Supplementary material

Near-term probabilistic forecast of significant wildfire events for the Western United States

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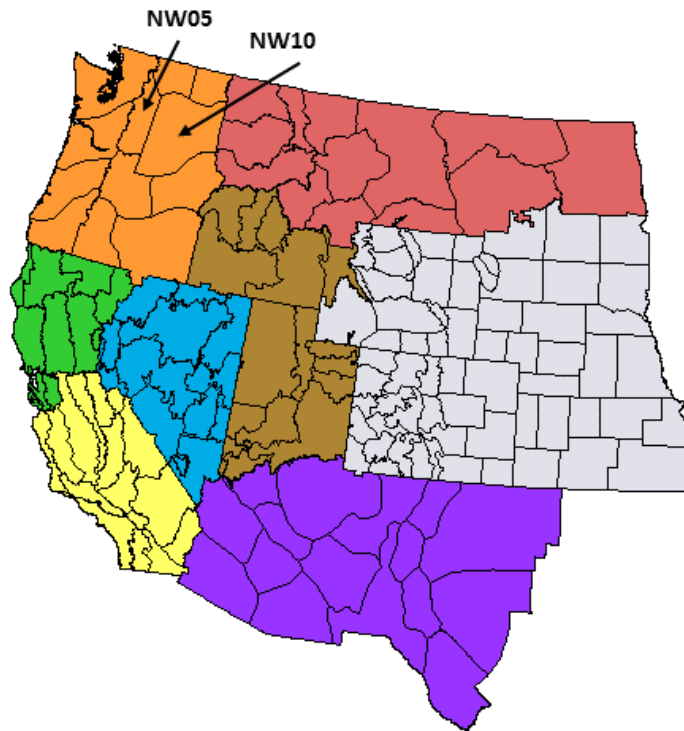
Fig. S1. Boundaries of geographic units used for Predictive Services forecasts (Predictive Service Areas, PSAs) within each of the following GACCs (Geographic Area Coordination Centers): California South (yellow); California North (green); Northwest (orange); Northern Rockies (red); Eastern Great Basin (brown); Western Great Basin (blue); Southwest (purple); Rocky Mountain (grey). Names of two PSAs mentioned in the text are also provided.
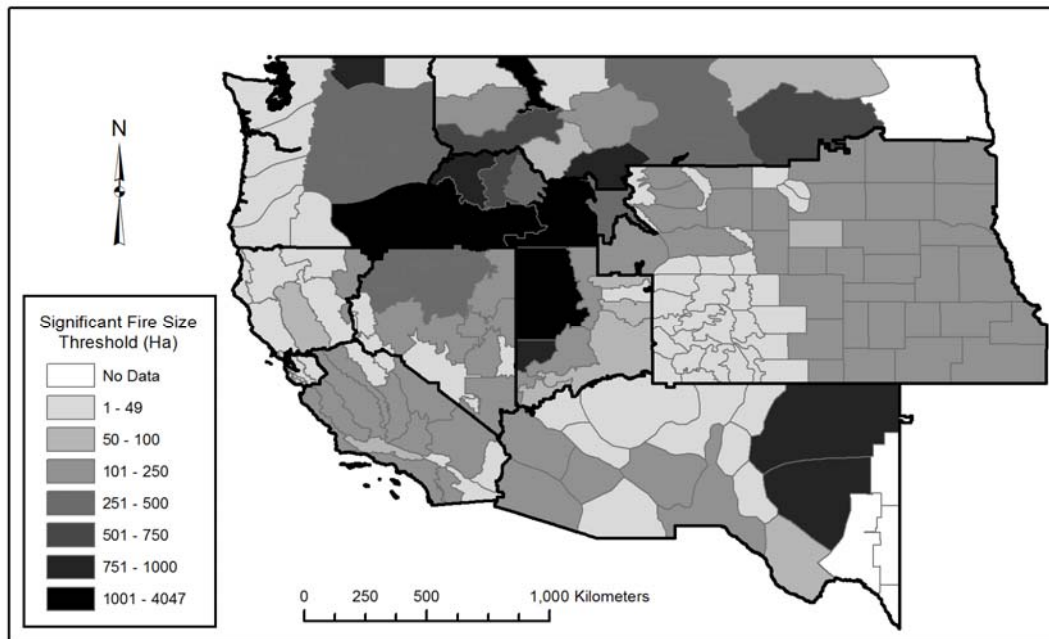
Fig. S2. The size threshold at which a fire is considered to be 'significant', by PSA, for the year 2012. Thresholds vary based on fire regime (e.g. how quickly fires become large) and values at risk (T. Marsha and T. Mathewson of Predictive Services, pers. comm.).
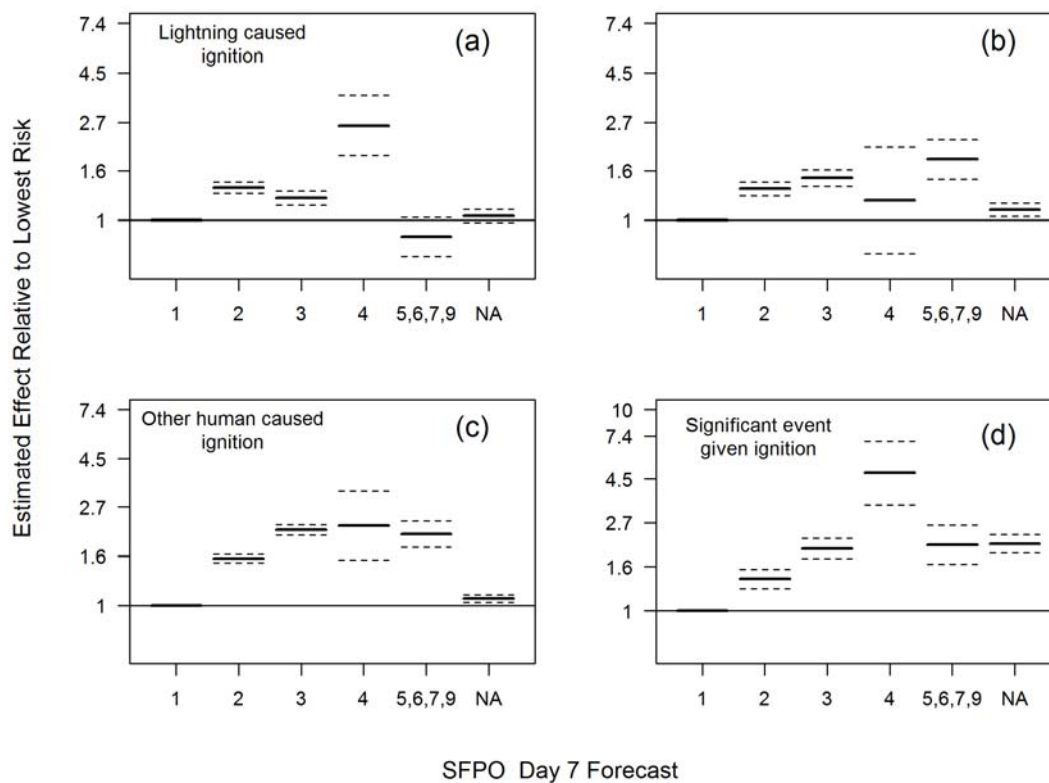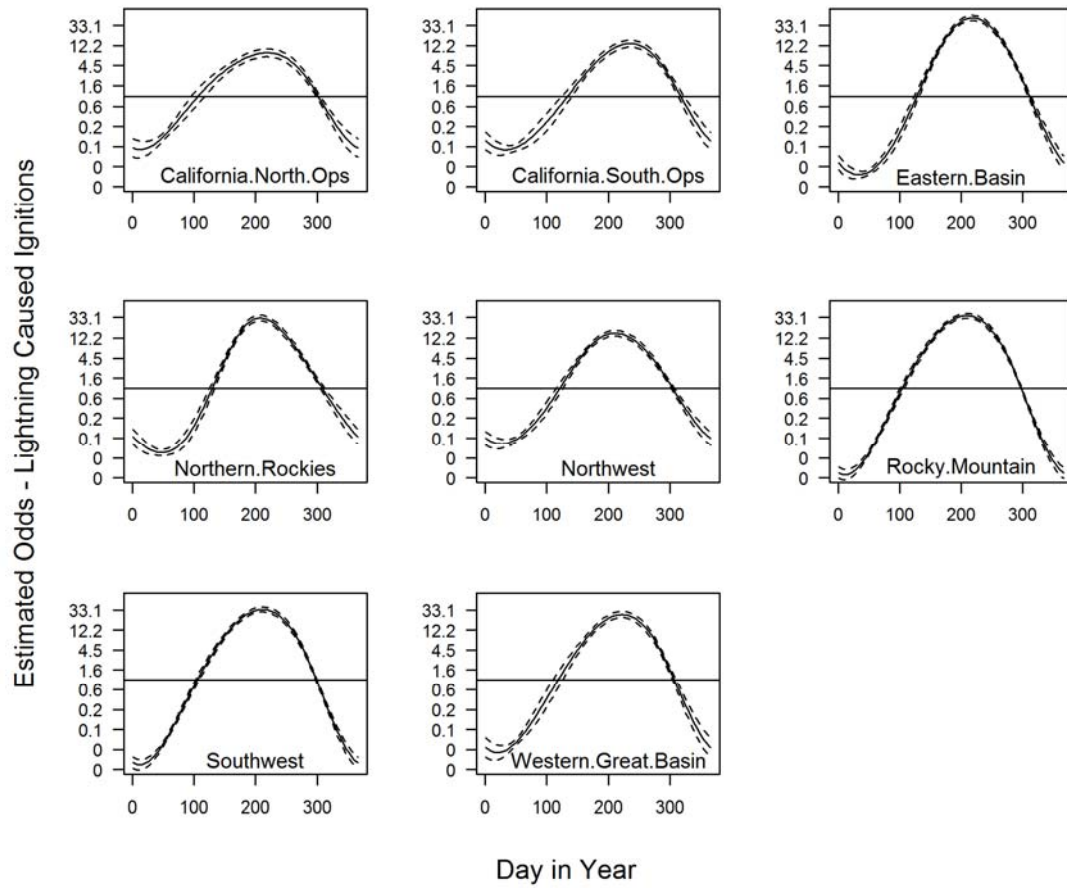
Fig. S3. Estimated odds of a (a) lightning-caused ignition, (b) human-recreation-caused ignition, (c) other human-caused ignition, relative to odds at lowest risk. (d) Estimated ratio of number of significant events, given ignition, relative to number at lowest risk. Dashed lines are the approximate 95% confidence limits for the estimated effects. The estimates were developed using the Significant Fire Potential Outlook (SFPO) forecast, fcast7, issued 7 days earlier.
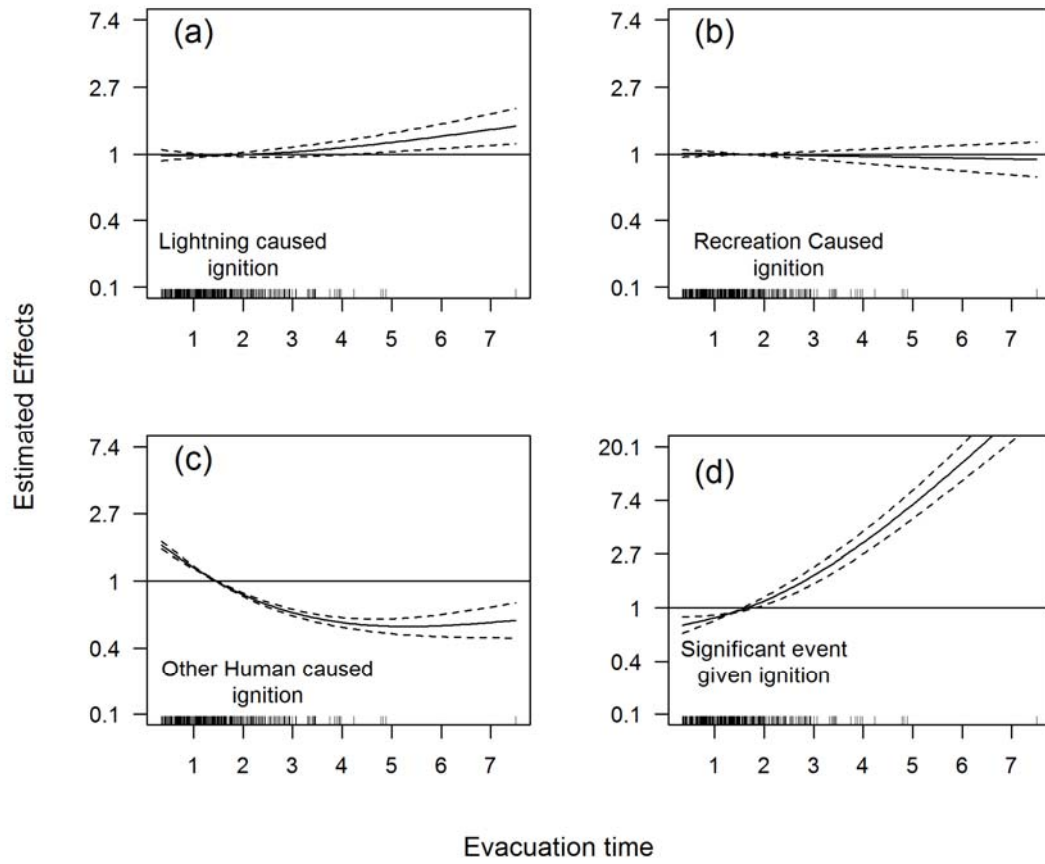
Fig. S4. Estimated odds ratio of a (a) lightning-caused ignition, (b) human-recreation caused ignition, (c) other human-caused ignition, relative to odds at average evacuation time. (d) Estimated ratio, relative to average, for number of significant events given ignition. The average evacuation time metric was 1.6 (see Table 2 in main paper). Hatch marks at the bottom are the observed evacuation times.
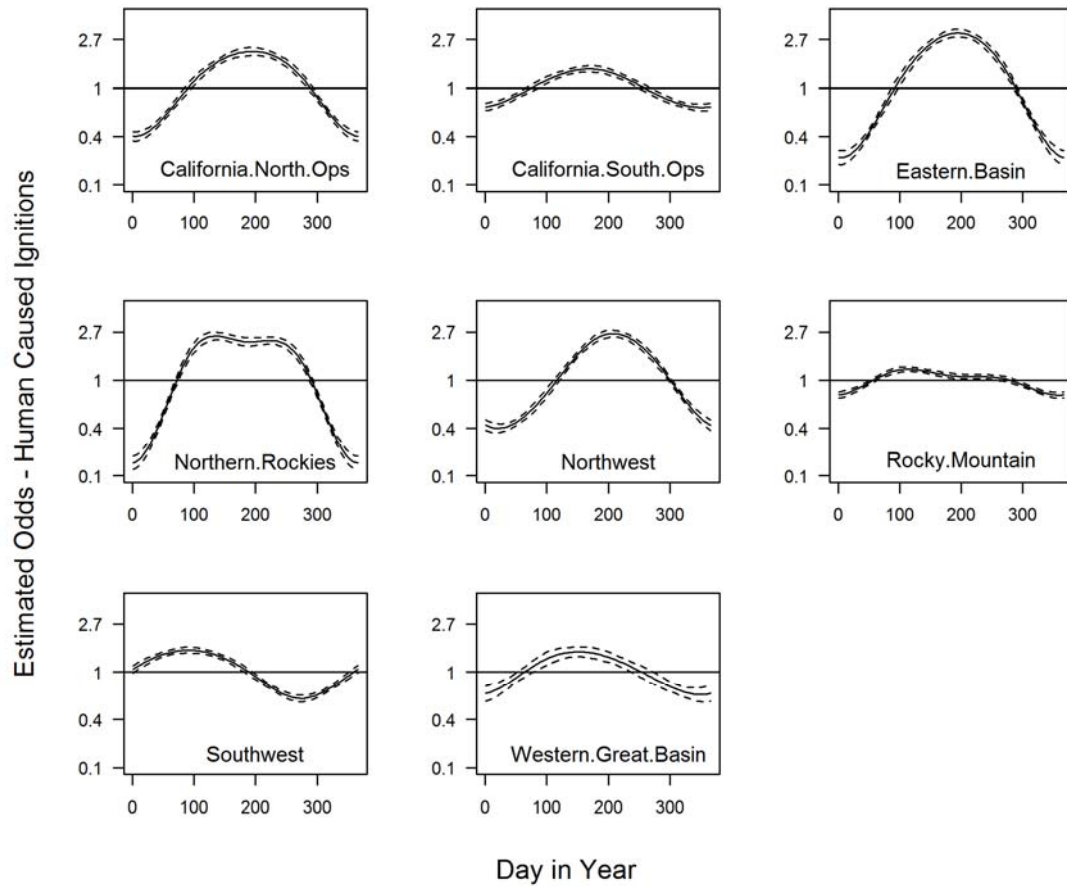
Fig. S5. Estimated odds ratio of a human-caused ignition (other than recreation) for each Geographic Area Coordination Center (GACC) region as a function of Day in Year. Note seasonal patterns in most GACCs have higher odds of ignition in the summer months. Caution should be used in interpreting regression outputs. For example, the flat seasonal effect in Rocky.Mountain GACC does not necessarily imply the absence of a seasonal pattern. An alternative explanation may be that a seasonal pattern in this GACC is well accounted for by the other variables in the model, e.g. Energy Release Component (ERC).

Fig. S6. Estimated odds ratio of a lightning-caused ignition for each GACC region as a function of Day in Year.
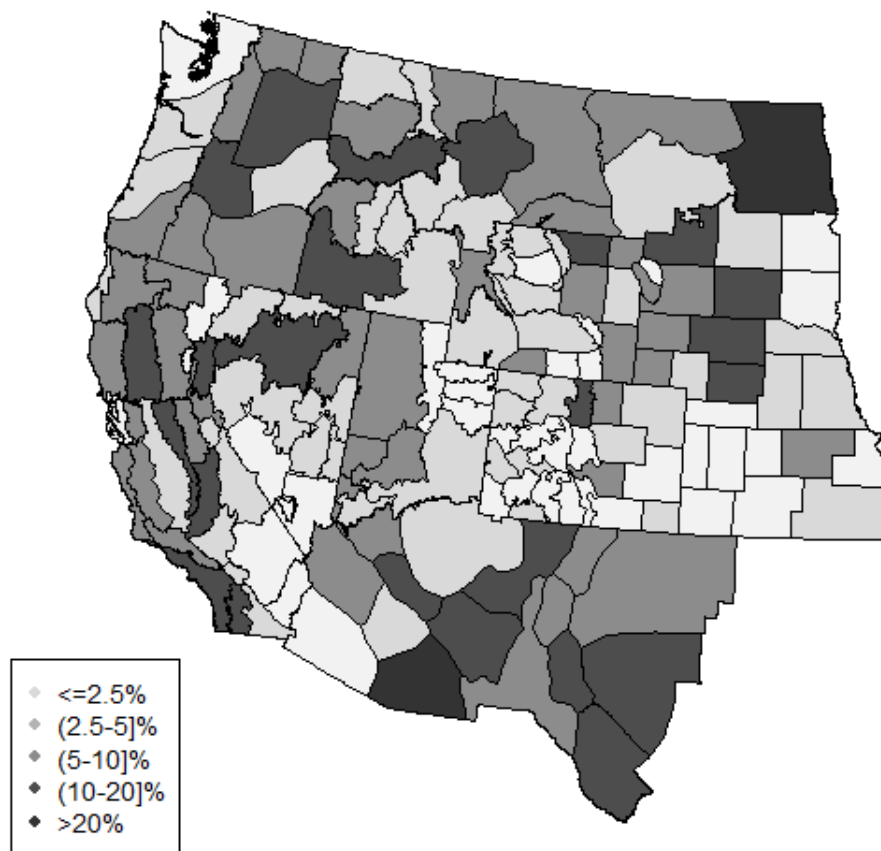
Fig. S7. Percentage of outliers in each Predictive Services Area (PSA), demonstrating the spatial variability in the skill of the model.