Dynamically interesting asteroids discovered at the VATT Observatory

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Ireneusz Wlodarczyk, Richard Boyle & Kazimieras Černis
Chorzow Astronomical Observatory, Poland, VATT Observatory, U.S.A.
&Molėtai Astronomical Observatory, Lithuania

Contact Information: Richard Boyle
Vatican Observatory Research Group
Steward Observatory
Arizona 85721, U.S.A.

Phone: 1-520-621-3230
Email: rpboyle@mac.com

Abstract
We present results of a long-term research program on dynamically interesting asteroids discovered at the VATT Observatory.

Introduction

One of the research projects of the Vatican Observatory is a study of asteroids for a better prediction of their orbits. The observing program on the 1.8 m telescope VATT is targeted on observing the Main Belt and the Centaur group asteroids, Trans-neptunian objects (TNO), as well as on the search of new objects. First astrometric observations of asteroids and comets with the VATT at the Mt. Graham Observatory (IAU code 290, longitude 109.89201 W, latitude 32.70133 N, altitude 3178 m) were initiated in 2000-2001 using CCD images exposed in the focal plane of the VATT.

The first new asteroid, (220696) = 2000 YJ143, was discovered in 2000 by W. H. Ryan. In 2007, 75 new asteroids were discovered by C. W. Hergenrother. A new observational program for the search and observations of asteroids was started in 2009 by R. P. Boyle and K. Černis.

Beginning in 2010 K. Černis and R. Boyle have discovered at the VATT 130 asteroids. Limiting magnitude was 21.5-22.5 R mag using exposure time 360 sec. Field of view 13x13 arcmin.

Fig. 1 presents VATT Observatory and Fig. 2 reflector of the VATT Observatory.

Interesting asteroids discovered at the VATT Observatory

We continue presentation of dynamically interesting asteroids discovered at the VATT Observatory. They are described in:

→Centaur Asteroid 2012 DS85 [1]
→Amor-class asteroid 2012 XH16 [4]
→Transneptunian (TNO) object (420356) 2012 BX85 Praamžius [2]
→Distant Object (463368) 2012 VU85 [6]

Fig. 4 presents orbits of four discovered asteroids at VATT Observatory in the ecliptic plane: 2012 DS85, 2012 XH16, (420356) 2012 BX85 Praamžius and (463368) 2012 VU85.

Figure 1: VATT Observatory

The first object observed was an asteroid of the Centaur group 2009 HW77 [5] in April of 2009. All published orbits of asteroids discovered at the VATT Observatory were computed by I. Wlodarczyk using the OrbFit software (http://adams.dm.unipi.it/∼orbmaint/orbfit/). Accuracy of computations is described in [3].

Figure 2: VATT reflector: 1.83-m f/9.2 + CCD

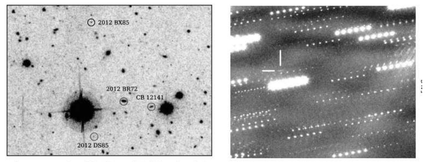

Figure 3: Discovery images from VATT. Left panel: Centaur 2012 DS85; Main Belt 2012 BR72, CB12141 and TNO 2012 BX85; right panel: Amor type 2012 XH16

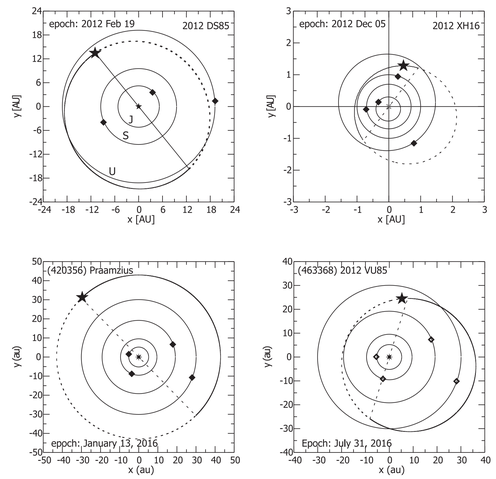

Figure 4: Orbits of selected asteroids discovered at VATT Observatory presented in the ecliptic plane. The dashed line denotes the part of the orbit below the ecliptic plane

Conclusions

- We presented short history of asteroids discovered at the VATT Observatory. Starting orbits of four selected asteroids are presented in Fig. 4.

References

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