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Sami Cheong* (cheongs@uwm.edu), 3200 N Cramer st, Milwaukee, WI 53211. *Estimating parameters for the spatial Ornstein-Uhlenbeck process with missing observations*. Preliminary report.

The Ornstein-Uhlenbeck (OU) process can be used to model spatially dependent observations made on a lattice sampling grid, such as data from population epidemics, weather, and agriculture. When complete observations are available, the OU covariance structure has a tridiagonal inverse, which is computationally efficient. However, this is not necessary the case when some observations are missing. In this work, we study the covariance structure of the OU process under different types of missing observations, and construct approximated likelihood functions to estimate its parameters. Through simulation experiments, we compute and compare the estimated parameters obtained from different estimation schemes. Our goal is then to study the asymptotic properties of these estimators and compare them with the maximum likelihood estimator under complete observations. (Received September 18, 2015)