

# Rochester Skies

*A publication of the Rochester Astronomy Club*

A Quarterly Newsletter

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## A Word from our Astronomical League Coordinator

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## Parallels

Hello everyone. Now is the time of year we can expect to begin observing

the night skies with a fair degree of comfort. I find that I can run the focuser on my scope better when my fingertips can actually feel the knobs! We are near the spring equinox. It's when our Earth straightens up its spine to receive the sunlight rays equally across its face. Accordingly, on this date at the equator the sun is directly overhead. Of course, the

Earth can't really change its posture. It spins with its axis always tipped 23 degrees off vertical with respect to its orbit around the sun. When the northern hemisphere leans maximally away from the sun, we experience the winter solstice. Conversely when leaning towards - the summer solstice. This spring, as in the fall, that tilt becomes neither towards nor away from the sun. We're face on, but just leaning to the side.

In three months, as we arrive at the summer solstice, those experiencing the sun directly overhead at noon will be residing at 23 degrees north of the equator. This line of

latitude is called the Tropic of Cancer. Twenty-three degrees south of the equator sits the Tropic of Capricorn. When these latitude lines were named hundreds of years ago, the sun was entering the constellations of Cancer and Capricorn during the respective solstices. But the stars appear to change position relative to the sun over time so now the summer and winter solstices find our sun in the constellations Sagittarius (December) and Taurus (June). Time for a name change? Probably won't happen. This apparent change in position of the background stars for the most part...

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## Parallels

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...occurs because of the 26,000 year precession, or rotation, of the Earth's axis around its poles. However there is a larger precession called a Markovitch cycle which also takes into account orbital eccentricity (our planet's slightly oval orbit around the sun), axial tilt wobble, and other factors. This results in the earth's axis returning back to its original position in about 41,000 years.

These lines of latitude are complemented by the Arctic Circle at 66 degrees north, and the Antarctic Circle at 66 degrees south. These five

lines (which include the equator) define the Earth's five major geographic zones. But there are other interesting observations regarding the circles of latitude. Rochester, Minnesota sits near the line of latitude of 44 degrees north. Other cities 44 degrees north of the equator include Bangor, Maine; Eugene, Oregon; Belgrade, Serbia; and Bordeaux, France. Rochester and these cities spin eastward around the earth at about 750 miles per hour. At the equator, one is spinning around 1070 miles per hour. Lines of latitude have been used geopolitically. The infamous "38th parallel" was the

latitude line chosen to divide post WWII Korea roughly in the middle to satisfy both Soviet and US interests. Coincidentally, the 38th degree parallel also equally divides in half the land mass of the United States.

A degree in latitude is approximately 69 miles – the distance from Rochester to St. Paul. A minute of latitude is 1.15 miles, and a second of latitude is about 100 feet. Right now I figure I sit one quarter second of latitude south of my refrigerator. I'm going to start that journey north to see what I can discover. Have a great spring and clear skies.

- Randy Hemann

# A Word from the RAC Astronomical League Coordinator

Hello astronomy fans! Last year was very good for the Rochester Astronomy Club as three different members, Luka Bazjer, Jay McLaren and Scott Regener picked up observing certificates. I know that several of you RAC members out there are either pursuing or contemplating going after an observing award from the Astronomical League.

With the advent of Spring and warmer weather (and hopefully lots of clear skies), it's time to get those lists out and make some progress on getting a certificate and pin.

Please make sure that when you check out your observing club



webpage on the Astronomical League website that you are familiar with the requirements of the observing program in question. Journaling is a must, and be sure

you mark down the date, time, condition of the skies (where applicable) and the equipment used for each observation.

For those making their first try at an observing award, I'd recommend:

### Constellation Hunter Club

For those of you who are not familiar with the night sky, this is a great program to familiarize yourself with the patterns of stars that make up the constellations and bright stars that we can see from the Northern Hemisphere. No equipment other than a planisphere is necessary, but journaling your

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## *Astronomical League*

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observations is a must. Please check the Club webpage for the requirements.

### **Universe Sampler Club**

This program is also for beginners, but a bit more involved. Participants will learn the brightest stars, their names and which constellations they reside in, observe the Moon and some of the planets in our Solar System and become familiar with some double stars, variable stars, star clusters, nebula and galaxies. The Universe Sampler Club has lists for both naked eye and telescope/binocular observing.

### **Messier Clubs (Binocular and Telescopic)**

These clubs are for those observers that are advanced enough to find their way among the constellations to search out the 110 brightest deep sky objects compiled by Charles Messier in the last half of the 18<sup>th</sup> century. The Binocular Club awardees need only 50 off the

list to qualify for a certificate and pin. You must record local time and date, sky conditions, equipment used, a brief description of the object observed and a drawing of what it looks like in your binoculars. In my humble opinion, this is one of the easiest awards to get. It only took me 3 months to record 50 Binocular Messier Objects.

The Messier Telescopic is of course more involved, but for those used to more involved observing, it is a great way to hone your observing skills. If you complete this list, the ability to starhop and observe faint objects will give you the preparation necessary to go on to other and more difficult observing programs. It took me a year and a half to complete my search of the Messier list, but I feel it could be done in one observing year.

As the RAC's Al-cor representative, I can review these programs and let you know if you've done the work properly, as well as the Double Star Club, the

Binocular Deep Sky Club, the Lunar 100 and also offer a pretty good opinion of your work on the Planetary Observer's/Solar System Club, Lunar II and the Herschel 400. Jay McLaren is also a good guy to have review your Herschel 400's since he has that award and Scott Regener is qualified to review anyone who is going after the Urban Club award.

The qualified people of the RAC can review, but it is the Astronomical League that is the final arbiter that decides if the work is done properly.

To receive a certificate and pin of an Observing Club gives an amateur astronomer like ourselves a sense of accomplishment and sharpens our skill as observers. It also reflects well on the Rochester Astronomy Club because it shows the Astronomical League and our affiliated clubs nationwide that we have an active and dedicated cadre of amateur astronomers that we are indeed making an effort to learn the night sky.

BUT-- be careful! If you get one certificate, you'll want more!

- Dean Johnson

# Book Review:

## *Guide to the Night Sky / Deep Sky Objects, both by David Levy*

Mistakes come in two flavors. Unfortunate mistakes lead to broken equipment, missed observations or worse. Then there are the serendipitous mistakes:

stumbling upon a showpiece object or poor conditions forcing observation towards an unforgettable view. When I placed an interlibrary loan request

recently, I had the good fortune to make a rather pleasant mistake.

In reading the Royal Astronomical Society of Canada's Observing Handbook, towards the

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## Levy Book Review

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back lie pages of observing lists, starting with the ubiquitous Messiers. One list caught my eye, though: a list of deep-sky gems created by David Levy, gleaned from his book Deep Sky Objects. Intrigued, I submitted a request for what I thought was this book.

What arrived, however, was a different book by David Levy, Guide to the Night Sky. Instead of returning the book immediately, I took it home to look over. Because used copies started at one penny on Amazon, my expectations were low. Never again will I judge a book solely by resale value! The Guide to the Night Sky replaced the older The Sky: A User's Guide. The original title is a better description. The book's stated purpose is to be a "user's manual" to the sky, starting with naked eye sights, then moving through the Solar System and concluding in deep space. Written with the typical urban skies in mind, Levy focuses heavily on objects bright enough to be spotted through moderate light pollution.

Chapters cover comets, meteors, planets, galaxies and more. With tight prose, organized thoughts and personal anecdotes that season the work like a master chef, Levy makes the reader wish for multiple lifetimes to devote to each subject. Perhaps more remarkable is the fact that Levy has mastered so many aspects of astronomy in just one lifetime.

By the time Deep Sky Objects arrived, I knew what to

Levy by the fireplace on a cloudy night, recounting his experiences with old friends both animate and inanimate.

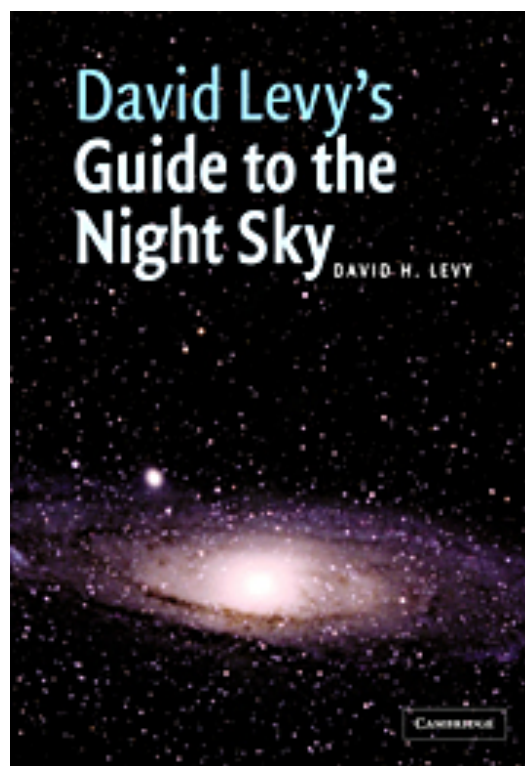
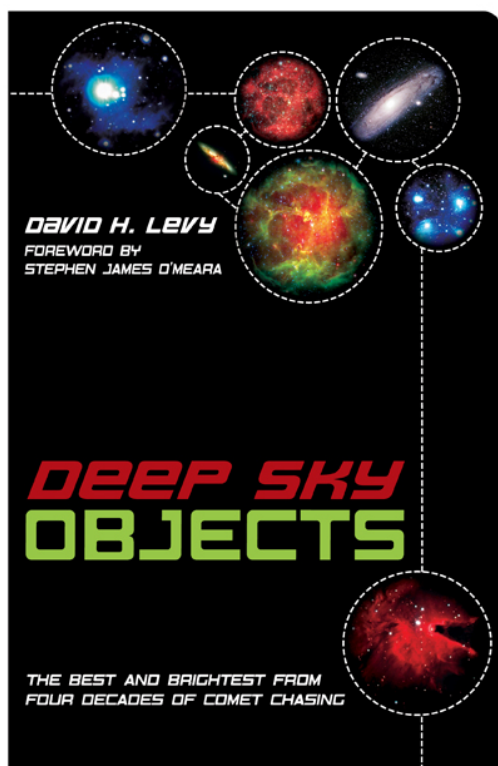
A word of caution permeates both books, as Levy shares his personal story of life as an astronomy enthusiast. Levy's first experiences with an astronomy club were nearly his last. As an enthusiastic youth of fourteen, Levy offered to assist with a public outreach with his new telescope

Turned down, he offered help in any way he could and was informed, rather rudely, that membership was restricted to those over sixteen and his assistance was not permitted. Later, after a

mechanical part failed at

the club's observatory, fingers of blame pointed his way and he nearly found himself banned from the club for life. After Levy left for college, one member stated, "That Levy; he'll never amount to anything." Gladly, Levy's enthusiasm and tenacity steered him through such negative initial experiences, paying handsome dividends - such as these two books - to astronomers everywhere.

- Scott Regener



expect, and wasn't disappointed. Levy selected 400 "comet masqueraders" in the same vein as Charles Messier. Starting with the Gegenschein and working his way out to galaxies visible only by gravitational lensing, once again his personal stories and log entries make what could be dry descriptions of object after object instead a delightful experience. It almost feels as though the reader is sitting with



# Spectacular Spiral

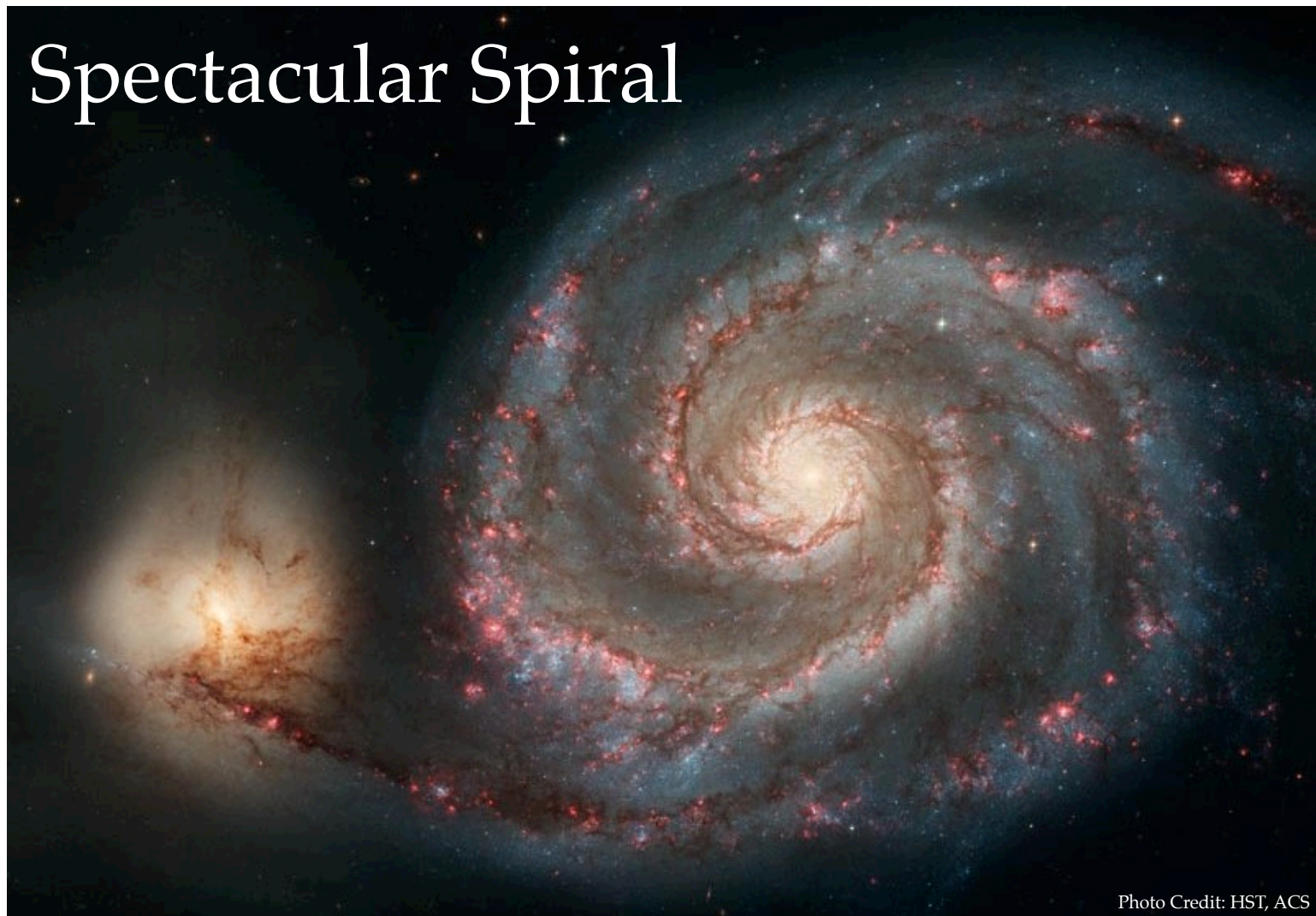


Photo Credit: HST, ACS

## Editor's Note:

*As part of last year's International Year of Astronomy, the Antelope Valley Astronomy Club decided to provide newsletter articles to other clubs around the country. This article by Tom Koonce is the first article to appear in Rochester Skies. Look for more in future issues.*

Every year around mid-April, the Whirlpool galaxy is well-placed for observation in the northern sky in Canes Venatici (The Hunting Dogs). The Whirlpool is also known as M51 and NGC 5194, but most people know it by the nickname that is obvious after your first view. It has a smaller, yellowish companion galaxy, NGC 5195 in the distance. The Whirlpool

is the best spiral galaxy in the sky, in my opinion. It can be seen with a small telescope, the spiral arms detected in an 8" scope, and when it is viewed through a really large telescope it is a stunning sight that you'll never forget. It's always a star party favorite when it's visible higher in the sky. A friend once let me observe it through his 51" reflector and I could hardly tear myself away from the view after 15 minutes. I thought I had only been at the eyepiece for 30 seconds...

You will find it quickly by following the curved handle of the Big Dipper away from the dipper to the star Alkaid at the end of the handle. Then look 2

degrees (outer ring of your Telrad) lower to the south and west in declination at about a 90 degree angle to the handle of the dipper. Scan around the area at low powers and you'll spot it as a fuzzy patch of gray.

The more magnification that you apply to the view, the more of the galaxy's structure will be revealed. Under clear, dark skies you will easily be able to make out the spiral structure of the two tightly wound spiral arms, dust lanes and the illusion of a connecting bridge of material between the two galaxies that is not actually there, at least to the extent that it looks like through the

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## Spectacular Spiral

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eyepiece.

The two galaxies interacted about 70 million years ago, with M51 coming out the winner, gaining mass and kick-starting many regions of active star formation. While it certainly would have been an exciting (bad?) time to be living in the Whirlpool galaxy, the result today is a spectacular

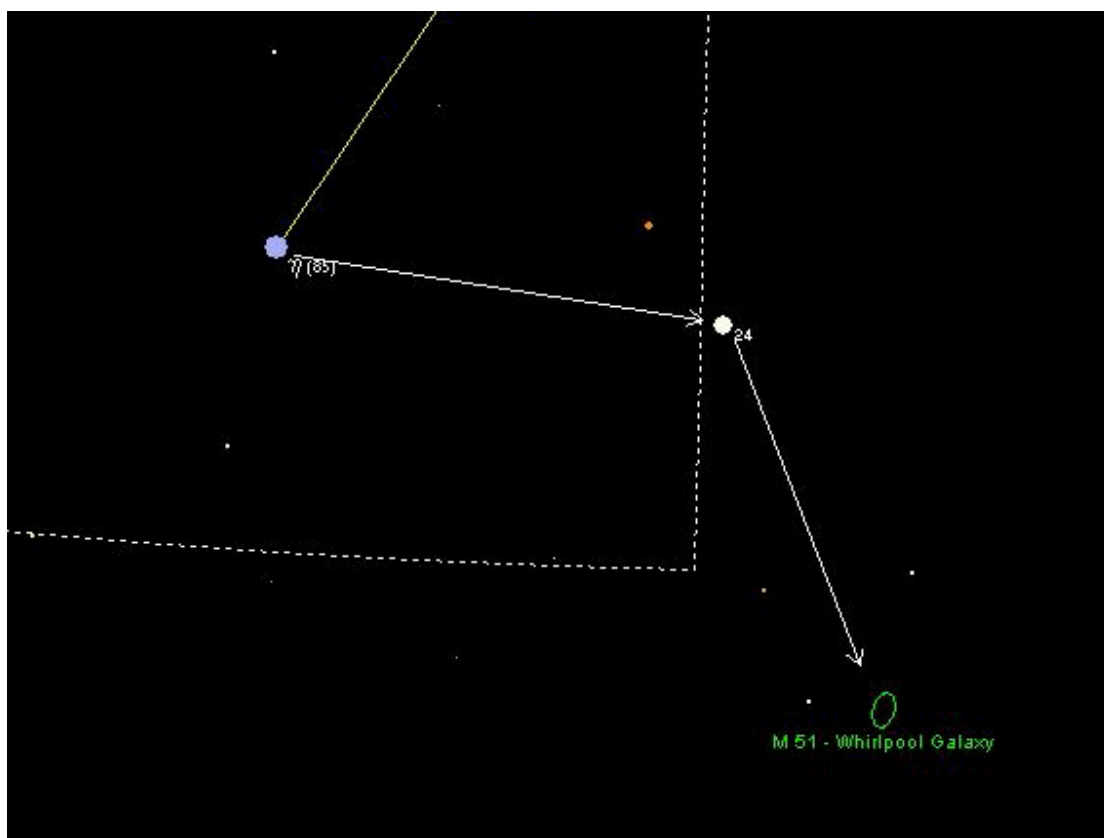
face-on spiral galaxy just 31 million light years away from us with plenty of interesting details, such as the pinkish knots of star forming regions and the radial wisps of interactions between the spiral arms. At medium power, sharp observers may be able to spot another much smaller edge-on galaxy, NGC 5229, to the northwest in the same field of view.

There are a few tricks to observing the Whirlpool galaxy and other 'faint fuzzies' like it. Obviously clear, dark skies and

steady seeing are important. Filters will not enhance your views of galaxies, since galaxies are composed of stars emitting at all frequencies, filtering the view down to a particular band of frequencies will not increase the contrast of the view, like looking at the Ring Nebula with an OIII filter would. The best way to visually observe extended, dim, objects like the Whirlpool is to increase the amount of light getting to your

health insurance plans cover the cost of treatment. Trips to the Texas Star Party, Winter Star Party and other major deep sky events where big telescopes are present only offer temporary relief.

Now that the weather is warming up once again, take some time in April to get to know the spectacular Whirlpool galaxy, either for the first time or perhaps visit your old friend and study it in new detail.



Clear Skies,  
Tom Koonce

Chart created using  
SkyMap Lite 2003,  
used with  
permission.

Note the triangle of  
7th magnitude stars  
easily visible in a  
magnifying finder  
with M51 making  
the fourth point of a  
rough square.

M51 and NGC 5195  
are easily visible  
even from within  
Rochester city limits  
with a 10" telescope.

eye... thus "bigger aperture is better." Please be careful when viewing awesome deep sky objects like M51 through really big telescopes, as it has been known to lead to serious infections of "Aperture Fever" in some observers. Sadly, there is no known cure for it and no known

For More Information:

<http://hubblesite.org/newscenter/archive/releases/2005/12/image/a>

<http://apod.nasa.gov/apod/ap090526.html>



# Five Questions With:

*Brandon Wymann*



## 1. What got you interested in Astronomy?

I have had some interest in astronomy for quite some time, since I was young. My best guess at what sparked my interest would be Cosmos, the TV series with Carl Sagan.

## 2. What objects are you most passionate about observing?

Messier objects, nebulae, and galaxies.

## 3. What equipment do you currently use?

10x50 Bosch binoculars.

## 4. What is the best part of the Rochester Astronomy Club?

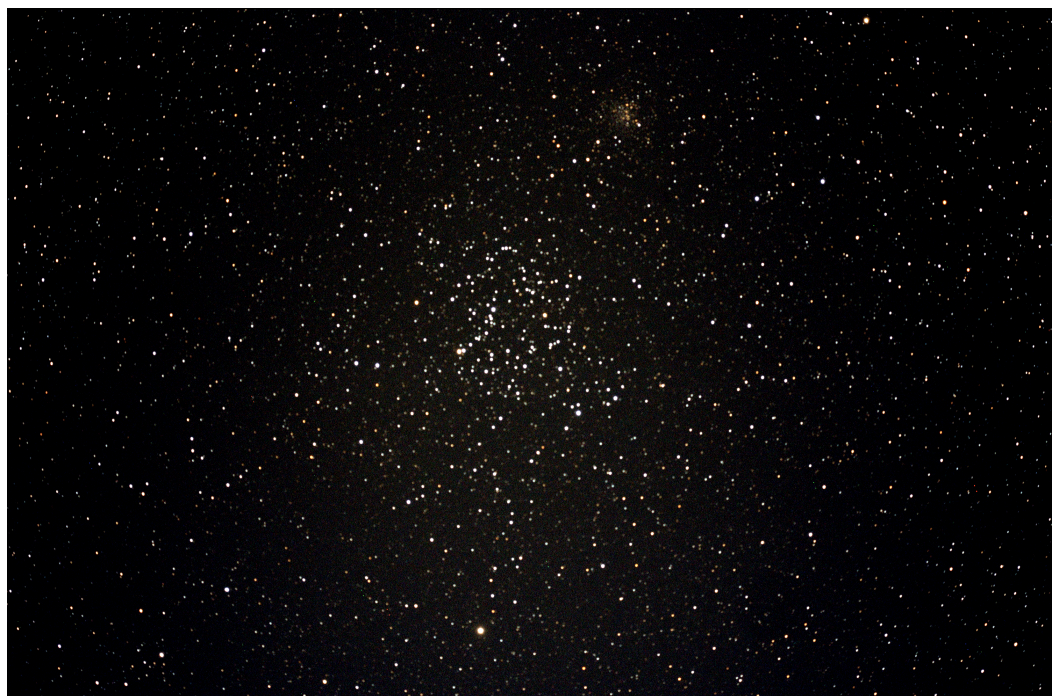
Speakers/presentations.

## 5. What's your day job?

I do computer programming in C and C++.

# Gallery

*Here are some of the Rochester Astronomy Club members' best shots!*



Above: John Preston captured M35 and nearby faint star cluster NGC2158 using his new SV105Apo and QHY8Pro.

Middle: Randy Hemann used his 18" Obsession to capture this image of M108.



Bottom: Luka captured galaxy M33 using his Celestron 80ED and Canon XS.



# Rochester Skies

## Upcoming Events

April 16/17	-	NCRAL 2010 at Bloomington/Normal IL
April 16/17	-	Dark Sky Weekend*
April 20	-	Sigma Xi Lecture "Stars that Go Bump in the Night", Siebens Building
April 23/24	-	Astronomy Day
May 11	-	Monthly Meeting, Josef Chlachula
May 15/16	-	Dark Sky Weekend*
June 8	-	Monthly Meeting, TBA
June 11/12	-	Dark Sky Weekend*
July 13	-	Monthly Meeting, Dan Strain - Fermilab

\* Events subject to change due to weather. Check [Rochesterskies.org](http://Rochesterskies.org) for updates

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