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We consider a natural class of stochastic processes taking values in the space of smoothly bounded domains in  $R^n$  with compact closure. These processes are generated by stochastic flows on  $R^n$  applied to a initial domain. The stochastic flows are obtained as the solutions of stochastic differential equations. We establish an Ito formula for smooth domain functionals applied to these set-valued stochastic processes. (Received August 04, 2006)