LOCAL WEATHER COVARIATES FOR WILD ANIMAL SURVIVAL

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Capture-recapture models have been developed over a number of years. The inclusion of explanatory covariates is widespread in these models, in order to estimate the survival of wild animals over time. Covariates are mostly of two main types: environmental and individual. Environmental covariates typically used include local wintertime temperature or large-scale climate measures such as the North Atlantic Oscillation index (NAO). Whilst the NAO has some part in determining wintertime temperature, it is perhaps surprising that it is sometimes a better predictor of ecological processes than local weather. This may be due to the lack of truly local information. A new approach to obtaining local weather information is to interpolate from weather maps, and, provided the locations of marked dead animals are known, it is possible to associate an individual temperature to each recovered animal. This gives rise to "individual" weather covariates which can be used as long as the animal is known not to move far throughout its lifetime. This approach is illustrated using German ring-recovery data with both ringing and recovery locations known.