

**PERIODIC CHANGES IN THE SYNODIC PERIOD OF THE
MOON AND ITS RELATION WITH THE ADVANCE
OF ITS PERIGEE**

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Abstract

As the regression of the nodes of the Moon's orbit is related with the occurrence of eclipse, the periodic changes in the synodic period of the Moon has been found to be related with the advance of the perigee of the Moon's orbit. From the variation of the synodic periods over 630 synodic months it is clear that there are two sinusoidal fluctuations in the synodic period. A larger sinusoidal fluctuation curve of about 112 synodic months and within this curve there are eight smaller sinusoidal fluctuation curves of about 14 synodic months. The causes of these characteristics are discussed in terms of the angles between the perigees of the Moon and the Sun and their distances at the time of the new moons. The dependence of the amplitude of variation with respect to various angular separations can be understood by the fact that the tidal effect on the Moon varies with its relative distance from the Sun, which in turn causes periodic changes in semi-major axis and the eccentricity of the Moon's orbit.

Key Words : *Sun-Earth-Moon system, Perturbation Periodicity, Advance of perigee, Regression of nodes.*