THEORETICAL DIMENSION OF METEOR RADIATION REGION FOR METEOROID STREAM PRODUCED BY COMET DISASTER. Bagrov A.V.[1], Bolgova G.T.[1], Kartashova A.P.[1], Leonov V.A.[1], Sorokin N.A.[1], [1]Institute of Astronomy of Russian Academy of Science, 48 Pyatnitskaya str., Moscow, Russian Federation. e-mail abagrov@inasan.ru.

Comets are no doubt parent bodies for most known meteor showers. Comet nuclei seem to be mixture of frozen volatiles and refractory particles. Solar radiation evaporates volatiles and sets free refractory intrusions. Evaporated gases leaves comet nucleus at speed up to several hundreds meters per second, but extremely rarefy gases can carry away heavy particles at low speed only. So most members of created meteoroid stream must have orbital parameters nearly the same as parent comet had. Computer model of described process was used for estimations of geometric parameters of simulated meteor showers. Model covers escape velocities from 0.1 to 100 m/s at aphelion, at perihelia and at distance of 1 a/e/ from Sun. Orbits with semi-axes of 2.62 a.e. (Delta Aquarids), 11.5 a.e. (Leonids) and 28 a.e. (Perseids) were studied. Very miserable changes of the velocities lead to creation of very thin pipes for descended orbits. As a result it produces very compact radiants of simulated showers that vary their widths from few arc-seconds for escape velocities of 10 cm/s to some arc-minutes for 100 m/s for any orbit semi-axes. The diameter of the orbits set tube at distance 1 a.u. from Sun is very narrow too: the Earth crosses it in few minutes. So computer simulation shows that simple disaster of comet nuclei can lead to creation of meteor showers with radiants that are times narrower then really exist. Hence we came to conclusion that visible meteor showers were acted by some extra mechanism that widened their radiants. The most reliable one may be gravitational perturbation of particles' orbits at close encounters with the Earth, as it can change direction of particle up to several degrees. As Earth's gravitation is effective inside Hill's sphere only, it will take hundreds and thousands revolution periods around the Sun to widen initially narrow radiant to ordinary observable one. Simultaneously any change of orbital velocity is followed by change of orbital period, so by time swallow of particles grows in length along its orbit. For example, nowadays Leonids swallow with average orbital period of 14244 days became long enough for Earth to cross it in two hours three years in row. Comparison of length and width of the swallow leads to the age of Leonids shower of $5 \cdot 10^5$ years.

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