

# Climate and Wildfire

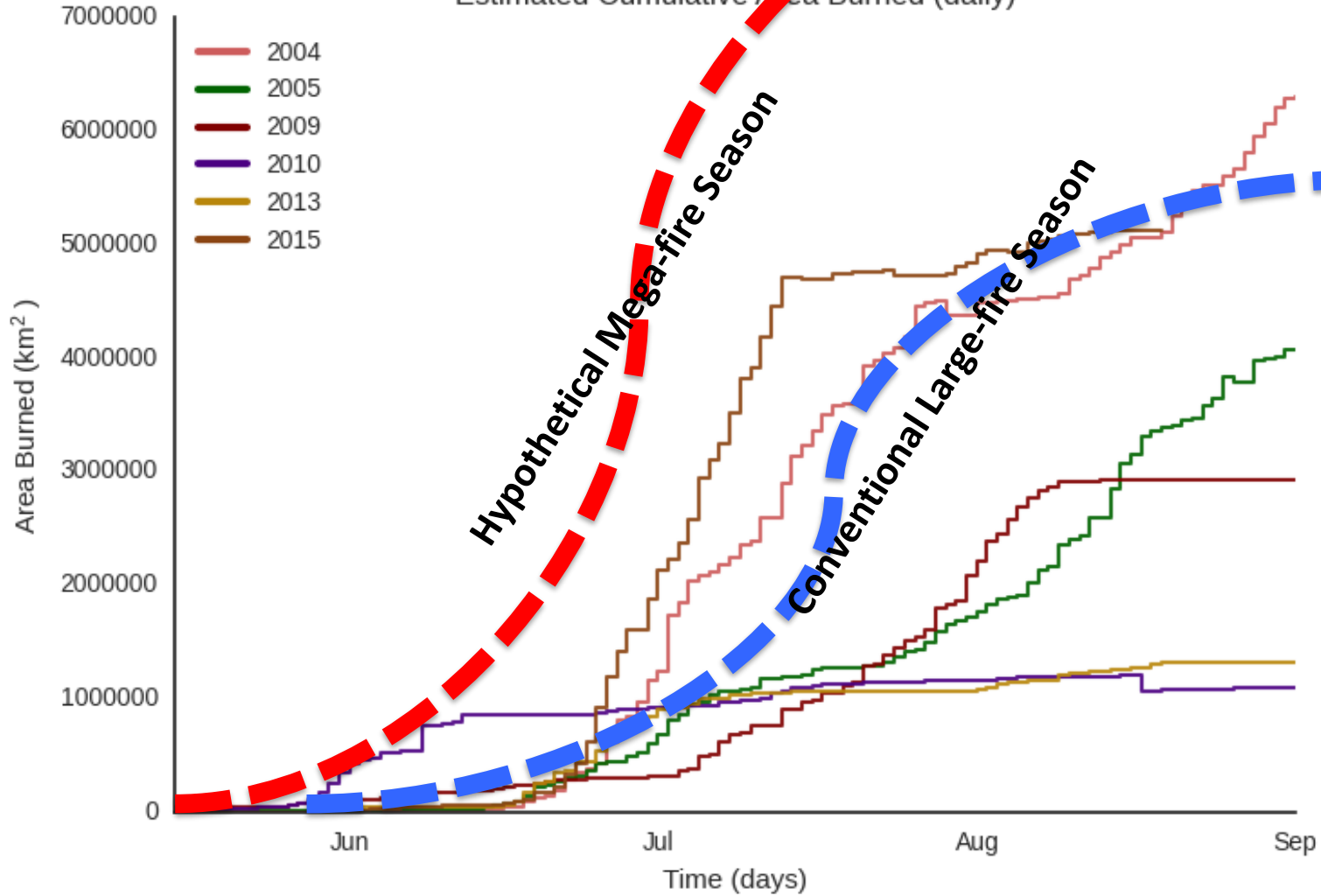
**Scott Rupp**

Scenarios Network for Alaska + Arctic Planning  
Fairbanks, AK



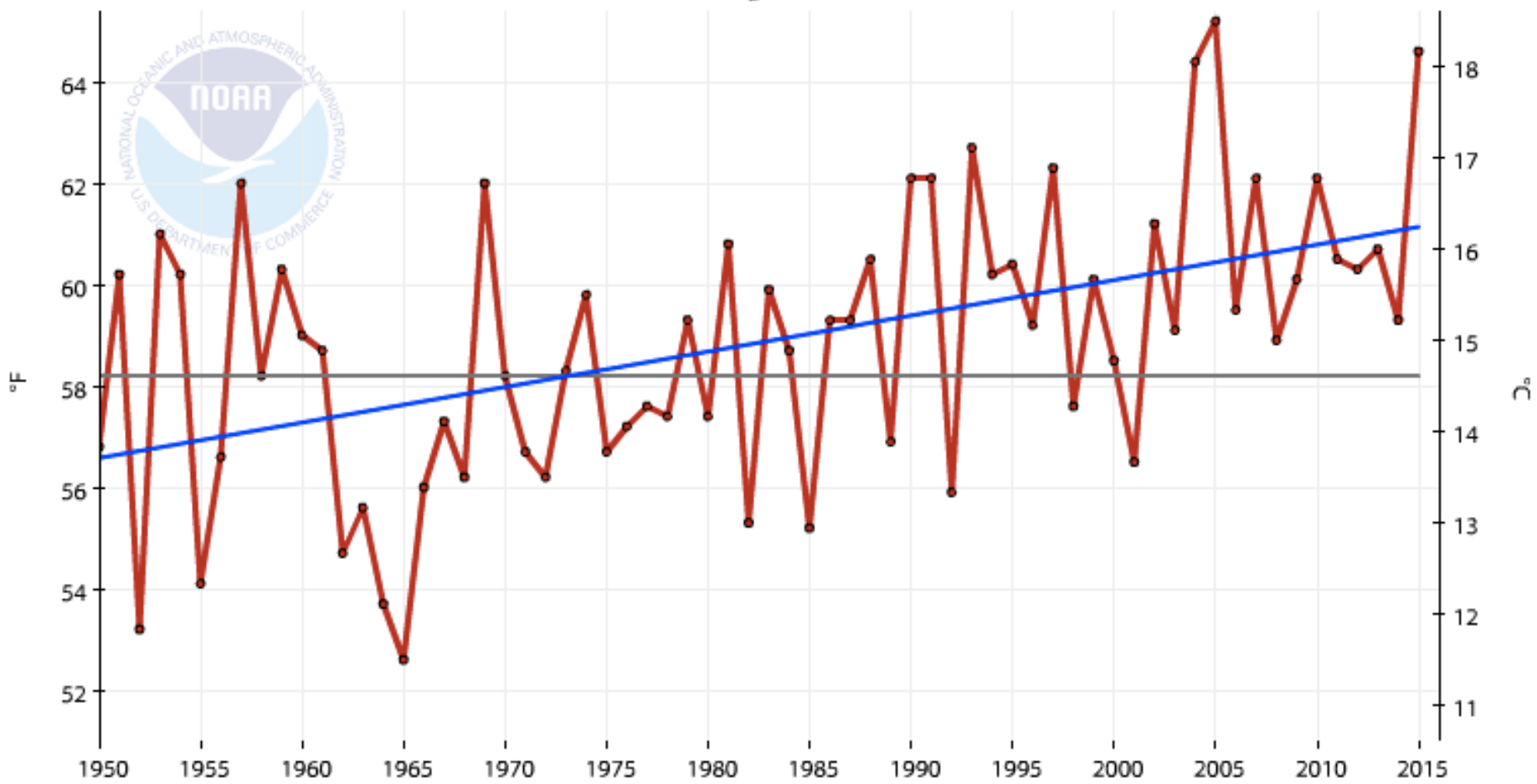
**October 2015**

Estimated Cumulative Area Burned (daily)

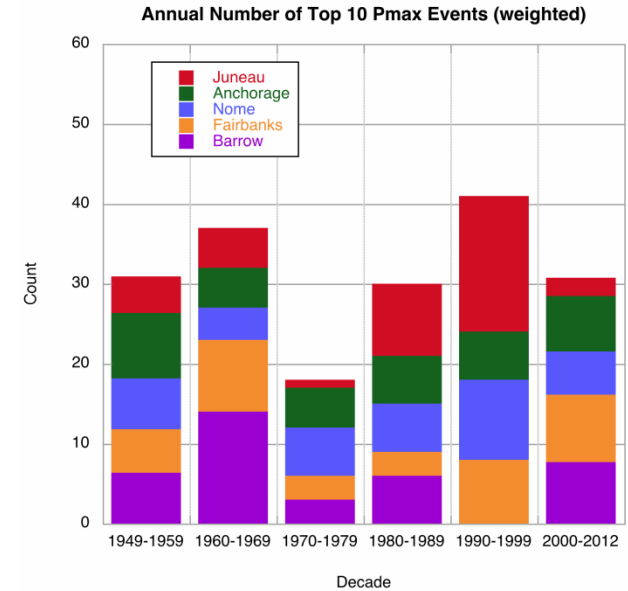
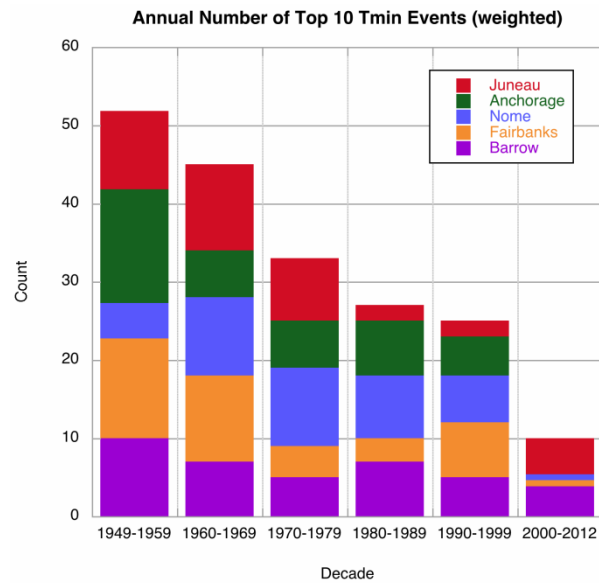
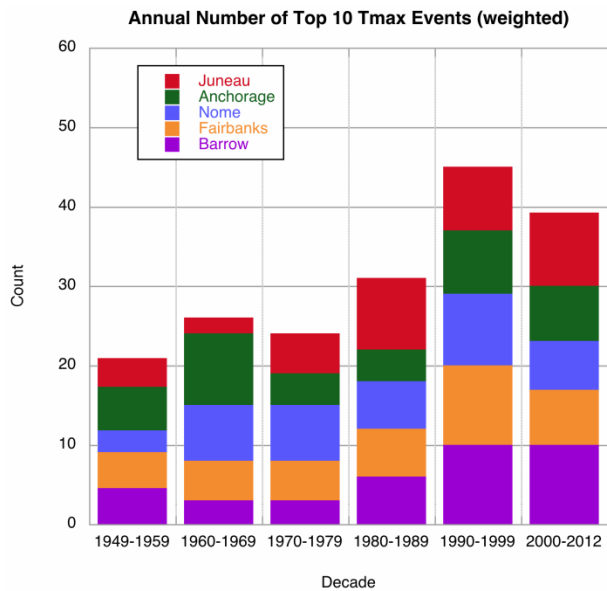


# Alaska, Climate Division 3, Maximum Temperature, May-June

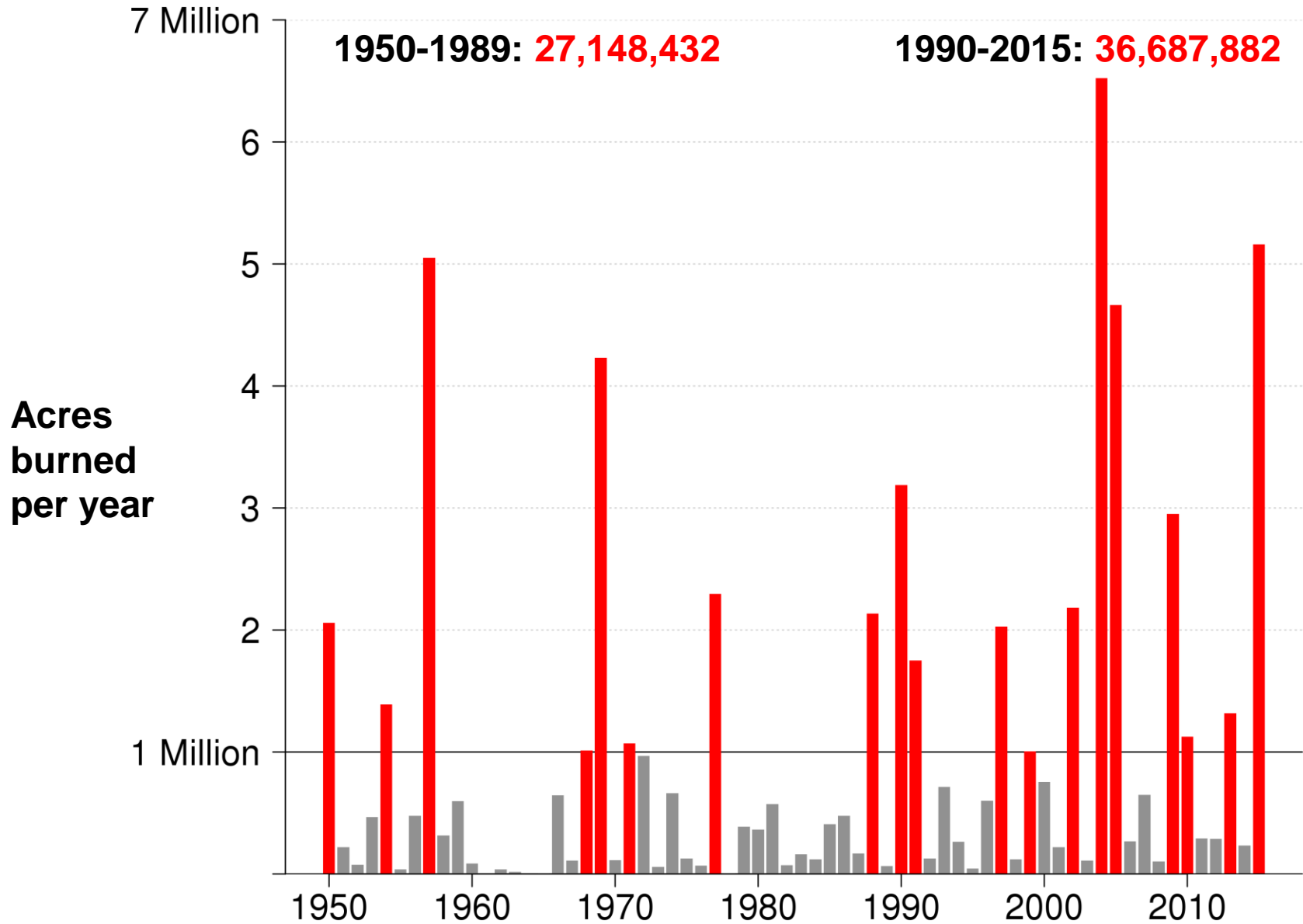
1950-2015 Trend +0.7°F/Decade      1925-2000 Avg: 58.2°F      Max Temperature



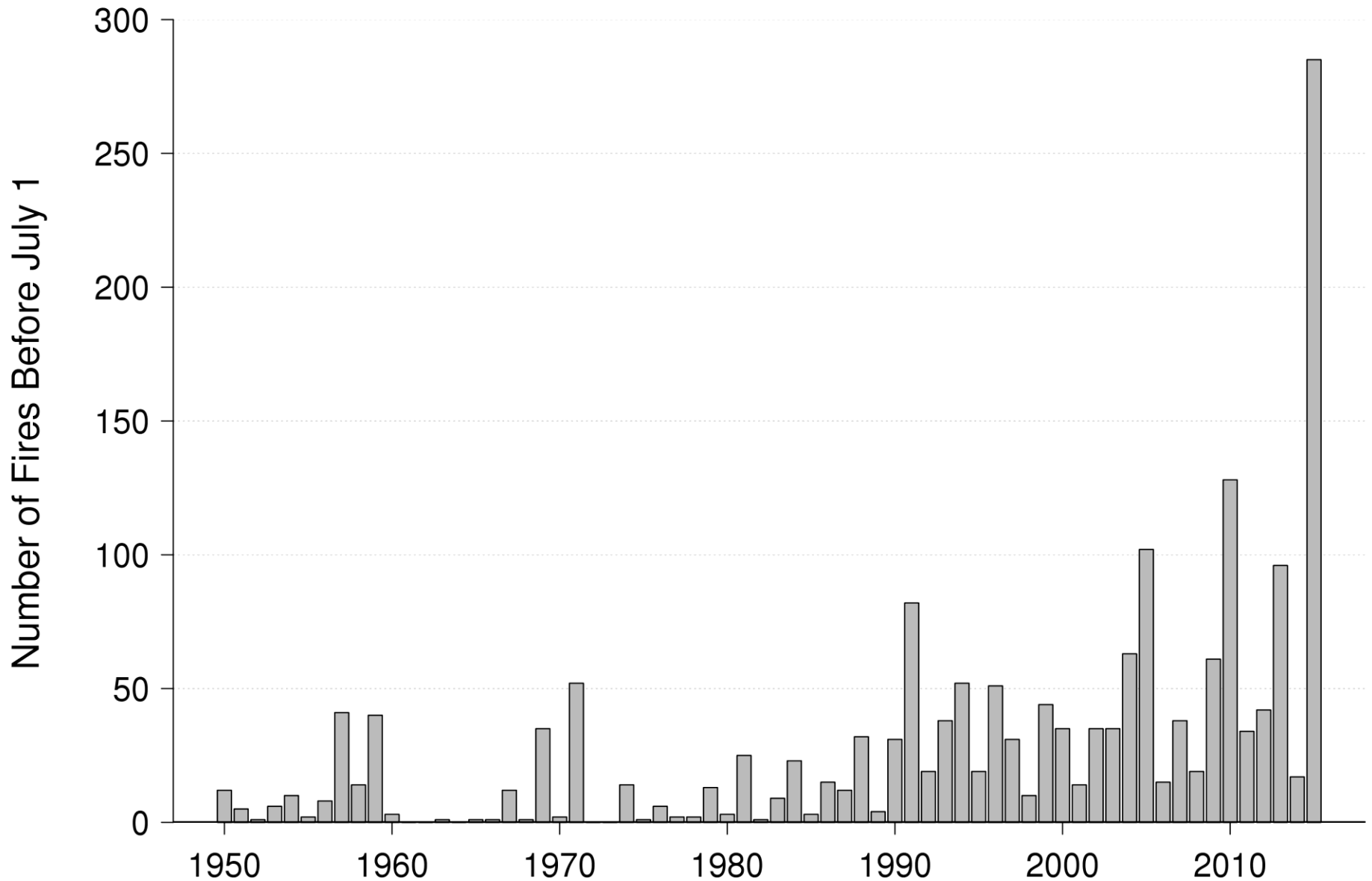
# Changes in the decadal frequencies of extremes



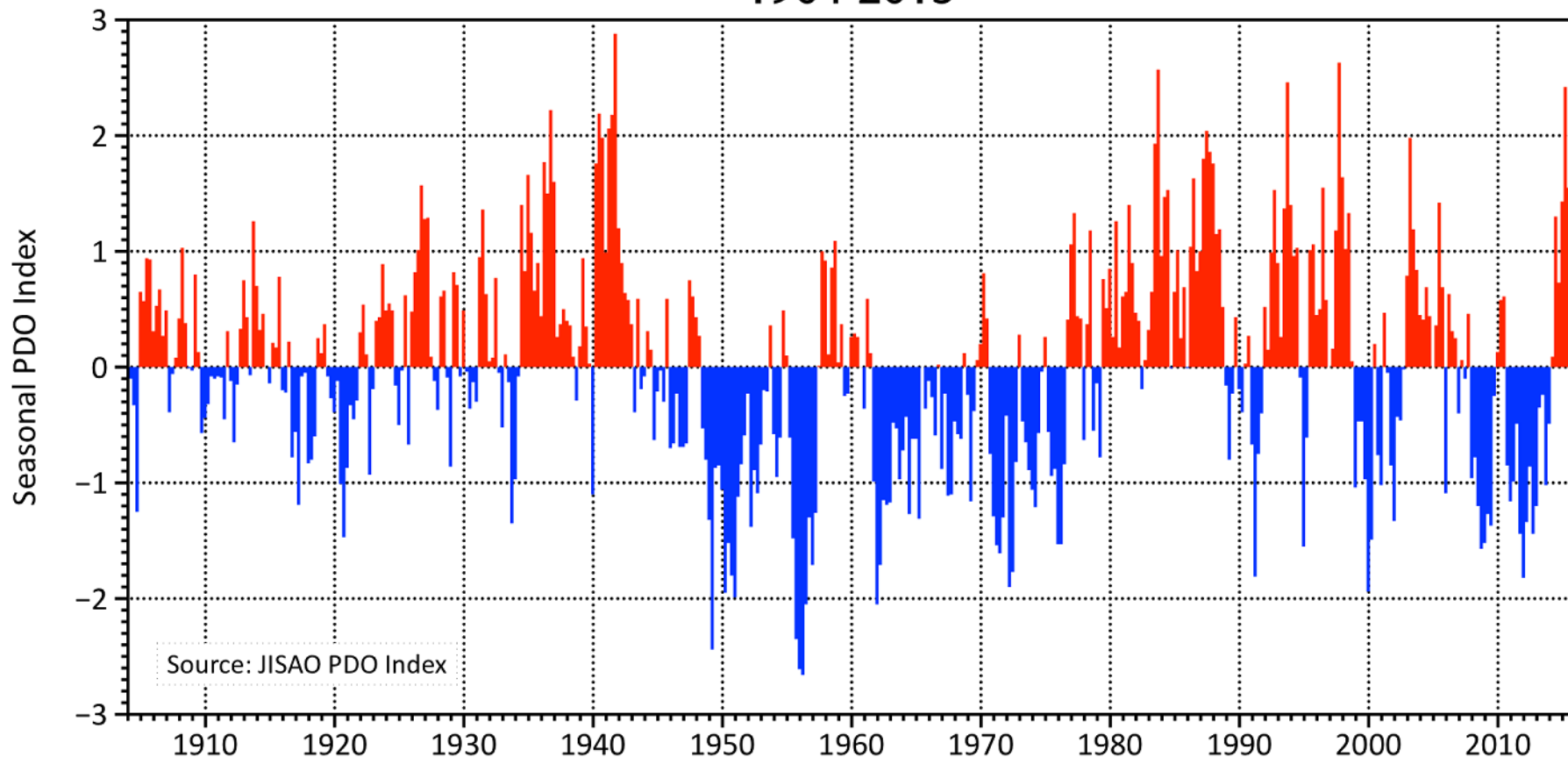
# Area burned in Alaska 1950–2015



# Fire Starts with a Perimeter Before July 1

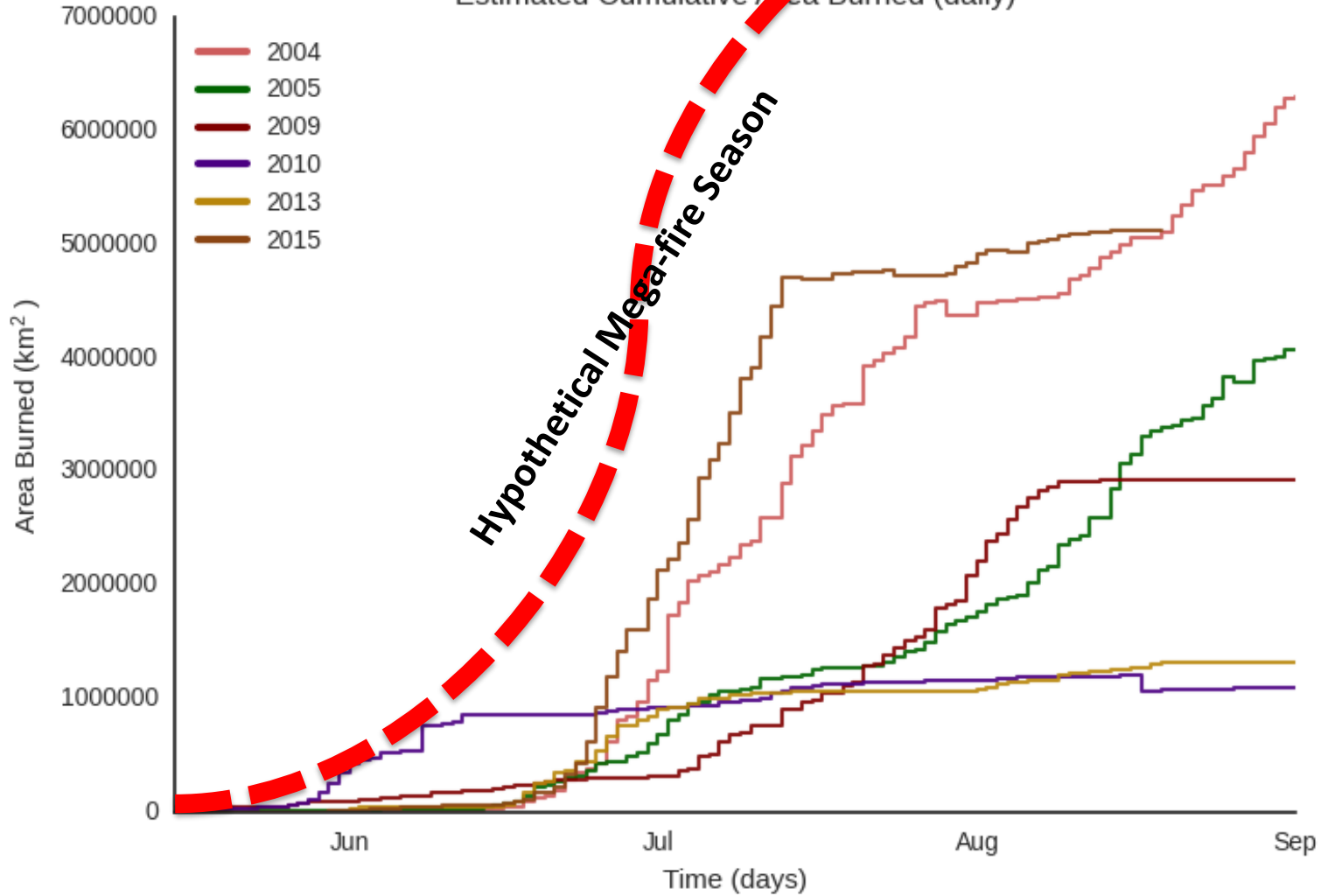


# Pacific Decadal Oscillation Index 3-Month Non-Overlapping Seasons 1904-2015



Source: Rick Thoman

Estimated Cumulative Area Burned (daily)





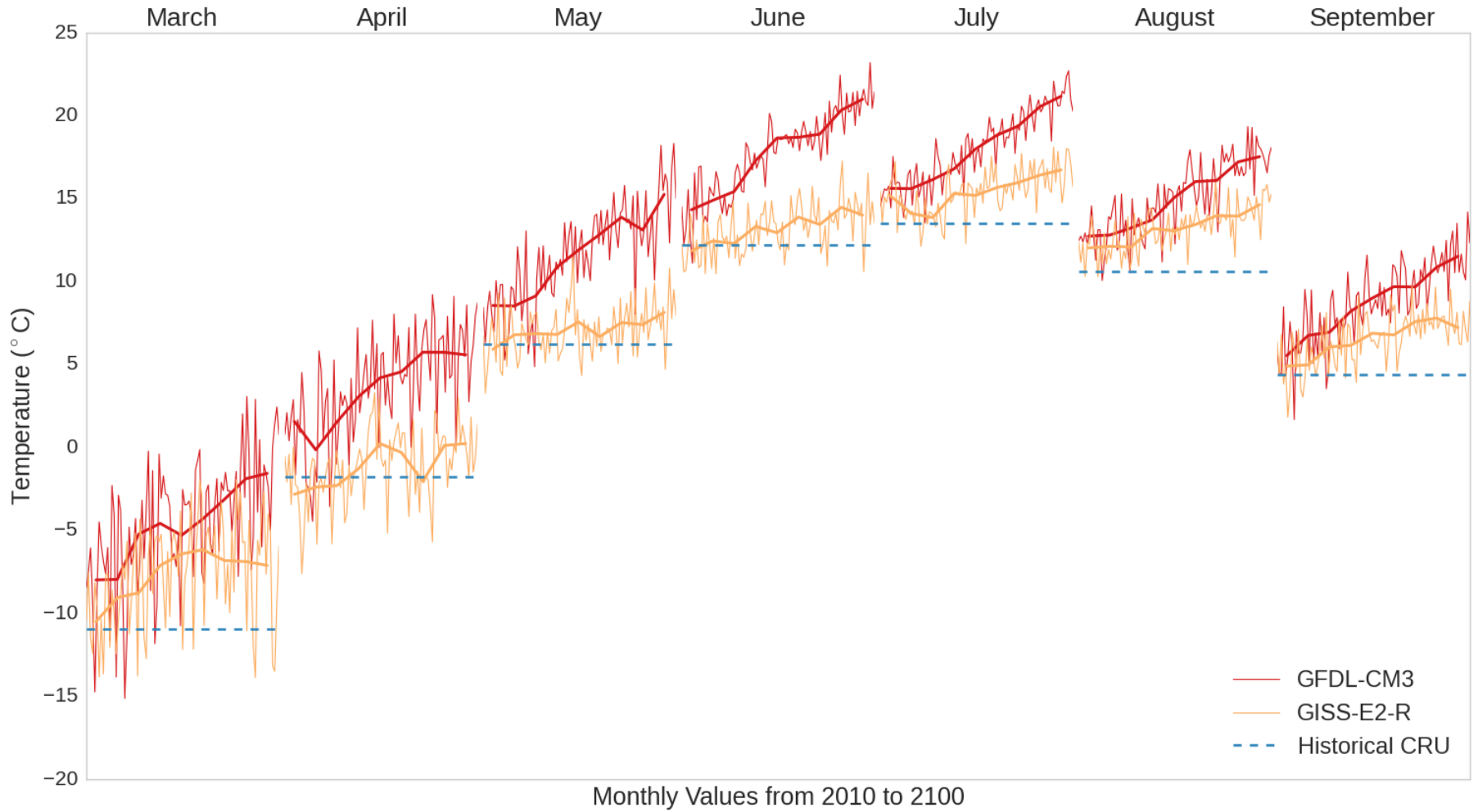
**Weather**



**Ignition**

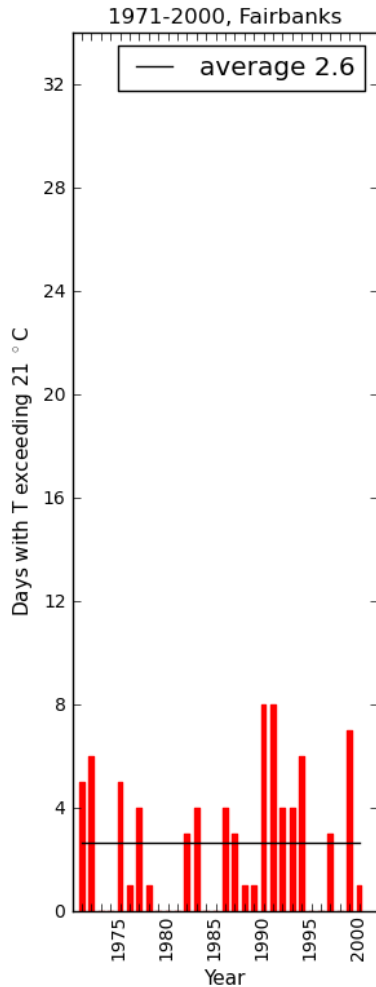
**Fuel**

Monthly Average Temperature  
CMIP5 Models: GISS-E2-R and GDL-CM3, RCP 8.5  
with 1980-2010 Historical CRU Averages

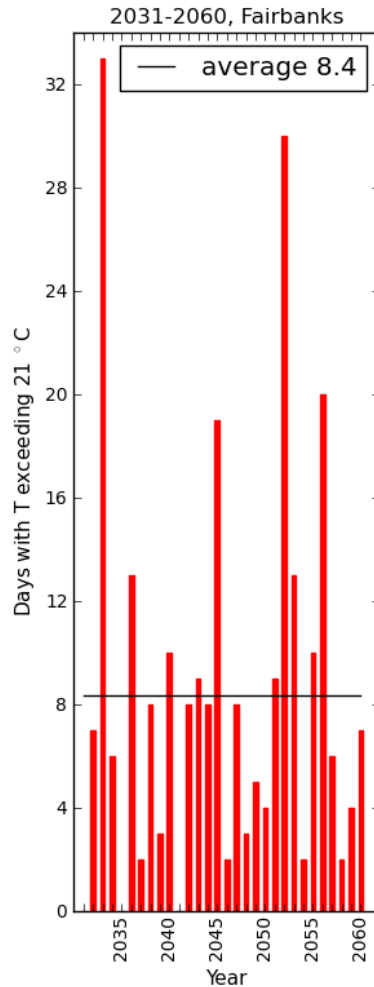


# Fairbanks: Days 21°C (70°F) or warmer

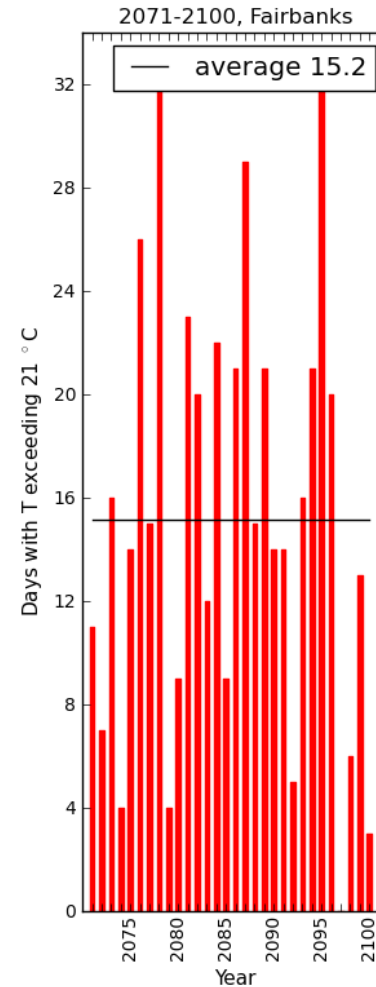
## 1971-2000



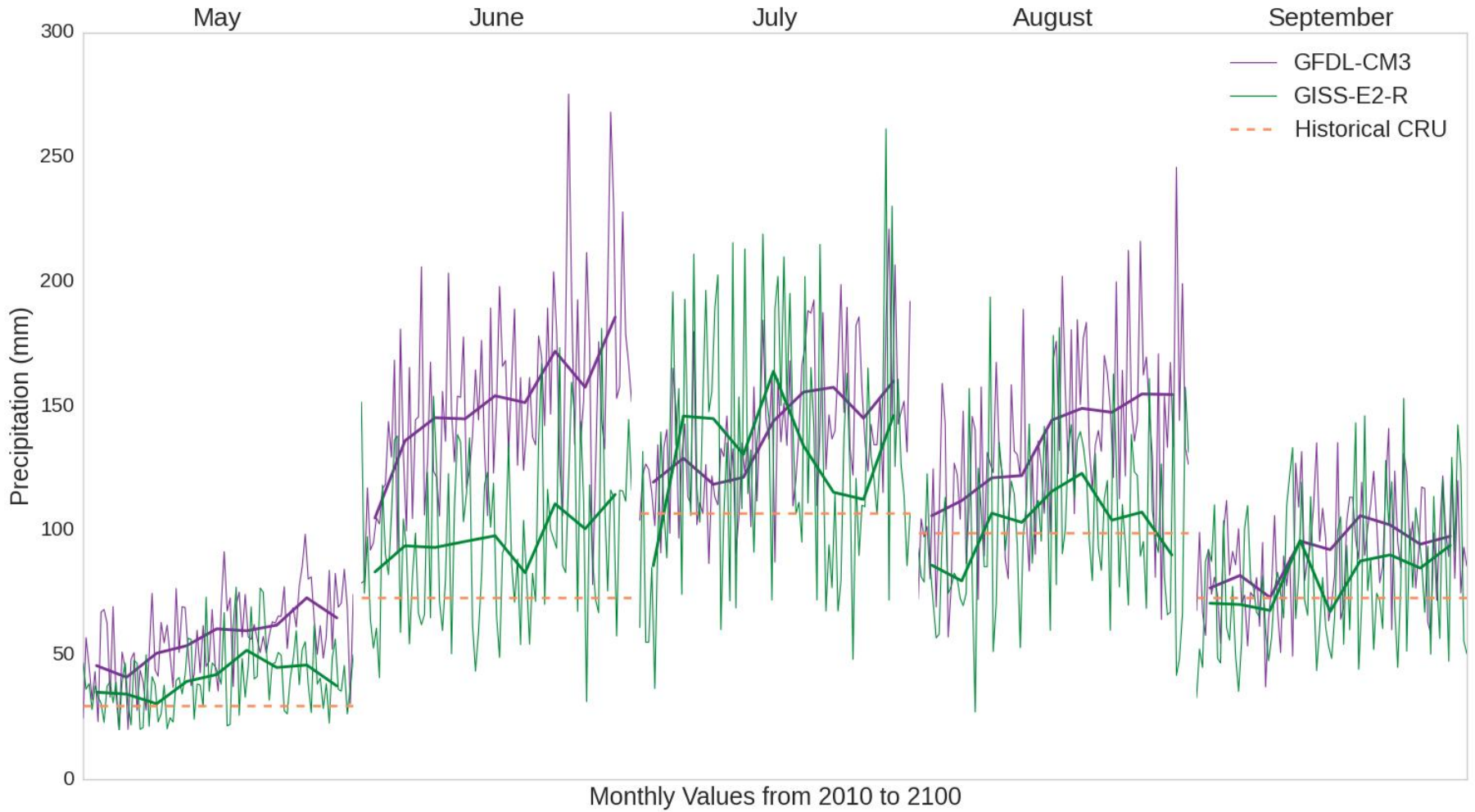
## 2031-2060



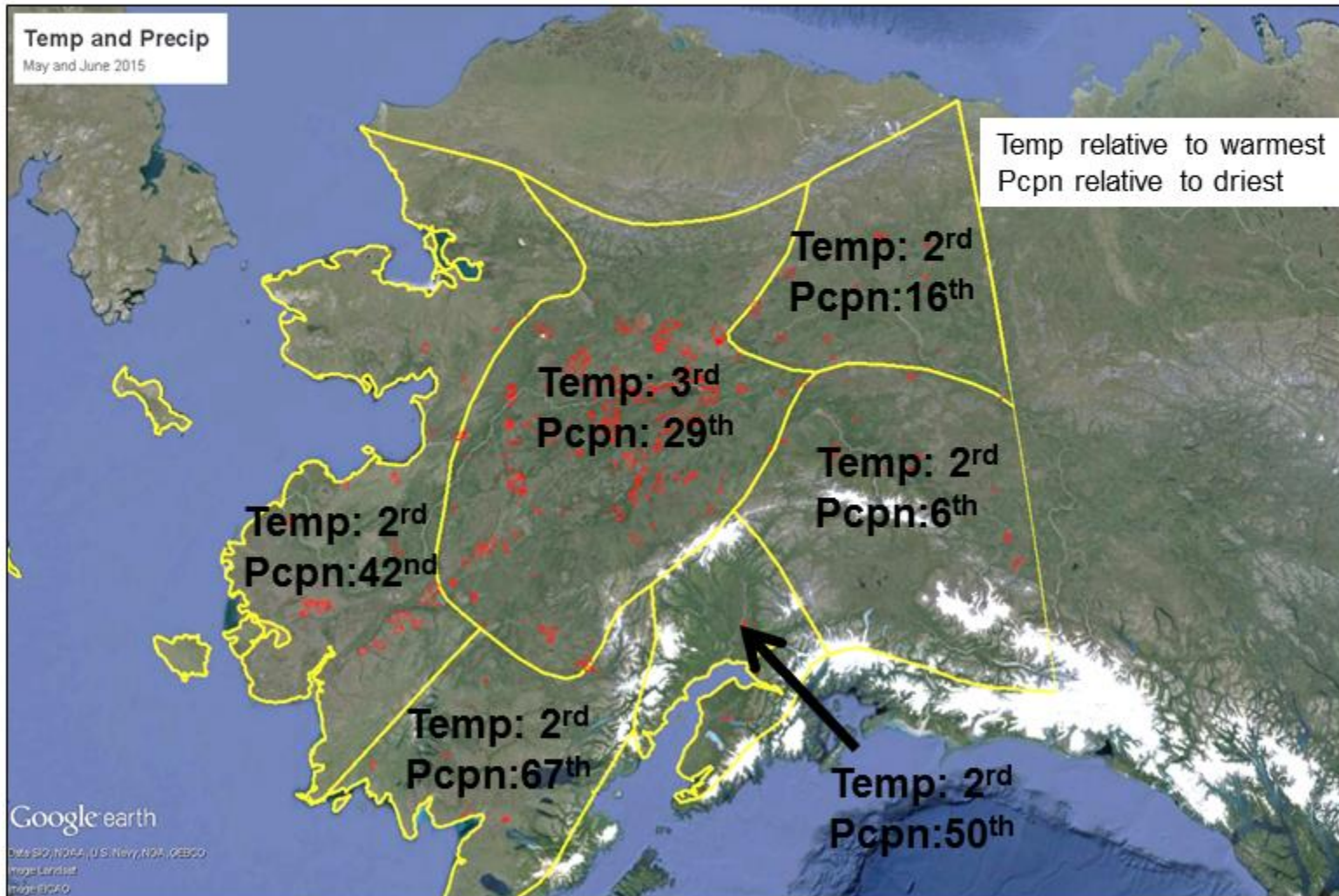
## 2071-2100



Monthly Average Precipitation  
CMIP5 Models: GISS-E2-R and GDL-CM3, RCP 8.5  
with 1980-2010 Historical CRU Averages



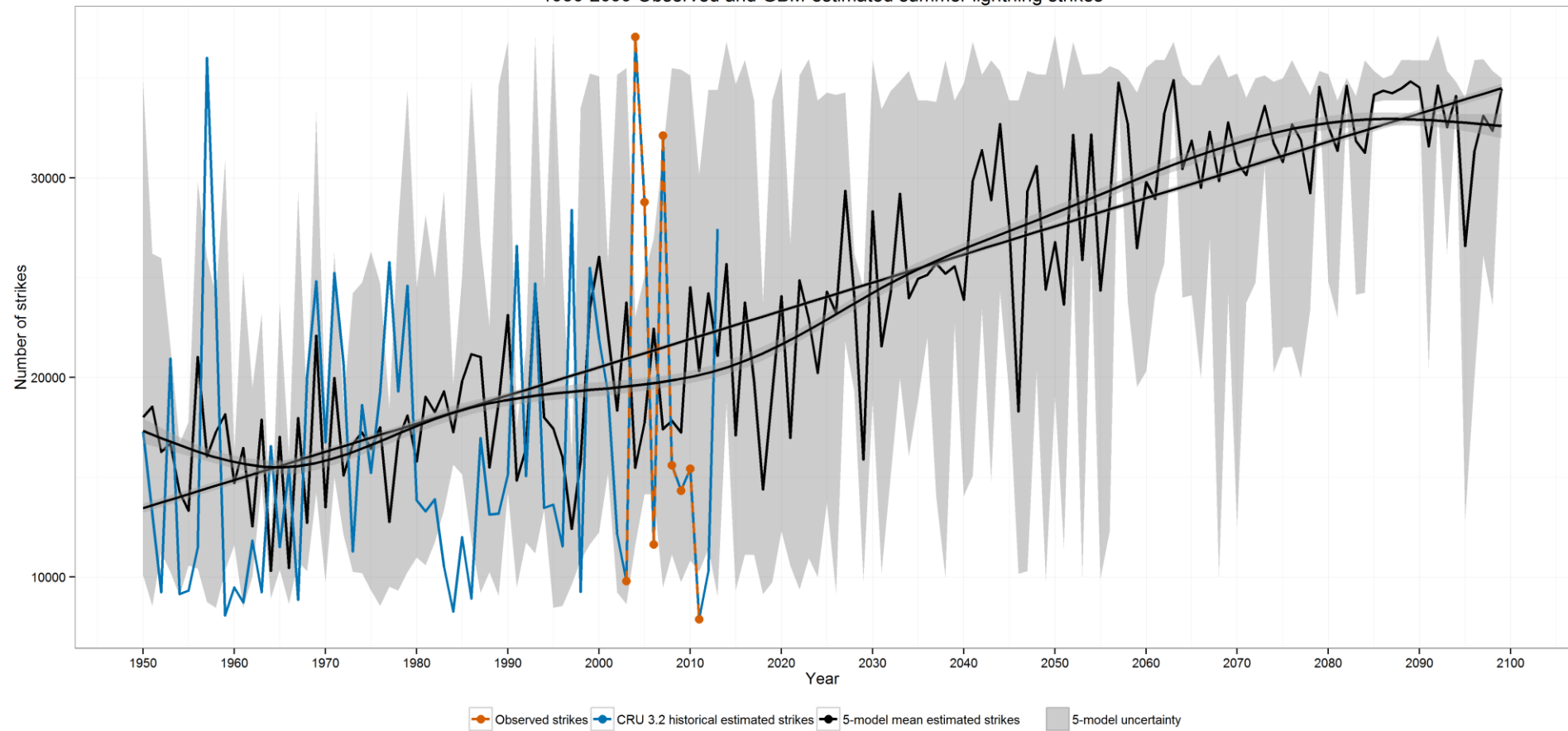
# May and June 2015 Temp/Pcpn Ranks

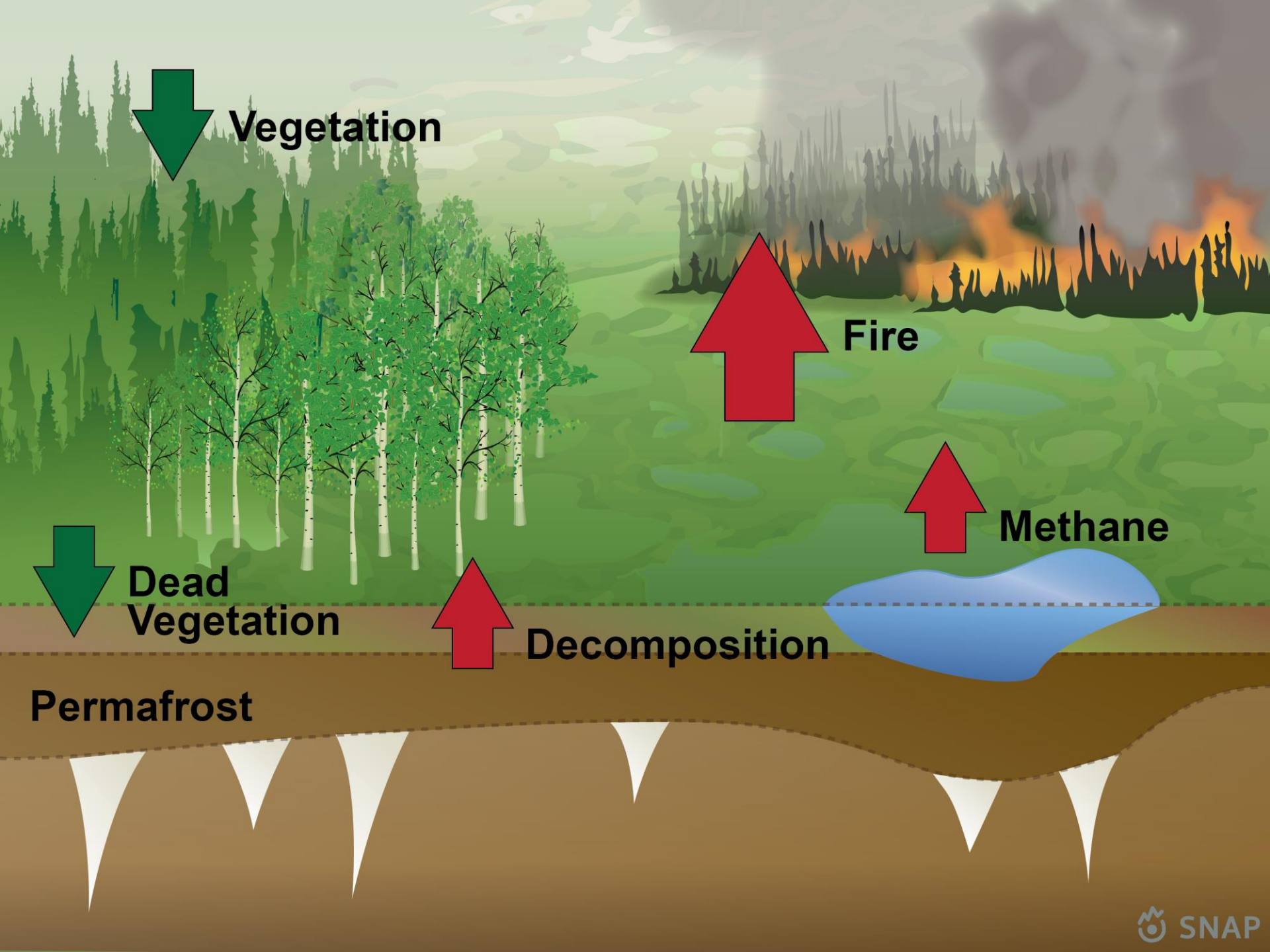


Source: Rick Thoman

# Modeled Future Lightning Activity

1950-2099 Observed and GBM-estimated summer lightning strikes





**Vegetation**

**Fire**

**Methane**

**Dead  
Vegetation**

**Decomposition**

**Permafrost**

