

Near-Earth asteroids of cometary origin associated with the Virginid complex

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The Virginid meteoroid stream produces a series of meteor showers and sub-showers active annually during February-May. A certain parent comet is not found but a related association of some showers with near-Earth asteroids was previously established. Such a link between the Northern and Southern ν -Virginids and NEA 2004CK39, the Northern and Southern η -Virginids and NEA 2007CA19 was defined and a cometary origin of these asteroids was suggested [1-2]. We performed a new search for NEAs belonging to the Virginid asteroid-meteoroid complex. On the base of calculation of orbital evolution of a sample of NEAs and determination of theoretical features of related showers a search for observable active showers close to theoretically predicted ones was carried out. As a result, predicted showers of 25 NEAs were identified with the showers of the Virginid complex. Revealed association points to a cometary nature of NEAs that are moving within the stream and may be considered as extinct fragments of a larger comet-progenitor of the Virginid asteroid-meteoroid complex.

[1] P.B. Babadzhanov, I.P. Williams, G.I. Kokhirova, MNRAS, 2012, 420, 2546;

[2] P.B. Babadzhanov, G.I. Kokhirova, Yu.V. Obruchov, A&A, 2015, 579, A119.