ON THE POSSIBLE OBSERVATION OF METEOROIDS EJECTED FROM ASTEROID (3200) PHAETHON IN 2009. G.O. Ryabova, Research Institute of Applied Mathematics and Mechanics of Tomsk State University, 634050 Tomsk, Russian Federation; ryabova@niipmm.tsu.ru.

Introduction: In 2009 June being near its perihelion asteroid (3200) Phaethon (the Geminid meteoroid stream parent body) underwent a short unexpected brightening, which could be interpreted as the ejection of dust particles [1]. To study a possibility that the produced hypothetical dust cloud could be observed in the nearest 10 years we examined a numerical model of this cloud or, in other words, meteoroid swarm. We looked for the following answers: could the dust produced be observed on the Earth as meteors? could these meteors be stand out against the regular Geminid's activity?

Model: The method of modelling was quite standard: ejection of meteoroids from the asteroid was simulated and their orbits were numerically integrated till 2021 January 20.0. In the process we followed up the close encounters of meteoroids with the Earth and calculated theoretical radiants for such meteoroids.

Results: The first close approach of the model swarm to the Earth was in 2014, but in 2017 (the year when Phaethon should approach the Earth on the distance about 0.0689 au) the model meteor shower was several times more abundant.

The outburst in the Geminid's activity due to this swarm may take place at $\lambda_\odot = 262°.5$, i.e. after the main Geminid's maximum. To exceed the usual level of activity mass of the 2009 swarm should exceed ~ 10^7 kg.

The radiation area of the model outburst meteors is a small spot: $\alpha \approx 114°.65 \pm 2°.5$, $\delta \approx 32°.7 \pm 0°.1$. A concentration of radiants of meteors of various magnitudes in this spot is a feature allowing distinguishing the outburst.

In all the cases of the model swarm approaches the minimal distance between particles and the Earth was not less than 0.018 au. Taking into account that the radius of the Earth influence sphere is about 0.03 au we can consider observation of the resulting meteors as possible, but the probability of the event is not high.

The above text is a summary of a paper submitted to MNRAS.

References: [1] Jewitt D., Li J. (2010) *AJ, 140,* 1519–1527.