

Problem 4

Do the wavenumber integration in a Pekeris waveguide for the following parameters: $f = 150$ Hz, $z_s = 25$ m; $z_r = 35$ m; $c_w = 1500$ m/s; $c_b = 1800$ m/s; $\rho_{\text{water}} = 1$ g/cm³; $\rho_{\text{bottom}} = 1.8$ g/cm³; $dz = 5$ m; $N_{\text{layer}} = 30$. (please see the definition of each parameter in `greenpekeris_student.m`). This problem is based on the class lectures that are covering sections 4.1, 4.2.1, 4.2.2, 4.3.2, 4.5-4.5.4 and the Recipe pp 320-323.

- a) Run the code `greenpekeris_student.m` and understand each line of this code.
- b) Plot the green's function and transmission loss for two source receiver configuration. 1) $z_s=25$ m, $z_r=35$ m; 2) $z_s=35$ m, $z_r=25$ m. The other parameters are the same as title. Is there any difference between these two cases? Why?
- c) Plot the transmission loss for all the depth in the pekeris waveguide. ($z_s=25$ m)
- d) Plot the transmission loss for all the depth in a half space. ($z_s=25$ m)