



A climatological perspective of wildfires in Alaska

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An average of about 4,000 km² burn each year in Alaska from forest fires. The majority of the total area burned is due to lightning-ignited fires, or wildfires, rather than human-caused fires, even though humans start the greater number of fires. During the summer of 2004, a total area of 26,669 km² burned, setting a new record in the 50-year database. The unusually warm and dry weather was a predominant factor for the wildfire season in which it was the warmest on record and drought-like conditions produced the 3rd driest summer for Interior Alaska in nearly 100 years of observations. There was increased thunderstorm development producing a record number of lightning strikes almost five times the normal seasonal total. Only the first snowfall in September terminated a large percentage of the fires, however, at least one fire southeast of Fairbanks regenerated in spring 2005. Smoke from the fires resulted in extremely poor air quality at locations across the state. The fine particulate matter load in Fairbanks was very high with a maximum above 1000 $\mu\text{g}/\text{m}^3$, which exceeds the most dangerous EPA established category “hazardous” by a factor of two. An hourly CO concentration observation in Fairbanks reached 10.3 ppm, the highest value ever measured in summer. The 2005 season was also quite active and ranked third highest on record for area burned. The weather conditions, lightning, and fire statistics for extreme fire seasons will be discussed and placed in historical context along with observed trends in summer temperature and precipitation.