

STUDY OF THE ASTEROID 1998 QE2. A. Q. Vodniza¹ and M. R. Pereira², ¹University of Narino Observatory, Narino, Colombia, aquijanov@gmail.com, ²University of Narino Observatory, Narino, Colombia, mariojaspereira@yahoo.com.

Abstract: This big asteroid was at 5.8 millions of kilometers from the Earth on May 31 (2013) and it has a diameter of 2.7 km. The radar images obtained by JPL showed that the period of rotation around its axis is close to five hours. Hills, K (2013) reported that the period is of 5.281 +/- 0.002 hours. On June 4 the team of Goldstone-Arecibo found a period of 4.75 +/- 0.01 hours. We also contributed with the light and phase curves to estimate the period by means of the telescope (with red filter). The radar imagery (JPL and Arecibo) revealed that 1998 QE2 has a moon, and we captured a mutual event (eclipse).

From our Observatory, located in Pasto-Colombia, we captured several pictures, videos and astrometry data during several days. Our data was published by the Minor Planet Center (MPC) and also appears at the web page of NEODyS. The pictures of the asteroid were captured with the following equipment: CGE PRO 1400 CELESTRON (f/11 Schmidt-Cassegrain Telescope) and STL-1001 SBIG camera. We obtained the light curve of the body. Astrometry was carried out, and we calculated the orbital elements

Introduction: After having processed adequately all the photographs (bias reduction, dark frames correction and correction of flat frames), we employed the software "The Sky6" and the "CcdSoft-Version 5" in order to identify the stars appearing on the images, so we could have the coordinates of any standard star. It is necessary to use many reference stars so we can have a higher precision on determining the asteroid's

coordinates. The asteroid is identified superposing the photos and designing a small video to appreciate clearly enough its movement with regard to the fixed stars.

Summary And Conclusions: We obtained the following orbital parameters: eccentricity = 0.5692181, semi-major axis = 2.41104631 A.U, orbital inclination = 12.82771 deg, longitude of the ascending node = 250.16876 deg, argument of perihelion = 345.61328 deg, mean motion = 0.26326658 deg/d, perihelion distance = 1.03863508 A.U, aphelion distance = 3.78345755 A.U. The asteroid has an orbital period of 3.74 years. The parameters were calculated based on 191 observations (2013 May: 17-24) with mean residual = 0.162 arcseconds.

A video of the asteroid from our Observatory was published on the main page of the "SPACEWEATHER" web:

<http://www.spaceweather.com/archive.php?view=1&day=21&month=05&year=2013>

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