Analytical tables of the lunar physical libration

Petrova Natasha
Department of Astronomy, Kazan State University, 18,Lenin str.,
Kazan, 420008, Russia
E-mail: nata@astro.kazan.su

Tables of lunar physical libration defining the analytical dependence upon the parameters of the lunar gravitational field are presented. The tables are obtained in frame of the " main problem" in lunar libration by integrating of the Hamilton equations reduced to the harmonic oscillators equations.

The variables of physical libration μ, ν, π have been obtained in the form of Poisson series. The distinguishing feature of the tables is that these series are the analytical extension of semianalytical solution computed for a number of dynamical parameters LURE2.

A comparison with the Eckhardt's [1] and Moon's [2] solution is briefly exposed. The previously reviled [3] disagreement ($\simeq 1.''$) of the mean inclination of lunar equator to ecliptic with that in Eckhardt's "solution 500" has been remained.

References

[1] Eckhardt D.H.:1981,'Theory of the libration of the Moon', *The Moon and the Planets*,**Vol 25**,3.

[2] Moons M.:1982,'Analytical theory of libration of the Moon', *The Moon and the Planets*,**Vol 27**,257.

[3] Petrova N.K.: 1993, 'Tables of physical libration based on the Shmidt's theory of lunar motion (main problem)', *Trudy Kazanskoy Observ.***Vol 53**,48 (in Russian).

Natasha Petrova , Kazan State University,
18 Lenin str., Kazan, 420008, Russia,
Phone: +7(8432) 38 76 95
Telex: 224853 USOR SU Fax: +7(095) 420 20 12
E-mail: nata@astro.kazan.su

The contribution is intended for poster presentation for the topic "Analytical theories of natural satellites".