Teacher's Guide

Sunspot Activity on Other Stars

Introduction

Since the 1970's, astronomers have been studying dozens of other stars that resemble the Sun in size and temperature. By monitoring the month to month changes in the brightness of these stars using the light they emit at specific wavelengths, they can investigate how storms on these stars ebb and flow over time. These 'stellar activit cycles' may be caused by the same processes as our own Sun's sunspot cycle, but may have properties that make them unique.

Objective

Students will analyze and compare stellar activity graphs to determine how similar or different they are to the solar sunspot cycle.

Procedure

1) Group students into either pairs or teams of four. Read the introduction to the students concerning the current issues in astronomy having to do with solar activity.

2) Review with the students an example of how graphs may be similar and different. Be sure to mention shape, distribution, highs, lows, scale, axis and time frame.

3) Provide students with sufficient time to compare the stellar activit cycle graphs with the solar sunspot graphs.

4) Have the groups present their findings to the class.

Materials

—Student Worksheet

Answers:

The Sun.....11 years
HD136202.....28 years
HD81809.....8 years
HD16160.....12 years

Student answers may vary from these by a few years.

Conclusion

Explain that astronomers do not yet know why the sun has a sunspot cycle, or whether these cycles are permanent in the history of the sun, or come and go with time. By studying other stars we can learn just ho typical our sun is, and study the possible factors that influence these cycles, such as the star's mass, temperature and age.

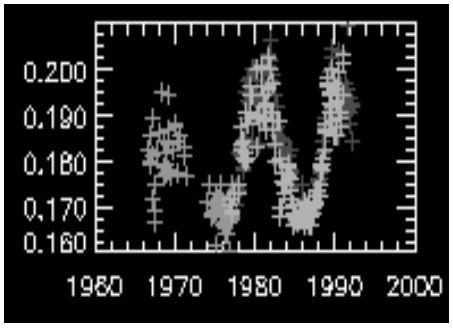
Key Terminology:

Sunspot: A dark spot on the Sun's surface indicating intense magnetic activity and solar storms.

Sunspot Cycle: The change in the rise and fall of sunspot numbers over a roughly 11-year cycle.

Name _____

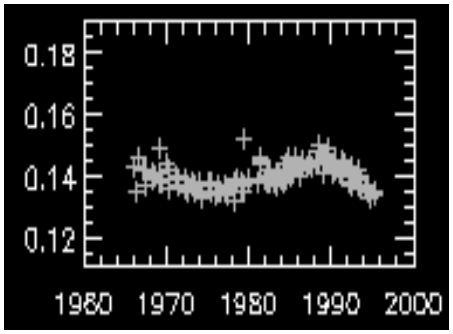
Date_____



The Sun

Average length of cycle:

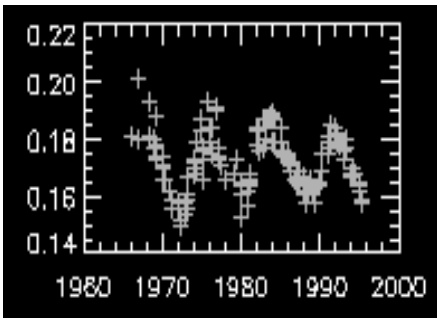
Temperature: **5770 K**



HD 136202

Average length of cycle:

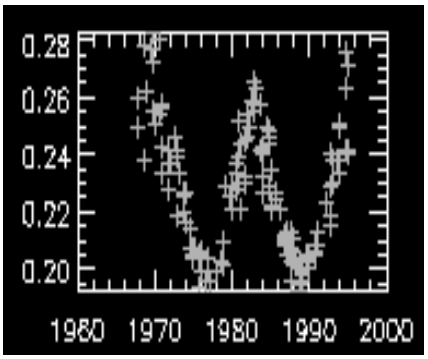
Temperature: **8400 K**



HD 81809

Average length of cycle:

Temperature: **4100 K**



HD 16160

Average length of cycle:

Temperature: **4800 K**