ATS 421 / 521 Homework 1 due Monday, April 15th 2013

1. Add stochastic (white noise) forcing to the 0D EBM. Integrate the model for a few hundred years. Plot timeseries of the noise and the model response. (2)

   ATS 521 students only: plot the spectra for both noise and model response. Make sure to give the correct units for the spectra. (2)

2. Increase the amplitude of the noise to the point where transitions between the cold and warm climate states occur. Plot timeseries of the noise and the model response. (2)

   ATS 521 students only: Plot the spectrum of the model response timeseries. (1)

3. Now add a small (smaller than the amplitude of the noise) periodic forcing. Plot again time series of the forcing, and the model response. (2)

   ATS 521 students only: Plot the spectrum of the model response timeseries. (1)