LIGHT CURVES AND ATMOSPHERIC TRAJECTORIES OF LYRID METEORS. P. Koten[1], J. Borovička[1], P. Spurný[1], S. Evans[2], J. Hanuš[3], R. Štork[1] and A. Elliott[2]. [1]Astronomical Institute of the Academy of Sciences, CZ-25165 Ondřejov, Czech Republic. E-mail: koten@asu.cas.cz. [2]British Astronomical Association, Burlington House, Piccadilly, London W1J 0DU, United Kingdom. [3]Astronomical Institute, Charles University, Prague, Czech Republic.

Introduction: The April Lyrid shower is a meteor shower with variable activity. Usually the maximum peaks around April 21-22 and visual zenithal hourly rate reaches only 5 to 10 meteors. However, the shower occasionally exhibits an outburst of the activity exceeding 100 meteors per hour. The parent body of the meteor shower was identified in 1867 as comet C/1861 Thatcher [1]. The recent radiant position lies close to $\alpha = 272^\circ$, $\delta = 34^\circ$ and the peak of normal activity occurs at a solar longitude of about 31.6º [2].

Although many authors were interested in the orbital evolution of the stream especially with the aim to explain 12-years long periodicity of the enhanced activity ([1], [3], [4] etc.) the physical structure of the Lyrid meteoroids in not well studied.

In this presentation we use the double station video data of the Lyrid meteors observed mainly in 2004 to investigate the atmospheric trajectories and light curves of the meteor.

Methods: The data on Lyrid meteors recorded by video intensifier cameras covers the range of magnitudes -0.5 to +4.8. We recorded 45 meteors reliably belonging to the Lyrid shower. Using the double station data we can determine meteor heights, velocities and light curves. We used traditional statistical methods to compare the meteor light curve shapes [5], [6] and the heights, where the meteor luminosity is produced. The obtained results are compared with other meteor showers of the cometary and asteroidal origin [6], [7].

Results: The beginning heights of the Lyrid meteors increase with increasing photometric mass as was already observed for other showers of cometary origin. However this increase is not as steep as it is usual for the cometary showers. The beginning height rises significantly slowly in comparison with Orionid, Perseid or Leonid meteors. On the other hand the beginning height of the Geminid meteors is almost mass independent.

The light curves show similar behavior. They are generally symmetrical as it is usual for faint meteors, but their peak slightly after the midpoint of the meteor luminous trajectory. Also according to this criterion the Lyrids are more compact than Leonid, Perseid or Taurid meteors and on the other side slightly more fragile in comparison with the Geminid meteors.

We will present more detailed comparison at the conference.

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