

bling one to record meteors of 12 mag is described. The description of a program code elaborated for the photometric image reduction is also given. The classification of the detected meteors is explained. The results confirming fragmentation of the dust grains are presented. The meteor afterglow phenomenon was discovered. The characteristic time of such an event was estimated. The analysis of the results obtained through the TV meteor image reduction is being carried out.

TV METEOR PATROL IN ODESSA

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Historical review of the Odessa photographic meteor patrol is presented.

A new TV meteor patrol which uses the two methods' combination - TV and telescopic ones, is described. The description includes meteor patrol at the Kryzhanovka station based on Schmidt telescope (17/30 cm) and TV CCD detector, as well as results of the equipment testing. Merits and demerits of this observational complex are discussed.

The first results of the meteor event observations during 2003-2004 are presented.

The further tasks of the meteor astronomy that could be based on the meteor patrol data are considered.

CCD OBSERVATIONS OF MINOR PLANETS IN NIKOLAEV IN 2002-2003

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Regular observations of selected minor planets have been hold with Zone Astrograph (D=0.12 m, F=2.04 m) of Nikolaev Astronomical Observatory, equipped with CCD camera (ISD017A, 1094x1160, 16x16 mkm²), since 2000.

Results of processing of CCD images obtained with accurate timing better than 1 ms from August 2002 till the end of 2003, by observation programme of selected minor planets for asteroid mass determination in dynamical way are presented in the paper.

CCD processing was made with Astrometrica 4.3.2.346 Software (<http://www.astrometrica.at>) and reference stars taken from UCAC2.

Evaluation of accuracy of these observations was made from comparison of observed and calculated positions.

THE DEPTH OF HEAVENS - BELIEF AND KNOWLEDGE DURING 2500 YEARS

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For Dante Alighieri (1265-1321) the spiritual cosmos contained the Heavens, Earth, and Hell, and it was compatible with the physical cosmos known from Aristoteles (384-322 B.C.). Dante's many references in his *Divina Commedia* to physical and astronomical subjects show that he wanted to treat these issues absolutely correct. Tycho Brahe proves three hundred years later by his observations of the *Stella Nova* in 1572 and of comets that the spheres of heavens do not really exist. It has ever since become more and more difficult to reconcile the ancient ideas of a unified cosmos with the increasing knowledge about the physical universe. -- Ptolemaios derived a radius of 20 000 Earth radii for the sphere of fixed stars. This radius of the visible cosmos at that time happens to be nearly equal to the true distance of the Sun, or 14 micro-light-years. Today the radius of the visible universe is a million billion (10 to the power 15) times larger than Tycho Brahe believed.

The lecture gives an overview of astronomical distances and their dramatic change during two and a half millennia in the developing cultural environment from ancient Greece to modern Europe.