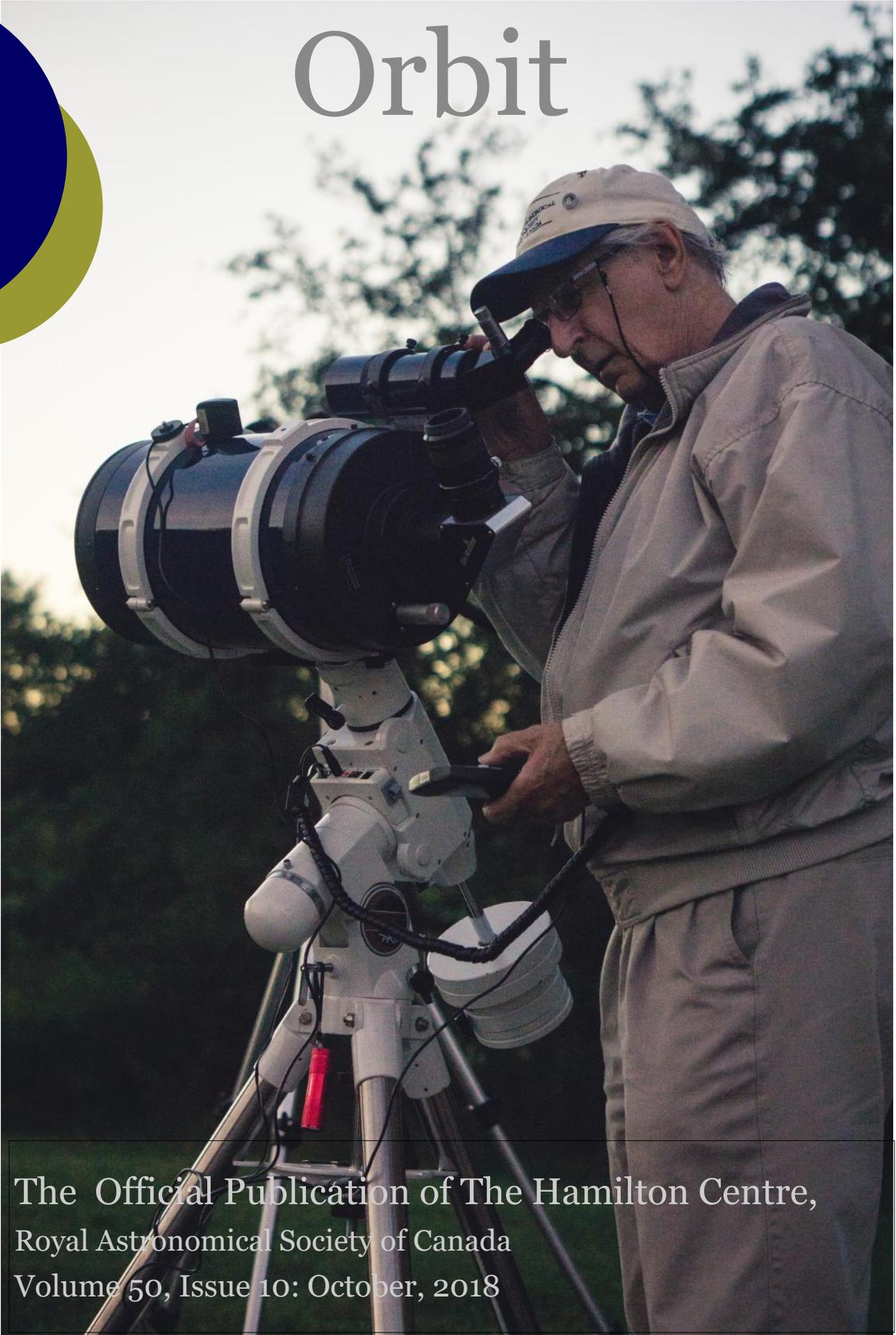


Orbit



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Issue Number 10, October, 2018

Roger Hill, Editor

It's been, for me, an eventful summer. The biggest event was my daughter being married in Milton. She lives in the UK, but wanted her wedding to be in Canada, so after a lot of planning and hard work, on August 11th, I escorted my daughter down the aisle outside at Country Heritage Park. There were a fair number of people from the UK who had come to witness the nuptials, and a great time was had by all. We took a number of our visitors to Niagara Falls, of course, and before we went, several of them said that they expected to be completely underwhelmed. Not so. The Falls did their usual job of blowing peoples minds.

Of course, since there was a wedding in Canada, there had to be a celebration in the UK, for all the people who were unable to visit Canada. My wife and I decided that there wasn't going to be a good party in London without us being there, and my best friend and his girlfriend said that we were not going to a good party without them. And, since we were in the UK anyway, then we might as well take a couple of weeks, and do a bit of a road trip.

As these things usually go, when Jamie and I decide on things, the trip got out of hand. Before we knew it, we had written down a bucket list of things to see and places to go, arranged them in a big circular trip around the UK, and into the Republic of Ireland. We hired a 7-passenger vehicle so we had lots of room, and set out on a 3,000 mile trip. I could go into some long-winded description of what we saw and where we went, but suffice it to say that just about everything on our bucket lists was achieved, with one major exception for me: I have now been to Bath three times, and I still haven't made it to the Herschel Museum of Astronomy. All the more reason to go again, then!

There was something else that happened to me in August, too, but while this was announced at the September meeting of the Hamilton Centre, I think I'd rather wait to talk about it after there has been an official announcement, likely before the end of the year.

I also bought another telescope during the summer. Gary Colwell sold his Vixen VMC-110L which he'd used last summer in Nebraska to photograph the eclipse. I was looking for something to take to Chile for next years eclipse, and I wanted something around 1000mm focal length (and hopefully will work with a focal reducer). The Vixen is a 110mm aperture F/9.4 modified Maksutov-Cassegrain telescope, has a tube less that 400mm long, and weighs just over 2kg. The tube is metal, and is a very solid piece of equipment, so it should be just about perfect for an airplane-transportable 'scope. The optical system is "modified" in that there is no large corrector plate at the front, but rather it uses a special lens in front of the secondary, so that light passes through it twice. This is sometimes referred to as a Mangin corrector. The big advantage is that there is not the larg, thick, corrector at the front as you might find in a typical Maksutov, and so the cool-down period is lessened, there are no tube currents to deal with, and since it has four curved vanes to hold the secondary in place, there aren't any diffraction spikes, either. Vixen has an excellent reputation for having sharp optics, and with everything that has been going on since I bought it, I haven't had a chance to really test it out, though, managing only a quick daylight test. So, expect a review perhaps next month!

I had hoped to start up doing the Heavy METUL nights in October, but my wife will be having her hip replaced in the middle of the month, and so I may not be able to travel too far afield. However, keep an eye on the Forum, because if I can get out to the observatory, you'll find an announcement there!

That's enough for this month, I think.

See you in the dark,

Roger

Observe the Moon

By Jane Houston Jones and Jessica Stoller-Conrad



This year's International Observe the Moon Night is on Oct. 20. Look for astronomy clubs and science centers in your area inviting you to view the Moon at their star parties that evening!

On Oct. 20, the 11-day-old waxing gibbous Moon will rise in the late afternoon and set before dawn. Sunlight will reveal most of the lunar surface and the Moon will be visible all night long. You can observe the Moon's features whether you're observing with the unaided eye, through binoculars or through a telescope.

Here are a few of the Moon's features you might spot on the evening of October 20:

Sinus Iridum—Latin for “Bay of Rainbows”—is the little half circle visible on the western side of the Moon near the lunar terminator—the line between light and dark. Another feature, the Jura Mountains, ring the Moon's western edge. You can see them catch the morning Sun.

Just south of the Sinus Iridum you can see a large, flat plain called the Mare Imbrium. This feature is called a mare—Latin for “sea”—because early astronomers mistook it for a sea on Moon's surface. Because the Moon will be approaching full, the large craters Copernicus and Tycho will also take center stage.

Copernicus is 58 miles (93 kilometers) across. Although its impact crater rays—seen as lines leading out from the crater—will be much more visible at Full Moon, you will still be able to see them on October 20. Tycho, on the other hand, lies in a field of craters near the southern edge of the visible surface of the Moon. At 53 miles (85 kilometers) across, it's a little smaller than Copernicus. However, its massive ray system spans more than 932 miles (1500 kilometers)!

And if you're very observant on the 20th, you'll be able to check off all six of the Apollo lunar landing site locations, too!

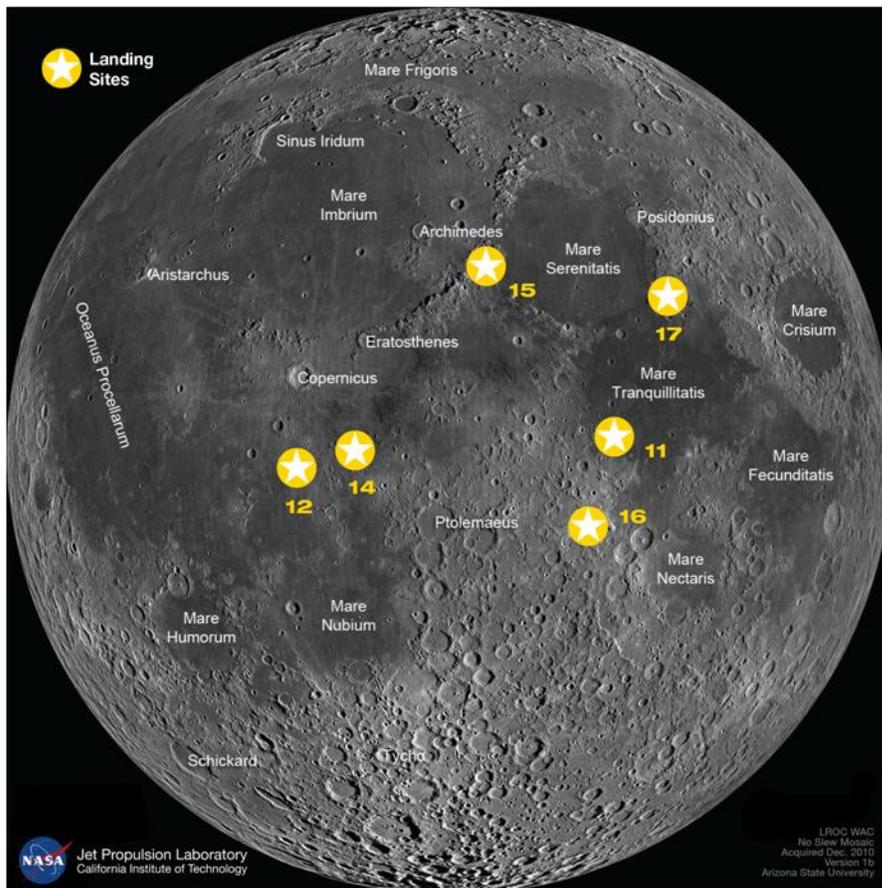
In addition to the Moon, we'll be able to observe two meteor showers this month: the Orionids and the Southern Taurids. Although both will have low rates of meteors, they'll be visible in the same part of the sky.

The Orionids peak on Oct. 21, but they are active from Oct. 16 to Oct. 30. Start looking at about 10 p.m. and you can continue to look until 5 a.m. With the bright moonlight you may see only five to 10 swift and faint Orionids per hour.

If you see a slow, bright meteor, that's from the Taurid meteor shower. The Taurids radiate from the nearby constellation Taurus, the Bull. Taurids are active from Sept. 10 through Nov. 20, so you may see both a slow Taurid and a fast Orionid piercing your sky this month. You'll be lucky to see five Taurids per hour on the peak night of Oct. 10.

You can also still catch the great lineup of bright planets in October, with Jupiter, Saturn and Mars lining up with the Moon again this month. And early birds can even catch Venus just before dawn!

You can find out more about International Observe the Moon Night at <https://moon.nasa.gov/observe>.



This article is provided by NASA Space Place. With articles, activities, crafts, games, and lesson plans, NASA Space Place encourages everyone to get excited about science and technology. Visit spaceplace.nasa.gov to explore space and Earth science!

Caption: This image shows some of the features you might see if you closely observe the Moon. The stars represent the six Apollo landing sites on the Moon. Credit: NASA/GSFC/Arizona State University (modified by NASA/JPL-Caltech)

A Rocha: Consider the Heavens - Star Gazing Event From Erin Vassair

Where: Cedar Haven Eco-Centre in Freelon

When: Friday August 10th and Saturday August 11th

Who: Erin Vassair, Eric Golding, Abigail Hughes

What: On Friday night Erin and Eric we were able to have their telescopes out to view Venus, Jupiter, Saturn and Mars while the volunteers chatted with the people who attended the event. There were families and people of all ages, as well as adults with varying special needs, that were driven in on a bus. There was also a fire for people to sit around and talk to one another.

Everyone was very excited to see Mars and were wowed by Jupiter and Saturn. We were able to see Venus for a while as the sun was setting.

Once all the guests had left, the Rocha volunteers were able to come and look through the telescopes and we had some good conversations with them about our telescopes and our personal thoughts about space and the night sky.

We were even lucky enough to see a few meteors/shooting stars as this was the weekend of the Perseids meteor shower. Unfortunately, Saturday night there were thunder and rain storms but there were still a few people who attended the event in hopes that the sky would clear up. The skies did not clear but we were still able to talk to guests about the sky and how to use a star finder.

A Rocha Canada is an Environmental Stewardship organization with beliefs such as: Transforming People and Places in Southern Ontario and Inspiring Hope, Caring for Creation. <https://arocha.ca/>

The A Rocha organizers were very pleased that we joined them for these two nights and it was very rewarding for the 3 RASC volunteers. Proof that doing outreach is lots of fun!



Outreach Event of the Year: “Mars in Opposition” from Ed Mizzi

This July, as most of you know, Mars was at its closest approach to Earth since 2003. And the Hamilton Centre wanted to share this special event with the general public. So, on July 27 and 28, several volunteers from the club and from the general public set up their telescopes at Spencer Smith Park, Burlington on the shore of Lake Ontario, in the hopes that they could fulfill one of RASC’s primary missions and goals, i.e. provide outreach to further people’s interest and knowledge of the universe.

By most accounts, the event was a great success, with hundreds of passers-by being treated to looks through a variety of telescopes. But it was not just Mars that they saw. In addition, viewers were fortunate to see our Moon, along with Venus, Jupiter and Saturn and their oohs and awes were a huge vote of confidence for those who volunteered to help and made the event both rewarding and lots of fun.

On Friday, July 27, the weather was not fully cooperative. However, people were more than happy to wait for periodic breaks in the clouds to get spectacular views of all 5 celestial objects. In fact, when we set up at 7:45 PM people were already curious and began asking questions even though it would not be dark for another hour or so. Many waited for more than an hour to have a chance to see one or more of the planets or the Moon and they were not disappointed. There were long lineups, of both adults and children, at all 6 telescopes and many exclaimed that they had never seen objects through a telescope and asked if the event was a regular occurrence.

On July 28, we held a second night of viewing and the sky was simply perfect. Both adults and children were in awe at views of Jupiter and the Galilean moons, Saturn with its rings and a few moons, Venus with its crescent shape, Mars looking so bright and reddish and of course the very bright, almost full Moon, that had an orange glow as it rose above the lake.

Both evenings lasted until around 11 PM. And some people from Friday returned on Saturday because they were so enthralled by what they saw.

Many thanks to all those who took the time to stop by, wait in line and take a look through one or more scopes.

Special thanks to all those who brought their telescopes to help share these wonders with others, including Bob Prociuk, Eric Golding, Erin Vassair, Muhammad Basil Ahmad, Ed Mizzi, Shane, Ryan Ffrench, Muhammad’s friend, a gentleman who rode down on his bicycle, carrying his scope in his backpack and a young lady who brought her telescope in a little red wagon and asked us to help her set it so she could use it for the first time and share with others. Just an amazing outpouring of generosity and volunteerism.

So, we encourage those of you who want to have fun and be rewarded in a special way, to volunteer for future outreach events. You will not be disappointed and you will go home knowing that you have shared the wonders of the Universe with others.



Cambridge "Science Literacy Week" Library Outreach

Muhammad Basil Ahmad and Troy McCoy made a trip up to the Main Cambridge Public Library on Sept. 20, in recognition of Science Literacy Week.

There were approximately 20 people in attendance ranging in age from young, budding astronomers to inquisitive seniors.

Muhammad gave a talk called Astronomy 101 which lasted about an hour and 20 minutes and covered a multitude of topics. The presentation was very well received and there were many questions asked.

Unfortunately the weather did not cooperate and they were unable to set up their telescopes to view the moon and planets. Regardless, they both felt it was a success and a very rewarding and fun experience.



NEW EXTREMELY DISTANT SOLAR SYSTEM OBJECT FOUND DURING HUNT FOR PLANET X—FROM CARNEGIE SCIENCE

Washington, DC—Carnegie’s Scott Sheppard and his colleagues—Northern Arizona University’s Chad Trujillo, and the University of Hawaii’s David Tholen—are once again redefining our Solar System’s edge. They discovered a new extremely distant object far beyond Pluto with an orbit that supports the presence of an even-farther-out, Super-Earth or larger Planet X.

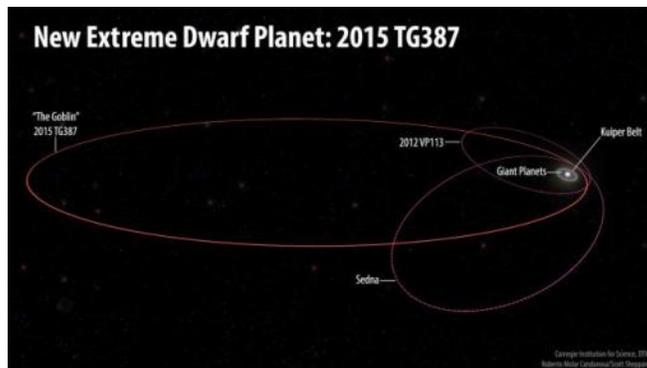
The newly found object, called 2015 TG387, was announced Tuesday by the International Astronomical Union’s Minor Planet Center. A paper with the full details of the discovery has also been submitted to *The Astronomical Journal*.

2015 TG387 was discovered about 80 astronomical units (AU) from the Sun, a measurement defined as the distance between the Earth and Sun. For context, Pluto is around 34 AU, so 2015 TG387 is about two and a half times further away from the Sun than Pluto is right now.

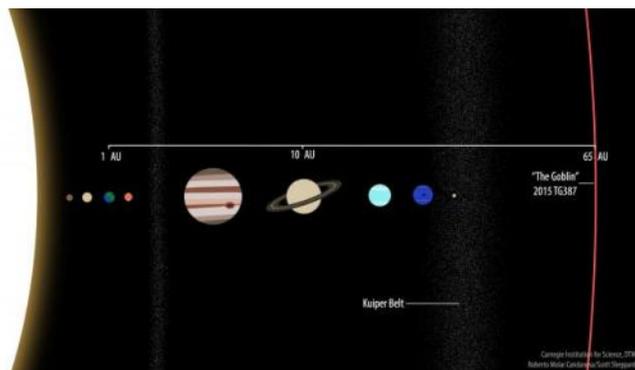
The new object is on a very elongated orbit and never comes closer to the Sun, a point called perihelion, than about 65 AU. Only 2012 VP113 and Sedna at 80 and 76 AU respectively have more-distant perihelia than 2015 TG387. Though 2015 TG387 has the third-most-distant perihelion, its orbital semi-major axis is larger than 2012 VP113 and Sedna’s, meaning it travels much farther from the Sun than they do. At its furthest point, it reaches all the way out to about 2,300 AU. 2015 TG387 is one of the few known objects that never comes close enough to the Solar System’s giant planets, like Neptune and Jupiter, to have significant gravitational interactions with them.

“These so-called Inner Oort Cloud objects like 2015 TG387, 2012 VP113, and Sedna are isolated from most of the Solar System’s known mass, which makes them immensely interesting,” Sheppard explained. “They can be used as probes to understand what is happening at the edge of our Solar System.” The object with the most-distant orbit at perihelion, 2012 VP113, was also discovered by Sheppard and Trujillo, who announced that find in 2014. The discovery of 2012 VP113 led Sheppard and Trujillo to notice similarities of the orbits of several extremely distant Solar System objects, and they proposed the presence of an unknown planet several times larger than Earth—sometimes called Planet X or Planet 9—orbiting the Sun well beyond Pluto at hundreds of AUs.

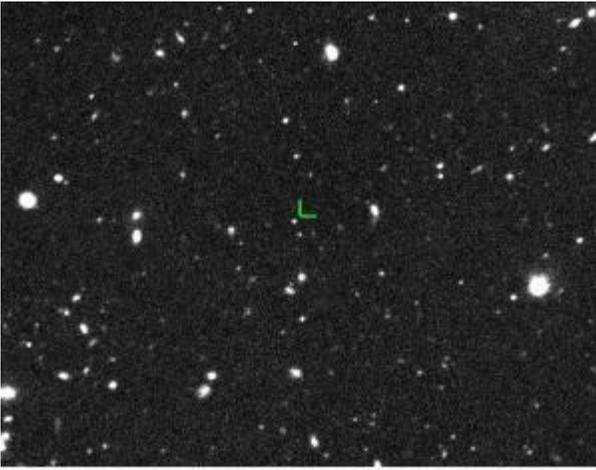
“We think there could be thousands of small bodies like 2015 TG387 out on the Solar System’s fringes, but their distance makes finding them very difficult,” Tholen said. “Currently we would only detect 2015 TG387 when it is near its closest approach to the Sun. For some 99 percent of its 40,000-year orbit, it would be too faint to see.”



The orbits of the new extreme dwarf planet, 2015 TG387, and its fellow Inner Oort Cloud objects, 2012 VP113 and Sedna, as compared with the rest of the Solar System. 2015 TG387 was nicknamed “The Goblin” by the discoverers, as its provisional designation contains TG and the object was first seen near Halloween. 2015 TG387 has a larger semi-major axis than either 2012 VP113 or Sedna, which means it travels much further from the Sun at its most distant point in its orbit, which is around 2,300 AU. Illustration by Roberto Molar Candanosa and Scott Sheppard, courtesy of Carnegie Institution for Science.



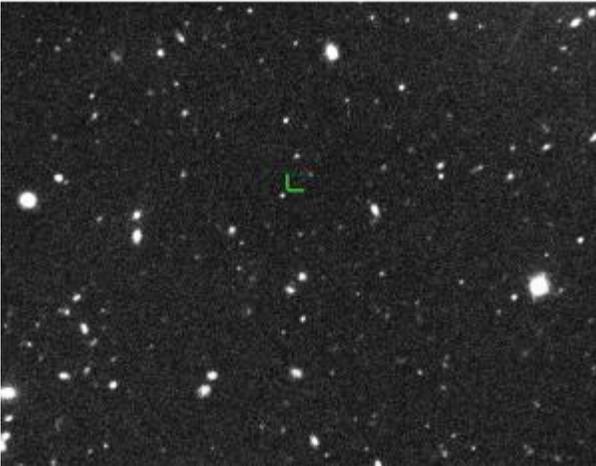
A comparison of 2015 TG387 at 65 AU with the Solar System’s known planets. Saturn can be seen at 10 AU and Earth is, of course, at 1 AU, as the measurement is defined as the distance between the Sun and our home planet. Illustration by Roberto Molar Candanosa and Scott Sheppard, courtesy of Carnegie Institution for Science.



The object was discovered as part of the team’s ongoing hunt for unknown dwarf planets and Planet X. It is the largest and deepest survey ever conducted for distant Solar System objects.

“These distant objects are like breadcrumbs leading us to Planet X. The more of them we can find, the better we can understand the outer Solar System and the possible planet that we think is shaping their orbits—a discovery that would redefine our knowledge of the Solar System’s evolution,” Sheppard added.

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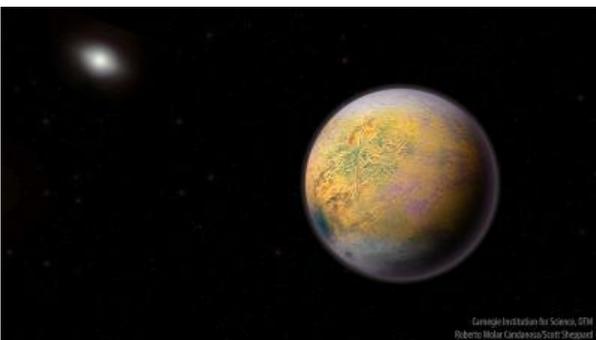
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It took the team a few years of observations to obtain a good orbit for 2015 TG387 because it moves so slowly and has such a long orbital period. They first observed 2015 TG387 in October of 2015 at the Japanese Subaru 8-meter telescope located atop Mauna Kea in Hawaii. Follow-up observations at the Magellan telescope at Carnegie’s Las Campanas Observatory in Chile and the Discovery Channel Telescope in Arizona were obtained in 2015, 2016, 2017 and 2018 to determine 2015 TG387’s orbit.

The discovery images of 2015 TG387 taken at the Subaru 8-meter telescope located atop Mauna Kea in Hawaii on October 13, 2015 (top). The images were taken about 3 hours apart. 2015 TG387 can be seen moving between images near the center while the much more distant stars and galaxies are stationary. Image is provided by Scott Sheppard.

2015 TG387 is likely on the small end of being a dwarf planet since it has a diameter near 300 kilometers. The location in the sky where 2015 TG387 reaches perihelion is similar to 2012 VP113, Sedna, and most other known extremely distant trans-Neptunian objects, suggesting that something is pushing them into similar types of orbits.



Trujillo and University of Oklahoma’s Nathan Kaib ran computer simulations for how different hypothetical Planet X orbits would affect the orbit of 2015 TG387. The simulations included a Super-Earth-mass planet at several hundred AU on an elongated orbit as proposed by Caltech’s Konstantin Batygin and Michael Brown in 2016. Most of the simulations showed that not only was 2015 TG387’s orbit stable for the age of the Solar System, but it was actually shepherded by Planet X’s gravity, which keeps the smaller 2015 TG387 away from the massive planet. This gravitational shepherding could explain why the most-distant objects in our Solar System have similar orbits. These orbits keep them from ever approaching the proposed planet too closely, which is similar to how Pluto never gets too close to Neptune even though their orbits cross.

An artist’s conception of a distant Solar System Planet X, which could be shaping the orbits of smaller extremely distant outer Solar System objects like 2015 TG387 discovered by a team of Carnegie’s Scott Sheppard, Northern Arizona University’s Chad Trujillo, and the University of Hawaii’s David Tholen. Illustration by Roberto Molar Candanosa and Scott Sheppard, courtesy of Carnegie Institution for Science.

“What makes this result really interesting is that Planet X seems to affect 2015 TG387 the same way as all the other extremely distant Solar System objects. These simulations do not prove that there’s another massive planet in our Solar System, but they are further evidence that something big could be out there” Trujillo concludes.

The Perfect Telescope is. . . a small apochromatic refractor.

Letter to editor by Mr. Beat Kuechler published some years ago in the "Amateur Telescope Making Journal" Issue #10 The original letter is accompanied by a sketch showing an original TeleVue "Genesis" 4" telescope on a simple "Panoramic" head and wood wood tripod. The Genesis is an TeleVue 500mm f5 design introduced in 1988 but it has since replaced by even more advanced models.

When I was a young man, I built the largest telescope in my hometown. It was a whopping 8 inches in diameter and none of my friends had ever seen anything like it. By the time I was in my forties, I'd built several telescopes (mostly for the kids and their friends), ranging in size from 4 to 12-1/2 inches in diameter. In those days, a 12 1/2 inch telescope was considered a monster and being recognized for having built one that big was quite an honor.

I will be 73 in June, and when I look back to the days when I was an avid telescope maker (or assembler) I can't recall spending nearly as much time observing the heavens as I spent in hauling the things around to show people and tell them how I made them from plate glass, plywood, and old plumbing parts.

After having been away from telescope making for many years, I found that I had lost the fascination for hours of grinding and testing. I just wanted something to look through and have some fun with when the clouds and temperature would permit.

Looking around the property, I discovered that I had one complete 10-inch telescope and a tube, mirrors and focuser for a 12 1/2- incher -- all of the smaller units had gone to other homes. Some of your more mature readers might guess what I discovered. The damn things were too heavy-much heavier than I remembered. They were good performers in their day. But, it was plain that it was going to take a lot of time, money, and muscle to restore either one. I had none of those things to spare .

About that time, I started paying more attention to advertisements for "apochromatic refractors" in the astronomy magazines. I had been hearing about them for several years, but I didn't know the difference between an apochromat and a laundromat. I just figured it was another one of those gimmicks to part a sucker from his hard earned money. Anyway, to make a long story short, a friend showed me an ad for a used Tele Vue Genesis, and we took a drive that evening to have a look at it. When we arrived, I learned that there was no stand to go with it. Nevertheless, on my friend's excited recommendation, I bought the thing and took it home.

After one leisurely evening in my workshop, I had a 4-inch refractor on a homemade base sitting atop an old surveyor's tripod, and was ready for the next clear night. When the first clear night came, I was amazed! I had no idea that a telescope which was so small on the outside could be so big on the inside. I can't recall ever seeing anything as clearly with the 10-inch telescope I had been using 20 plus years ago. I suppose that could be due to the fact that I was living in New Jersey at the time and that I hadn't done any serious observing in years.

The result of all this is that I am very happy with this little telescope in so many ways. It is much more compact than the refractors that were around when I was a boy. It has a very wide, clean, field of view. I can easily use it with my glasses on. And, I can set it up and take it down almost instantly.

I have saved the best reason for owning such a telescope for last. I do not recall my wife (of 44 years) ever having more than a peek through any of my telescopes. She said they were always a pain to use. Now that I have this little hot-dog refractor, she is with me just about every time I set it up and it has been the launching pad for many a fine, and sometimes overdue, conversation.

Mr. Cook, after reading over this letter, I really don't think it is the kind of technical stuff you people are looking for. But I promised to tell you about the telescope that's been best for me and I hope my comments will be of some use to you.
B.M.

And you, my Orbit reader...what is your Perfect Telescope? Replay on the Forum, please. RH

Product Review: The Coronado PST By Jack Kramer

Despite my good intentions to spend more time on solar observing, white light solar work just didn't hold my interest for long. But given the opportunity to look through someone's scope with a hydrogen alpha filter ... well, that's a different story. The sun assumes a whole new dimension when you can view prominences, flares, and plages - the really active aspects of the solar disk.

Normal glass or Mylar solar filters ("continuum filters") yield what is called a white light or integrated light image. They allow us to safely observe the sun's photosphere. By passing many different wavelengths of light, it's about what we could see if we were able to look directly at the sun. Without getting too technical, hydrogen alpha (Ha) is a very narrow emission line that permits us to see the amazing features that dance in the sun's tenuous outer layer, the chromosphere. A Hydrogen alpha filter passes only those wavelengths that correspond to the center of the red Ha spectral line at 6562.8 angstroms. To show good detail, a hydrogen-alpha filter must perform with a sub-angstrom bandpass.

Hydrogen alpha filters require a very high level of precision. While costly, they're just about mandatory for serious solar observers. Solar prominences are fascinating, but are the rest of us fascinated enough to shell out \$2000, \$3000, or more for a filter? Coronado Instruments has probably done the most to popularize Ha observation, but equipment from Daystar and Solarscope tends to be more highly regarded by the real aficionados. Their stuff is also pricier - Solarscope's filters start at over \$4000. Then when Coronado introduced the Personal Solar Telescope - the PST - with a price of \$499, it became the hydrogen alpha instrument within reach of Everyman. It's a dedicated 40mm telescope containing an integral Ha filter with a bandpass of <1.0.

Since I didn't want to commit three times the money for the next step up the Coronado line (Solarmax 40), the PST fit the bill. I was aware that the view could not be as good as in the higher priced rigs, but I felt that if I could at least see prominences, it would be money well spent. When I first got the PST, tuned it in on the sun, and a prominence snapped into view, it was "YESSSS...money well spent!"

All told, the PST delivers on what it promises. It appears solidly built, with almost all metal parts. A 1/4-20 screw hole beneath the focuser housing allows easy mounting on a camera tripod. I've mounted it piggyback on my GP-C102 refractor. The clock drive makes observing easier, and I can switch between Ha in the PST and a white light view in the 4". (Although I pretty much ignore the white light image nowadays.) The PST also has a neat little built-in sun-finder, which also helps in lining up the bigger refractor.

Although I'm satisfied with the PST, it does have its limitations. First of all, it's only a 40mm f/10 telescope; that means it won't give the resolution and magnification you may have seen in Ha filters mated to larger scopes. The internal focusing mechanism operates by turning a small knob under the eyepiece housing. A 12mm Kellner eyepiece is included with the PST. I had heard that not all eyepieces will come to focus, and did discover that Radians and a Meade 26mm Super Plossl end up just shy of a sharp focus. But this seems to be a backfocus issue because pulling them slightly out of the focuser tube allows a sharp focus. A 19mm Panoptic, 12.5mm UO Ortho, and 6.7mm Meade Ultra Wide work just fine. It's also important not to overpower the little scope in an effort to get a closer view. Not only does a high magnification image lose sharpness, but the daytime atmospheric unsteadiness is working against you. (Solar observing is best done early or late in the day when the atmosphere is steadier.) In addition, some users have reported a "sweet spot" where images are sharper at a certain point in the field, which varies from one PST to another. So far, I haven't found any such sweet spot.

The bandpass of the PST favors prominences over surface details, although you can still see some surface activity. A tuning ring on the tube allows a slight adjustment of the spectral response of the etalon filter, which can be affected by things as minor as barometric pressure. According to Coronado, you can achieve a better balance of features by stacking their SolarMax 40 filter on the PST. This narrows the bandpass to <.6. The cost becomes considerably higher than the basic PST alone, and I question whether there would be much to gain in view of the inherent limitations of the PST design.

One concern (hopefully unfounded) is what will happen to Coronado Instruments now that they have been acquired by Meade, which has a spotty quality reputation and a tendency to compromise good designs with some sub-standard components. I decided to get a PST before Meade does a lot of tinkering with it. Product changes have apparently taken place already. Specs on the Astronomics web site say the PST has a thread-on metal lens cover, but the one I received has a snap-on plastic cover. That's no big deal, but I'd have some qualms if they were to announce a "new, lower-priced" PST ... possibly using a lot more plastic.

The danger is that it's easy to get hooked on observing in the hydrogen alpha band. Then you begin to think about what more competent (and expensive) equipment could show...

September 6, 2018 Monthly Meeting: A FASCINATING ASTRONOMICAL POPTPOURRI

The inaugural meeting of the Hamilton Centre 2018/2019 season was attended by about 25 people who were entertained by not one, but four speakers, each with a unique topic. The September meeting has traditionally been a Members "Show and Tell" evening, when people have a chance to share summer stories, descriptions of new equipment and details about events they attended since our June meeting. Those in attendance were not disappointed and left the meeting very satisfied and happy they had made the trip to Waterdown.

Muhammad Basil Ahmad chaired this meeting and began with greeting everyone, welcoming four new members, giving a breakdown on membership and reviewing the club offerings, from outreach events to our own observatory.

Besides Muhammad, there were three other Board directors at the Legion to welcome people and answer questions, so thanks also to Eric Golding, Chris Talpas, and Andy Blanchard.

We also had two special guests attend, our RASC National Past President, Colin Haig and Fundraising Consultant and passionate RASC supporter, Lisa DiVeto.

Muhammad began with a description of the two-day outreach event held at the end of July, when several members set up telescopes at Spencer Smith park in Burlington. During this Mars in Opposition outreach event, hundreds of passers-by were treated to views of not just Mars, but Venus, Jupiter, Saturn and our Moon. Thanks to those who volunteered their time and expertise.

Gordon Haist was the second speaker. He used photos and his own experience to describe Starfest 2018, held in Ayton, Ontario in August. Gordon encouraged others to attend SF 2019 as a great way to be immersed in both amateur and professional astronomy.

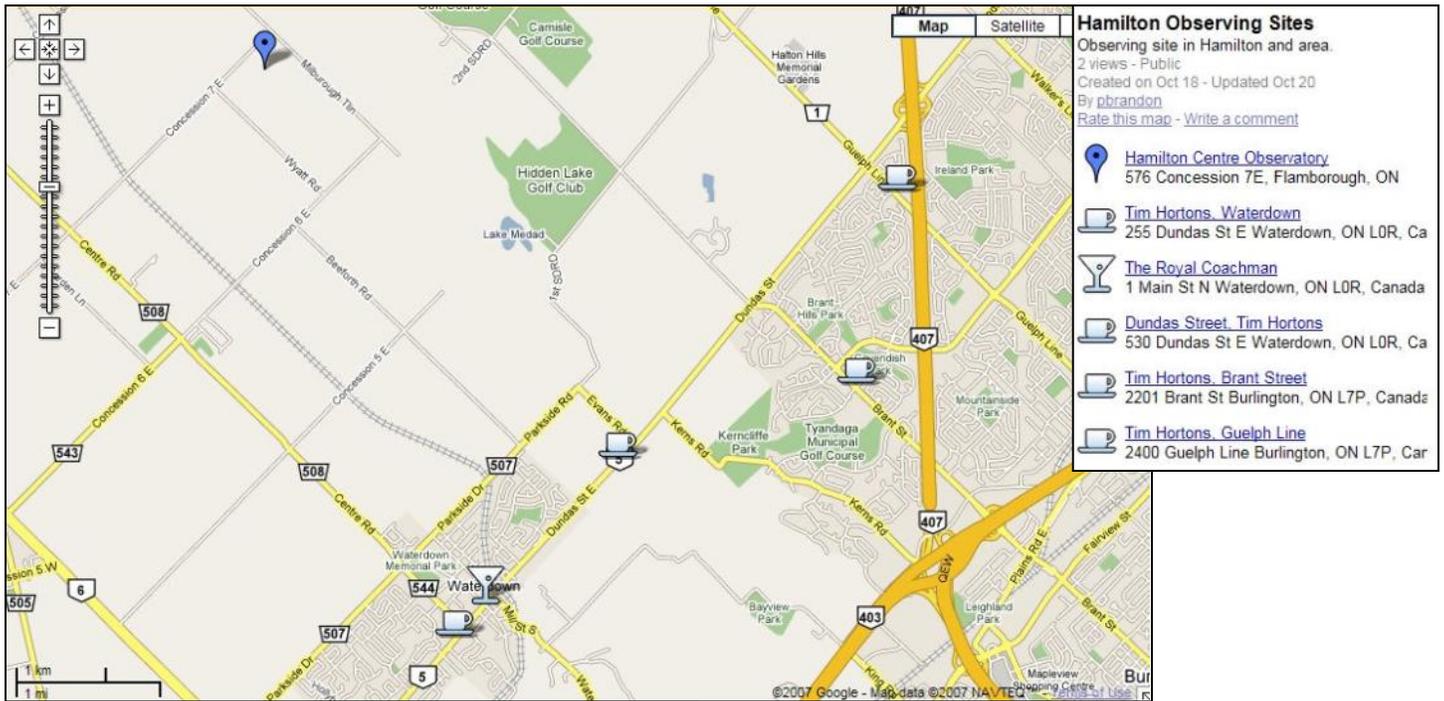
Next up was Ross Leonard-McCaffrey. Ross builds complex LEGO models of things like the ISS and large observatories. Some of them are even working models such as the Orrery he built from scratch. Muhammad showed off some of the great astrophotography images he took at Starfest 2018. He had samples of both distant nebulae and galaxies.

Then Mark Kaye talked about visiting a very unique private observatory during his trip through Quebec. It was actually constructed above a restaurant...cool!

A special thanks to those who made presentations.

Muhammad closed the meeting after mentioning the Board meeting on Sept. 13 and our next Monthly meeting on Oct. 4 and inviting everyone to the Royal Coachman after the meeting for refreshments and to further the discussion.

Thanks to everyone who attended and we look forward to seeing you on Oct. 4.



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During my trip to England, we stopped at a lovely country B&B in a place called Battle, which is the actual site of the Battle of Hastings, fought in 1066, the last time England was successfully invaded. It's a lovely spot, about 60 miles south-ish of London.

The night before I toured the battle site was a lovely clear evening, with the Milky Way nicely obvious, so I went outside with my modified Canon T1i and the 8mm Rokinon fish-eye. I mounted the camera on a little pocket tripod, and took a few 30 second exposures, and used in-camera dark frame subtraction. During the exposures, I did a little naked-eye observing.

One thing I noticed was the start of an Iridium flare, caught on this frame, but the exposure ended before it became a nice -6 flare.

The Iridium constellation of satellites is being replaced, and when the last of the old one have gone, so will Iridium flares, as the new satellites don't have the big flat solar cells that produced the spotlight effect on Earth.

So...catch them while you still can!

Roger

