

A descriptive explanation of ocean tides.

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Anyone who has spent some time on a beach has noticed the periodic phenomenon of the tides. The water level at the shoreline rises to a maximum, then the tide goes out, and rises again about 12 hours and 25 minutes later. Clearly this process is synchronized to the moon's apparent motion in the sky. We also observe smaller tides that are synchronized with the motion of the sun in the sky. Water levels at shorelines vary in size considerably at different places on earth, resulting from variations in shoreline topography. And there are significant large variations of water level throughout the oceans, due to reflection of water from shorelines and resonant



Along the earth-moon line, this is happening all through the volume of the earth, causing a relaxation of stress along this line, and resulting in the earth expanding in diameter a bit along this line. This is the reason for the two tidal bulges.

Q. How does the deformation from the moon's pull change the shape of the earth?