

## Effect of internal structure on the tidal stress in the Lunar interior

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Since occurrence of deep moonquakes is well correlated with tidal stress within the moon, detailed investigation of the spatial and temporal variation of the tidal stress in the lunar interior is essential for understanding the source mechanism of the deep moonquakes. Although the lunar internal structure affects significantly the tidal stress, our understanding about the lunar internal structure is still poor. In the present study, we investigate the effects of the internal structure, especially effect of the core size, on the tidal stress in the region of the deep moonquake sources.

We calculated the six components of the tidal stresses as a function of time and position, using the classical method developed by Takeuchi(1950) and the Chapront and Chapront's(1983) semi-analytical ephemeris which gives a very good agreement with JPL's DE/LE200.

The numerical results indicate that the absolute values and relative magnitude of each six components of the tidal stress at a deep moonquake source varies as the core radius is varied from 600 to 100 km. This suggests the uncertainty of lunar core size must be taken into account when we consider the state of the tidal stress and the source mechanism of the deep moonquake.