Name:

Date:

Lab 5 - Forecasting Arctic Sea Ice Coverage: Prelab

Read the website: http://homework.uoregon.edu/pub/class/355/noise.html. The questions below are based on that.

1. Box-car smoothing: Let's say you have the following data points:

$$10, 12, 15, 9, 11$$

   Smooth the data points using a box-car smoothing method, where the box has a width of 3.

2. Repeat problem 1, but this time using the exponential smoothing function,

$$s_t = \alpha x_{t-1} + (1 - \alpha) s_{t-1}$$

   with $\alpha = 0.3$.

3. Box-car smoothing and Gaussian kernel smoothing are similar processes that can be used to smooth noisy data. Describe how the data is being smoothed by each process. What is similar about the two processes? What is different? (Note that there is really only one difference).