Forest Fires and Climate Variability in the Western U.S. (S07-swetnam221320-Oral)

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Abstract:

Enormous crown fires have occurred in recent years and decades in some western U.S. forests where such high intensity fires probably have not occurred for many hundreds to thousands of years. Forests with the most drastic changes in fire regimes are those that previously sustained frequent surface fires, such as pure ponderosa pine. It is clear that accumulation of woody fuels following livestock grazing, logging, and fire suppression efforts were largely responsible for these historically and ecologically anomalous fires. However, climatic variability has also played an important role in the past - and currently - in driving extensive fire events, and fire regime changes. I will describe tree-ring studies in the western U.S. which reveal the importance of interannual to decadal climatic variability in controlling fire regime variability. I will also show examples of recent high intensity fires in the Southwestern US, with ecological, hydrological and geomorphic responses that indicate parts of these burns were highly anomalous. Last, I will discuss implications of current and future climatic changes on fire regimes.

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