

Theme: Antecedent Conditions, Ignition Sources, Fire Danger, & FWI Intro

(See the Online Schedule for Week 4 for links)

A. ANTECEDENT / PRECURSOR CONDITIONS (fb09)

1. What does the word “antecedent” mean, with respect to wildfires.
2. For the 2023 fire season, what time-scales of antecedent conditions are relevant.
3. What types of weather/climate variables was the speaker in the video most concerned about?

B. SPRING DIP (fb26)

1. What is “dipping” (decreasing) in “Spring Dip”?
2. Why is that factor decreasing (dipping) during Spring?
3. Why is wildfire threat sometimes greater during Spring Dip, compared to mid-summer?
4. How might Spring Dip change under global climate warming?

C. LIGHTNING & OTHER IGNITION SOURCES (fb07)

1. What are the three stages in the combustion process?
2. What does the word “pyrolysis” mean?
3. In a forest, what fuels burn in each of the three levels in the forest?
4. How does fuel moisture affect the ignition of wildfires?
5. In addition to lightning, what are 3 other natural sources of wildfire ignition?
6. How do squirrels cause wildfires?
7. How would you explain “dry lightning” to a non-technical person?
8. What are two lightning-detection methods.
9. A common name for “deep convection” is _____ .

D. HOLDOVER & ZOMBIE FIRES (fb30)

1. What aspects of a smouldering fire are different from a flaming fire?
2. What are the roles of “char” and “pyrolyzate” in different types of fire?
3. How can fires last all winter under a snow cover?
4. Why are holdover fires also known as “zombie” fires.
5. If pyrolysis is a “endothermic” reaction (i.e., needs heat; doesn’t produce heat) , then how can it be a process in a wildfire?
6. Describe the four stages in the propagation of an underground smouldering fire.

E. FIRE DANGER RATINGS (fb05)

1. Describe the similarities and differences between Canadian, US, and Australian fire danger rating systems (FDRS). (A thorough answer is desired here.)
2. Describe are the four main sub-systems of the Canadian Forest Fire Danger Rating System (CFFDRS)?

F. FIRE WEATHER INDEX (FWI) - OVERVIEW (fb10)

1. Describe the 6 modules of the FWI system, and explain how they relate to weather elements?
2. Speculate on why there are 3 different moisture codes. (We will learn more details next week.)