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Chunfeng Huang* (huang48@indiana.edu), **Haimeng Zhang**, **Scott Robeson** and **Jacob Shields**. *Intrinsic random functions on the sphere.*

Spatial stochastic processes that are modeled over the entire Earth's surface require statistical approaches that directly consider the spherical domain. We extend the notion of intrinsic random functions to model non-stationary processes on the sphere and show that low-frequency truncation plays an essential role. The developments can be presented through the theory of reproducing kernel Hilbert space. In addition, the link between universal kriging and splines is carefully investigated, whereby we show that thin-plate splines are non-applicable for surface fitting on the sphere. (Received January 13, 2017)