

# COMETWATCH

Year of the Comet 2013

ARTICLE 3

A Pie in the Sky?

## COMET LEMMON

BY TAMMY PLOTNER

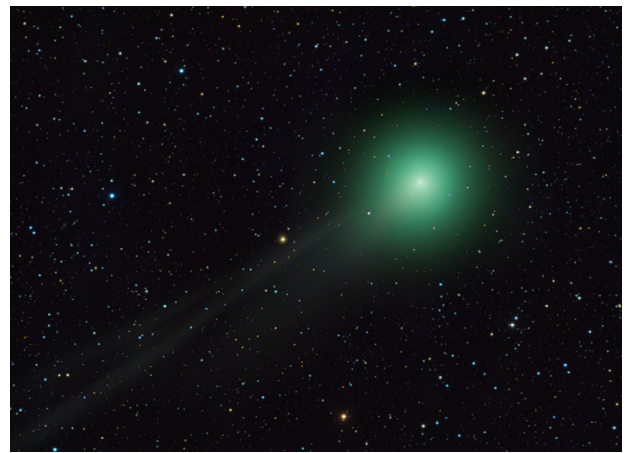
Tammy is a professional astronomy author, President Emeritus of Warren Rupp Observatory and retired Astronomical League Executive Secretary. She was the first woman astronomer to achieve Comet Hunter's Gold Status.

When we think of lemons, our thoughts might turn towards a frosty cold summer drink or a frothy, tasty pie. However, in this case the Lemmon is a public outreach observatory and the treat is a newly discovered comet. At the Mt. Lemmon SkyCenter, Alex Gibbs of the Mount Lemmon Survey discovered a moving target on March 23, 2012. His observation was part of the Catalina Sky Survey (CSS), a Near-Earth objects searching project. This photographic survey is specifically directed towards locating and identifying potentially hazardous asteroids (PHAs): asteroids which may pose a threat of impact to Earth. It was a space rock, all right, cruising along Jupiter's orbit.

But it wasn't an asteroid—it was a comet.

This five-mile-wide traveler from the Oort Cloud has an ancient track record. It isn't Comet Lemmon's first trip through our Solar System, but it has been about 11,000 years since its last visit. Right now Comet C/2012 F6 is just about the same distance from Earth as we are from the Sun and it's far from ripe. As a matter of fact, you might even say it's green!

So why is Comet Lemmon green? It's all in the gas. As the comet sublimates in the solar wind, it releases the volatiles which were once frozen in the nucleus. One of these volatiles is cyanogen, a colorless, toxic gas. The other is diatomic carbon, a carbon vapor commonly found in comets, stellar atmospheres, and the interstellar medium. When in the near-vacuum environment of space, both of these gases appear green when illuminated by sunlight—and right now, C/2012 F6 is putting on a vibrant display! As it approaches the Sun, Comet Lemmon is expected to become far more visible and display a short tail.



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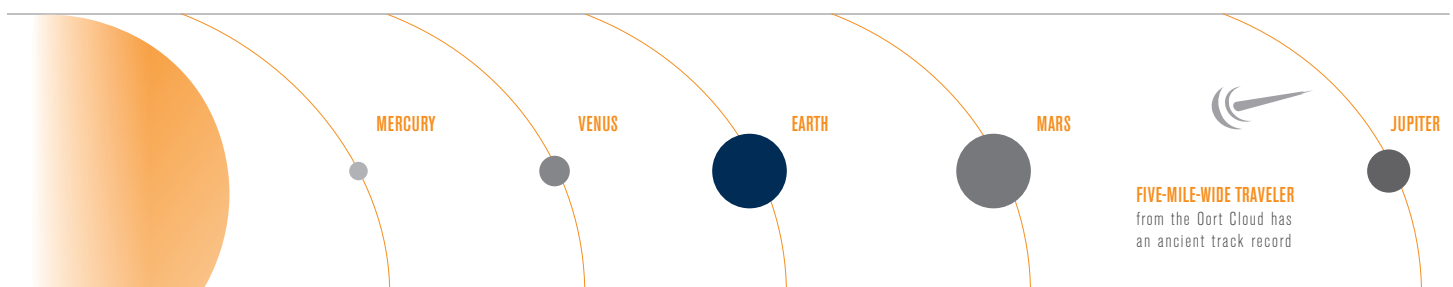
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11,000 YEARS SINCE COMET LEMMON LAST VISITED OUR SOLAR SYSTEM:



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### But where is it located for those who wish to view?

At February's mid-point, Comet Lemmon should be putting on a spectacular show in the Southern Hemisphere. Observations confirm that it has become far brighter than expected, glowing along just below unaided eye visibility at roughly magnitude 7—readily visible in binoculars and small telescopes. It will be located in constellation of Octans and be a southern circumpolar object for a short period of time. However, it is moving rapidly: if Lemmon continues its brightening trend, it should be easily seen with the unaided eye as it flies into the constellation of Phoenix by March 7 and then into Sculptor on March 17. Then it's on towards the Sun for its closest approach—perihelion—on March 24. At this time it will be about the same distance from the Sun as the planet Venus and will be hidden from view by the Sun's glare, but about to cruise into new territory.

While the nights will seem to move slowly, Comet Lemmon will be moving quickly northward. By mid-April, the comet will have scooted into the constellation of Pisces, emerging ahead of the sunrise glow. On April 19 our "pie in the sky" should cross the celestial equator, on its way to becoming visible to the Northern Hemisphere. C/2012 F6 will remain located in Pisces as it flies away—visible in large binoculars and small telescopes—but it's headed towards a sunrise demise for viewers in the United States. By the beginning of May, its position will have changed very little from our perspective; however, it will be significantly

dimmer and located very near the rising Sun.

Will Comet Lemmon be spectacular? The truth is, we simply do not know. At this point in time it is much brighter than anticipated, meaning it may very well be rapidly depleting itself of fuel. Comet Lemmon may continue to remain more luminous than projected—and it just might fizzle out as it gets closer to the Sun. Despite less than glowing predictions, there's no reason not to enjoy the anticipation of this surprise added comet apparition for 2013. Charles Messier would be proud to see the many modern global astronomers carrying on his comet-hunting legacy today.

“Will Comet Lemmon be spectacular?”

COMETWATCH LOCATIONS FOR THOSE WHO WISH TO VIEW:

