

Meteor observations under the INASAN supervision

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Abstract

Meteor observations have the specific property: we do not know in advance neither area on the celestial sphere, not the time when the event occurs. Besides that, a meteor flash in the atmosphere has duration few seconds or less, and it is hard problem to gather enough photons from it to register a faint or fast meteor. There are a number of tasks in meteor astronomy for solution of which not only a simple registration of meteors in the optical range is required, but a high spatial and time resolution as well. Television method is the most acceptable for such a case and is widely used in the practice of meteor observations.

Television meteor observations in Russia are carried out under the Institute of Astronomy of the Russian Academy of Sciences (INASAN) supervision in different regions of Russia: Moscow region, Irkutsk, Ryazan and North Caucasus.

The TV system PatrolCa designed for observations in the wide field of view (the ordinary for most of meteor cameras), consists of the following components: the high resolution cameras Watec LCL-902HS, the wide-angle photograph objectives Canon 6/0.8 (F=6 mm, the aperture 1:0.8). The cameras have fields of view of $50^\circ \times 40^\circ$ and have a limiting magnitude (for meteors) of $+4^m \div +5^m$.

The FAVOR (**FA**st **V**ariability **O**ptical **R**egistrator) camera is used for observations of faint meteors at the North Caucasus [1]. The basic components of this camera are the following: the high-aperture lens objective with the aperture 150 mm and the focal length 180mm (the aperture 1:1.2), the image intensifier, the objective reversal, CCD receiver "Videoscanner" VS-CTT285 2001. The CCD "Sony" ICX285 has format 1380 x 1024 pixels. The camera has a field of view of $18^\circ \times 20^\circ$, and has a limiting magnitude of above $+10^m$ (for meteors). The two cameras similar to FAVOR (named SMAC) were designed for double-station observations of faint meteors.

The results of observations at these cameras are presented. The observations were held by both methods: the single-station and the double-stations mode. All meteors were associated with all known meteor showers [2]. The Index of meteor activity was calculated for meteors, associated with the meteor showers [3], [4]. The distribution of the number of meteors by brightness is also presented.

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References

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