

Seasonal-to-interannual variation in biomass burning over the contiguous United States

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The intensity and frequency of wildfires are strongly affected by climatic factors, such as droughts and heat waves, which are governed by weather and climate dynamics. Climatic impacts on wildfire and biomass burning can be complex involving not only natural variability, but also human activities. In this study, we examine the seasonality of occurrences and intensity of fires and climatic impact as a function of underlying biomes over the CONUS, using fire pixel data from MODIS instruments on-board Terra and Aqua. Results show that there are three distinct fire seasons, *i.e.*, summer (June to August), spring (March-April), and Fall (September-October). In the evergreen needle leaf region where most fires occur, the fire season peaks in mid boreal summer. In this region, fires tend to start early (June) in southern US, and late (August) in northern US. Double peaks are distinctive features in grass land and crop land. Double peaks in crop land (spring and fall) appear to be associated with agricultural practices. However, the two peaks in grass land (spring and summer) are due to natural wildfires, associated with changes in seasonal weather pattern. To better understand the potential climatic impact on fire, we examine relationships between fire weather index (FWI) and fire pixel counts. Fire pixel count has a strong correlation with FWI in evergreen needle leaf forest, deciduous broad leaf forest, and open shrub land. However, no significant linear relations are found in crop land, grass land, and mixed forest. The implications of these findings, and possible impacts of atmospheric teleconnections on the fire season in the CONUS will also be discussed.