

THE IN-PLANE MOTION OF A GEOSYNCHRONOUS SATELLITE UNDER THE GRAVITATIONAL ATTRACTION OF THE SUN, THE MOON AND THE OBLATE EARTH

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ABSTRACT

The in-plane motion of a Geosynchronous satellite under the gravitational effects of the sun, the moon and the oblate earth has been studied. The radial deviation (Δr) and the tangential deviation ($r_c \Delta \theta$) have been determined. Here r_c represents the synchronous altitude. It has been seen that the sum of the oscillatory terms in Δr for different inclinations is a small finite quantity whereas the sum of oscillatory terms in $r_c \Delta \theta$ for different inclinations is quite large due to the presence of the low-frequency terms in the denominator.