Session 7

1. If the surface height perturbation in a shallow water gravity wave is given by

   $$h' = Re\left[Ae^{ik(x-ct)}\right]$$

   find the corresponding velocity perturbation $u'(x,t)$.

2. Linearize the rotating shallow water equations. Assume no bottom topography. Obtain the dispersion relation for the plane wave solution. Discuss the results using the short and long wave limit.