



IAU XXVIII General Assembly

Abstract Book

20-31 August, 2012

Beijing, China

single station TV observations of autumn meteor showers for the period from 2006 to 2008 are presented. The high-sensitive hybrid camera (the system with coupled of the Image Intensifier) FAVOR with limiting magnitude for meteors about 9m...10m in the field of view $20^{\circ} \times 18^{\circ}$ was used for observations. In 2006-2008 from October to November more than 3 thousand of meteors were detected, 65% from them have the brightness from 6m to 9m. The identification with autumn meteor showers (Orionids, Taurids, Draconids, Leonids) was carried out. In order to estimate the density of the influx of meteor matter to the Earth for these meteor showers the Index of meteor activity (IMA) was calculated. The IMA distribution for the period 2006 - 2008 is given. The distributions of autumn meteor showers (the meteors with brightness of up to 8 m) by stellar magnitude from 2006 to 2008 are also presented.

6365: The current state and prospects for meteors observations in

RI NAO

Authors:

- Oleksandr V. Shulga, avshulga@mail.ru, RI Nikolaev Astronomical Observatory, Ukraine
- Yevgen Kozyryev, tttt_ao@mail.ru, RI Nikolaev Astronomical Observatory, Ukraine
- Yevgeniya Sybiryakova, evg_sibir@mail.ru, RI Nikolaev Astronomical Observatory, Ukraine
- Nikolay Kulichenko, n_kulichenko@mail.ru, RI Nikolaev Astronomical Observatory, Ukraine
- Vasyl Vovk, werewolf8686@mail.ru, RI Nikolaev Astronomical Observatory, Ukraine

The observations of meteors in optical band using telescopes equipped with TV-cameras and the observations in radio band using FM and TV translators are started in RI NAO since 2010. The main purposes of observations are- in the optical band: statistics of meteors at night time, the calculation time of shower maximum, the calculation of the coordinates of shower radiant;- in the radio band: statistics of meteors 24 hours a day, the calculation time of shower maximum, and its width, the determination of the velocity of meteors. Optical observations of meteors at the RI NAO are conducted using Meteor patrol, which includes two telescope (D=47mm, F=85mm) equipped with the WAT-902H2 TV CCD cameras (768×576, 8.6×8.3μ). The field of view of both telescopes is $4.2^{\circ} \times 3.2^{\circ}$. The process of optical observation and coordinate-photometric processing is automated using original software developed by the RI NAO. The main stages of the meteor trails automatic detection algorithm: 1) division the image into cells of 8*8 pixels; 2) calculation the signal / noise ratio of the cells through the long frame sequence; 3) search of the lines of object motion among the cells that exceed the threshold value of the signal / noise ratio; 4) search of the objects which are uniformly moving along the

dedicated lines; 5) exclusion of objects which speed is less than the maximum possible speed of the satellite. In 2011, test observations were conducted at the Meteor patrol in RI NAO, 105 meteors with the length of $(0.5-4.5)^\circ$ and brightness $(1-5)m$ were recorded. The error of star reference system is $\pm(1-6)''$. Error in determining of meteor trajectory arc in right ascension and declination was $\pm(10-12)''$. Error in estimating of the pole of a great circle of the meteor trajectory was $\pm(3-13)'$. In the radio band the observations of meteors are carried out by detecting the over-the-horizon FM radio signal, which is reflected from the meteor trail. FM station in Kielce (Poland) is used as signal source. Hardware and software complex was designed. It includes a highly directional antenna, PC with TV/FM-tuner and original software for automatic registration of meteors developed by the RI NAO. Algorithm of automatic detection of fragments of audio signal of FM radio station works with the time-frequency field calculated with FFT algorithm. The data processing of observations of 2011 was carried out and more than 100,000 meteoric phenomena are given. The characteristic bursts of meteors quantity for all major meteor showers are detected. A comparison of data of automatic processing of radio observations in the RI NAO with meteors video observations by the IMO network were conducted, the correlation coefficient was >0.5 .

5372: The physical-chemical properties of substance of the bright fireball EN171101 Turyi Remety

Authors:

- Klim I. Churyumov,,Astronomical Observatory of Kyiv Shevchenko National University
- Rudolf Belevtsev,,Institute of of environmental geochemistry of NAS and MES of Ukraine
- Emlen Sobotovich,,Institute of of environmental geochemistry of NAS and MES of Ukraine
- Svitlana Spivak,,Institute of of environmental geochemistry of NAS and MES of Ukraine
- Tetyana Churyumova,,Kyiv Shevchenko National University

In 2007-2011 searches were conducted for mineralogical and geochemical studies of the soil in the region of fall down of a bright fireball EN171101 «Turyi Remety" matter in Perechyn district of Transcarpathian. In the assumed location of the fall of a meteorite material for analysis was taken from the bottom of streams of Transcarpathian Mountains. In this matter we have been found numerous small magnetic spheres (microspherul) and fused segments, which have enough large sizes - up to 5 mm in diameter, which probably are fragments of the Turyi Remety meteoroid. One of the known signs of fireballs are sand-sized magnetic balls (by diameter 0.1-1.0 mm), which are often found in the magnetic concentrate fraction. This small balls, together with fragments of fused iotsit (FeO) are formed during the ablation of the meteoroid, and