

Ocean 540=549b
Autumn 2002
Problem Set #2

Due Monday October 21.

1. If heat transfer is by conduction only, develop an expression for the temperature at the base of the oceanic crust as a function of lithospheric age, assuming a sedimentation rate of 10 m My^{-1} .
2. Consider a symmetric ocean basin with active margins (ridge in center, subduction at both edges) that is 9000 km wide. The seafloor has been spreading a 6 cm/y (half rate of separation) for the past 100 My. Suddenly the spreading rate decreases to 3 cm/y. Determine how sea level would evolve for the next 100 My solely due to this change in spreading rate.