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Warsaw Catalogue of long-period comets

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Currently, this Catalogue includes orbits of about 160 Oort spike comets defined as objects with original 1/a less than 0.000100 au^{-1}. Orbits were determined or redetermined in a completely homogeneous way and constitute more than 85% of the Oort spike comets discovered before 2010. In the publicly available Catalogue, we offer observed (i.e. osculating orbit at the epoch close to the observed perihelion passage), original and future orbits with their uncertainties and new orbital quality assessments, where as many as about 30% of them are non-gravitational orbits. These original and future orbits form a basis for independent, ongoing project focused on the origin of the near-parabolic comets, realized by Piotr A. Dybczyński from Poznań Observatory and me. Subsample of orbits of 38 Oort spike comets from the Warsaw Catalogue was investigated in the first part of other long-lasting project aimed at recalculation of orbits of all one-apparition comets discovered in the years 1901-1950.

Here, partial and the very preliminary results of the remaining one-apparition comets from the first half of the 19th century will be presented. Apart from 38 Oort spike comets, the sample consists of about 40 comets having original 1/a greater than 0.000100 au^{-1}, according to the latest edition of the Marsden and Williams Catalogue of Cometary Orbits (MWC), eight comets with orbits of quality class worse than 2 (original 1/a is not given in MWC in such cases) and 34 comets with parabolic orbits given in MWC (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 sample' it turns out that their eccentricities: (i) are determinable at a comparable level of accuracy as eight orbits of class <2 and $e \neq 1$ in MWC, (ii) suggest that their aphelia lie within the inner Oort Cloud region.

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