NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC | VOLUME 2010 ISSUE 6 | NOVEMBER/DECEMBER 2010

INSIDE

Looking Ahead

Remember, you are always welcome to attend meetings of Council, held on the first Thursday of every month at 7:30pm in the Ray Whittick Lounge.

Nov. 11: Dr Thomas Kallanger of MOST: "How a Canadian suitcase, a French painter, and an ancient German astronomer sound the stars."

Dec. 9: AGM.

Next Issue Deadline

Material for the January Nova should be submitted by Monday, Jan. 3, 2011. Please send submissions to:

Gordon Farrell (gfarrell@shaw.ca)

Title image: Jason Rickerby

Rubbermaid Observatory

by Bob Parry

When Pomponia and I bought our property at the Cultus Lake Holiday Park and put our trailer there to enjoy our summers, I had always thought of making an observatory. The first two years at the Park were devoted to rebuilding the ramshackle cabin that was there and threatening to dissolve into a pile of rotten wood. When this project was complete and we had a nice cabin beside our trailer, it was time to think again about the observatory. So I started looking into the different options that were available.

The type of observatory breaks down into two broad categories:

1. Conventional Domes
2. Roll off Roof Observatories

I researched the available and affordable domes and there were three candidates:

SkyShed Pod

The SkyShed Pod would have been my choice in a perfect world, however there were a number of problems with a dome like this in Cultus Lake Holiday Park (CLHP). There really was not enough room on the deck for this large a dome without taking away the entire use of the deck. If I could have put this on the roof of the cabin, the space problem would have been solved but a number of other problems came up. Access to the roof was limited and the Park has a building committee whose approval is required for all modifications to sites. The SkyShed Dome comes in "Earth Tones," something that building committees seem to prefer but I did not think that I could get this through the committee or get my wife's approval. So the SkyShed Dome was out.

Explora Dome

My friend Eric Fuller has installed one of these domes, and it is very nice, but everything that applies to the SkyShed Dome applies here as well. The ExploraDome is a little bigger than the Pod and as such was also rejected.

Robo Dome

This is an interesting, small dome. It would fit in the space available, however its purpose—as it name implies—is for a fully robotic

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National Strategic Planning

by Cameron Widen

The Executive Committee of the RASC, working together with the Executive Director and National Office Manager, have prepared a draft Strategic Planning document for the society. The RASC has been working without a clear and concise strategic plan for years, and it's important that we determine where we want to go and how we will get there. The draft plan was presented to the National Council meeting early this month, and the council seeks input from the membership before finalizing it. The future of the society is contained in these objectives, and I encourage anyone who has questions or comments about the draft plan to contact the National Council and make their thoughts known.

I'm happy to provide any member with the full text of the Strategic Planning Document on request. You can contact me by email at cameron@super-awesome.com.

Comments, questions or feedback regarding the Strategic Objectives and the Strategic Planning Document can be sent to the RASC's 2nd Vice President, Colin Haig, at astronomer@cogeco.ca, and to the Executive Director, Deborah Thompson, at thompson@rasc.ca. ✸

RASC Seven Strategic Objectives 2011-2013:

- Implement Centre Support Program by 2011 June 1.
- Implement Volunteer Support Program by 2011 June 1.
- Improve response time for customer service delivery from one week to three business days by 2011 December 31.
- Increase revenues from present and new sources by 30 percent by 2013 December 31.
- Increase RASC membership to 5000 members by 2013 December 31.
- The Executive Director and MAP Committee will develop a marketing and communications plan by 2010 December 31.
- Make recommendations on By Law reform by 2011 December 31.

President's Message

Our public outreach programs this summer went from very successful to spectacular. In the last Nova, I described the Metro Parks' Perseid meteor event at Aldergrove Lake as well as the second event at Deas Island with turnouts totalling some 1600 people.

Simon Fraser University joint ventured Astronomy Day with us in September. Supported by their science outreach program and backed by most of their science departments, just over 1100 people turned up for the all-day event. Draws, prizes, food, entertainment and hands-on science entertained people of all ages. Youngsters had fun making liquid nitrogen ice cream while the adults stood admiringly in front of Ted Stroman's wonderful rocket models, landing craft and posters describing the history of the U.S. Space Programme. In my experience, it was our best Astronomy Day and Simon Fraser raised additional funds toward their Teaching Observatory Project. Donations to that effort are still being welcomed.

We also had three ventures with the NRC/Herzberg Institute for Astrophysics from Victoria. Two were held at the Brighouse Public Library in Richmond and the third at the Space Centre. One of the Brighouse events was collaboration with a broad range of Federal, Provincial and local science institutions as part of National Science & Technology Week. Some 4000 parents, students and patrons visited the library on October 22nd.

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About RASC

The Vancouver Centre, RASC meets at 7:30 PM in the auditorium of the H.R. MacMillan Space Centre at 1100 Chestnut St., Vancouver, on the second Thursday of every month. Guests are always welcome. In addition, the Centre has an observing site where star parties are regularly scheduled.

Membership is currently $70.00 per year ($41.00 for persons under 21 years of age) and can be obtained by writing to the Treasurer at the address on page 5. Annual membership includes the invaluable Observer's Handbook, six issues of the RASC Journal, and, of course, access to all of the club events and projects.

For more information regarding the Centre and its activities, please contact our P.R. Director.

NOVA, the newsletter of the Vancouver Centre, RASC, is published on odd numbered months. Opinions expressed herein are not necessarily those of the Vancouver Centre.

Material on any aspect of astronomy should be e-mailed to the editor or mailed to the address on page 5.

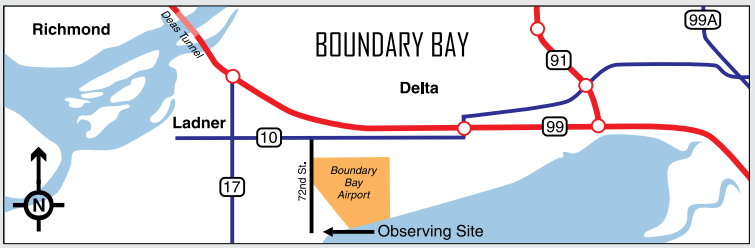
Advertising

Nova encourages free use of its classified ads for members with items for sale or swap. Notify the editor if you wish your ad to run in more than one issue.

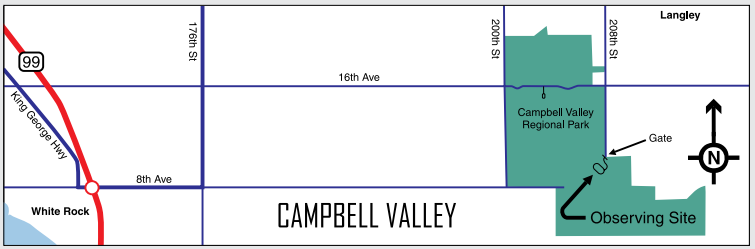
Commerical Rates

1/4 Page: $15.00 per issue
1/2 Page: $25.00 per issue
Full Page: $40.00 per issue
Rates are for electronic or camera-ready files. Payment, by cheque, must accompany ad material. Make cheque payable to:
RASC Vancouver Centre.

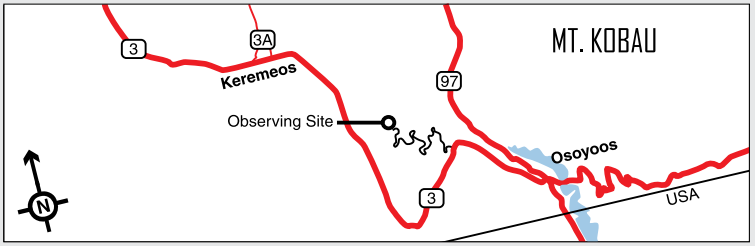
OBSERVING SITES



Site of the regular Saturday night star party. On the dike at the foot of 72nd St.



Our alternate observing site. Contact Bruce MacDonald (604-882-3820) to see if this site is in use.



Site of the annual Mt. Kobau Star Party organized by the Mount Kobau Astronomical Society

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While we did not engage them all, we did talk to a large number and demonstrated the fun of astronomy and telescopes. I think the exhibit opposite our location where children could make green slime helped our ratings.

I particularly enjoyed Leigh Cummings' contribution. With him, no question went unanswered and each answer drew the questioner much further into astronomy than he or she might have expected at the outset. I should call Leigh the "black hole" of astronomy: get too close and there is no escape.

The event at the Space Centre was an evening in support of the BC Science Fair Foundation and was intended for the students who have been participants. It was attended by the Minister of Education and included dinner and a talk by Jaymie Matthews. Our part was brief. After the formal activities, the students, parents and supervisors had a chance to look through telescopes that had been set up in front of the Planetarium by the RASC. We were fortunate to have a clear night and a few decent viewing targets.

These were our last major public events this year, but we are already planning our activities with Metro Parks for next spring. Between now and then, a few members who have given up their day jobs will be helping Howard Trottier at SFU as the university's science outreach programme gets underway once again.

Given the level of public events and our charitable mandate, my one

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request is for a few more volunteers to help out. It would not be necessary to attend all the events but helping out a couple of times a year would be most welcome. A few hours on one or two afternoons or evenings are what we need. Please talk to anyone on Council if you can make the time.

Looking ahead, Barry Shanko has already set the tone for speakers in the new year. In January, Dr. John C. Mather, a Senior Astrophysicist at NASA's Goddard Space Flight Center and Senior Project Scientist for the James Webb Space Telescope, will be our guest. Dr. Mather was a joint winner of the 2006 Nobel Prize for Physics, along with George F. Smoot of the University of California, for their collaborative work on understanding the Big Bang. This should be an outstanding presentation.

Following our request to the membership, we now have a full slate of candidates for the December elections and I want to thank those new members who put their names forward. Your willingness to help is very much appreciated. The list can be found elsewhere in the Nova and if anyone else is interested, there is still time to add your name. For anyone curious about the activities at council meetings, we invite you to attend on the first Thursday of any month at 7:30pm here at the Space Centre. ✸

– Ron Jerome

LIBRARY

The centre has a large library of books, magazines and old NOVAs for your enjoyment at the GMSO. Please take advantage of this club service and visit often to check out the new purchases. Suggestions for future library acquisitions are appreciated.

RASC-VC on the Internet

http://rasc-vancouver/ or
http://www.rasc.ca/vancouver

Details of upcoming meetings and events can be found at our Meetup group at:
http://astronomy.meetup.com/131/

H.R. MACMILLAN SPACE CENTRE

The H.R. MacMillan Space Centre Society is a non-profit organization operating the H.R. MacMillan Space Centre and the Gordon M. Southam Observatory. Annual membership ($30 individual; $80 family) includes newsletter, discounts on Space Camps, birthday parties, lectures, Museum of Vancouver admission, plus free admission to the Space Centre. Admission includes: multi-media Planetarium productions, interactive demonstrations and hands-on exhibits. For membership, contact Gayle Seaman 604-738-7827 (ext 221) or star@spacecentre.ca

http://www.spacecentre.ca

MEMBERSHIP HAS ITS PRIVILEGES!

New members, did you know? The Vancouver Centre has 8 telescopes available for loan free of charge! We have telescopes ranging from 60mm to 10" diameter. For more information see Bob Parry, Director of Telescopes in the meeting room of the GMSO *after* the members meeting. All telescopes are to be picked up and returned at the GMSO. The loaner period is for one month, to be returned after the next meeting. Telescopes are not allowed to circulate outside of these meetings. You can now reserve two different telescopes per year and use what is left at the end of the meeting anytime. Bob can be reached at 604-215-8844.

Your greatest opportunity as a member of the R.A.S.C. is to take advantage of the company of other enthusiasts to increase your knowledge, enjoyment and skill in astronomy.

The best thing you can do to gain the most from your membership is to get active! Take in the club meetings; engage other members with questions; come out to observing sessions (also known as "star parties"), and, by all means, volunteer to take part in our many public events.

Observing takes place at Boundary Bay on the dike at the south end of 72nd St. in Delta (see map on p. 4). We are there most clear Friday/Saturday nights. Contact Jason Rickerby at 604-502-8158.

RASC
1100 Chestnut Street
Vancouver, B.C.
V6J 3J9
604-738-2855

December
9 – AGM

Candidates for Council 2010-2011

The following is the list of individuals who have volunteered to stand for election to Council positions for the coming year:

President – Howard Trottier
Vice President/Public Relations – David Morrish
Secretary – Alan Jones
Treasurer – Wayne Lyons
National Representative – Mark Eburne
Director of Telescopes – Steve Coleopy
Librarian – William Fearon

Councillor #1 (Membership) – Gavin McLeod
Councillor #2 (Observatory Joint Chairs) – Mark Eburne/Leigh Cummings
Councillor #3 (NOVA Editor) – Gordon Farrell
Councillor #4 (Merchandise & Observing) – Doug Montgomery
Councillor #5 (Webmaster) – Harvey Dueck
Councillor #6 (Speakers) – Barry Shanko
Councillor #7 (LPA Chair) – Mark Eburne
Councillor #8 (Education) – Bill Burnyeat
Councillor #9 (Events Coordinator) – Suzanna Nagy
Councillor #10 (At Large) – Pomponia Martinez

Honorary Positions
Trustee – Karl Miller

Elections will be held at the Annual General Meeting, December 9, 2010 at the Space Centre. Any member who wishes to put his or her name forward for any of these positions needs to do so immediately in order to be included on a ballot at the AGM. Candidates must submit their names in writing supported by the names of five nominators.

Faint Fuzzies

by Ron Jerome

When is a faint fuzzy is worth pursuing? I asked myself that question after Wayne Lyons produced a fine image of Comet Hartley 2 early in October as it began its pass through the Constellation Perseus. Wayne had imaged it with his new digital camera. While the field was relatively wide and the background quite dark, it would have taken me a while to find it if he had not pointed out its location. It is not visible to the naked eye and reasonable telescope is required for a decent view.

The prospect of a new comet is always exciting since they are irregular visitors to our night sky. While astronomers can very accurately predict a comet's orbit and position in the sky, the brightness is more problematic and it seems to me that they frequently disappoint expectations.

I had the good fortune to view Comet Hale Bopp in 1997 and even managed to take a few decent pictures (with film) during its visit to our celestial neighbourhood. It hung spectacularly in the sky night after night and I recall being quite captivated by its presence. That comet may have been observed by ancient Egyptians as far back as 2300 BCE. That experience certainly prejudiced my thoughts about what was worth spending time on. In the thirteen years since, there has not been another quite like it in the northern skies. I can only gaze with envy on the photos of Comet McNaught which dazzled observers south of the equator in 2007. It was easily the brightest comet for over 40 years, and visible to the naked eye for observers in the Southern Hemisphere for two months. Sadly, it is believed McNaught will leave the solar system and never be seen again.

I ask the opening question in the context of the public outreach our centre does. When we go out for an evening with equipment in hand and a desire to excite the public about the hobby we enjoy so much, a faint comet is not likely to be high on our list of observing targets. Sky conditions around greater Vancouver set the magnitude limitations and focus tends to be concentrated on objects that might be inspiring: globular clusters, double stars, planetary nebulae, even galaxies within reach. Some of these might quickly be derided as more faint fuzzies but they appear to be of more interest than a nearly tailless comet. A galaxy can be likened to our own and a nebula to the fate of our own sun. There is a semblance of a connection which overcomes the absence of spectacle. Even those among us who go out for our own personal satisfaction under dark skies are more likely to hunt the faint galaxies of Stephan's Quintet or spend time wandering through the gas cloud of the Veil Nebula than lingering over a fuzzy that has failed to distinguish itself. At least, that is my thought. ✸

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telescope. Visual observing would be very difficult or impossible. It was also the most expensive of the domes I looked at so it, too, was rejected.

I next looked to Roll Off Roof observatories and while most were too big and took up too much real estate, I came across a website devoted to small observatories just like what I wanted to do. The Flip Top and Clam Shell Observatories Yahoo Group has a number of very interesting observatories. Below are couple of the nifty ideas available on this group.

This one looks like the entire building rotates and the shutter slides over the building. This does not look like a dome so could possibly be an idea for the future and those nasty building committees.

This one uses a large trash can

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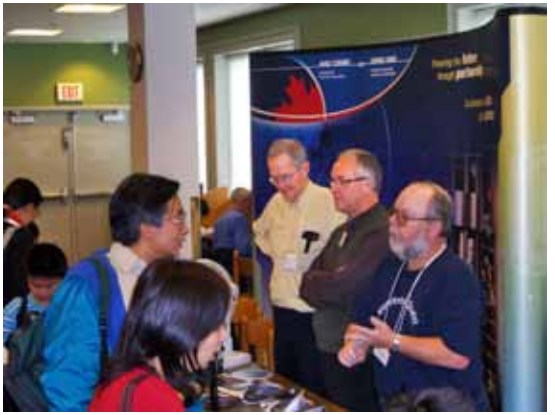
The Richmond Library Science Celebration

by Wayne Lyons

On Friday, October 22, the fourth annual Brighouse Science Celebration was held. This National Science and Technology Week event was organized by Wendy and Erica of the Richmond Library and Eric Chisholm of the National Research Council. Vancouver Centre has been fortunate to be a part of this event. Our volunteers shared their knowledge and experiences with nearly 2,000 members of the public at this year's event held at the Richmond Library.



Our public outreach materials created for IYA 2009 were put to good use again with all of our Star Finder Planispheres being handed out.

The Science Bash is a place where youth and adults can have fun with science and learn about many current projects happening in our own community.

There were many exhibits on display that I couldn't get to all of them. A few that I was able to take the time to observe were the following:

The BC Hydro AquaVan with displays, activities and a portable aquarium provided hands-on opportunities for learning about our local aquatic environment.

Science World's outreach program, "Science On The Spot," attended with activities aimed at stimulating an interest to learn more about Science. A Van de Graaff generator provided a hair-raising experience with static electricity. Other exciting hands-on activities included paper helicopters and silly putty slime.

Liquorice and mini marshmallows were put to use by Genome BC to do some genetic engineering and demonstrate the DNA molecule.

The Geological Survey of Canada demonstrated creation of the Rocky Mountains by tectonic plate movement.

The RCMP attended with a display of forensic science equipment.

The National Research Council, the University of B.C. and Simon Fraser University outreach programs and "Let's Talk Science" provided another selection of technical assistants to explain how fuel cells utilize solar energy or the wind to convert water into hydrogen and oxygen. The cell stores this energy until the two components are recombined to produce electrical energy. A prototype fuel cell vehicle was on site. It utilizes the combustion of hydrogen to charge the fuel cell. The resulting emissions are only water.

Thanks again to Ron Jerome, Leigh Cummings, Henry Neil, and Kenneth Lui for volunteering their time to support Vancouver Centre at this event.

I would also like to take this opportunity to thank all members of Vancouver Centre. As part of our public outreach program, the Martha Pearce Award has been established with Science Fair Foundation BC to provide a $500 prize to the student awarded the best astronomy or physics project that demonstrates creativity and innovation and contributes to a greater public understanding of science. Your membership helps us to fund this program and others that stimulate interest in astronomy. ✸

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hence its name the "Trash Can Observatory"

The "Rolling Outhouse," for obvious reasons.

There are others at this site, please check it out at: http://tech.groups.yahoo.com/group/Flip_Top_and_Clamshell_Observatories/messages

The Decision is Made

The decision is made! I was going to do some sort of roll off, roll away shed, now the question was what kind. I started by assembling all my equipment and seeing how much space I would need to enclose the scope, mount and pier. Armed with these dimensions, I first headed to the internet and looked at Rubbermaid's site and all the various size that they had. I saw that their large shed should do, so I started hunting one down at the various big box stores and finally found one at Home Depot in Burnaby. I took my tape measure and went measuring and, sure enough, it should fit.

Starting Construction

I started measuring the deck and decided that about 15 feet from the cabin door would be ideal. So the first thing to do was start dismantling the deck.

The deck boards have been removed and the rot exposed.

The hole for the concrete pier support is outlined.

End of the first day's digging.

There were not a lot of rocks and those that were there were shale and broke up rather easily. I used a hatchet to cut through the roots and break up the shale. This was very hard work and I do not really recommend it. The next day I managed to borrow a post hole digger and from here progress went much more quickly. In about four more hours, I had the hole dug out to it final dimensions of 3 feet x 3 feet x 3 feet deep. When filled with concrete, this should give an adequate base of about 4,000 lbs.

Here I am the hole is finally done.

If you have ever wondered about the shallow graves that the victim of mystery thrillers are buried in, just dig a telescope pier base and you will understand!

The next step was to install the concrete. Two possible solutions presented themselves. The first was to make a frame and pour concrete in. This is a nice solution, however I did not want to have a cement truck show up at my property and have to explain to the building committee what I was up to. It is easier to get forgiveness then permission. The other solution is to use concrete blocks and fill with concrete that I mixed myself, so that is what I did. I drove a piece of rebar in each corner as far down as I could drive them and filled in the spaces with concrete mixed in a pail.

I decided to build my own pier. It would be a two-part pier with part of it embedded in the concrete base with a couple of pieces of rebar set at 90 degrees to make sure nothing goes anywhere. I looked at a number

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of pier plans that are available and decided I could do better myself. I started with a piece of 6" Sch 40 pipe about 8 feet long. I cut one piece 2 feet long and one 6 feet long. This was after measuring what would be a comfortable height from the existing deck. To the bottom of the 6-foot piece and the top of the 2-foot piece, I welded a 6 in pipe flange. This is where my plan differs from the commercial plans I saw. Those plans had you cutting and welding a piece of 1/2" plate steel with gussets to the pipe. I used to do this for a living, designing pipe systems, and I knew that the cost of 6 in flange was less than the cost of materials for the commercial plans and would be over an inch thick instead of 1/2" and much more rigid. On the top of the pier column, I welded the pipe from my portable mount that I already had. This gives me a very rigid pier with very little ringing. I stuffed some foam insulation in the bottom of the pier to prevent nasty critters like wasps from nesting in the pipe.

First row, course, of bricks. As anyone who knows anything about brick laying would say, I should stick to my day job.

Of course it has to rain when the concrete work has to be done. You can see the top of the lower pier with the flange. It is being supported by a couple of 2 x 4's while I pour the concrete that I am mixing in the Rona pail.

Here you can see the flange more clearly. It has 8 mounting holes of which I used 4. These holes are sized for 3/4" bolting, much stronger and stiffer than the 1/2" called for by the commercial plans.

The pier is now in place and the deck is ready to be rebuilt. You can see the size of the bolting I am using. I cut the threaded rod—high tensile redi-rod (not cheap)—long enough that I used two nuts—again large piping nuts—on the lower flange. This, in effect, bolted the rod to the lower flange. I then ran a nut down each rod and set the pier in place. By adjusting these nuts, I got the mounting plate level and ready to accept the mount. I then ran a fourth nut down and locked the pier in place.

From here I need to finish the deck and install the Rubbermaid storage container over the scope and mount.

The deck is being rebuilt with a little extension so that I do not fall off in the night.

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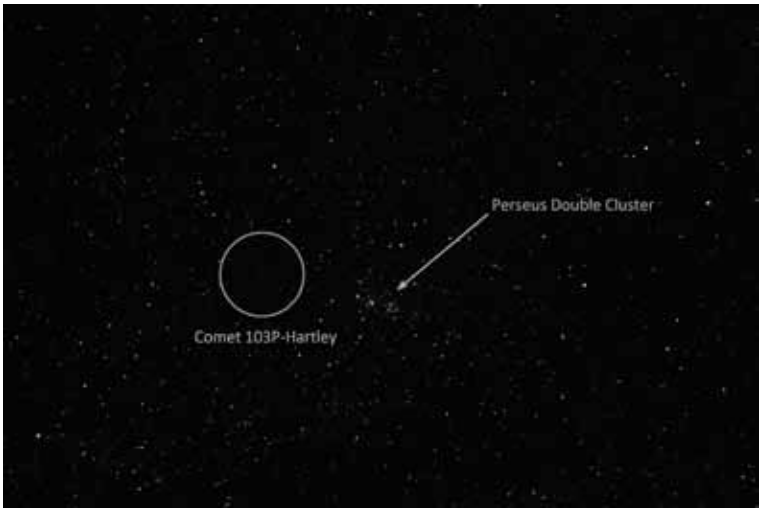
I cannot believe it! Everything fits into the box. I know I measured everything several times, but it is always nice when a plan comes together.

Here is the observatory in its original "Ready to Go" mode. I have my laptop in the shed that is pushed back and I am ready for night to fall.

I have always had a problem with the number of cables that come off a telescope for me to trip over in the night so I put my thinking cap on and tried to find a solution. This is what I came up with. I have purchased a small industrial computer based on the PC-104 spec. This computer fits in a box 6 inches square by 4 inches deep. It has four *real* serial ports and four USB ports as well as the normal video, keyboard and network connections. I connect the telescope control computer to a wireless router and use Remote Desktop to connect to the telescope computer with my laptop through a wireless connection. I now can have all my connections on the mount being managed by the control computer and I can be sitting in the cabin or at the table on the deck and not have any wires to trip over.

I have just added a wooden "box" around the metal pier that I will mount the various power supplies, the control computer and the router to. This helps neaten up the installation and will allow for a one-button start up to get everything going for a night's observing.

Next, I have to deal with that light you can see in the background. It is a full cut off light but I am below the cut off and it is a real pain. The park will put a shield on the light as others have complained about light shining into there places. There is talk of replacing all the lighting with high-efficiency light abatement-style light so we have not pushed the point, yet. Maybe some shower curtains as a temporary fix? ✸



Comet 103P-Hartley and Perseus Double Cluster

Wayne Lyons

October 7, 2010, 00:32:00 AM
Nikon D300S
50mm F/1.4D
5 sec at f/3.5
ISO 3200
12 - 5 second images processed with MaxIM DL, Lightroom 3 and Photoshop CS5