and astrometric positions first of all of newly discovered NEAs. The obtained results including rotation periods, shapes, phase relations, and diameters are presented. CCD observation and reduction techniques are discussed. The significance of the cooperation between NEA observers is emphasized. The organization and perspectives of Space-Guard Center in Ukraine are discussed.

CURRENT STATE OF THE FAST ROBOTIC TELESCOPE

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The Fast Robotic Telescope (FRT) intended for observations of stars, globular clusters, solar system bodies, near-Earth objects was developed in the RI NAO. The FRT is able to observe in three different modes:

– stare mode;

– drift scan mode;

– satellite mode – observations of the near-Earth objects with orbit inclinations ± 90°.

A brief analysis of the problems, emerging in the course of high-accuracy optical observations of the artificial near-Earth objects, and possibilities of their resolution by using original methods and technical means are given. The possibility of angular measurements with the standard deviation about 1" at the moment of observation is discussed.

The general features of the FRT are given. The telescope is able to carry out observations of the artificial near-Earth objects, virtually, on all orbits and in a wide range of magnitudes.

A great deal of attention is given to the instrument hardware and software, which allow us to carry out observations in automatic mode.

The FRT has an equatorial mount with the following hardware:

– Maksutov telescope (300 mm, f/5.0), CCD camera (1040x1160, 16x16 mkm, FOV= 40'x40');

– the narrow field satellite camera, refractor (three lenses, 300 mm, f/1.6), TV CCD (1/2" , FOV= 30'x 30' , 25 frame/s);

– the wide field satellite camera, refractor (seven lenses, 100 mm, f/2.5), TV CCD (1/2" , FOV= 2°30'x2°30' , 1...25 frame/s);

– the positioning system with angular encoders (angular velosity up to 2.5 °/s , s = ± 0".1);

– the time recording system (s(t)= 0.1 s).

Trial observations gave the following results of the limiting magnitude:

– Maksutov telescope — up to 17m (τ=60 s);

– the narrow field satellite camera — 14m (τ=0.04 s);

– the wide field satellite camera — 10m (τ=0.1 s).

The FRT has begun the observations of NEO in semi-automatic mode.

REAL-TIME LINUX CONTROL SOFTWARE OF SATELLITE LASER RANGER TPL-1M OF LVIV AO

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Due to some special needs it was decided to modernize the control software of telescope TPL-1M of Laser Ranging Station "Lviv". We considered several operating systems to choose the most suitable for our purpose. The best choice was Real-Time Linux. The system has several essential advantages over others (MS-DOS, Windows, LynxOS, Linux). First of all RTLinux is free "hard" real time system which is used in the most advanced applied researches. Secondly, it runs standard Linux as least privileged task and this allows to use all advantages of Linux: local networking and Internet, free scientific astronomical software that can be used parallel to real time tasks, useful integrated development environments etc. All these preferences let us create inexpensive elegant program complex for automation astronomical observations.