JENAM 2011

European Week of Astronomy and Space Science

Book of abstracts

4–8 July 2011
Saint Petersburg, Russia

S4-3. The independent latitude stations data and corrected proper motions in declination of some Hipparcos stars

Goran Damljanovic

Astronomical Observatory
Volgina 7, 11060 Belgrade, Serbia

E-mail: *gdamljanovic@aob.bg.ac.rs*

The latitude data (made over many decades) of 7 so-called independent latitude — IL stations (Belgrade with code BLZ, Blagoveschtschensk — BK, Irkutsk — IRZ, Mizusawa — MZL, Poltava — POL, Pulkovo — PU/PUZ and Warsaw — VJZ) were used to calculate the corrections of proper motions in declination of common IL/Hipparcos stars. The IL data were collected during the last century in line with the Earth rotation programmes for determining the Earth Orientation Parameters (EOP), and were included into the data of a few international organizations (Bureau International de l'Heure — BIH, International Polar Motion Service — IPMS, etc.). There are numerous IL observations of stars referred to the Hipparcos Catalogue (ESA, 1997), and I used these latitude data for the inverse investigations — to improve the proper motions in declination of mentioned Hipparcos stars. The results are in good agreement with the new Hipparcos (van Leeuwen, 2007) data. The method of calculations and the calculated values of proper motions in declinations are presented here.

S4-4. Astrometry and Photometry Observations of Asteroids at the RTT150 in 2008-2010

Anatoliy Ivantsov

Nikolaev Astronomical Observatory
1 Observatornaya ul., 54030 Nikolaev, Ukraine

E-mail: *valani@mail.ru*

The participating institutions of France, Ukraine, Russia and Turkey are engaged in the joint project complementary to one of the Gaia outputs for research of Solar system objects, namely determination of masses for large asteroids. The idea consists in observing and thus providing astrometry observations for the selected asteroids, which are already or will be perturbed before the launch of Gaia mission in 2012. These observations will provide the orbit at the time of maximum deflection angle or perturbation useful for the later mass determination together with the Gaia data. For the time being passed, from 2008 till 2010, there were observed 24 asteroids selected from the IMCCE list. Thus, there were obtained more than 2700 observations. About 60% of the observations were successfully reduced to the positions with the UCAC3 catalogue. Standard errors of the positions are 0.16". in right ascension and 0.14". in declination. Photometry of several asteroids was made in BVR Bessel system performed for the images where secondary standards of SDSS7 catalogue were presented. Standard errors of photometry are 0.14 mag. in B-band, 0.09 mag. in V-band, 0.14 mag in R-band. Current status of the project, problems and possibilities are discussed.

S4-5. Geometric method for determination of parabolic orbits

Vladimir Kuznetsov

Institute of Applied Astronomy of Russian Academy of Sciences
10 Kutuzova nab., 191187 St. Petersburg, Russia

E-mail: *v.kuznetsov@ipa.nw.ru*

A modification of geometric Kuryshev-Perov method for determination preliminary parabolic orbit from four observations is presented. Using of the geometric relationships between heliocentric distances for object on parabolic orbit (two conditions of coplanarity and expression of semiparameter via two vectors of heliocentric distances) is allowed to obtain rigorous system of two algebraic equations relatively two geocentric distances. In these equations, the intervals of times between the observations are not used. The method may be used on any intervals of time between the observations, but don't worked for orbits nearby ecliptic. As an example, the orbit of long-periodic comet 153P/Ikeya-Zhang is computed. The five solutions were obtained and analyzed.