

## ***Diabologic: Perseids***

by Frank Dolinar

If you have any interest at all in astronomy, here is something I think you should experience once in your life. But I won't insist.

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Years ago, I was walking in my neighborhood on a cold, clear winter evening. There was no moon visible. The sky was so black that the stars seemed like shards of diamond tossed on black velvet.

As I looked at the sky, a large meteor blossomed into incandescence as it hit the atmosphere. This wasn't just the typical small streak that came & went in less than half a second. This was a fireball, easily ten to twenty times the visible width of most such events. I could see pieces being torn away from the main body of the meteor. I was startled at how close it appeared to be. During what seemed to be nearly five seconds (a very long time as these events are measured), I watched the meteor slow and was able to see its color change from yellow to red and then disappear as its temperature dropped.

I can still see the image clearly in my memory.

This was a single, unpredictable event and the duration confirmed that this was a big rock indeed.

If you want to see some rocks falling out of the sky, you have an opportunity this month.

The annual Perseid meteor shower happens in August, with its peak around the 12<sup>th</sup> or 13<sup>th</sup> of the month. Several meteor showers appear every year, but the Perseids usually offer the best show. You'll typically see about one meteor, aka "shooting star", per minute. One per minute may not sound like much, but observing a meteor shower is one of those things where no amount of talking about it will give you an appreciation of the event.

The Perseids get their name because of a coincidence of celestial geometry. The meteors appear to come from the direction of the constellation Perseus.

These meteors are actually debris left by Comet Swift-Tuttle on its visitations to the inner solar system every 130 years. Many comets are just big snowballs – chunks of water ice with myriad sand sized particles of rock embedded in them. As comets come into the inner solar system, they become unstable, in part because of the sun's gravity, in part because of the solar wind, and in part because of the sun's heat. All of this melts the comet a bit. In this process, the comet leaves behind a very thin cloud of water vapor and sand.

When Earth gets to that part of its orbit, it encounters this cloud of sand. Its gravity pulls thousands of particles into its atmosphere where they burn up, each providing a fleeting bit of fireworks.

Because of the way the Earth hits this debris cloud, the Perseid meteor shower is much more visible in the Northern hemisphere. Just go outside, late at night, and look toward the northeast sky.

## Diabologic: The Perseids

For more information see: [http://www.seasky.org/astronomy/astronomy\\_calendar\\_2010.html](http://www.seasky.org/astronomy/astronomy_calendar_2010.html)

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In thinking about the Perseids, I also found myself thinking of Michael Flynn's novel *Firestar*, in which the unexpected sighting of a large meteor coming into the earth's atmosphere caused the protagonist to bend the resources of an industrial empire (and all its relevant infrastructure) toward the goal of producing a fleet of space "tugs" that could intercept any Near Earth Objects (NEO) on potential collision paths with Earth and alter their paths so they would pass safely by.

These musings were reinforced by a July 17, 2010, article on Slashdot (<http://slashdot.org>), which reported that NASA's Wide-Field Infrared Survey Explorer (WISE) had identified 25,000 new asteroids – 95 of which are near-Earth objects.

There are some big rocks out there. If one comes knocking at our door, Earth would have a very bad day. We don't yet have any way of dealing with this kind of problem. It's worth thinking about.

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For now, watching the annual light show is entertaining, educational, and thought provoking.