CCD-PHOTOMETRY AND POLE COORDINATES FOR EIGHT ASTEROIDS. V.G.Shevchenko¹, N.Tungalag², V.G.Chiorny³, N.M.Gaftonyuk³, Y.N.Krugly¹, A.W.Harris⁴, J.W.Young⁵, ¹Institute of Astronomy of Kharkiv National University, Kharkiv 61022, Sumska str. 35, Ukraine, shevchenko@astron.kharkov.ua , ²Research Centre of Astronomy and Geophysics of Academy of Science, Ulaanbaatar 210351,BZD-5, Mongolia, namk-hai_tungalag@yahoo.com, ntungalag@rcag.ac.mn , ³Crimean Astrophysical Observatory, Crimea, Simeiz 98680, Ukraine, ⁴Space Science Institute, 4603 Orange Knoll Avenue La Canada, CA 91011-3364, USA, ⁵Jet Propulsion Laboratory, Pasadena, CA 91109, USA.

Abstract. Distribution of pole coordinates provides information about collision history in an asteroid belt and allows to hypothesize about the primordial rotation rates of minor planets at an early stage of the main asteroid belt formation. While the number of rotation periods has grown two times in the past ten years and is more than 2000 objects [1], there are the pole coordinates for only about 200 up to now [2], [3]. Some analysis of rotation rates has recently been done by several authors [2], [3], [4]. They pointed out some anisotropy in the distribution of latitudes for asteroids with prograde rotation, and for retrograde rotation the distribution is almost isotropic. Moreover, S-type asteroids and asteroids with long rotation periods have less elongated shapes than other asteroids.

To investigate these in more detail requires increasing the data set of pole coordinates. As part of the program to investigate physical properties of asteroids, the long time photometric observations were carried out for eight asteroids: (122) Gerda, (153) Hilda, (190) Ismene, (221) Eos, (411) Xanthe, (679) Pax, (700) Auravictrix, (787) Moskva, and were estimated amplitudes of the lightcurves. New rotation periods have been determined for the asteroids (153) Hilda (5.959 h) and (411) Xanthe (11.408 h), and known rotation periods for some of the others have been confirmed. Using our data and others data we have estimated new pole coordinates for the observed asteroids. For all the asteroids the determinations of pole coordinates were made for first time. For some asteroids, namely (411) Xanthe, (700) Auravictrix and (787) Moskva, it is needed to perform new observations to determine their pole coordinates more precisely. The next step of our program is to determinate the pole coordinates of the Hilda group asteroids. In this work, we determined only two members of this group ((153) Hilda, (190) Ismene) and there are also estimations of the spin vector for (334) Chicago [5]. Analysis of distribution of pole coordinates can point out some peculiarities of collision evolution of this group.

Key words: Asteroids, photometry, lightcurve, rotation period, pole coordinates

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