

Dangerous turn awaits ISON

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Amateur Astronomer

This is the week the rubber meets the road, so to speak, for Comet ISON. The icy ball of rock, dust, and frozen gas has been hurtling toward the inner solar system for about a million years now—no exaggeration intended—and will make a turn around the Sun and head back out to the icy depths on Thanksgiving Day, Thursday, Nov. 28.

ISON was discovered in September of last year just inside the orbit of Jupiter by two Russian astronomers using the International Scientific Optical Network (a group of several telescopes normally used to watch for asteroids), hence the name ISON.

Because of its brightness then astronomers had some hope that it could be one of the so-called “comets of the century” that have provided spectacular showings like Hale-Bopp in 1996.

That, however, has not been the case so far with ISON. Only in the last week have observers reported that it has achieved enough brightness to be seen without optical aid in the early morning eastern sky. Before that telescopes or binoculars have been needed.

As the comet gets closer to the Sun the frozen gasses of which the comet is composed—methane, ammonia, and carbon dioxide, along with frozen water—begin to melt and stream away from the comet head, along with bits of rock and dust, being pushed by the solar wind coming from the Sun.

That is why the tail of a comet always points away from the Sun, even when headed back out, away from the Sun. This results in a tail streaming out in front of the comet.

There is, however, a kicker with ISON, it is a “sun grazer,” a comet that will pass very, very close to the Sun as it makes its turn. In fact ISON will approach to within 770,000 miles from the Sun’s surface—close enough to be inside the Sun’s outer atmosphere which is usually about a million degrees.

That poses two distinct dangers for the comet. First, the temperature at that distance could simply incinerate it; or the overwhelming pull of the Sun’s gravity and the speed it is traveling could combine to simply rip it apart leaving a flying rock pile.

If it survives the turn the comet will return to the morning skies in the early part of January potentially making a great showing for us in the Northern Hemisphere. We will just have to wait and see.

To observe the comet tomorrow morning, find a location away from city lights, a good dark-sky location, preferably with no obstructions of the horizon about an hour before local sunrise looking to the southeast.

The comet will be about 20 degrees above the horizon—a little more than the width of your clenched fist held at arms length. In appearance it will be a small, greenish fuzzball with perhaps a small tail.

On Friday, Nov. 22, the comet will be right next to tiny Mercury, just a little more than a binocular field of view which will help with locating it.

SKY WATCH: Third quarter moon, Monday, Nov. 25. Venus is still the glowing jewel in the western sky after sunset and will be until early January. If you are up early on Friday looking for comet ISON, look to the southwest where the just-past full moon will be located just below the bright planet Jupiter.

NEXT WEEK: Christmas! Already!