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**Eric J Kostelich\*** ([kostelich@asu.edu](mailto:kostelich@asu.edu)), Dept. of Mathematics & Statistics, Box 871804, Arizona State University, Tempe, AZ 85287-1804. *A dynamical systems approach to weather forecasting and climate prediction.*

This talk gives a survey of a model-independent approach to estimate initial conditions and parameters in chaotic spatio-temporal dynamical systems. This work, done in collaboration with researchers at the University of Maryland and elsewhere, has been applied successfully to state-of-the-art global weather forecast models and to models of coastal ocean flows. Work on applications to climate models is beginning.

The talk will also describe an initiative at Arizona State University to provide advanced undergraduate and beginning graduate students in mathematics with experience using some of the computational tools that are necessary for research work involving geophysical modeling. (Received September 14, 2007)