

Identification of radiant of low-light-level meteors from double station TV observations during autumnal equinox of 2001 and 2003

Pavlo M. Kozak, Olexander O. Rozhilo and Yuriy G. Taranukha

Astronomical Observatory, Kyiv National Taras Shevchenko University, 3, Observatorna Str.,
Kyiv, 04053, Ukraine
email: kozak@observ.univ.kiev.ua

Abstract. Results of double-station TV meteor observations which were carried out during autumnal equinox in 2001 and 2003 are used for the confirmation of existing meteor showers and for a search for probable new micro-showers. Seven existing September showers were confirmed, two of them by meteors from both years. Fourteen new groups were proposed to be considered as new meteor micro-showers. Taking into account similar kinematical parameters two of them can be supposed to be a part of already existing showers.

Keywords. TV observations of meteors, meteor radiant, new meteor stream.

Basing on double station TV observations of meteors on September 21-22 of 2001 and September 19-24 of 2003 we try to confirm known meteor showers in accordance with Meteor Data Center of International Astronomical Union (MDC IAU) Jopek & Jenniskens (2010), and to search for probable new micro-showers. The observational data were obtained with the help of TV systems of super-isocon type, briefly described in Kozak (2008). The amount of double station meteors which were used for the identification was 18 meteors of 2001 and 80 meteors of 2003. Confirmation of known mini-showers of meteors was carried out separately for each year. Elements of cluster analysis were used for the identification of meteor showers. The coordinates of geocentric radiant and velocity, and additionally angular elements of heliocentric orbit were used as parameters for the selection. In spite of small statistics seven known micro-showers were confirmed by a few meteors: September iota Cassiopeiids, nu Draconids, South delta Piscids, omega Piscids, kappa Aquariids, October Capricornids and sigma Orionids. The showers of nu Draconids and South delta Piscids were confirmed by meteors of both years. Fourteen compact meteor groups were selected as possible new micro-showers. Later we identified two of them with established showers (September epsilon Perseids and North delta Piscids) but proposed to specify the kinematical parameters of these showers. Other twelve groups are proposed to be considered as possible new meteor micro-showers.

References

- Jopek, T. J. & Jenniskens P. M. 2011, in W. J. Cooke, D. E. Moser, B. F. Hardin, and D. Janches (eds.), *Proc. Meteoroids Conf. Breckenridge, Colorado, USA, NASA/CP-2011-216469*. p.7
Kozak, P. 2008, *EM & P* 102, 1-4, 277