

READING GUIDE*

Soils in Space and Time I: Age and Maturity

see Buol et al. (2011), Chapter 3, p. 129-138

OBJECTIVE: *To understand time as a factor of soil formation, to recognize the difference between soil age and soil maturity, and to know the various methods used to determine absolute or relative age of soils.*

1. What is an *episodic* process? Provide specific examples of episodic processes that influence soils.
2. In general, what factors influence the rate at which soil properties change within a soil in response to biogeochemical processes?
3. When considering the effects of time on soil formation, why is it necessary to examine each soil property or process independently?
4. How can we establish a time zero when studying the effects of time on soil formation?
5. What processes, in general, will increase soil volume over time? What processes, in general, will decrease soil volume over time? **What factors may control the balance between these two processes?**
6. **What constitutes a mature soil?**
7. What are possible fates for a soil over time? (There are five.)
8. What are some methods of dating soil horizons and profiles? What are the advantages and disadvantages of each?
9. What is a *geomorphic surface*?

SYNTHESIS:

10. How does a soil change as it develops, starting from consolidated parent material to a mature, well-differentiated soil profile? Describe the specific soil horizons and soil properties observed within the profile at various stages of development.

* Questions in plain type represent basic facts and concepts. Questions in **bold** type are those that are answered in the text but require more careful consideration. The Synthesis questions at the end help you apply the facts and concepts to a relevant issue.