

# OBSERVING REPORT

By  
Gary Hug

I've been 'hogging' the Tombaugh a bit lately. It has been relatively 'easy-pickins' the last couple of months for main belt asteroid discovery due to the Monsoon rains in the South-West virtually shutting down the major surveys and leaving just a couple of minor surveys and handful of active amateurs one last fling at discovering main belt asteroids and even a comet or two (the later not at Farpoint or Sandlot unfortunately) before they pick back up with a vengeance in September and October. (There are new larger surveys on the way soon, I believe will render amateur asteroid discovery almost impossible). We've had a few exceptionally clear nights lately. (OK, yes - during the week mostly.) During the last 2 & 1/2 months we've been lucky enough to pick up 50+ new designations. This included one target with a quite unusual orbit. Most main belt asteroids have eccentricities of orbit in the range of 0.5 to 30 symbolized by the small letter 'e'. Also how incline the orbit is compared to the rest of the solar system is called (wildly enough) inclination or small 'i'.

Here are the latest orbital elements as provided by the MPC (Minor Planet Center) for 2007 OP (K07000P)

M 169.97015 (2000.0) P Q n 0.23406933 Peri. 1.25739 -0.48118192 -0.74427294

T = 2453594.34700 JDT

a 2.6075924 Node 117.69300 +0.79964901 -0.58915995

q = 1.4673305

e 0.4372853 Incl. 31.53935 +0.35920108 +0.31456057 P 4.21

H 15.5 G 0.15

Earth MOID = 0.48270 AU

Note that 'e' is .4372853 (which means the orbit is almost twice the length as the width) and the 'i' is also quite high at 31.53935 degrees. The 'a' parameter of 2.6075924 (A. U.'s) puts our object in the middle of the Main Belt as far as its average distance from the sun. 'q' tells us how close it gets to sun and the Earth MOID is the closest distance from the earth. From these we infer that this object crosses the plane of Mars orbit rather deeply. (Thus it is a Mars-crosser.) Mars-crossers are thought to be in a few hundred thousand year transition to an 'Amor-type' of orbit coming even closer to the Earth.

Right now 2007 OP is in the middle of the Summer Milky Way at near 22 nd. magnitude. Unfortunately next opposition bring it to magnitude 20.4 but it doesn't get higher than -38 degrees declination, which is too low for the Tombaugh. However in 2010 (think about it. That's only 3 years away!) it will be high in the sky and an easy target at 18.6 magnitude.

Gary

PS I'm attaching a decent color image of M33 taken with the Tombaugh using the photometric filters.

