

Asteroid Mississauga is One in Half a Million

May 17, 2011

Terri Palmer

Mississauga has an asteroid named after it. What may be most interesting about this asteroid, however, is how unusual it isn't.

The asteroid named for Mississauga is more properly named (223950) Mississauga, and it was catalogued on December 9, 2004, at Jarnac Observatory in Vail, Arizona. If you judge Asteroid Mississauga by its statistics, there's nothing unusual about it as objects in the solar system go. According to the Minor Planet Center (MPC), the organization which names the minor bodies in our solar system, Asteroid Mississauga is a main belt asteroid, and its roughly circular orbit (which you can view at <http://neo.jpl.nasa.gov/orbits/>) is a bit over three times the average distance of the Earth to the Sun (one astronomical unit, or AU), which puts its orbit roughly halfway between those of Mars and Jupiter.

If you search through the copious data from the Lowell Observatory in Flagstaff, Arizona, you'll soon find that, as asteroid data goes, Mississauga's orbit is well documented, but not well enough to give a firm estimate of the asteroid's size. It's too far away to be included with near-earth objects, which come within about one AU from the Sun, and it's not among the approximately 1225 asteroids that NASA considers potentially dangerous to Earth. It's just a big chunk of rock in a stable orbit and it's pretty far from us.

But there's a bit more to be said. That number preceding the asteroid's name, 223950, isn't a strange code number—Asteroid Mississauga was the 223,950th asteroid catalogued. It's one of over 275,000 numbered minor planets given in the online lists at the Minor Planet Center (MPC) (<http://www.minorplanetcenter.net>). However, there are even more *unnumbered* minor planets, over 276,000, which is unsurprising given that the MPC holds over 80 million sets of observations for minor planets (more than two for every Canadian).

What's the difference between the numbered minor planets and the unnumbered? The 275,000-plus numbered asteroids are the ones for which we have good data, meaning a reliable estimate of their orbits. There is orbital data for the other 276,000-plus, but it's considered too erratic or sparse for predicting the objects' future appearances with any certainty, and so the objects do not yet merit official designation.

How much data do we have on Asteroid Mississauga? This asteroid was actually first sighted in 1997 but was not officially numbered until 2004 when the fifth set of observations was recorded. Since then, more observations have confirmed Asteroid Mississauga's place in the sky, 68 in total, taken in lots of three or four per day from any of six different observatories. The MPC gives Asteroid Mississauga's orbital uncertainty as minimal and does not currently require more observations of it for the official record.

Asteroid Mississauga is somewhat unusual in that it has a name: only about 16,500 asteroids are actually named as of mid-April of this year. Asteroids do not come by names easily, and it may take decades for asteroids to receive a name. (223950) Mississauga got its name relatively quickly, only about six years after its official discovery. Generally, the official discoverer of the object has a ten-year period in which to name it. Object names must be approved by the Committee for Small-Body Nomenclature of the International Astronomical Union, and must be short, pronounceable in some language, not offensive, and not very similar to that of other named bodies. In addition, asteroids are not named for commercial entities, pets, or current military or political figures, nor are they for sale.

With so many unnumbered and as-yet-unobserved objects, even amateur astronomers can discover asteroids. If you want to know more about the data that the MPC is looking for, search for the “Guide to Minor Body Astrometry” on the MPC’s website (<http://www.minorplanetcenter.net/>).