

Visible motion of minor planets

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New integrated software package AMPLE has been developed in the Institute of Applied Astronomy [1]. The package is intended for solving many problems related to minor planets. Among many other potentialities the package makes it possible to display visible motion of minor planets on screen. It is of interest to consider how the tracks of visible motion depend on orbit features. A lot of different tracks were generated to demonstrate this dependence. The role of some orbital elements is analyzed. The visible motion of different minor planets may differ very much. Some planets draw in the sky always only one line (Fig. 1), the tracks of other ones cover the whole sky (Fig. 2).

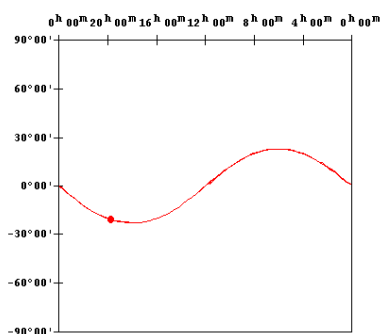


Fig. 1. Planet (20) Massalia.

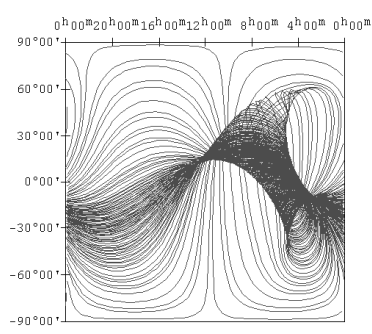


Fig. 2. Planet (5131) 1990BG.

Much attention is given to asteroids in mean motion resonance with the Earth. It is noticed that asteroids close to $m:n$ resonance with the Earth draw stable picture in the sky, containing m branches and $n-m$ loops (Fig. 3,4).

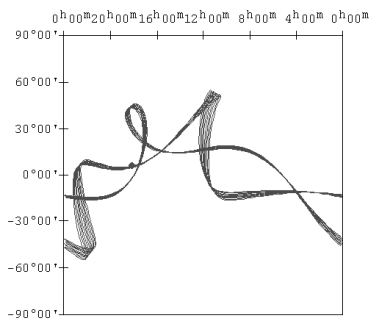


Fig. 3. Planet (3040) Kozai.
Resonance 2:5.

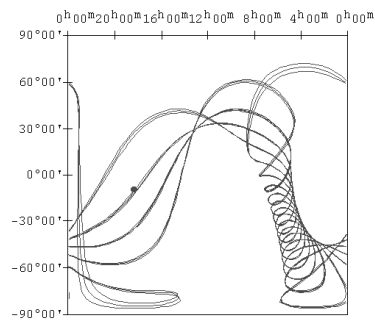


Fig. 4. Planet (5496) 1973NA.
Resonance 5:19.

The most interesting pictures are traced by near-Earth asteroids. Many of these tracks are examples of a beautiful work of Nature (Fig. 5,6).

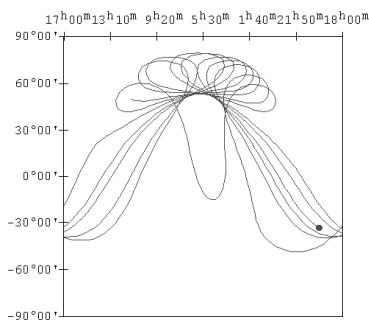


Fig. 5. Planet (1981) Midas.

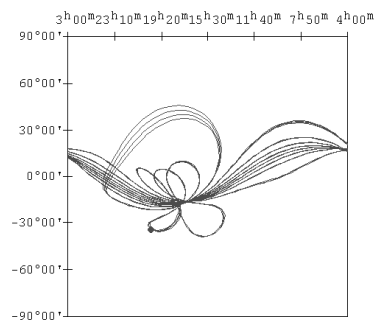


Fig. 6. Planet (4034) 1986PA.

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References

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