

ORBIT COMPLEX OF METEOR BODIES WITH GREAT VALUES OF ECCENTRICITIES IN THE SYSTEM OF SMALL BODIES OF THE SOLAR SYSTEM. S. V. Kolomiyets¹, ¹Kharkiv National University of Radioelectronics (KhNURE), 14 Lenin ave., Kharkiv 61166, Ukraine, e-mail: s.kolomiyets@gmail.com

The meteor center of the KHNURE has more than fifty years experience in carrying out of ground radar observation of faint meteors in Kharkiv, as well as in interpretation of data from radar observations. It is one of the oldest world radar meteor centers, which was founded by B.L. Kashcheyev in 1956-1958 [1].

With application of radio engineering means and radar-tracking methods (mostly advanced during IGY 1957) in meteoric researches it was possible to provide meteor astronomy and meteor geophysics with an extensive statistic observant material, not dependent on a season and time of a day, to automate partially the process of accumulation of data, to register weaker meteors.

The stunning file of knowledge about meteors within the limits of IGY 1957 as for the volume and importance has been received in the former Soviet Union. Today opportunities of meteor astronomy have extended even greater [2].

Now it is known such meteor orbital resources:

- The Kharkiv meteor orbit catalog (near 250 000 meteor orbit of faint meteors till +12m , masses: 0.000001-0.001 g, 1972-1978) Meteor Automatic Radar System, 31.1 MHz facility (MARS, 49.25 N, 36.52 E, near Balakleya, Kharkiv, Ukraine) IAU Meteor Data Center (3518 meteor orbits, Lindblad, 1991)

- Data (above 1 million meteor orbits) of the Canadian Meteor Orbit Radar, 29.85 MHz facility (CMOR, 43.260 N, 80.77 W near Tavistock, London, Ontario, Canada)

- Data (near 8 000 meteor detections) of the Arecibo 430 MHz facility (Arecibo, Puerto Rico)

Data (above 500 000 meteor orbits) of the Advanced Meteor Orbit Radar, 26 MHz facility (AMOR, New Zealand)

Today the relative density of the meteoroids everywhere in the Solar system can be established theoretically. The theoretical and observational distributions in orbital elements may be constructed for the meteoroids generated through the collisions of asteroids in the asteroid belt and the prominent families, as well as the cometary meteoroids. Besides it is actually if we search interstellar meteoroid component of the Solar system. In this paper such possible sources which emit particles with highly eccentric, highly inclined orbits will be the primary target of the study.

For a spacecraft on the prograde heliocentric orbits, these particles pose the major threat due to their high speeds relative to the spacecraft their fluxes are dominant in the overall impactor budget and their damage efficiency is particularly high. The first registrations of particles by the dust counters set on rockets and space vehicles, were very expensive

and had insignificant small statistics. Now meteor particles and interplanetary dust may be an the object of the study on all the distance from the Sun up to the borders of the Solar system and must be studied, actually on all the length of the heliosphere.

The meteor complex with great values of eccentricities is the most dynamical constituent of the Solar system. In this paper the properties of this complex and its possible connections with comets and asteroids are analyzed using the Kharkiv meteor orbit catalog.

References: [1] Kashcheyev B. L., Lebedinets V. N. (1965) Radar studies of meteors *Smithson. Contribs. Astrophys.*, vol.11, 183-199. [2]. Modern Meteor Science. An Interdisciplinary View (2005) Edited by R. Hawkes, I. Mann, P. Brown. *Reprinted from Earth, Moon, and Planets*, vol. 95, Nos.1-4, 2004 (Published by Springer, www.springer.com), 732 p.