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**Doo Young Kim\*** (dooyoungkim@mail.usf.edu) and **Chris P. Tsokos**. *A Transitional Modeling of Carbon Dioxide in the Atmosphere by Climate Regions in the United States*.

Global Warming is a function of two main contributable entities in the atmosphere, carbon dioxide and atmospheric temperature. The objective of this study is to develop a statistical model using actual fossil fuel carbon dioxide emissions data from the United States to predict relative probability of rate of change in fossil fuels carbon dioxide emissions from nine US climate regions using transition modeling. The sensitivity of these transition probabilities to five sectors: commercial, industrial, residential, transportation, and electric power sector, is investigated for all nine US climate regions. The present study also proposes in developing carbon dioxide regions in the United States based on relative probabilities of rate of change in fossil fuel carbon dioxide emissions to assist in establishing different policies for each region to control the fossil fuel carbon dioxide emissions in the United States. (Received September 17, 2014)