

Geophysics 150: Home set due Nov. 29, 2000

2. The Mediterranean Sea quickly filled with water about 10 m.y. ago. Assume water density of 1.03 g/cc and mantle density of 3.3 g/cc. The region under consideration was dry land 4 km below sealevel. The free air anomaly was 0 mgal there before the flooding.

a. What was the Bouguer anomaly before the flooding using a standard density of 2.67 g/cc.

b. Just after the flood there is 4 km of water and the "solid" earth had had no time to deform. What would be the free-air and Bouguer anomalies measured at the surface of the water.

c. Assume that pointwise isostasy applies. What is the water depth after subsidence towards isostasy has happened? What are the free-air and Bouguer anomalies.

