1108-62-29 **Linyuan Li*** (linyuan@cisunix.unh.edu), 33 Academic Way, Department of Mathematics and Statistics, University of New Hampshire, Durham, NH , and **Yimin Xiao** (xiao@stt.msu.edu), Department of Statistics and Probability, Michigan State University, East Lansing, MI 48824. *On the Minimax Optimality of Block Thresholded Wavelet Estimators on Random Fields.* Preliminary report.

Hall et al. (1999, p.33-49, Statistica Sinica) proposed block thresholding methods to estimate mean regression functions with fixed design and independent normal random errors. They showed that block thresholded wavelet estimators attain optimal minimax convergence rates over a large function space involving a wide variety of irregularities. In this paper, we consider analogous block thresholded wavelet estimators of spatial regression functions on stationary Gaussian random fields observed over a rectangular domain indexed with $\mathbb{Z}^2$, whose covariance function is assumed to satisfy some weak condition. We investigate their asymptotic rates of convergence when spatial regression function belongs to a large range of Besov function classes. Based on a result that the discrepancy between empirical wavelet coefficients and true wavelet coefficients is within certain small rate across a large range of Besov function classes, we are able to show that these estimators achieve optimal minimax convergence rates over the above function spaces. Therefore, wavelet estimators still achieve optimal convergence rates for random fields and provide explicitly the extraordinary local adaptability. (Received November 19, 2014)