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Accommodating Spatial and Temporal Uncertainty in Wildfire Ignitions.

Historical forest fire records can be temporally and spatially incomplete. Ignition locations may be viewed as both temporally censored (observed ignition time being a right censoring point) and arealy censored within the observed fire perimeters. One approach to consider is a MCMC algorithm for making inference on a log-Gaussian Cox process with the exact times and locations being a latent variable sampled at each iteration. Alternatively, a local-EM algorithm could provide a non-parametric fit to the ignition intensity, where the fitted intensity surface maximizes the expectation of the likelihood function taken over the unknown ignition locations. Both approaches have analogies to disease mapping problems, where cases of a given health outcome are aggregated to administrative areas and reporting periods.