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Ivan Sudakov* (sudakov@math.utah.edu), 155 S 1400 E ROOM 233, Salt Lake City, UT 84112-0090. *Fractal transition in melt ponds and dynamics of the climate system*. Preliminary report.

In this research, we present a standard conceptual climate model – an ordinary differential equation with ice–albedo feedback taking into account the albedo of melt ponds. We modify the model assuming a stochastic distribution of melt pond radii, based on the Fokker-Plank equation. After that we investigate equilibria of the resultant stochastic ODE under the key assumption that the surface temperature is a slow function of time relative to melt pond radius. Different bifurcation regimes were obtained for this model. One of them may be quite interesting for climate applications, where the temperature of this system is stabilized only due to the fractal transition in melt pond geometry. (Received September 16, 2014)