Variation in Orbital Elements of Mars and Jupiter Due to the Sun Oblateness by Using Secular Theory

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Abstract : We studied the variation in orbital elements of Mars and Jupiter for a time span of 200 thousand years by using secular theory. Here we took Sun oblateness into account and considered the first two zonal gravity constants (J2 and J4) for showing the effect of Sun oblateness on the orbital elements of Mars and Jupiter. We found that in both cases (with and without Sun oblateness) the variation in orbital elements of Mars and Jupiter is periodic moreover in case of the Sun oblateness, the period of variation in orbital elements is decreasing for both the planets.