1035-37-748 **Md. Shafiqul Islam*** (sislam@upei.ca), Department of Mathematics and Statistics, University of Prince Edward Island, 550 University Avenue, Charlottetown, PE C1E 4P3, Canada, and **Pawel Gora** (pgora@mathstats.concordia.ca). *Smoothness of density functions for random maps.*

A discrete-time random dynamical system is said to be a random map if one of a number of transformations is randomly selected and applied at each iteration of the process. Invariant densities of random maps describe the asymptotic properties of a random map. If the individual maps of a random map are piecewise onto and piecewise expanding then the random map satisfies Pelikan's average expanding condition and the random map has invariant densities. For individual maps, piecewise expanding and piecewise onto are sufficient to establish many important properties of the invariant densities, in particular, the fact that the densities inherit smoothness properties of individual maps. It is of interest to see if this property is transferred to random maps satisfying piecewise expanding and piecewise onto conditions. We show that if all the maps constituting the random map are piecewise expanding and piecewise onto, then the same result is true. (Received September 14, 2007)