Model selection and model averaging are essential to regression analysis in environmental studies, but determining which of the two approaches is the more appropriate and under what circumstances remains an active research topic. In this paper, we focus on geostatistical regression models for spatially referenced environmental data. For a general information criterion, we develop a new perturbation-based criterion that measures the uncertainty (or, instability) of spatial model selection, as well as an empirical rule for choosing between model selection and model averaging. Statistical inference based on the proposed model selection instability measure is justified both in theory and via a simulation study. The results suggest that the performance of model selection and model averaging can be quite different for models with fewer covariates but are more comparable when the model covariates are relatively many. For illustration, a precipitation data set in the state of Colorado is analyzed.