Intermediate Seismology
ESCI 7402
Homework #3
Due: Friday, March 2, 2012
Anelastic and Scattering Attenuation

1. The complex spectrum of an ideal surface wave in an attenuating medium is

$$u(\omega, r) = \frac{a_0}{\sqrt{r}} e^{-\frac{i\omega r}{c(\omega)}} e^{-\alpha r}$$

   Given data recorded at two different distances, r_1 and r_2, find a linear relationship for the attenuation parameter, α.

2. Derive an expression for coda amplitude decay using the energy flux model and for a wave with cylindrical geometrical spreading. This relation could be used for modeling coda from surface waves. Compare the amplitude decay of this model with that of the spherically spreading wave derived in the notes. What are the primary differences?