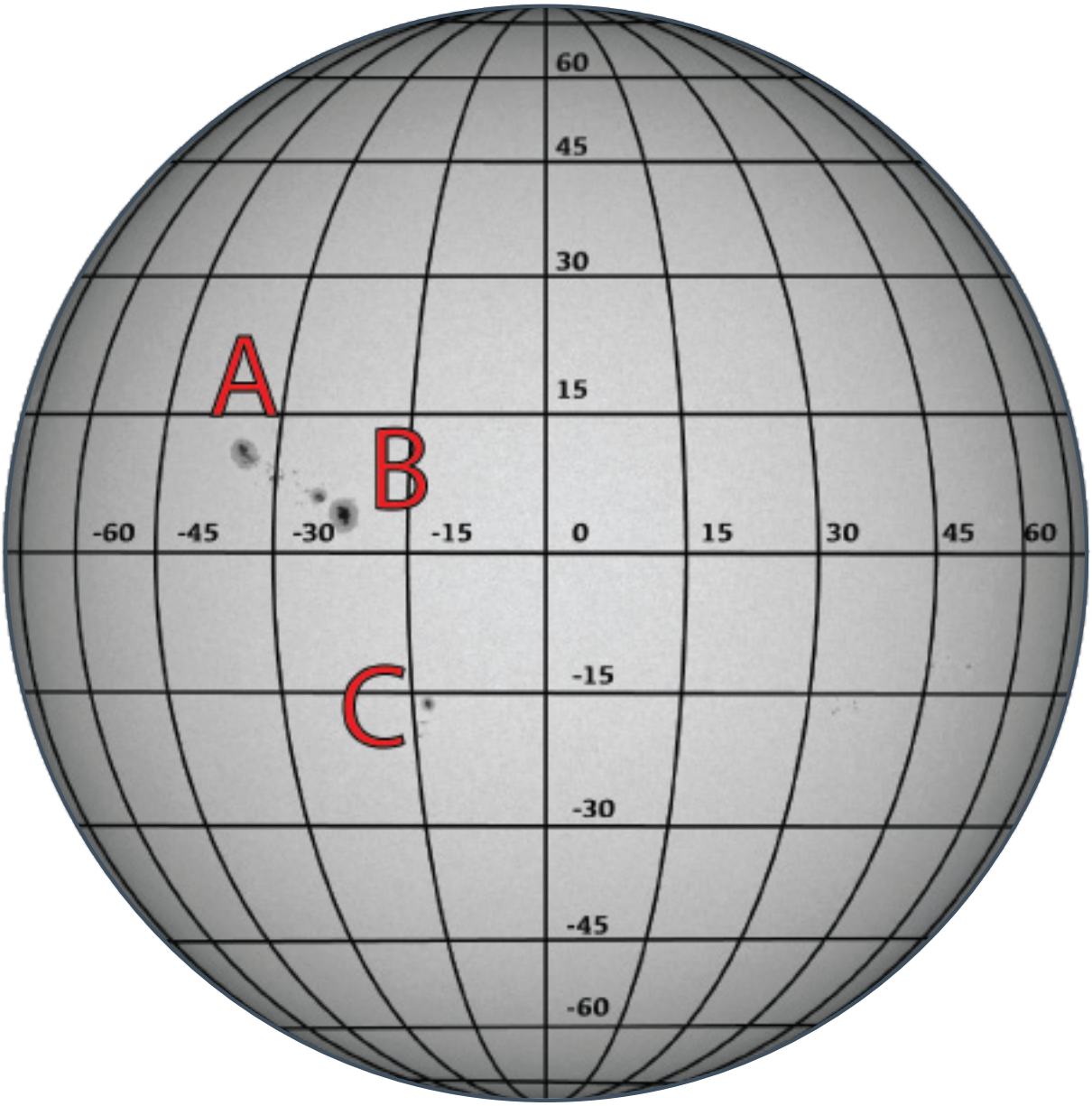


DAY	Sunspot Longitude (degrees)			Number of degrees sunspots moved from previous day		
	A	B	C	A	B	C
1						
2						
3						
4						
5						
6						
7						
8						

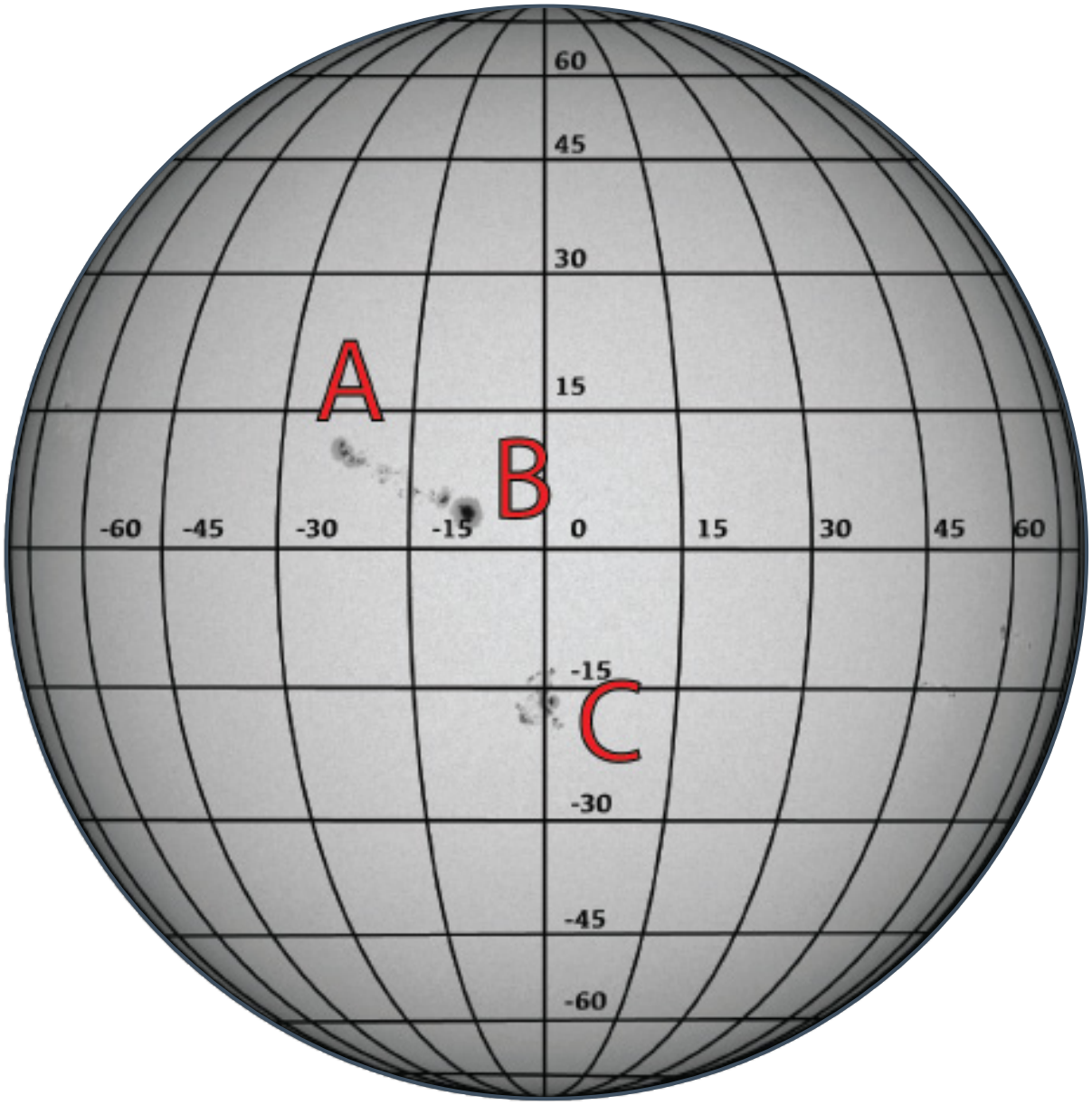
September 1st



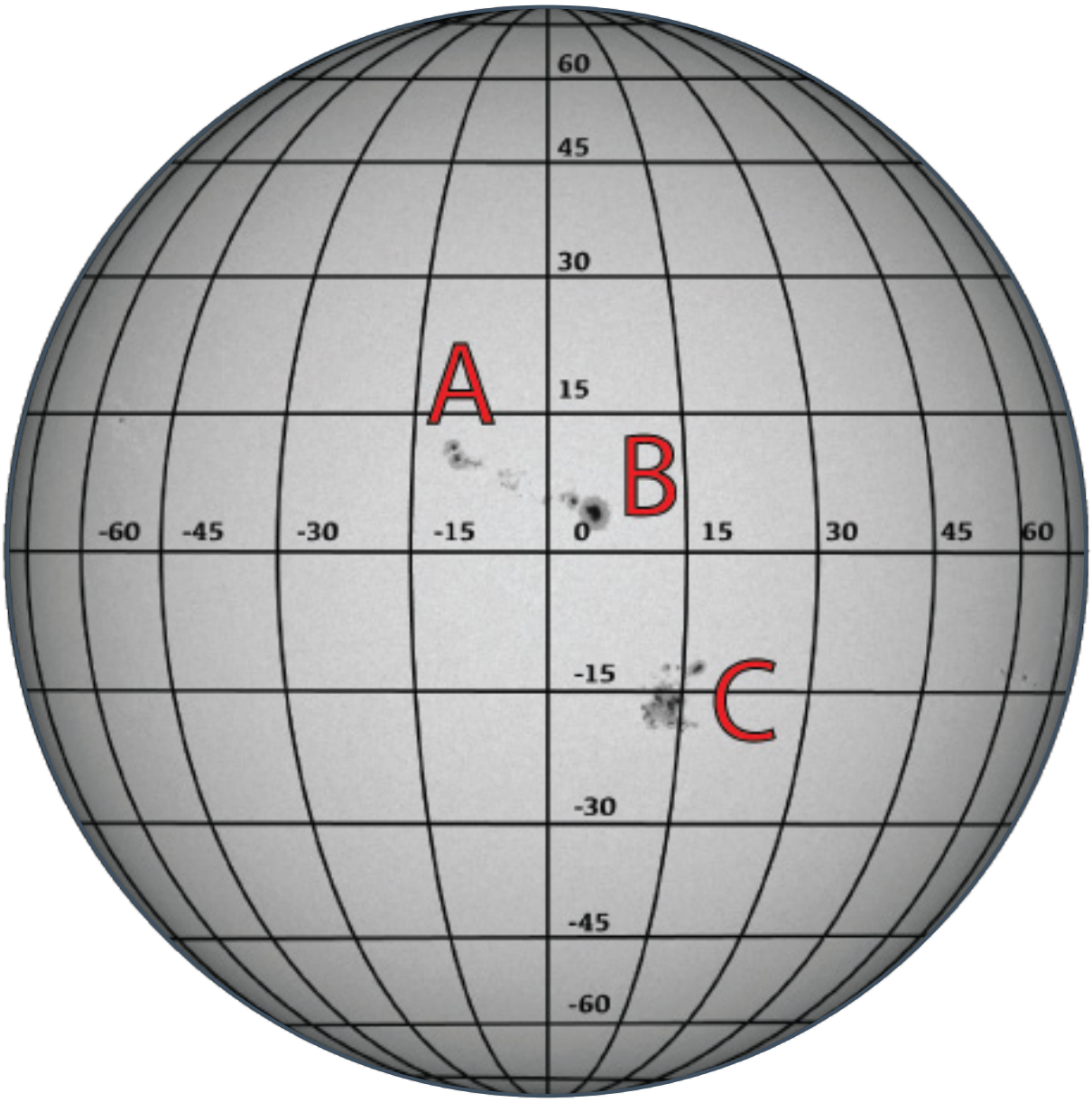
September 2nd



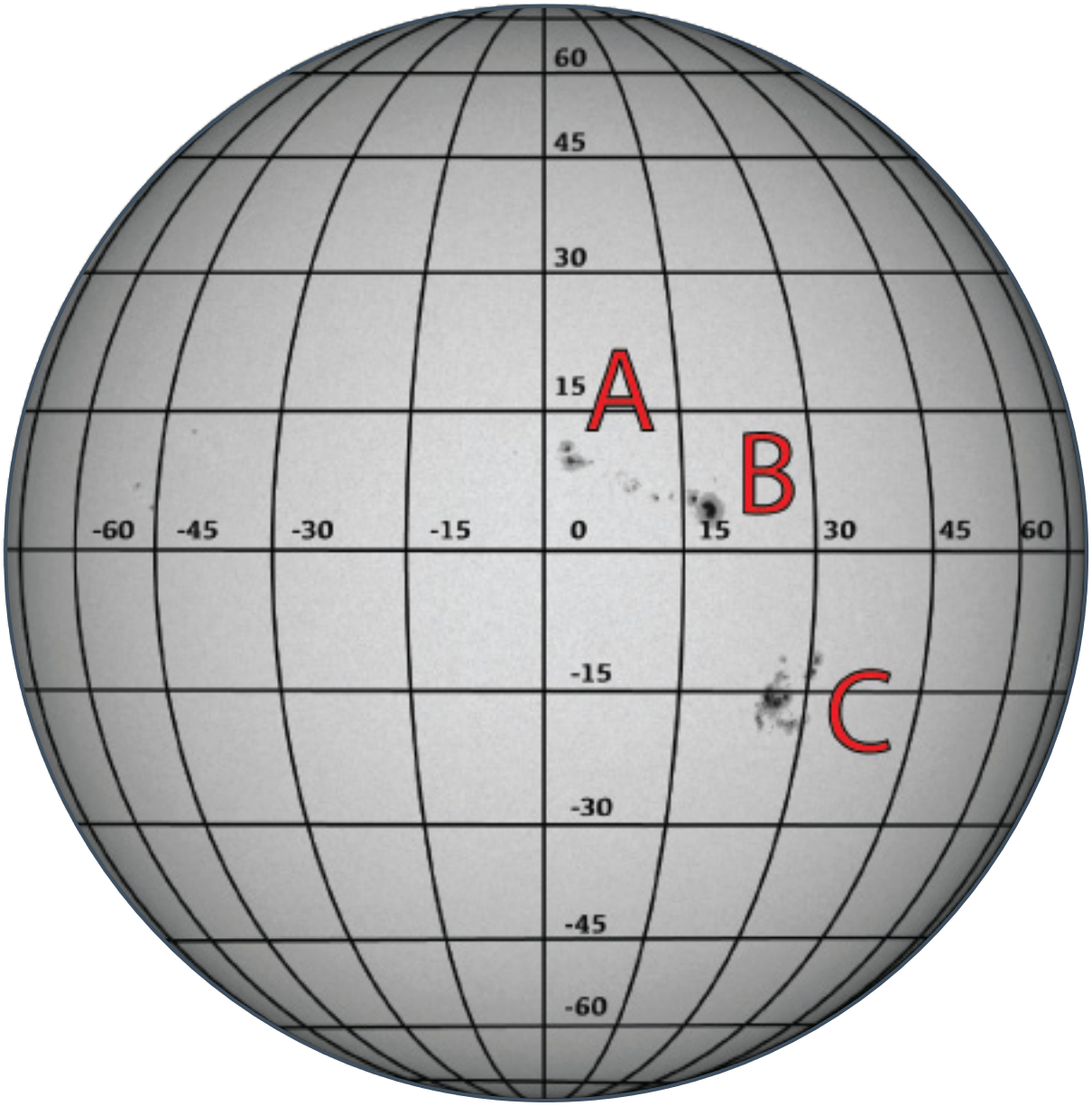
September 3rd



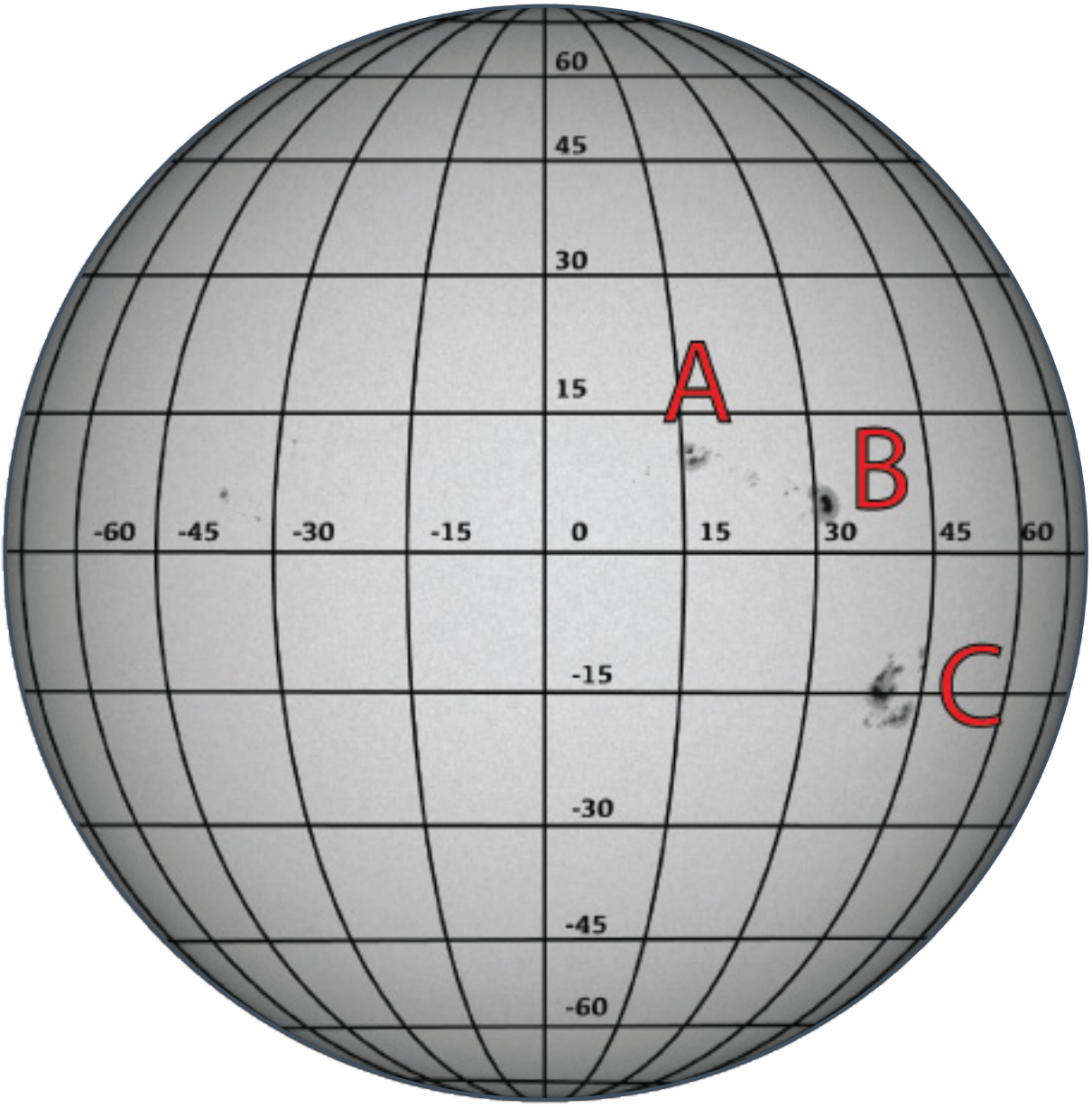
September 4th



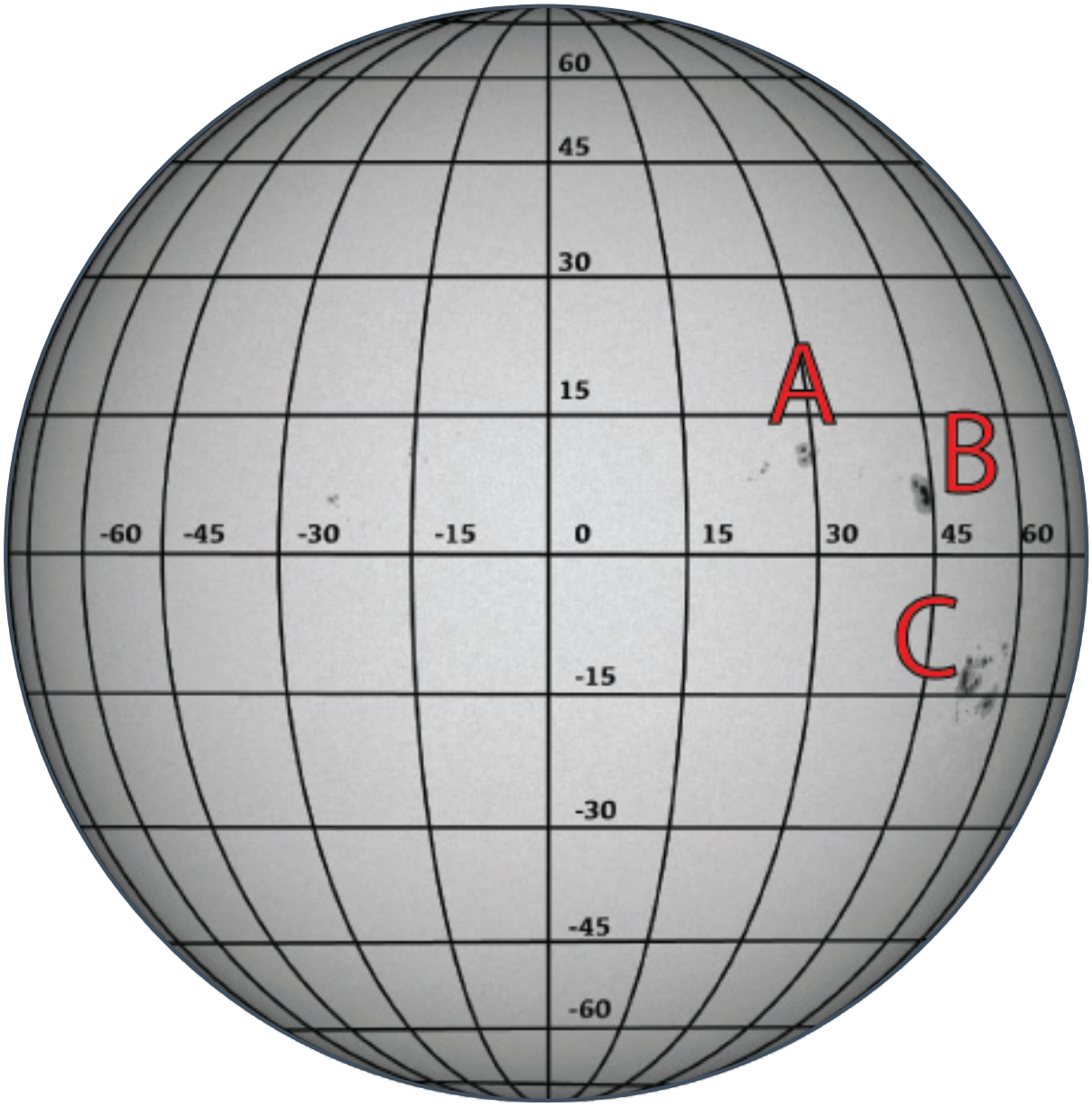
September 5th



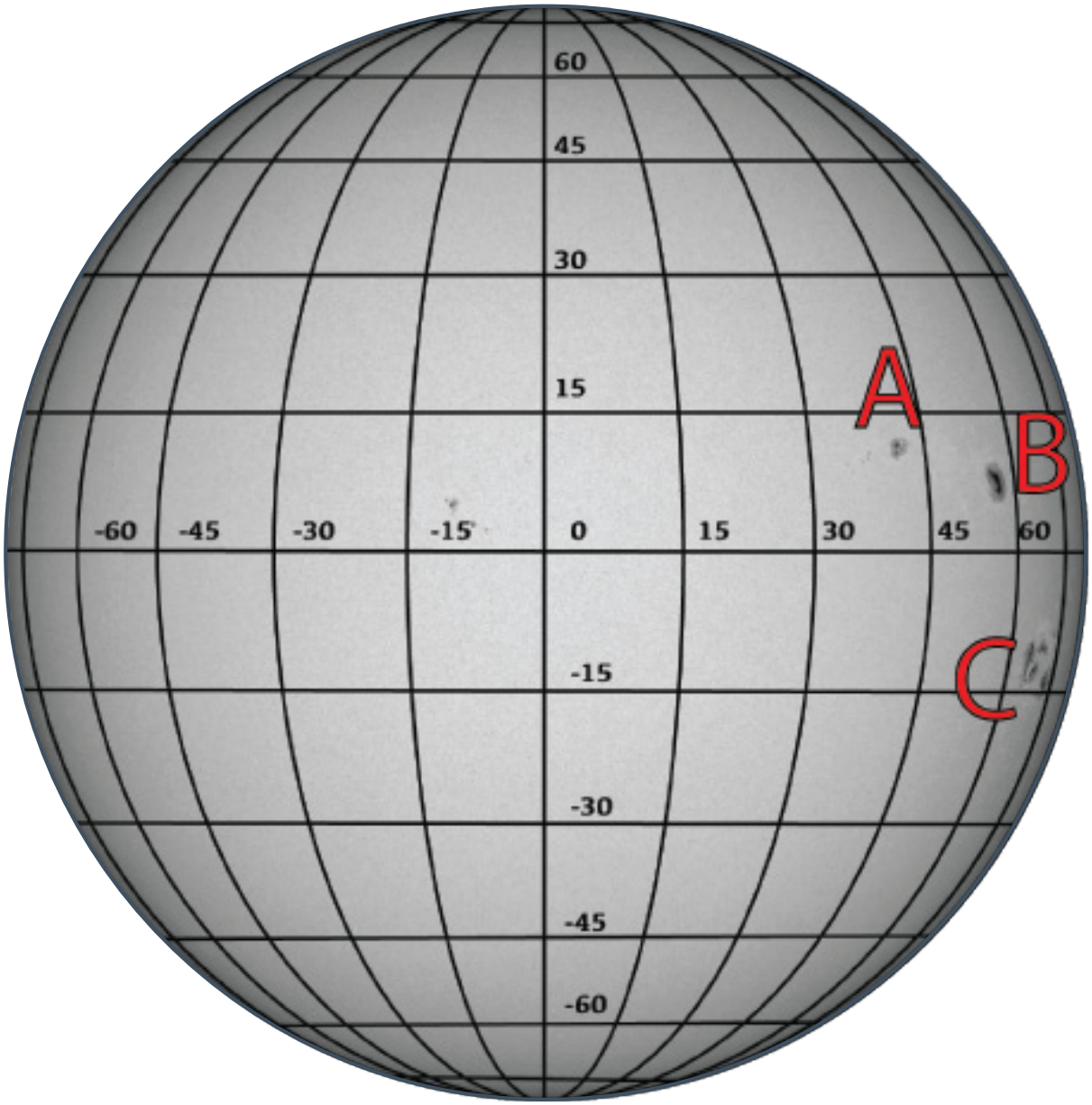
September 6th



September 7th



September 8th



Analysis

What is the average daily rate of sunspot movement?

To answer this, determine the total degrees of change from one day to the next. For example, if you noted the sunspot at -60° on Monday, than at -45° at the same time on Tuesday, then you can conclude that the sunspot moved 15° in one day. Repeat this calculation for each 24-hour period. Then, add the daily movement values together and divide by the total number of days (24-hour periods) over which the changes took place.

Example:

DAY	Sunspot Longitude (degree)	Number of degrees sunspot moved from previous day
Day 1	-60	
Day 2	-50	(60-50) = 10
Day 3	-40	(50-40) = 10
Day 4	-30	(40-30) = 10

Total number of degrees moved = (10+10+10) = 30

Total number of observation days = (4-1) = 3 days

Average rate of sunspot movement = 30 degrees / 3 days = 10 degrees per day.

**Remember, this is just an example, Sunspots do NOT actually move at a rate of 10 degrees per day. You will calculate the actual rate using the data that YOU gather.*

Fill in with your ACTUAL data:

Total Number of Degrees Moved from Day 1 to Day 8 =

A:____ B:____ C:____

Total Number of Days (24-hr. periods between day 1 and day 8) = 7

Rate of Sunspot movement =

A: _____ degrees per day

B: _____ degrees per day

C: _____ degrees per day

Average Rate of Sunspot Movement between groups A, B, and C:

_____ degrees per day

How long does it take the Sun to make one full rotation of 360°?

To answer this, first we need to recognize that the Earth moves around the Sun in the same direction at about 1° per day:

Earth revolves 360° around the Sun in about 365 days.

Thus:

360/365 = 0.99° per day (approximately 1 degree per day)

Therefore, because our telescopes are located on Earth, it seems like the Sun is rotating slower than it really is. We have to correct for this; we must add 1° per day to our initial calculation.

For example: If your initial calculation gave you a sunspot rate of 12° per day, the corrected rate would be 13° per day.

Lastly, use this information to draw your conclusion.

How long does it take the Sun to rotate 360°?

The Sun rotates once every ____ days

Note the Sun isn't a solid object, therefore it does not rotate at the same rate everywhere on its surface. The Sun rotates slightly faster at the equator than it does near the poles.