Independent identification of meteor showers in the EDMOND database

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Cooperation and data sharing among national networks and International Meteor Organization Video Meteor Database (IMO VMDB) resulted in the European viDeo MeteOr Network Database (EDMOND) [1,2]. The current version of the database (EDMOND 4.0) contains 83,369 orbits collected from 2001 to 2013.

In our survey we used the EDMOND database in order to identify existing meteor showers in the database. In the first step of the survey, we found groups around each meteor within similarity threshold (see figure). Mean parameters of the groups were calculated and compared using a new function based on geocentric parameters (λ, RA, DEC, and V_g). Similar groups were merged into final groups (representing meteor showers), and compared with IAU Meteor Data Center list of meteor showers. This poster presents the results obtained by the proposed methodology.
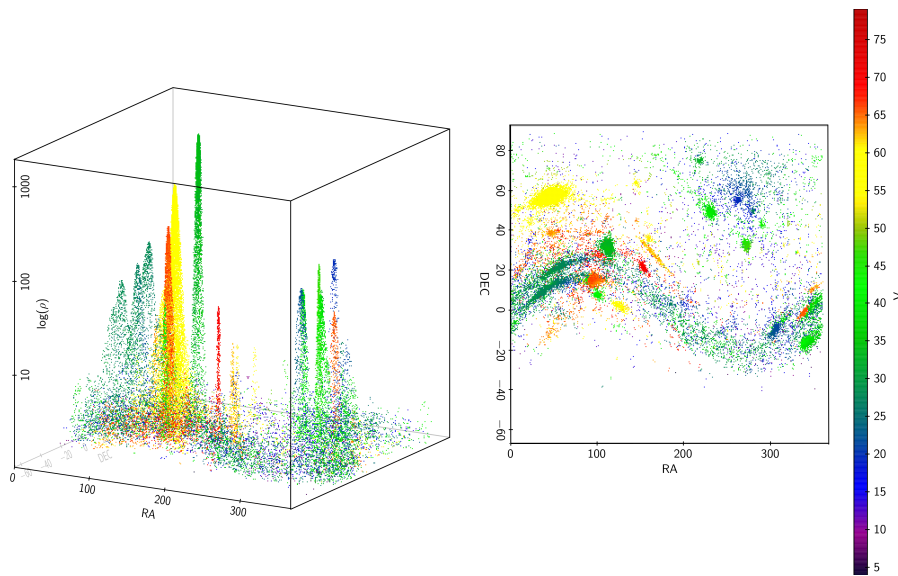

Figure: Groups of orbits found within the assumed threshold plotted in RA, DEC, V_g, and $\log(\rho)$, where ρ represents meteor orbits concentrations in the phase space of orbital elements [3].

References: [1] Kornoš, L. et al., 2014, In Proceedings of the IMC, eds. Gyssens M., Roggemans P., Poznan, Poland, 2013 (in press). [2] Kornoš, L. et al., 2014, In Proceedings of the METEOROIDS 2013, Poznan, Poland, 2013 (in press). [3] Welch, P. G., 2001, Mon. Not. R. Astron. Soc. 328, 101