

New Catalogue of One-Apparition Comets discovered in the years 1901–1950. Part II

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Abstract

First part of this Catalogue includes 38 Oort spike comets discovered in the first half of 20th century ([1]). Here, we present almost complete orbital results of the second part of the new catalogue of near-parabolic comets having orbital periods greater than 200 yr and original semimajor axes shorter than 10 000 au according to the latest edition of the Marsden and Williams Catalogue of Cometary Orbits (2008, hereafter MW08). This sample consists of about 50 comets having original semimajor axes shorter than 10 000 au, where in the case of eight comets their orbits are quality class worse than 2 in MW08 (original $1/a$ is not given there in such cases), and of 34 comets with parabolic orbits given in MW08 ($e = 1$ was assumed for these objects). New orbit recalculations generally give orbits of better quality, what is clearly visible within the subsample of the worst originally determined orbits. For at least half of the analysed comets from the 'parabolic' group of orbits it turns out that their eccentricities:

- (i) are determinable at a comparable level of accuracy as in the case of eight orbits of class < 2 mentioned above,
- (ii) suggest that their aphelia lie within the inner Oort Cloud region.

This investigation is a part of long-lasting project (Warsaw Catalogue of Near-Parabolic Comets) aimed at deriving the cometary orbits using the homogeneous methods and solar system model, and dynamical models of cometary motion that take into account the non-gravitational accelerations.

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References

- [1] Królikowska, M., Sitarski, G., Pittich, E. M., Szutowicz, S., Ziolkowski, K., Rickman, H., Gabryszewski, R., and Rickman, B.: New catalogue of one-apparition comets discovered in the years 1901-1950. I. Comets from the Oort spike, A&A, Vol. 571, A63, 2014.