

The lunar tidal dissipation energy by the Earth-moon tide

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It is assumed that the magnetic field with the dynamo existed about 4 billion years ago in the moon. It seems that the tidal power is related to this. The moon is being distorted into an oval form by the tidal power, and besides, heating occurs in the lunar inside. The tidal power becomes strong so that the distance from the Earth to the moon is near. Because the distance was nearer than the present in the past, it is assumed that the tidal power is related to the lunar dynamo. In addition, it seems that there is a low viscosity layer in the mantle bottom of the moon from seismic wave observation. Heating by the tidal power grows big in such a layer and may affect the lunar core. In this study, I calculated the lunar tidal dissipation energy and examined the influence that the low viscosity layer gives around.

When the lunar tidal quality factor is 100, I calculated the tidal dissipation energy. I could get the result that the dissipation in the low viscosity layer accounted for 99% of the whole.

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