

M1-SOAC TD3

Chapter 3: Geophysical Waves



Question a:

The yellow sea (between Korea and China) is at 37°N . Its average depth is 50 m and its perimeter is 2600 km.

→ How long does it take for a **coastal Kelvin wave** to do one circuit of the basin?

Question b:

A barotropic Rossby wave crosses the Pacific at 20°N. Its wavelength is 1000 km (we consider the mean current to be zero).

- 1) How long does it take to cross the basin?
- 2) And how long for a wave at 50°N?

The Pacific spans 140° of longitude at 20°N and 80° of longitude at 50°N .
The radius of the Earth is 6400 km.