

The Shoreline Observer



Serving Holland And The Lakeshore Since 1989

Celestial Highlights:

Jun/July

June 1 New moon
June 8th First quarter
Jun 15th Full moon
June 21 - June Solstice.
June 23rd Last quarter
July 1st New moon

Upcoming SAAA Events...

Club Meeting: Friday, June 10 @ 7:00 PM

Macatawa Bay School Planetarium

Refreshments:

Board Meeting: Wednesday Jun 1st 2011

@ 6:00 PM at Herrick District Library

Hemlock Crossing June 17th Tour the Night Sky

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Quick Update

The school is closing down for the summer so this will be the last meeting at the planetarium till the fall. I am hoping we will be able to hold our meeting out at Hemlock Crossing then have an observing session after.

The status of the 501 c (3) Peter is working on the financial statement. We have some pledges \$100 Jim and Frank \$50 Russ and Doug D. We are still \$100 short of our goal. Anyone else like to make a pledge?

Frank has been working like a mad man on the display for the Solar System walk at Hemlock Crossing. It is going to be a work of art when he is done with it

Fun Facts

Apollo's studies suggested that the moon has only a tiny metallic core, roughly 15 times smaller than that of the Earth. They also believe that the core is not in the middle, like Earth's.

SAAA Board Meeting Minutes – May 04, 2011

The May 2011 Board meeting took place on Wednesday, May 4th at Herrick District Library-South.

In attendance: Russell Hills, Frank Roldan, Peter Burkey, George Miller, and Larry Logsdon.

Old Business Items

Frank submitted a grant application to Holland Zeeland Community Foundation for a projector. The Astronomy League website has been updated to indicate Peter Burkey as the SAAA Representative. Russ designed and purchased a batch of 1000 business cards (and did not request reimbursement). Russ designed, ordered, and presented a new vinyl banner to display at outreach programs.

Russ has also changed our email address from

webmaster@holland-saaa.org to saasaa@holland-saaa.org.

We reviewed the proposed changes to the Association Bylaws, which will be brought up for a vote at the May 13th meeting.

Outreach Events

Past Events:

The Messier Marathon scheduled for April 1st was cancelled, due to weather.

Blue Star Elementary School activity for April 15th was cancelled, due to weather.

Black River Public School Radical Science Saturday took place on April 16th. Russ and Frank set up and manned an information table. Outdoor activities were cancelled, due to rain.

Grand Haven High School- Astronomy Class presentation took place on May 2nd. Frank created a lesson about telescopes and demonstrated the NSN "Glass and Mirrors" optics kit.

Upcoming Events:

May 7th National Astronomy Day activities are planned for 11:00am until 11:00pm at Curtis Center Park. Note that this is the first Saturday of Tulip Time.

May 13th SAAA General Meeting: Macatawa Bay Planetarium at 7:00 PM. We will be voting on the revised SAAA Bylaws, and planning the Park Township Astronomy Program.

May 26th Park Township Astronomy Program.

June 17th at 9:30pm: "Tour the Night Sky" telescope viewing at Hemlock Crossing County Park.

July 30th at 9:00pm: "Tour the Night Sky" telescope viewing at Hemlock Crossing County Park.

August 20th 10:00am-4:00pm: "Astro Saturday" at Hemlock Crossing County Park. This will include a walk through a scale model of the solar system.

New Business Items

Treasury Report:

Account balance as of April 2nd : \$420.08

Payment from Park Township event +\$66.00

Membership Dues (1 senior, 1 regular) +\$30.00

Account balance as of May 4th : \$516.08

Peter and Frank will work together to prepare the financial portion of the IRS Form 1023 application for 503(c)(3) non-profit status.

We had additional discussion about when we should claim using the Night Sky Network activity kits.

Our new business cards list some of the free software we recommend, including Stellarium and Virtual Moon Atlas. We discussed the possibility of burning copies to disk and offering them for a donation. Larry obtained donations of related magazines and other materials from [Astronomy](#) magazine.

George Miller – Secretary

May 12, 2011 [Revised May 22, 2011]

SAAA General Meeting Minutes – May 13, 2011

The SAAA May General Meeting took place on Friday, May 13th at Macatawa Bay Planetarium.

In attendance: Russell Hills, Frank Roldan, George Miller, Rick Archer and Lynn Sheehan, Doug Mandrick, Jim Reier, Helmut Schurman, Doug Sutherland.

Old Business Items

A grant application for a projector has been submitted to Community Foundation of the Holland/Zeeland Area.

Frank and Peter are working on the financial section of the Form 1023 application for full 501(c)(3) status. A few club members have pledged money towards the \$400 application fee.

New SAAA business cards were distributed.

The new SAAA banner was displayed.

The SAAA Bylaws are being revised to ensure they are consistent with current policies. Frank provided a verbal summary of the proposed changes to the SAAA Bylaws. Doug Mandrick and Jim Reier motioned to open the topic for any further discussion. It was then moved to bring the Bylaws up to a vote. The revised Bylaws were accepted by a unanimous vote of the present membership.

Volunteers were requested to help with the following club positions: Program Chairman, Newsletter Editor, Webmaster, Facebook Editor. Doug Mandrick offered to take-on the Facebook duties.

Outreach Events

Past Events:

Frank presented an astronomy session for a Grand Haven HS Earth Science/Physics class on May 02, 2011.

Russ and Frank represented SAAA at Black River School's "Radical Science Saturday" on April 16, 2011.

Russ, Frank, Larry, George and Peter set up a booth and telescopes for National Astronomy Day on Saturday, May 7th at Curtis Center Park downtown Holland. Cloudy skies brought an early end at around 4:00pm.

Upcoming Events:

May 26th Park Township Program: Macatawa Bay Planetarium

7:00 to 8:30 PM. Members should arrive about 5:30 for setup.

Head-count is currently at 29. Jim, Doug Mandrick, Frank, and Russ have committed to present a "Constellations and Lore" Planetarium show, and lead visitors in creating a Planisphere, and a North Star Clock. Other members are encouraged to assist.

June 17th at 9:30pm: "Tour the Night Sky" telescope viewing at Hemlock Crossing County Park.

July 30th at 9:00pm: "Tour the Night Sky" telescope viewing at Hemlock Crossing County Park.

August 20th 10:00am-4:00pm: "Astro Saturday" at Hemlock Crossing County Park. This will include a walk-through scale model of the solar system.

New Business Items

The Treasury Report was not discussed, but our account balance was \$516.08 at the May 4th Board Meeting.

We discussed putting on a Saturday evening program (tbd) for TriPonds Family Campground in Allegan County.

Rick Archer presented a fascinating show on Amateur Spectroscopy, especially regarding how a star's temperature classification can be determined.

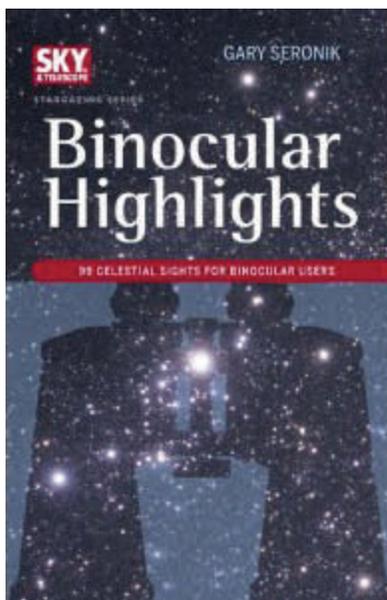
George Miller – Secretary May 22, 2011

Book Review

Binocular Highlights:

99 Celestial Sights for Binocular Users

The book is compact (6 ½ x 9 inches), spiral bound, and the cover folds back flat for easy handling in the dark. Print quality is excellent, text is easy to read in the dark (with a red flashlight!) and illustrations are sharp and uncluttered. The pages are coated to prevent damage from dew and the book seems very durable for field work. Overall the quality and design is excellent.



There is an introduction followed by a concise illustrated chapter on choosing binoculars for astronomical viewing, which explains important topics such as understanding magnification and the size of the objective lenses for a pair of binoculars, field of view in the night sky, making binocular choices, other binocular features to look for, tests for sharpness and optical alignment, and special types like

image-stabilized and big binoculars. This is a nice section for those who know little about binoculars to help guide them into making good choices and avoiding problems.

The main portion of the book is essentially a compilation of many of Mr. Seronik's excellent Binocular Highlights columns from Sky & Telescope magazine. There are 99 Highlights, presented 1 on each page, all visible from North America. They are roughly divided up into four sections based on which time of year the object is best seen - December to February, March to May, June to August, and September to November. Each page is divided in half - on the top half there is a close up section of a star chart which shows the highlight. A circular binocular "field of view" with a black background on the chart shows what to expect when you are viewing. The bottom half of each page contains the text description of the object and other points of interest. These are well written, clear and enjoyable. To get you oriented to the right part of the sky there are fold-out star maps inside the front and back covers which show the entire sky, one for each season, with all the highlights for that section marked with a numbered red circle.

Charles Messier

Charles Messier (26 June 1730 – 12 April 1817) was a French astronomer and we all know about his 110 "Messier objects".

Charles Messier was really a comet hunter and the purpose of the catalogue was to help astronomical observers, in particular comet hunters such as himself, distinguish between permanent and transient objects in the sky.



So what else did he discover?

How about 13 comets.

- C/1760 B1 (Messier)
- C/1763 S1 (Messier)
- C/1764 A1 (Messier)
- C/1766 E1 (Messier)
- C/1769 P1 (Messier)
- D/1770 L1 (Lexell)
- C/1771 G1 (Messier)
- C/1773 T1 (Messier)
- C/1780 U2 (Messier)
- C/1788 W1 (Messier)
- C/1793 S2 (Messier)
- C/1798 G1 (Messier)
- C/1785 A1 (Messier-[Mechain](#))

The crater Messier on the Moon and the asteroid 7359 Messier were named in his honor.

BEGINNER'S CORNER

First Habitable Exoplanet?

TELESCOPE COLLIMATION

By: Larry Logsdon

This month we'll cover "collimation" of a reflector telescope. So what the heck does that mean? Basically a telescope is said to be collimated when all its optical parts are correctly aligned with respect to one another -- everything is square, centered, and spaced correctly. Some instruments have collimation set at the time of manufacture, and with luck, the collimation will be correct for the life of the instrument; these instruments include binoculars and many small refractors. Others require frequent tweaking, which is sometimes a vexing task; these include most Newtonian reflectors.

Collimation is critical for scopes we call "fast." At this point without getting into detail if your scope is called an f/5.5 or less collimation is very important and should be checked on a regularly. The "f" stands for focal ratio and you can calculate this for your own telescope by the simply dividing the focal length by the diameter of the primary mirror.

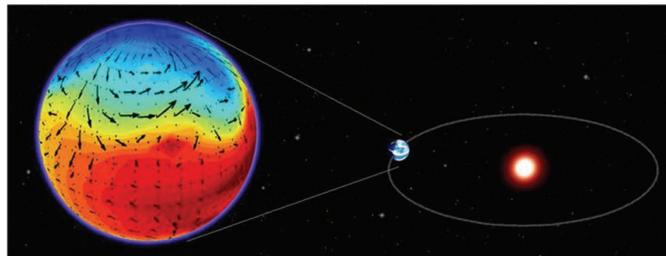
So how is collimation done? There are numerous opinions of how to do this and various equipment available. Today's technology involves laser collimators and there are numerous manufactures. Purchasing any of these costs from \$60 - \$200. If you're not familiar with the collimation process or equipment ask any of the SAAA members for some guidance. Some evening when SAAA members are out with scopes, feel free to ask for some advice. Most members will be glad to show you the equipment and collimate your scope.

Checking alignment of the laser beam with the equipment barrel is critical. You want to be sure the beam and barrel are as parallel as possible. This can be checked using a machinist's "V" block. Contact me I'll show you how to check alignment and you may use my "V" block.

There are also some good You Tube videos regarding collimation so check them out! Take a look at this video from [Orion Telescopes](#)

Next month we'll cover Reflector Telescope Mirror Cleaning – How Often & How It's Done

Climate Simulation Reveals New Candidate That Could Support Earth-Like Life



ScienceDaily (May 16, 2011) — The planetary system around the red dwarf Gliese 581, one of the closest stars to the Sun in the galaxy, has been the subject of several studies aiming to detect the first potentially habitable exoplanet. Two candidates have already been discarded, but a third planet, Gliese 581d, can be considered the first confirmed exoplanet that could support Earth-like life. This is the conclusion of a team of scientists from the Institut Pierre Simon Laplace (CNRS, UPMC, ENS Paris, Ecole Polytechnique) in Paris, France, whose study is published in *The Astrophysical Journal Letters*.

Are there other planets inhabited like Earth, or at least habitable? The discovery of the first habitable planet has become a quest for many astrophysicists who look for rocky planets in the "habitable zone" around stars, the range of distances in which planets are neither too cold nor too hot for life to flourish.

In this quest, the red dwarf star Gliese 581 has already received a huge amount of attention. In 2007, scientists reported the detection of two planets orbiting not far from the inner and outer edge of its habitable zone. While the more distant planet, Gliese 581d, was initially judged to be too cold for life, the closer-in planet was thought to be potentially habitable by its discoverers. However, later analysis by atmospheric experts showed that if it had liquid oceans like Earth, they would rapidly evaporate in a 'runaway greenhouse' effect similar to that which gave Venus the hot, inhospitable climate it has today. A new possibility emerged late in 2010, when a team of observers led by Steven Vogt at the University of California, Santa Cruz, announced that they had discovered a new planet, which they dubbed Gliese 581g, or 'Zarmina's World'. This planet, they claimed, had a mass similar to that of Earth and was close to the centre of the habitable zone. For several months, the discovery of the first potential Earth twin outside the Solar System seemed to have been achieved. Unfortunately, later analysis by independent teams has raised serious doubts on this extremely difficult detection. Many now believe that Gliese 581g may not exist at all. Instead, it may simply be a result of noise in the ultra-fine measurements of stellar 'wobble' needed to detect exoplanets in this system.

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WOMEN IN ASTRONOMY - IV

By Martha K. Roldán

Williamina Paton Stevens was born in Dundee, Scotland on May 15, 1857, the daughter of Mary Walker Stevens and Robert Stevens, a noted craftsman. At the young age of 14, she began student teaching until May 26, 1877 when she married James Orr Fleming. The couple sailed to America in December 1878 and took up residence in Boston, Massachusetts. A few months later, James abandoned his wife, and his unborn child.



Williamina Fleming was in a strange country, alone, pregnant, and in need of money to support herself. She found employment as a housekeeper for Edward Charles Pickering, the director of Harvard College Observatory. Not long after Fleming began working in Pickering's household, he offered her a position at the observatory. There are two accounts of how this came about: "(1) in 1879 Pickering offered her a part-time position as a copyist and computer at the Observatory because he was 'struck by her obviously superior education and intelligence,' or, (2) a male assistant proved to be unsatisfactory and 'in a huff Pickering is reported to have said...that he believed his housekeeper could do a better job.'" He was right on the last count. She did do a better job than his previous assistant.

In the fall of 1879, Fleming went back to Scotland to give birth to her son. She returned to Boston and continued her

duties as housekeeper and part-time assistant at the observatory. In 1881, she became a permanent member of the observatory staff.

Five years later, in 1886, the Harvard College Observatory received funding from Anna Draper to compile her husband's catalogue project. The observatory was to photograph the stellar spectra of the entire night sky. It was a monumental task, one that would have a profound effect on Fleming's life.

Initially, the responsibility of cataloguing, indexing, examination, and care of the new photographic plates belonged to Nettie Farrar. The "computers" were responsible for identifying the stars on the plates and then calculating their positions. Farrar left within the year, however, and Fleming replaced her.

It was not until twelve years later that Fleming's position was officially recognized by the Harvard "corporation." In 1898 she was bestowed the title of Curator of Astronomical Photographs and became the first woman to receive such an appointment of this kind.

Not only was Fleming responsible for interviewing new applicants, she was their supervisor. It was also her responsibility to catalogue the plates so they would be easily accessible and the data readily available. She devised her own system, after discounting the system devised by Father Angelo Secchi as too simplistic to account for the variety found in the stars' spectra. Fleming's system of cataloguing divided the stars into classes, from A to Q, with I, J, and P omitted, and was based on "the complexity of the spectrum lines and bands and the strength of the spectral lines due to hydrogen." Stars that did not fall neatly within a category were grouped into Q.

During Fleming's tenure at Harvard, and her catalogue work, she discovered many celestial objects, including 79 stars, 10 novae, 59 gaseous nebulae, 94 Wolf-Rayet stars, and 222 long-period variables. She also received many honors and awards, including memberships in the Royal Astronomical Society and the Astronomical Society of Mexico.

Fleming worked at Harvard College Observatory until her death from pneumonia at age 54 in 1911. Her contributions to the advancement of astronomy were many. Equally important was the trail she blazed for future generations of women. She was indeed a bright star.

First Habitable Exoplanet?

Today, it is finally Gliese 581g's big brother -- the larger and more distant Gliese 581d -- which has been shown to be the confirmed potentially habitable exoplanet by Robin Wordsworth, François Forget and co-workers from Laboratoire de Météorologie Dynamique (CNRS, UPMC, ENS Paris, Ecole Polytechnique) at the Institute Pierre Simon Laplace in Paris. Although it is likely to be a rocky planet, it has a mass at least seven times that of Earth, and is estimated to be about twice its size. At first glance, Gliese 581d is a pretty poor candidate in the hunt for life: it receives less than a third of the stellar energy Earth does and may be tidally locked, with a permanent day and night side. After its discovery, it was generally believed that any atmosphere thick enough to keep the planet warm would become cold on the night side to freeze out entirely, ruining any prospects for a habitable climate.

To test whether this intuition was correct, Wordsworth and colleagues developed a new kind of computer model capable of accurately simulating possible exoplanet climates. The model simulates a planet's atmosphere and surface in three dimensions, rather like those used to study climate change on Earth. However, it is based on more fundamental physical principles, allowing the simulation of a much wider range of conditions than would otherwise be possible, including any atmospheric cocktail of gases, clouds and aerosols.

To their surprise, they found that with a dense carbon dioxide atmosphere -- a likely scenario on such a large planet -- the climate of Gliese 581d is not only stable against collapse, but warm enough to have oceans, clouds and rainfall. One of the key factors in their results was Rayleigh scattering, the phenomenon that makes the sky blue on Earth. In the Solar System, Rayleigh scattering limits the amount of sunlight a thick atmosphere can absorb, because a large portion of the scattered blue light is immediately reflected back to space. However, as the starlight from Gliese 581 is red, it is almost unaffected. This means that it can penetrate much deeper into the atmosphere, where it heats the planet effectively due to the greenhouse effect of the CO₂ atmosphere, combined with that of the carbon dioxide ice clouds predicted to form at high altitudes. Furthermore, the 3D circulation simulations showed that the daylight heating was efficiently redistributed across the planet by the atmosphere, preventing atmospheric collapse on the night side or at the poles.

If Gliese 581d does turn out to be habitable, it would still be a pretty strange place to visit -- the denser air and thick clouds would keep the surface in a perpetual murky red twilight, and its large mass means that surface gravity would be around double that on Earth. But the diversity of planetary climates in the galaxy is likely to be far wider than the few examples we are used to from the Solar System. In the long run, the most important implication of these results may be the idea that life-supporting planets do not in fact need to be particularly like Earth at all.

First Habitable Exoplanet?

Scientists are particularly excited by the fact that at 20 light years from Earth, Gliese 581d is one of our closest galactic neighbours. For now, this is of limited use for budding interstellar colonists -- the furthest-travelled human-made spacecraft, Voyager 1, would still take over 300,000 years to arrive there. However, it does mean that in the future telescopes will be able to detect the planet's atmosphere directly. While Gliese 581d may be habitable there are other possibilities; it could have kept some atmospheric hydrogen, like Uranus and Neptune, or the fierce wind from its star during its infancy could even have torn its atmosphere away entirely. To distinguish between these different scenarios, Wordsworth and co-workers came up with several simple tests that observers will be able to perform in future with a sufficiently powerful telescope.

NASA Concludes Attempts To Contact Mars Rover

WASHINGTON -- NASA is ending attempts to regain contact with the long-lived Mars Exploration Rover Spirit, which last communicated on March 22, 2010.

A transmission that will end on Wednesday, May 25, will be the last in a series of attempts. Extensive communications activities during the past 10 months also have explored the possibility that Spirit might reawaken as the solar energy available to it increased after a stressful Martian winter without much sunlight. With inadequate energy to run its survival heaters, the rover likely experienced colder internal temperatures last year than in any of its prior six years on Mars. Many critical components and connections would have been susceptible to damage from the cold.

Engineers' assessments in recent months have shown a very low probability for recovering communications with Spirit. Communications assets that have been used by the Spirit mission in the past, including NASA's Deep Space Network of antennas on Earth, plus two NASA Mars orbiters that can relay communications, now are needed to prepare for NASA's Mars Science Laboratory mission. MSL is scheduled to launch later this year.

"We're now transitioning assets to support the November launch of our next generation Mars rover, Curiosity," said Dave Lavery, program executive for solar system exploration. "However, while we no longer believe there is a realistic probability of hearing from Spirit, the Deep Space Network may occasionally listen for any faint signals when the schedule permits."

Spirit landed on Mars on Jan. 3, 2004, for a mission designed to last three months. After accomplishing its prime-mission goals, Spirit worked to accomplish additional objectives. Its twin, Opportunity, continues active exploration of Mars.

For more information on the Mars rovers, visit: <http://www.nasa.gov/rovers>