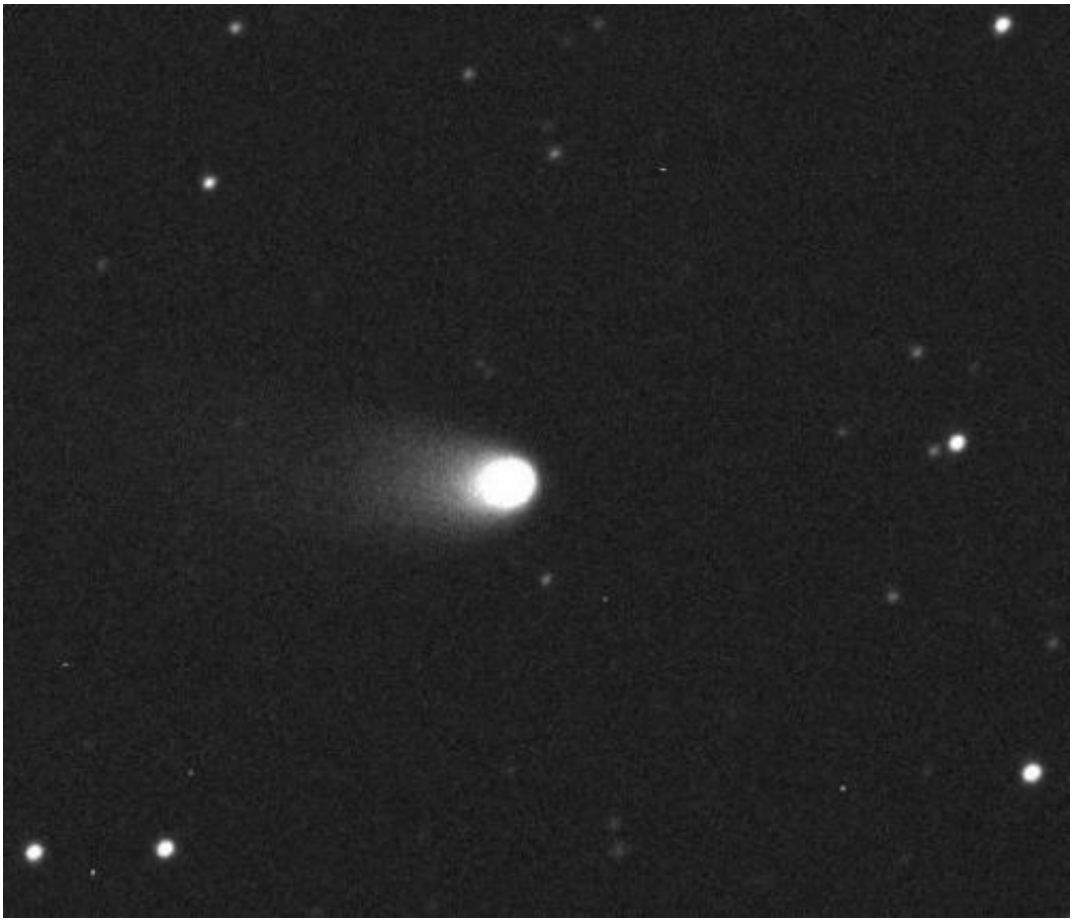
Comet Pan-STARRS holds promise for stargazers

March 6 2013, by Mariette Le Roux



A photo released by Armagh Observatory in Northern Ireland, on December 12, 2012, shows the Comet 2011 L4 (Pan-STARRS). A rare bright comet shows up in the northern hemisphere this week, cruising past Earth with promise of spectacular naked-eye viewings of the giant ball of ice and dust streaking the twilight sky with a blazing tail.

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Dubbed Pan-STARRS after the Hawaii-based telescope that first spotted it nearing our corner of the universe, the comet should be at its brightest from about Friday to the middle of next week, say astronomers.

It is the first to pass within our line of sight this year—squeezing between the sun and its nearest-orbiting planet, Mercury.

Comets this bright generally come by about every ten to 20 years.

Astronomers predict Pan-STARRS could shine as brilliantly as the stars that make up the Big Dipper constellation—about halfway between the brightest and faintest stars visible from Earth.

Northern hemisphere stargazers eager for a glimpse of the celestial apparition will have to look towards the west at dusk, left of the sickle moon, preferably in a dark place outside of big cities with their electric light pollution.

"They will see a fuzzy disk which we call the coma, which is like a little atmosphere around the nucleus of the comet," Detlef Koschny, head of the European Space Agency's near-Earth object segment, told AFP.

"The coma will be smaller than the full moon, but still visibly a disk, not just a point. And then the tail—we hope it will be several diameters of the full moon."

While the comet's passing could mean a rare and magnificent sight, experts warn it may also fizzle out disappointingly.

Much depends on its surface properties and how it reacts to the sun's heat and gravitational pull.

A comet like this one "is always an unknown quantity equally capable of spectacular displays or dismal failures," comet monitor Karl Battams of the US Naval Research Lab said in a statement issued by NASA.

"Almost anything could happen."

But the comet is not about to crash into Earth, Mercury or the sun.

"We know the orbit well enough to be really able to exclude precisely that it will not hit any planet," said Koschny.

Pan-STARRS comes from an area of space known as the Oort Cloud in which comets circle our solar system far beyond the orbit of Pluto in individual loops that take from years to aeons to complete.

This comet is in a hyperbolic orbit, which means it will likely go around the sun only once, never to return.

Comets are cosmic snowballs of frozen gas, rock and dust roughly the size of a small town, according to NASA. They were formed in the infancy of the solar system.

Sometimes they are pulled towards our sun, heat up as they approach and start evaporating, leaving behind a tail of debris that stretches for millions of kilometres as they speed off again.

Pan-STARRS will pass very close to the sun, about 100 million miles (160 million kilometres) from Earth, meaning it "should be very active, producing a lot of dust and therefore a nice dust tail," said astronomer Matthew Knight of the Lowell Observatory in Flagstaff, Arizona.

The best dates to look may be March 12 and 13, the experts say.

"If you look, say 45 minutes after sunset, it will be the width of your hand above the horizon," said Koschny.

The comet should move ever further away, becoming fainter and fainter each day until it is invisible by about the end of the month.

For the past few weeks the comet has been visible with the naked eye in some countries in the southern hemisphere.

Pan-STARRS will be followed around late November by comet ISON, which some experts say may linger brilliantly for months—possibly as brightly as a full moon in broad daylight.