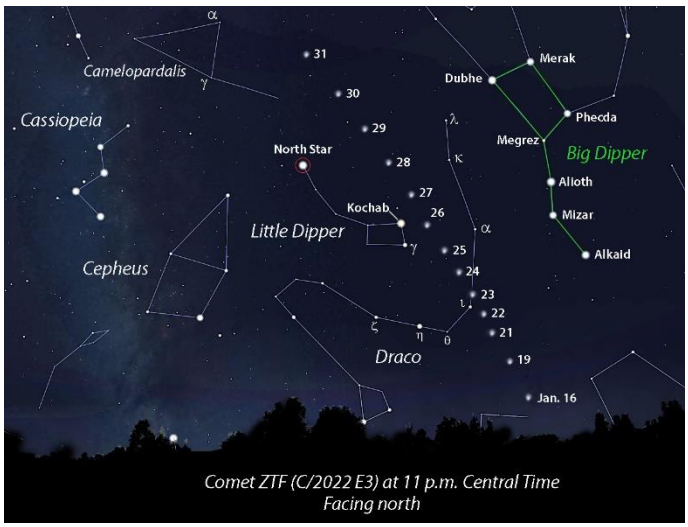
Chippewa Valley Astronomy Update -- January 2023



C/2022 E3 ZTF was brightest around January 30, 2023

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Comets Falling into Our Solar System

By Kevin Litten

Things fall into our solar system all the time. Very seldom, because of gravity, do things fall out. As our solar system came together 4ish billion years ago things were a mess. Over time, lots of time, that gas, dust, and rock formed what from our human perspective would appear to be a stable system. Bumps, collisions, and near misses between objects should be happening less. Problem is, they still happen.

So where is this stuff? The Asteroid Belt, which lies between the orbit of Mars and Jupiter contains many objects. The Kuiper Belt which exists from about the orbit of Neptune to beyond the orbit of Pluto contains more. Beyond the Kuiper Belt there may be another bunch of objects. Scientists refer to these as Oort Cloud Objects. How many, how big, and of what sort, we don't know. It is a long way away.

Why something perturbs an object and bumps it out of a place it has orbited stably for hundreds of thousands or millions of years we don't know. When these objects pass through the solar system, the sun's energy warms up any ices or frozen gases, creating a fog. As the ices melt dust may also be released. The dust and gases make the object visible to us. We then call them comets.

In 2014 astronomers discovered a comet way out there. Possibly even coming from the Oort Cloud. Anything visible from such a distance must be big, bright, or both. Astronomers are keeping a close watch on it. Comet C/2014 UN271, as it is known, will make its closest pass to us in about ten years.

Should we be worried? Well yes. The stock market could crash tomorrow. In ten years a lot can happen. No worries. For now we have got a treat, Comet C/2022 E3 ZTF in early 2023. Named after the automated telescopic sky survey that found it, Comet ZTF is brightening as we speak. Visible now with binoculars under dark skies, it may reach naked-eye visibility later in the month. As the moon diminishes and the sky grows darker look for it to move from the direction of Hercules and then through the Little Dipper over January 25 to 31, 2023. The Little Dipper stays up all night, so should the comet.

Comet ZTF may leave the solar system after this performance. Never to be seen by human eyes ever again. A celestial falling out.

-- Kevin Litten is a member of the Chippewa Valley Astronomical Society