

OpenStax Astronomy, Ch.15: WS Problems (Apr-2021)

Review Questions

1. Describe how energy makes its way from the nuclear core of the Sun to the atmosphere. Include the name of each layer and how energy moves through the layer.
2. Make a sketch of the Sun's atmosphere showing the locations of the photosphere, chromosphere, and corona. What is the approximate temperature of each of these regions?
3. Why do sunspots look dark?
4. Which aspects of the Sun's activity cycle have a period of about 11 years? Which vary during intervals of about 22 years?
5. Summarize the evidence indicating that over several hundreds of years or more there have been variations in the level of the solar activity.
6. What is the Zeeman effect and what does it tell us about the Sun?
7. Compare and contrast the four different types of solar activity above the photosphere.
8. What are the two sources of particles coming from the Sun that cause space weather? How are they different?
9. How does activity on the Sun affect human technology on Earth and in the rest of the solar system?
10. How does activity on the Sun affect natural phenomena on Earth?
11. How can the prominences, which are so big and 'float' in the corona, stay gravitationally attached to the Sun while flares can escape?
12. If you were concerned about space weather and wanted to avoid it, where would be the safest place on Earth for you to live?
13. Suppose you live in northern Canada and an extremely strong flare is reported on the Sun. What precautions might you take? What might be a positive result?
14. Assuming an average sunspot cycle of 11 years, how many revolutions does the equator of the Sun make during that one cycle? Do higher latitudes make more or fewer revolutions compared to the equator?