The Earth's Environment: Global Patterns
Study Guide

TEXT READINGS

pp. 21-33; 50-54

VOCABULARY

precipitation  evaporation  microclimate  electromagnetic radiation
spectrum  wavelength  albedo  convection cell
convergence  divergence  adiabatic cooling  adiabatic lapse rate
ITCZ  biome  salinity  current gyre
El Niño  rainshadow

STUDY QUESTIONS

1. For each of the following factors, explain its ecological significance and briefly how it varies on microenvironmental scales (e.g., with latitude, altitude, depth, seasonal effects, etc.), detailing the source of this variation: light, temperature, water balance. How are these three factors related to each other?

2. Describe the electromagnetic radiation spectrum and how visible light fits into it. Include your explanation something about the different colors of visible light.

3. Discuss the fate of solar radiation when it arrives at the earth (that is how its altered by atmosphere, land, and sea).

4. Explain why temperatures generally get cooler as one proceeds from the equator to the poles.

5. What is an atmospheric convection cell? Draw a diagram of the Earth's atmospheric convection cells (be sure to label this diagram thoroughly). How do these convection cells influence the major surface wind belts, the balance between precipitation and evaporation, the distribution of terrestrial biomes, the global pattern of ocean surface salinity, and the direction of ocean surface currents.

6. Explain the ecological significance of ocean surface currents.

7. What is El Niño and what are its environmental consequences?

8. Why do we have seasons?

9. Draw a diagram that illustrates the formation of a rainshadow.