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Eric J. Kostelich* (kostelich@asu.edu), School of Mathematical & Statistical Sciences, Arizona State University, Campus Box 871804, Tempe, AZ 85287. *Forecasting Cancer: Finding the Initial Conditions for Spatiotemporal Dynamical Models*. Preliminary report.

Can cancer be forecast, just as the weather is forecast? Besides the need for a good dynamical model, one also needs to determine the initial conditions accurately to be able to make quantitative predictions. This talk focuses on the latter question. I will outline an approach, called the Local Ensemble Transform Kalman Filter (LETKF), that provides accurate initial conditions (and estimates of their uncertainty) for numerical weather models from noisy and often sparse measurements. The model independence of the LETKF makes it an attractive candidate for many applications. In particular, I will consider how the LETKF might be adapted to make short-term (2-3 month) predictions of the growth and spread of glioblastoma multiforme, a common and aggressive type of brain cancer. (Received September 22, 2011)