

Analyses to Support Modified Option Conversion Decisions

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Goals

- Assemble historical fire and climate data
- Characterize patterns that may be relevant to modified option conversion decisions
- Iteratively assess how analyses can be used to inform decision making

Historical Data

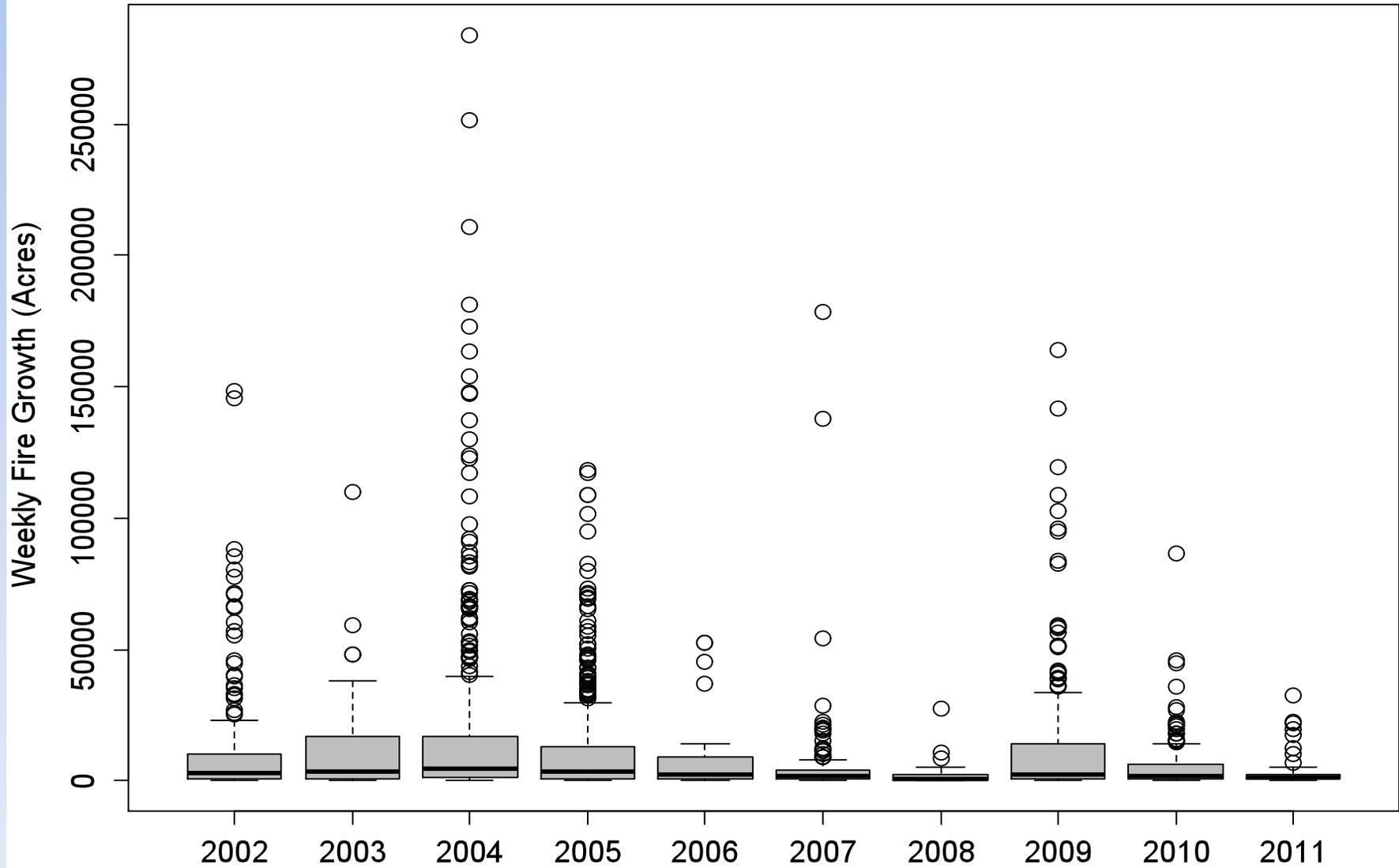
- Fire growth data
 - Characterize how early season fire growth patterns have historically related to late season activity
- Patterns of atmospheric circulation
 - Examine how atmospheric circulation metrics correlate to the persistence of early season patterns

Historical Fire Growth Data

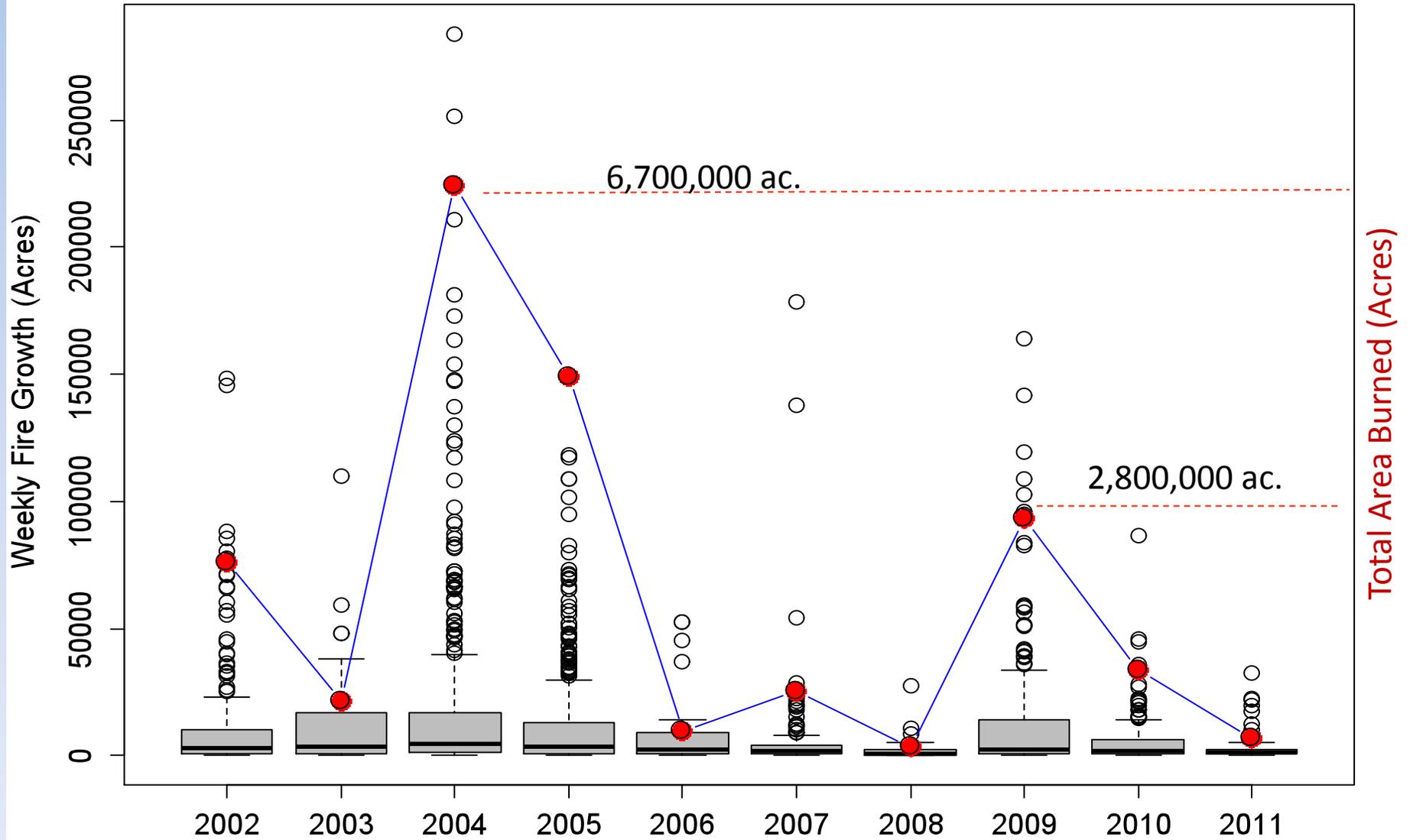
- Data were assembled from FireBeans
- Each fire from each year has a daily growth record
- These were aggregated to weekly growth to account for issues related to aerial monitoring

Day	Month	Year	Record Number	Name	Dailysize	Firesize	Growth
17	7	2002	432	Ambler River	200	1037	0
18	7	2002	432	Ambler River	200	1037	0
19	7	2002	432	Ambler River	810	1037	610
20	7	2002	432	Ambler River	910	1037	100
21	7	2002	432	Ambler River	910	1037	0
22	7	2002	432	Ambler River	910	1037	0

Weekly Fire Growth by Year for All Fires



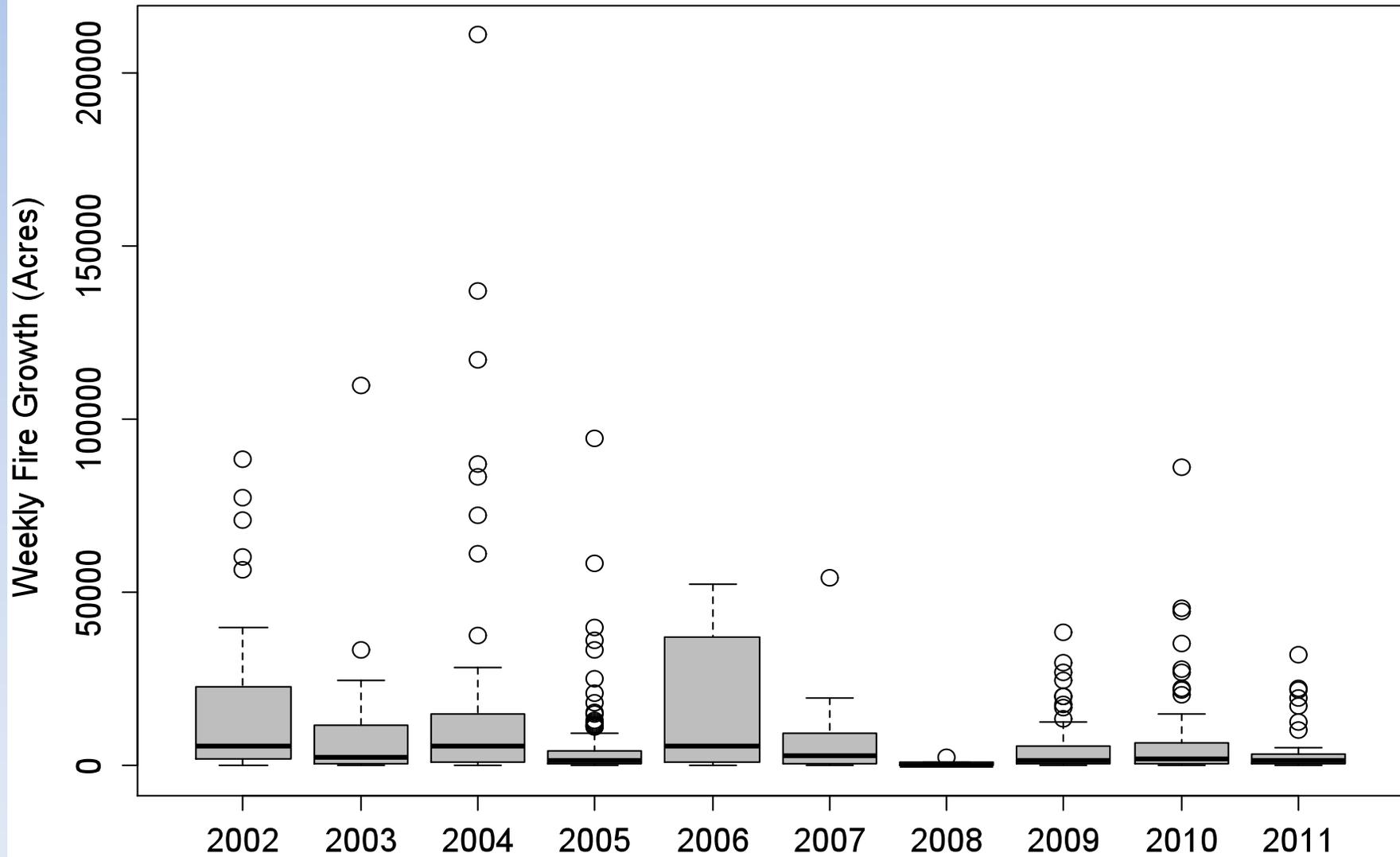
Weekly Fire Growth by Year for All Fires



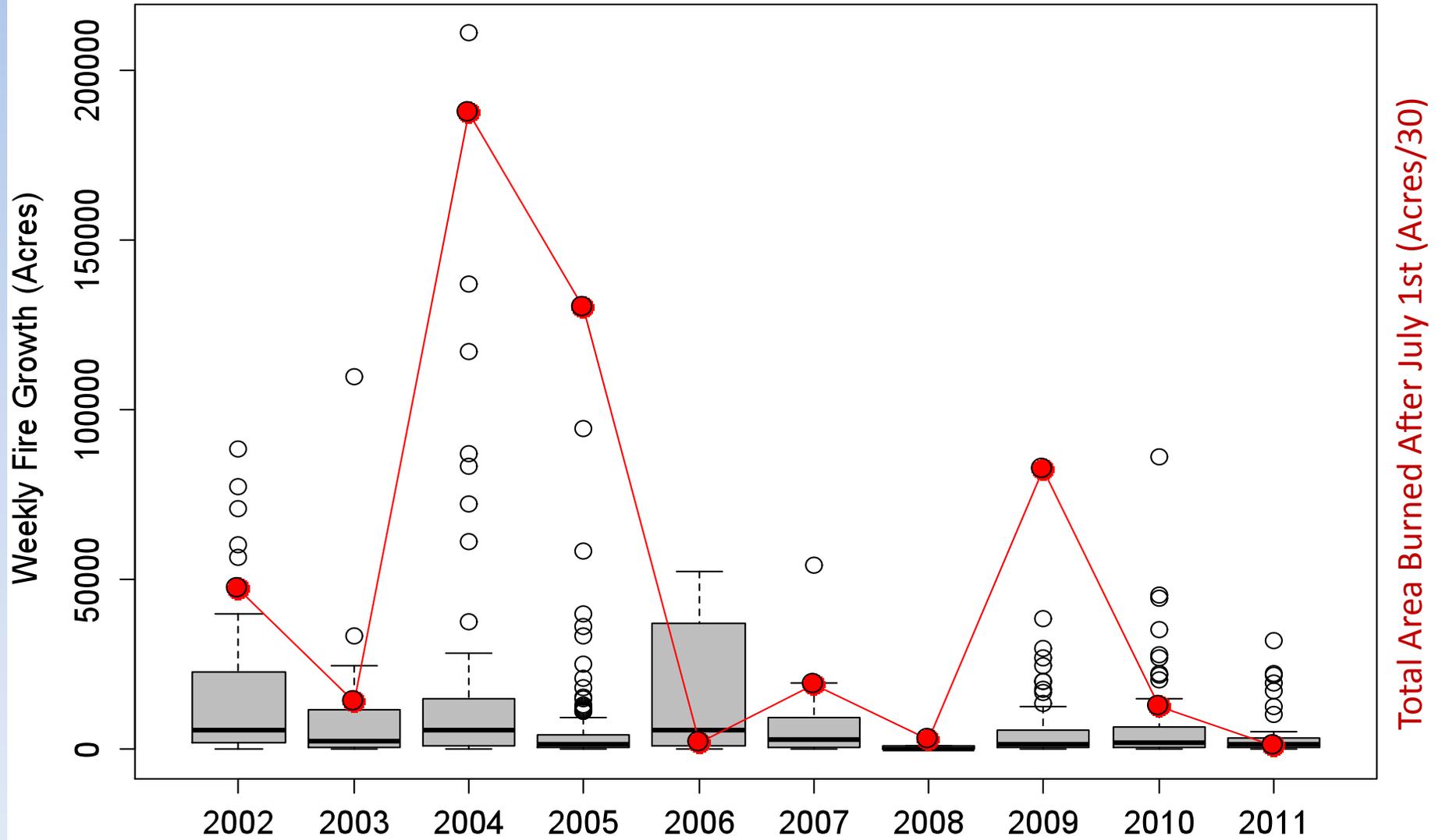
Daily Fire Growth Data

- We used these data to assess the relationship between historical fire growth events from *before July 1st*, and historical fire data from *after July 1st*
- Other cutoffs (e.g. July 15th) could be used for similar analyses

Distribution of Weekly Fire Growth Through June



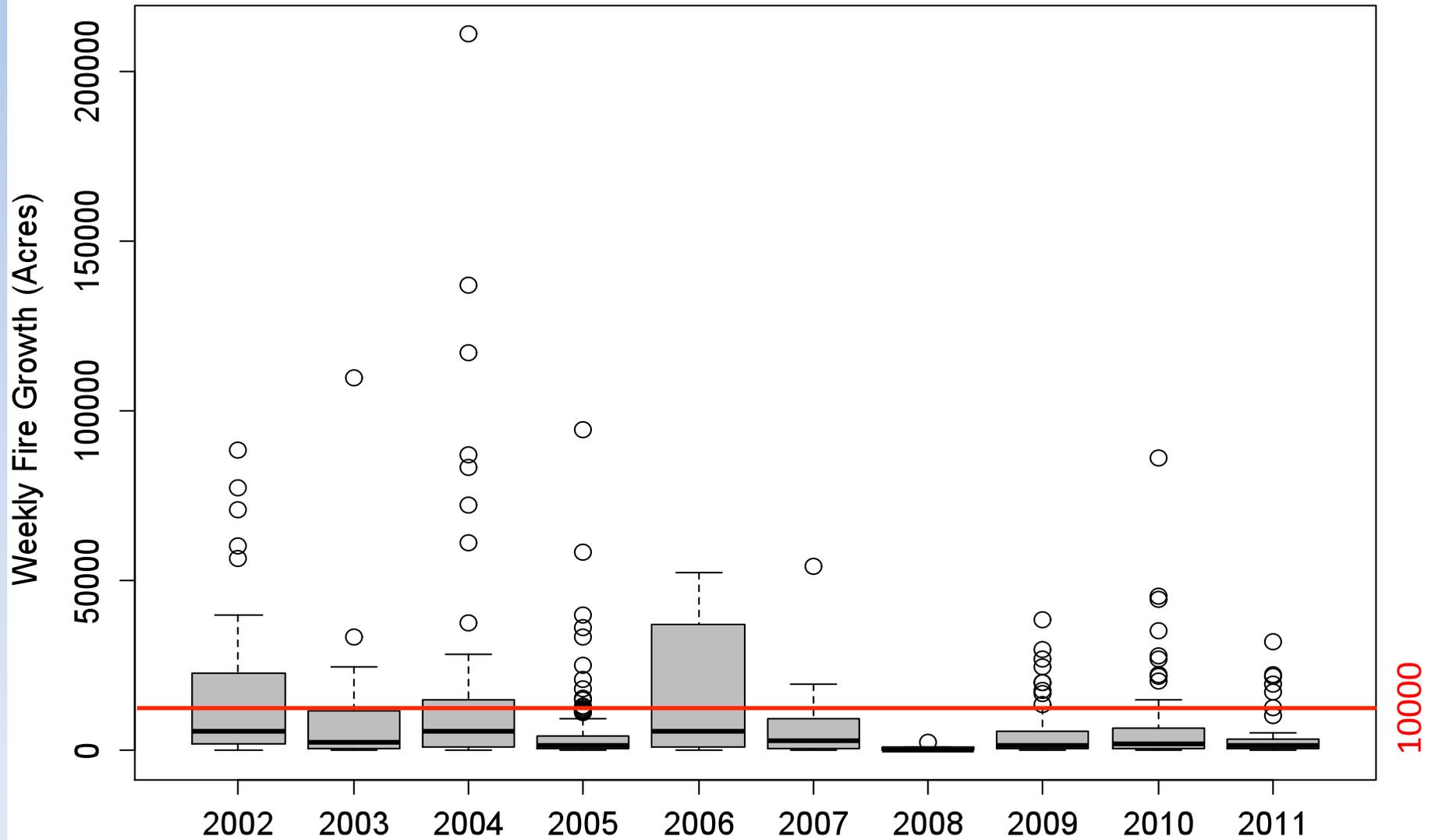
Distribution of Daily Fire Sizes Through June



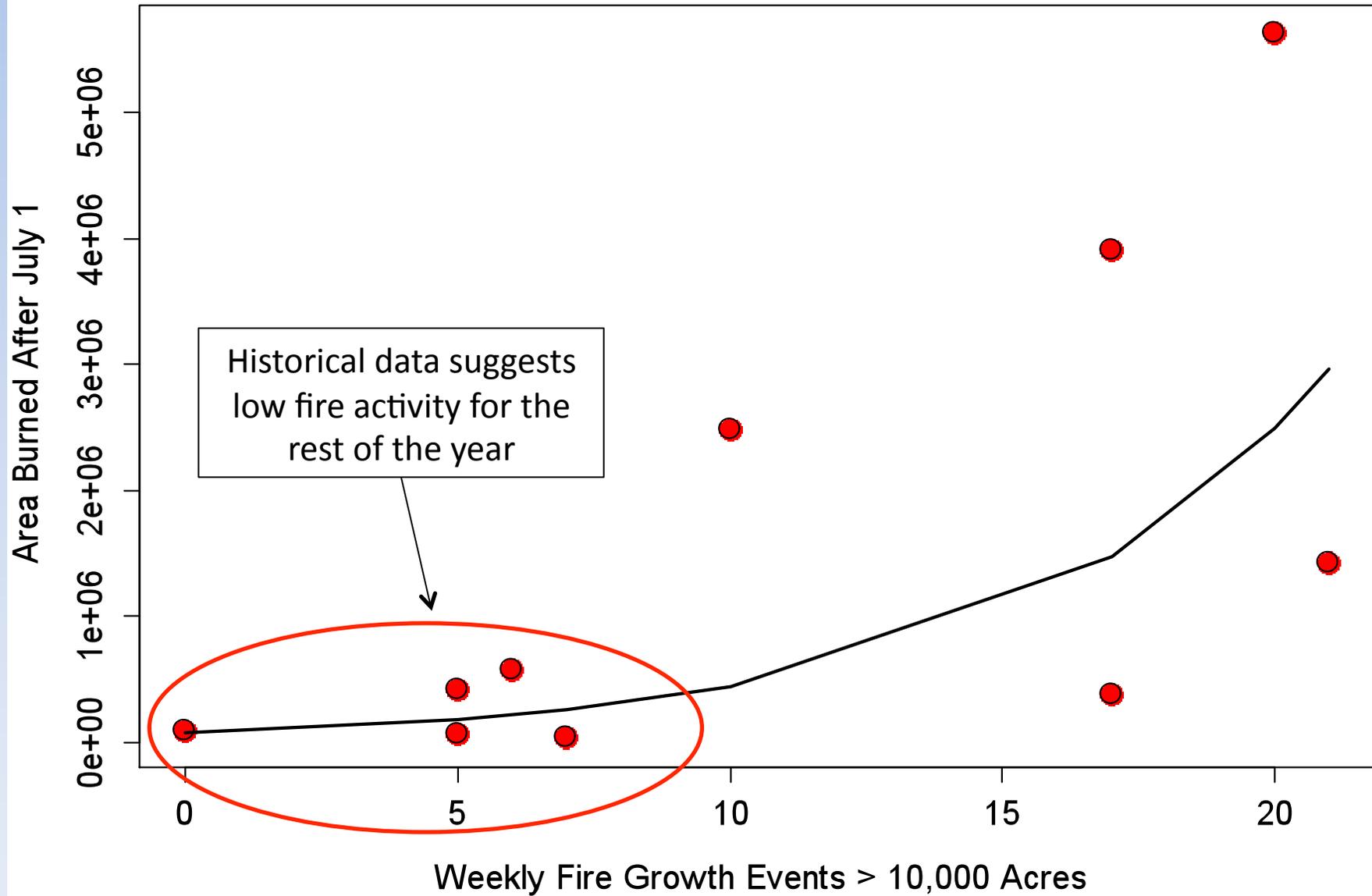
Daily Fire Growth Data

- These analyses provide some context for understanding the information that will be available at the end of June 2013
- We can use this information to relate the number of events above a threshold to the subsequent area burned in that year

Distribution of Weekly Fire Growth Through June

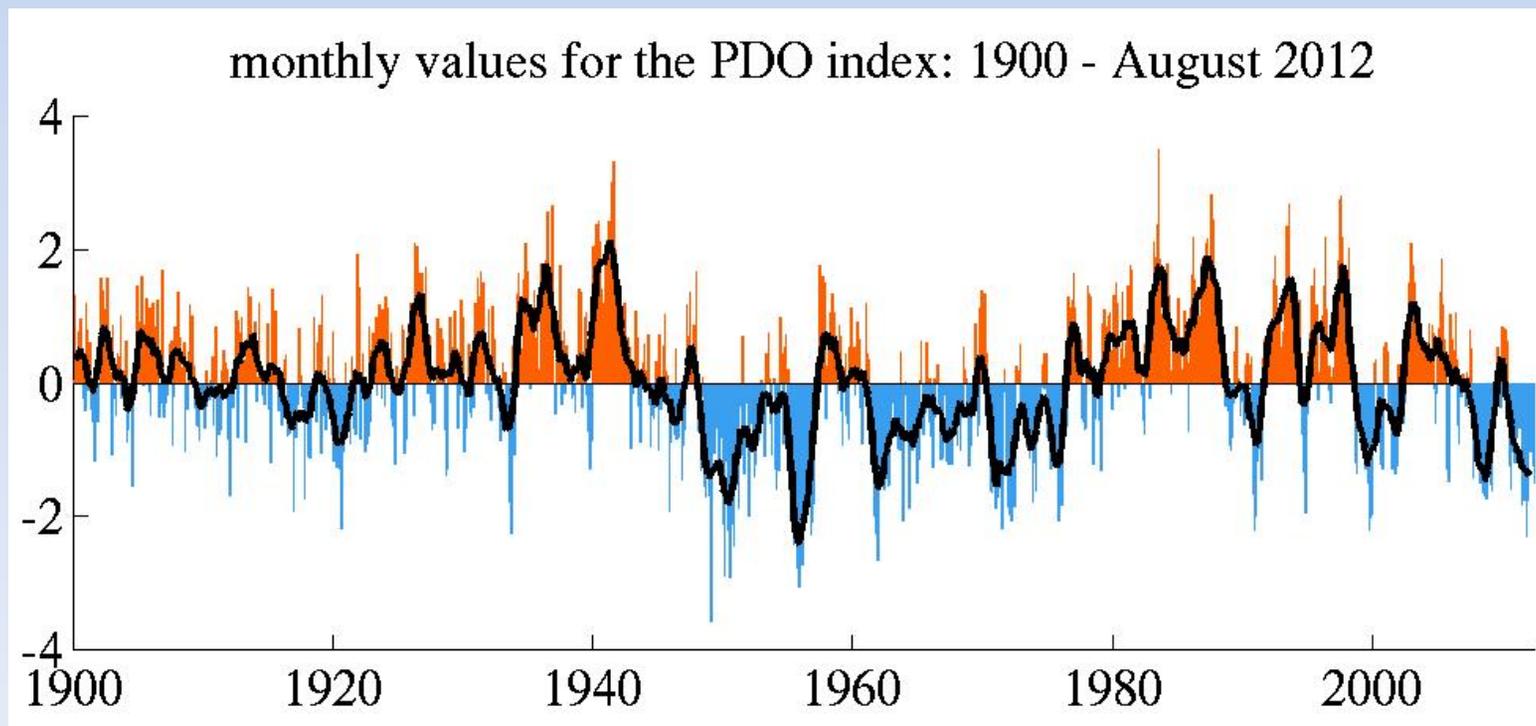


Distribution of Weekly Fire Growth Through June



PDO Impacts on the Summer

- We have also found persistence of early season temperature anomalies is associated with the warm phase of the PDO

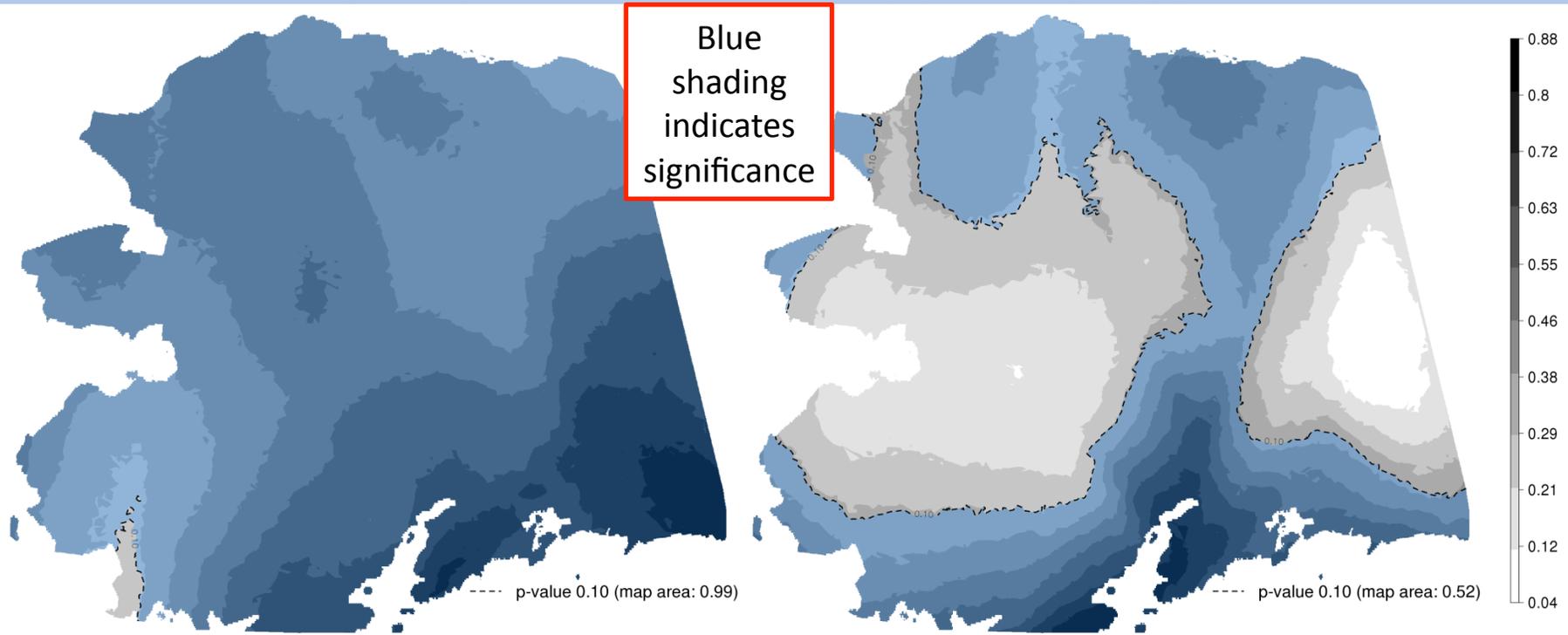


Caveats

- These preliminary analyses are based on gridded data products
- The long duration of phases of the PDO increases the chances of results based on spurious correlations
- Need to follow up with analyses of station data

Warm Phase Correlations

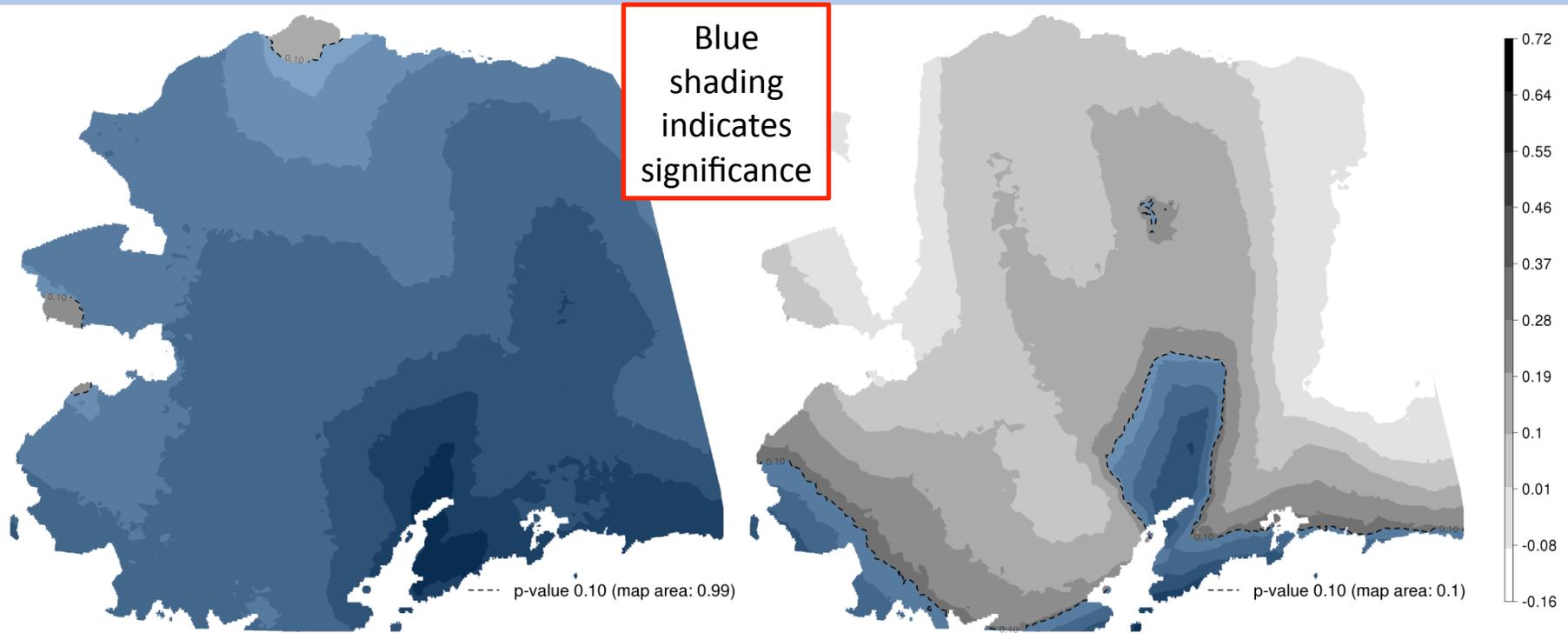
Cool Phase Correlations



- Strength of relationship between *June temperature* and *July temperature* is stronger during the warm phase

Warm Phase Correlations

Cool Phase Correlations

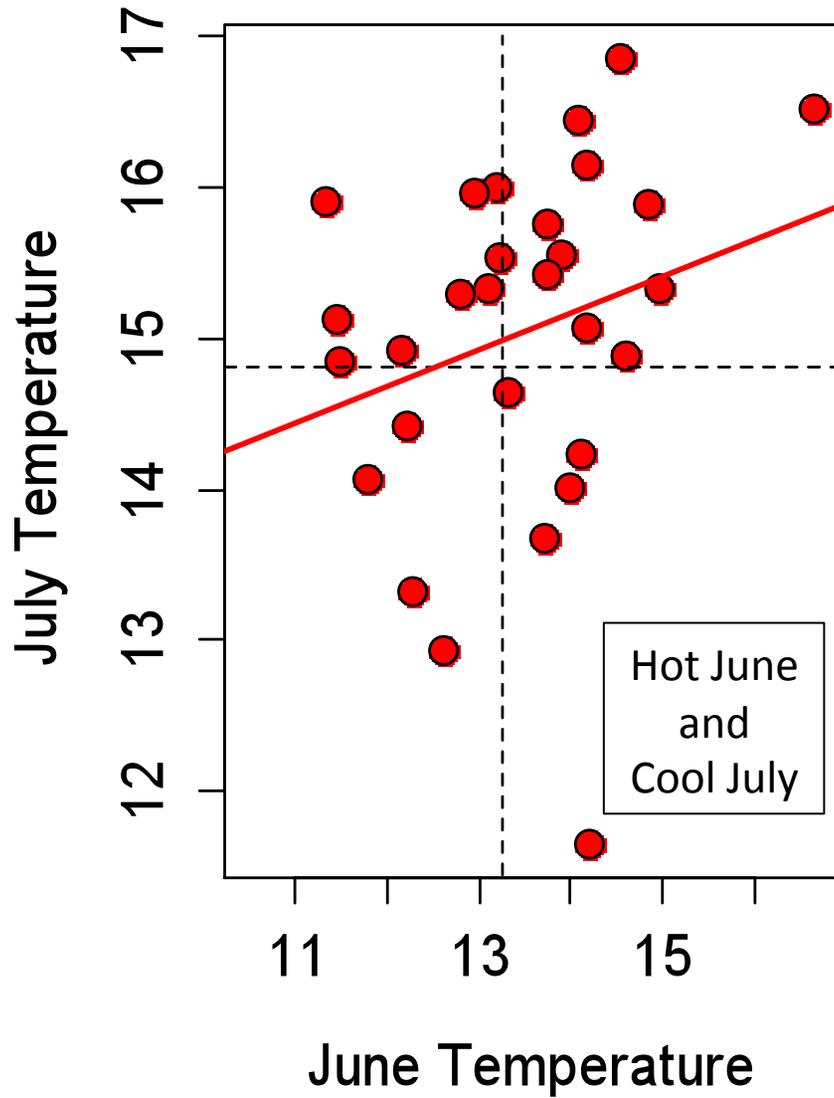


- Strength of relationship between *June temperature* and *August temperature* is stronger during the warm phase

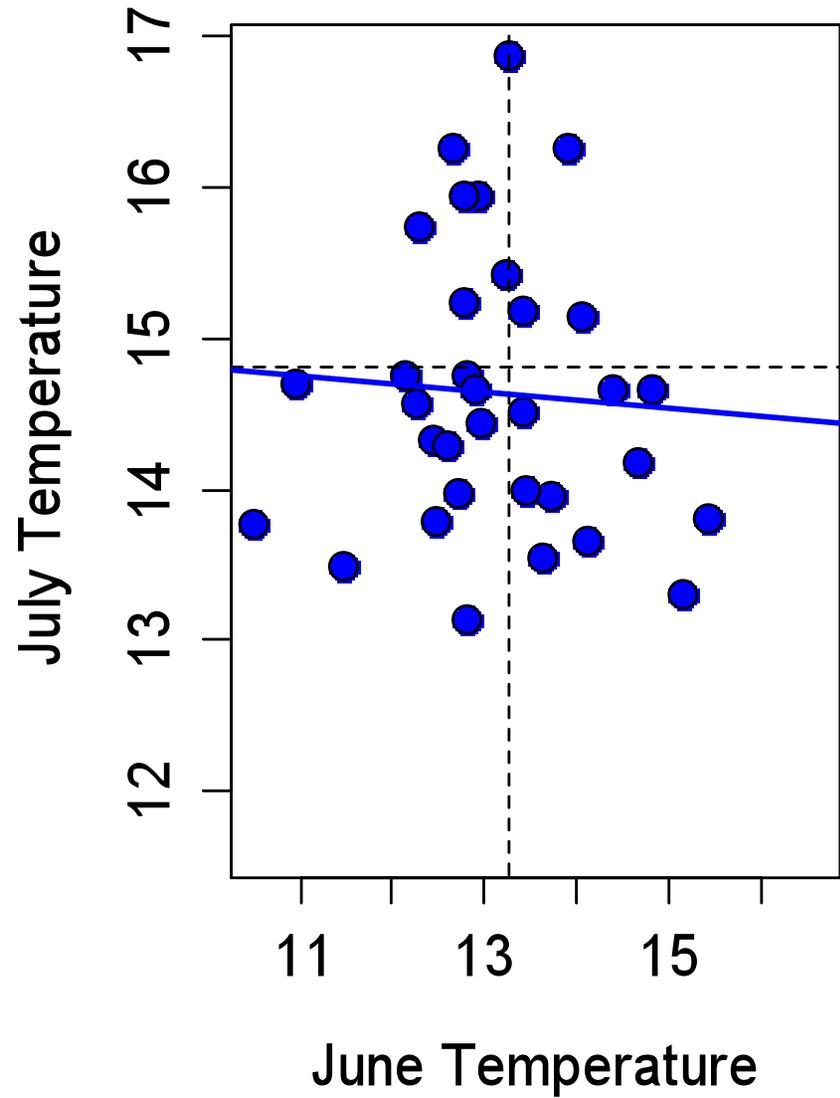
Analyses of Station Data

- Station data from Bettles, Delta, Fairbanks, McGrath, Nome, Northway and Tanana were averaged
- Period of record 1950-2012
- Looking at simple averages to characterize the relationships between months as a function of the PDO phase

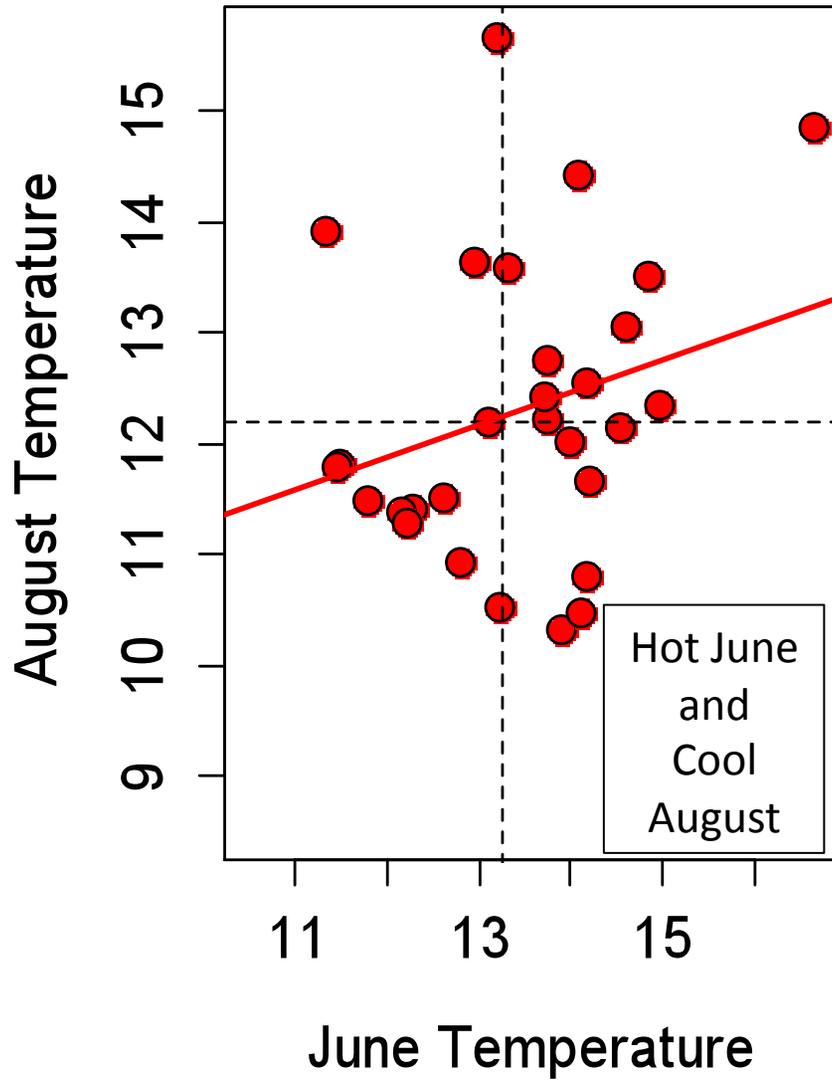
Warm Phase



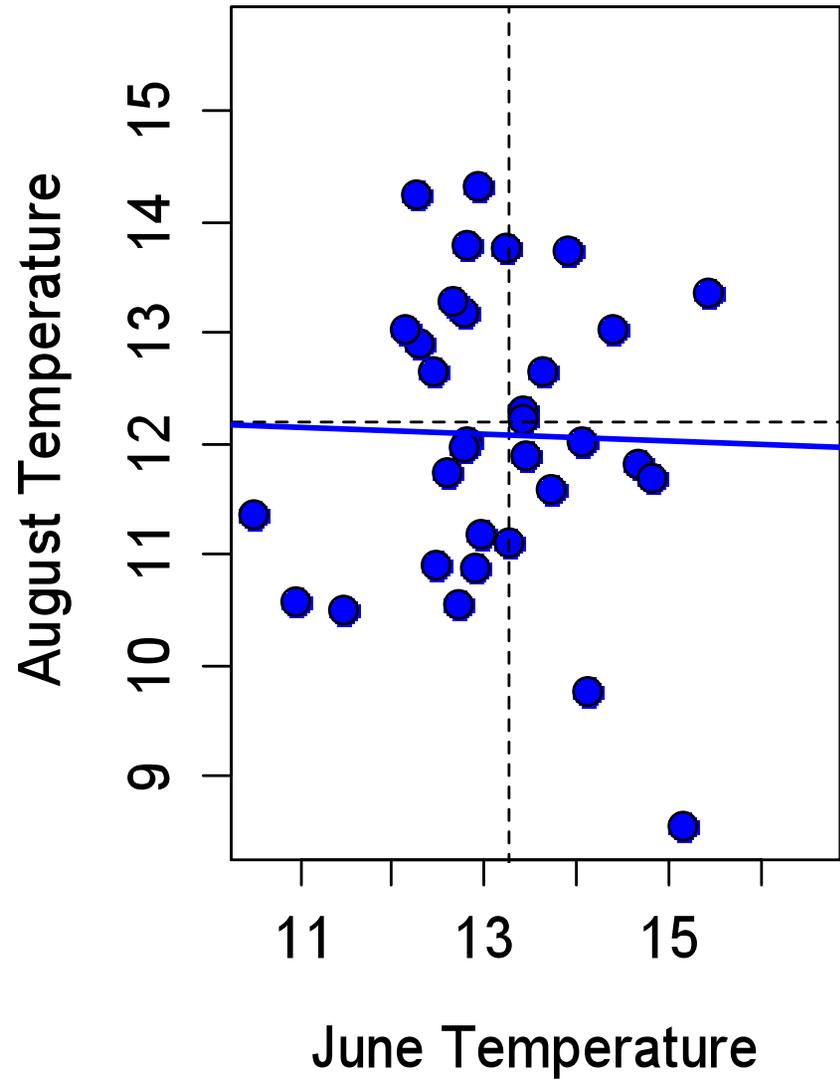
Cool Phase



Warm Phase



Cool Phase



Summary

- We can estimate the magnitude of fire activity after June, using information about weekly growth patterns through June
- PDO provides useful information about the persistence of early season weather patterns

Acknowledgements

- This work was funded by the USFWS