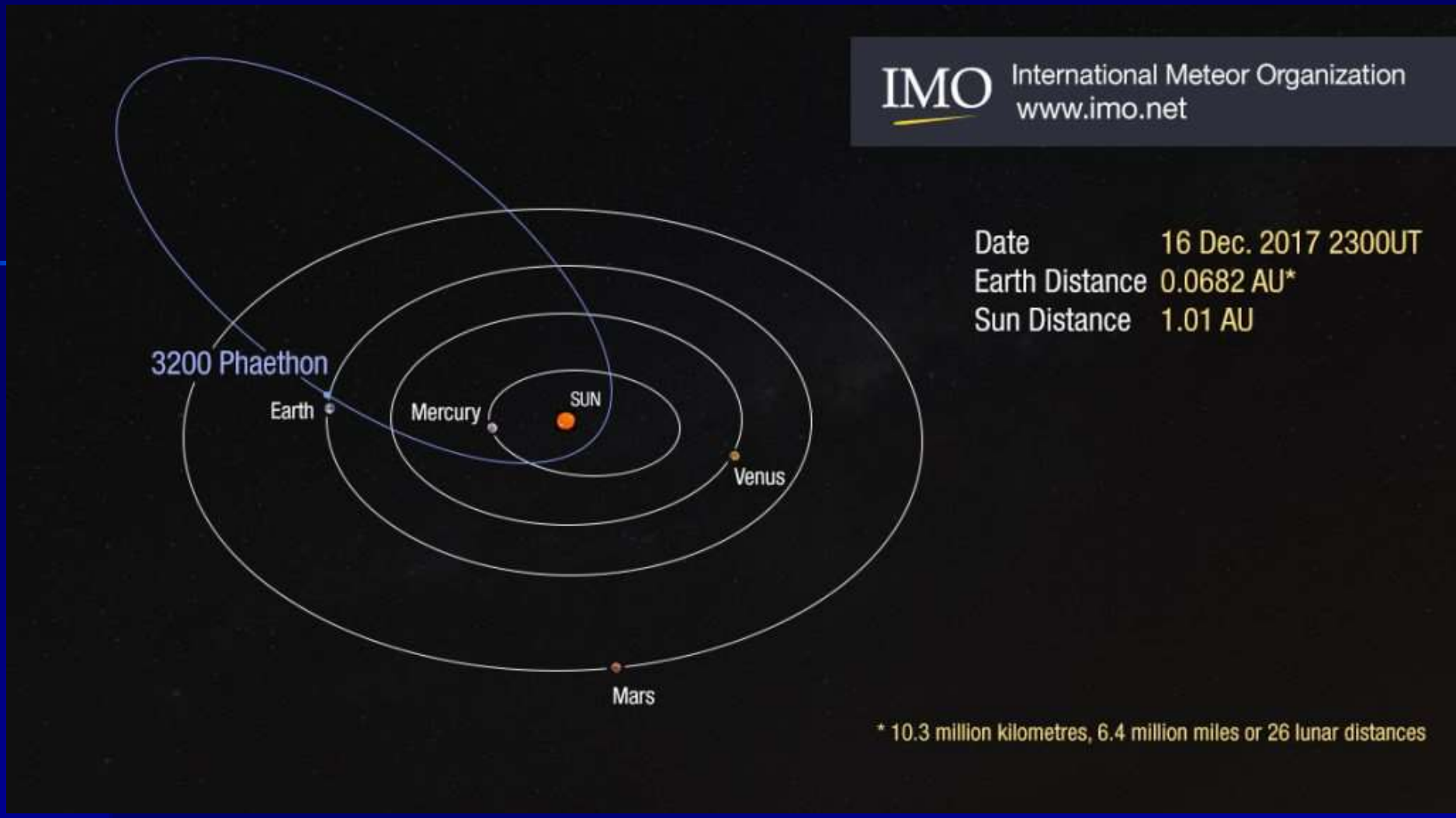
Increasing Geminid meteor shower activity

Part I.

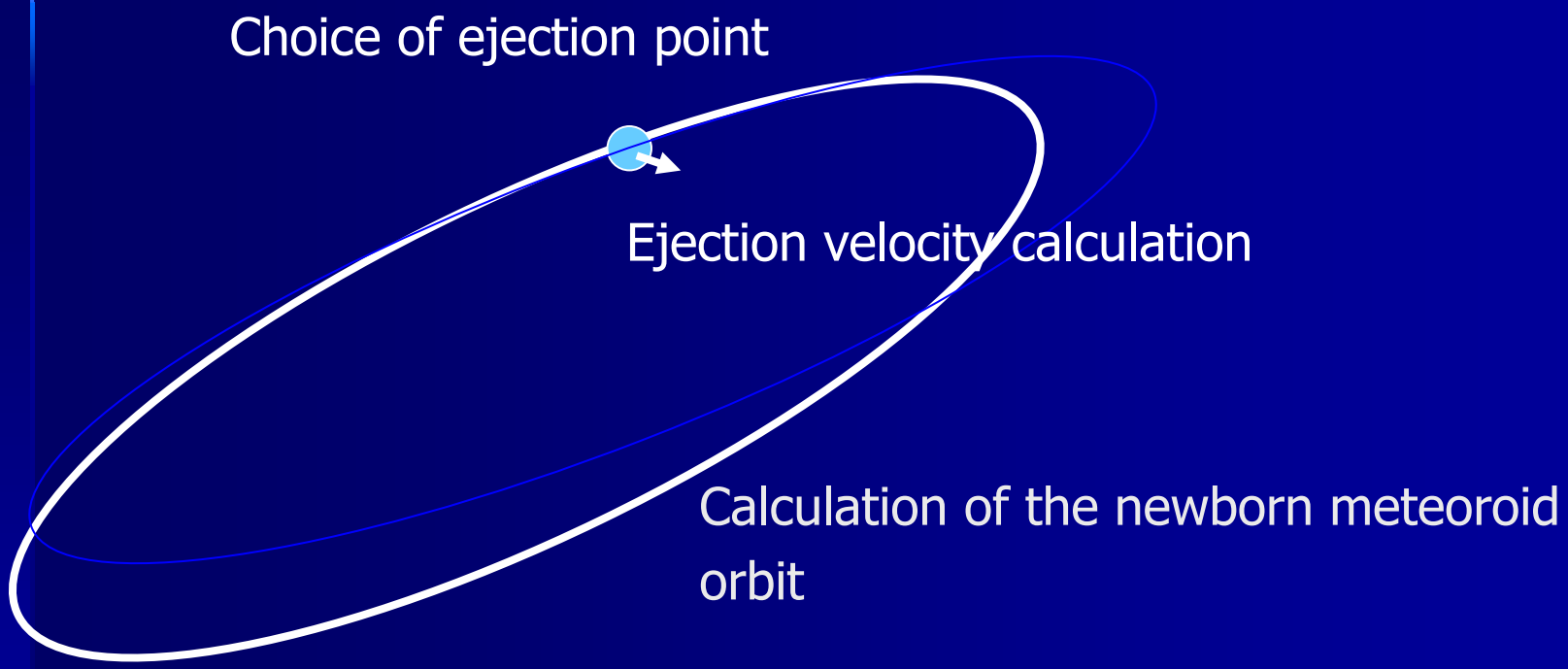
Ryabova G.O., Rendtel J.

International Meteor Conference 2018, Pezinok-Modra, Slovakia



1931	0.038	ae
1974	0.055	ae
2017	0.069	ae
2093	0.020	ae

Modelling of a meteoroid ejection



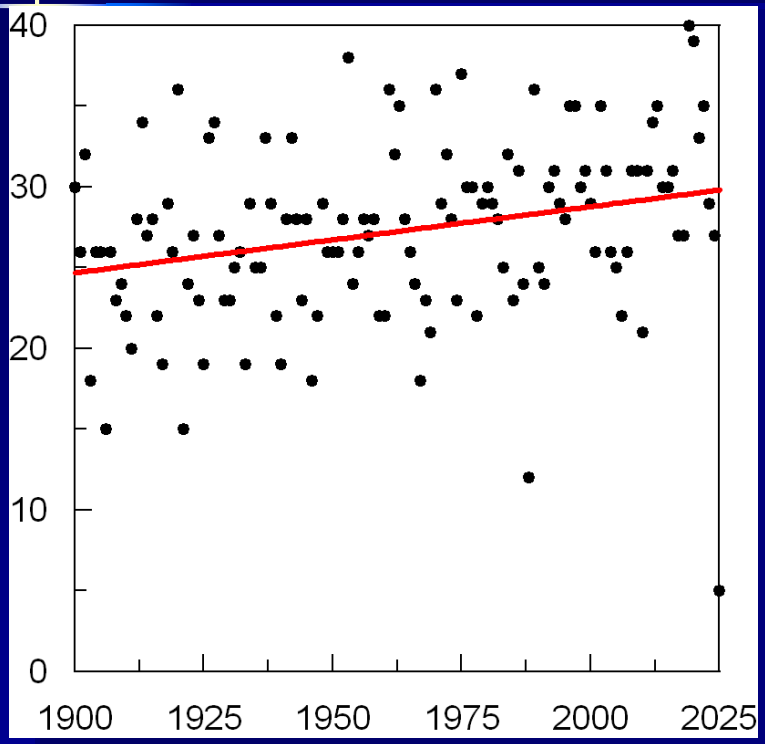
Repeating this process 10 million times we have a model meteoroid stream — a family of orbits

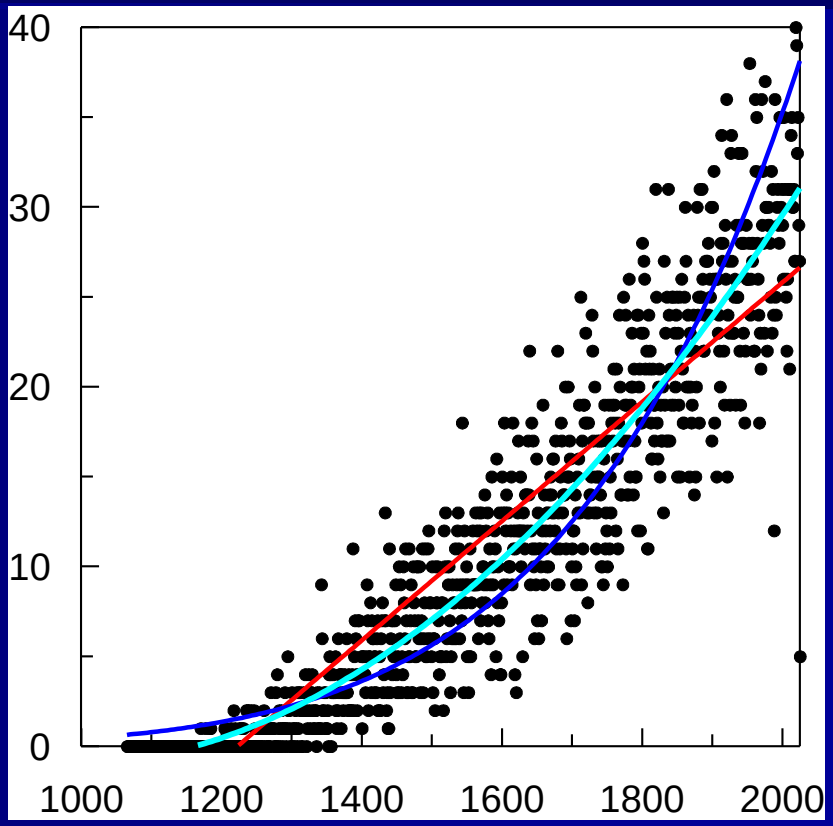
Model

- 30 000 of test particles
- Age 2000 years
- Mass m_2 = 0.02 g
- Evolution – numerical integration

Ryabova G.O., 2016, MNRAS, 456, 78

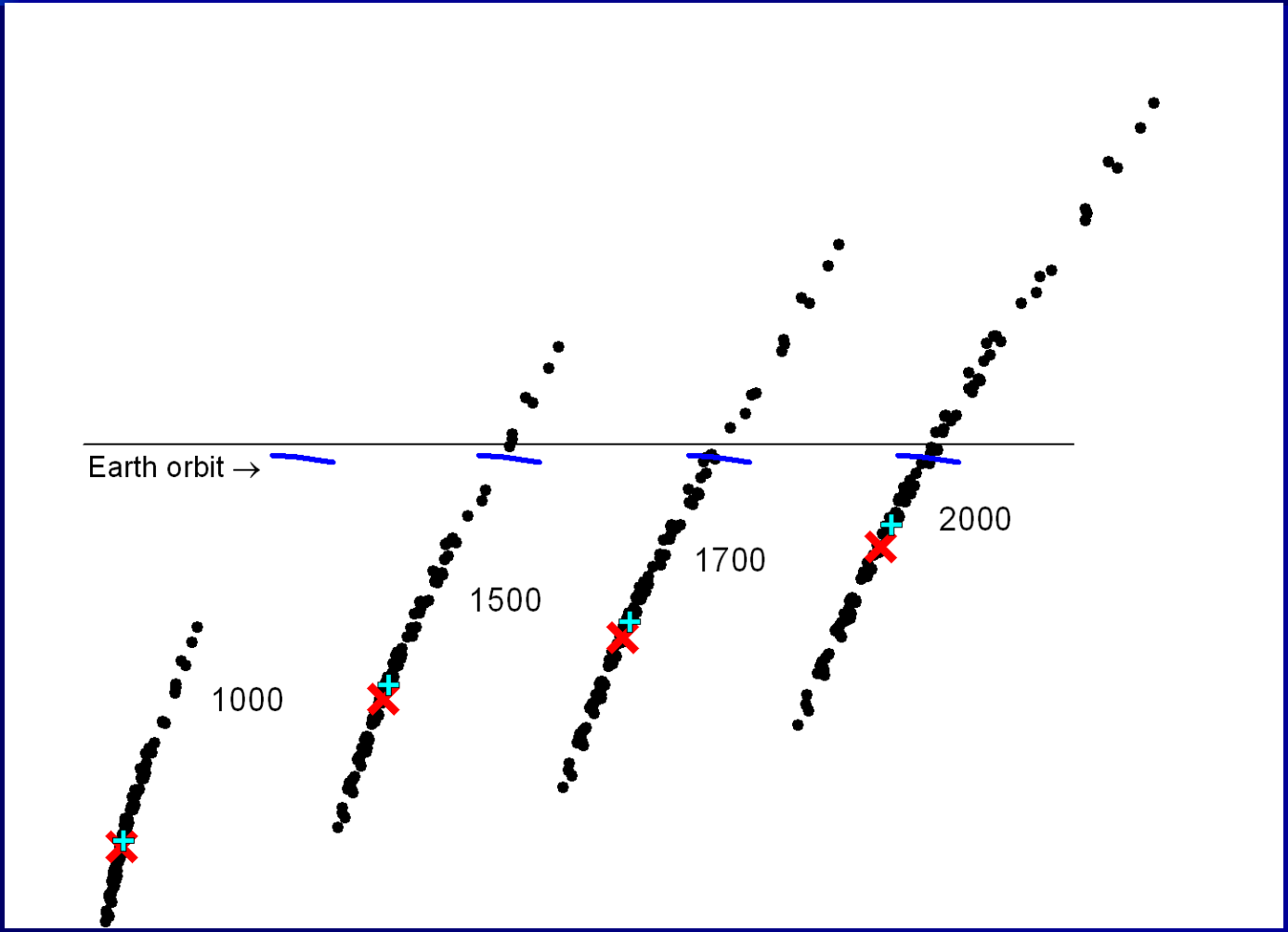
Model meteoroid encounters (up to 0.02 au)





Ryabova G.O., Rendtel J., 2018, MNRASL, 475, L77–L80.

Why activity increases?



Why no outburst activity?

- The Geminids were generated 2000 years ago during a short time and had no replenishment after that.
- So no meteoroid swarm around the asteroid.
- Phaethon approaching the Earth does not mean that the Geminid stream core approaches the Earth.

This is the end,

thank you