IO - October 2013

Issue 2013-10

Eugene Astronomical Society
Annual Club Dues $25
President: Sam Pitts - 688-7330
Secretary: Jerry Oltion - 343-4758
Additional Board members:
Jacob Strandlien, Tony Dandurand,
John Loper.

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Springfield, OR 97475
www.eugeneastro.org
EAS is a proud member of:
The Astronomical League
The World's Largest Federation of Amateur Astronomers

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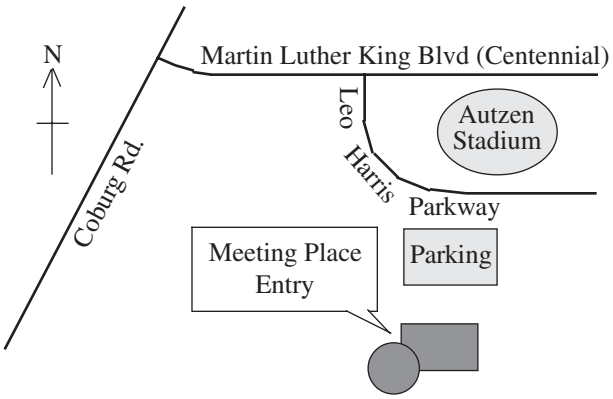
Next Meeting Thursday, October 17th
Astronomical Research and Outreach
by Kathy Kornei

At our October 17th meeting, Dr. Katherine Kornei of the Rose City Astronomers will present a talk that focuses both on astronomical research and astronomical outreach. Katherine has a Ph.D. in astronomy and works as a science educator and writer in Portland. She will discuss some of her own research about star formation in galaxies and the flow of elements between galaxies and the intergalactic medium. Katherine will also highlight outreach efforts that she has been working on as Youth Director of the Rose City Astronomers. This will be a fascinating talk on both fronts, so don't miss it!



Our October meeting is also time for our annual board of directors election. Three positions are up for re-election this year: Tony Dandurand, John Loper, and Jacob Strandlien. All three are willing to serve another term, but if anyone else is interested in taking a turn in the barrel, please contact Sam Pitts or Jerry Oltion to toss your hat in the ring.

We also encourage people to bring any new gear or projects they would like to show the rest of the club. Remember we no longer meet at EWEB. The meeting is at 7:00 on Thursday, October 17th at the Science Factory planetarium. **Please arrive on time**; we can't leave the door open unattended, so someone would have to miss the meeting to stand around waiting for late arrivals.

Dues are Due!

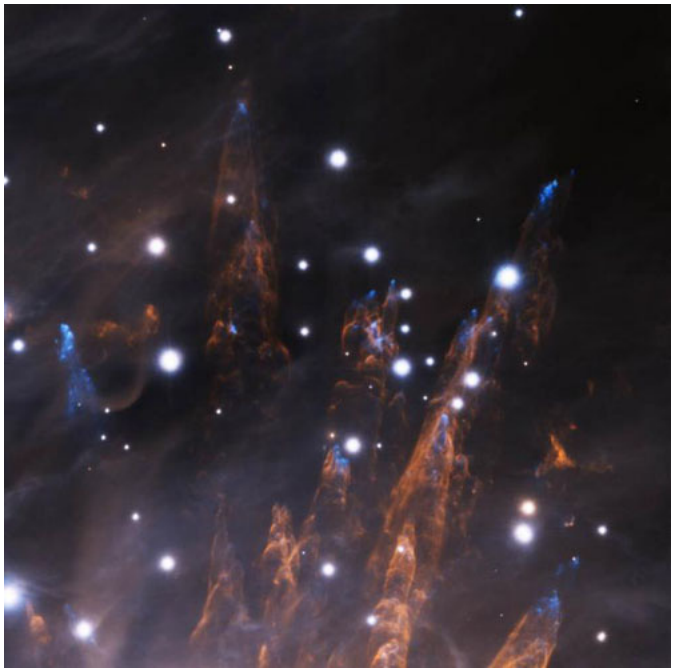
EAS membership runs from October thru September. If you haven't renewed already, please do so at the October 17th meeting or mail your dues to the Eugene Astronomical Society, PO Box 7264, Springfield, OR 97475. Dues are $25. Make your checks payable to Eugene Astronomical Society, or just EAS if your pen is low on ink.

Jerry will also be happy to accept dues at our October 11th First Quarter Friday star party.

September Meeting Report: Scott Fisher on Bringing Home the Big Glass

At our September 19th meeting, The U of O's Scott Fisher gave us a follow-up to his April talk about his experience as a professional astronomer on Hawaii's Mauna Kea and atop Chile's Cerro Pachón. He made us all jealous with his description of the Gemini Telescopes' big glass and his role in using it, highlighting some of the scopes' discoveries like the iron "bullets" that leave wakes behind them as they streak through the Orion Nebula after some cataclysmic explosion there.

Gemini North cooling for a night's observation



Iron "bullets" leaving wakes through the Orion Nebula

After he'd wowed us with tales of big scopes, he outlined his plan to bring such scopes within the reach of amateur astronomers like us. Starting with a 15" scope at Pine Mountain, Scott and his students plan to automate the scope so it can be run remotely, then offer their (and our) services as follow-up researchers for objects that professional astronomers have too little time for. Such involvement could eventually lead to observing time on the big scopes, which Scott is in the perfect position to assist us in applying for. Stay tuned, and get involved for your own chance at the big glass!

Our next meeting will be on Thursday, October 17th, at 7:00 PM at the Science Factory planetarium, 2300 Leo Harris Parkway, behind Autzen Stadium. Arrive on time; the doors are locked after 7:05 or so.

Here's our meeting schedule through the end of 2013. We now meet on the 3rd Thursday of each month: October 17 November 21 December 19

Thank You Castle Storage

For the last six years, Castle Storage has generously provided EAS a place to store its telescopes and equipment. EAS would like to thank Castle Storage for their generosity and support for our group. Please give them a call if you need a storage space, and tell your friends. They are great people and offer secure and quality storage units.

Setting up for the First Quarter Friday star party on College Hill Reservoir

Slug Queen at First Quarter Friday!

Our September 13th First Quarter Friday was a special event: Eugene's very own Slug Queen, The Right Royal Gastropod, Siren of Science, Truly Mad Genius, Queen Professor Doctor Mildred Slugwak Dresselhaus (whew!), joined us for the evening. She brought goodies, glow sticks, minions, and microscopes (to help entertain small people on a small scale), and provided an air of whimsey that our star parties seldom see. The crowd swelled from our usual 50 or so to well over 100, maybe even 150 over the course of the evening. We had 14 telescopes on hand, some from members of the general public (two of which have since joined our club — welcome!).

Lines were long but congenial as people visited about the objects they'd seen or were about to see. Saturn was a hit early in the evening despite being low on the horizon. The Moon dazzled everyone (and I do mean dazzled in the case of the larger aperture scopes!) We showed off many globular clusters, open clusters, nebulae, double stars, an Iridium flare...everything we could think of.

The Slug Queen and minions

The sky cooperated nicely. Recent rains had washed it clean, so the transparency was quite good even for the College Hill Reservoir. Objects like the Ring Nebula stood out nicely, and even the Andromeda Galaxy showed some extended fuzz around the core — rare for an in-town view.

Our Slug Queen's mission is to promote science education. It was especially gratifying to have her choose the Eugene Astronomical Society as a vehicle to help her get the word out, and rewarding to have the event so well received by so many people. We hope to be able to do this again with next year's slug queen as well.

A Mountain Meditation, September 2013

by Mel Bartels

The sunset is a fiery glow behind Fairview Peak lookout tower to the west, colors muted by the clear air. Earth's shadow is ready for her entrance as a pink band rising above the east. The wind has stopped, the nearby pair of eagles quiet. The Earth, poised momentarily on a precipice, begins its plunge into evening twilight. The eagles fly by us, screaming to each other. Jerry Oltion, having set up his 20 inch telescope, and I are ready for the promise of an exceptionally clear, transparent night.

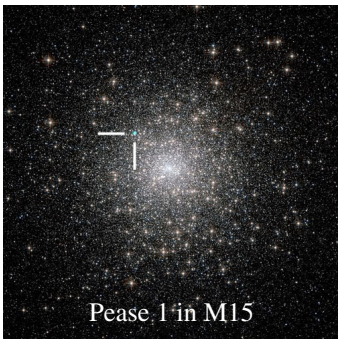
Senset behind Fairview Peak. Photo © by Mel Bartels

Jerry setting up 20" scope. Photo © by Mel Bartels

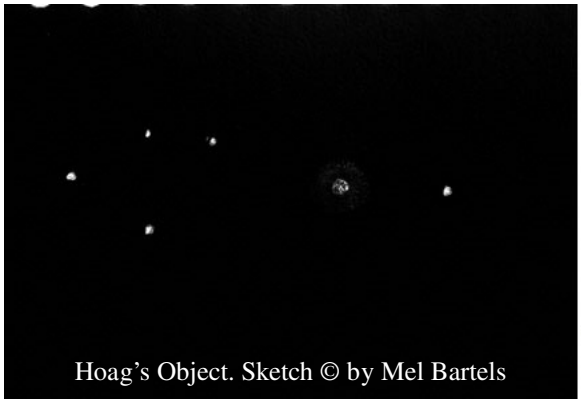
We're at a large gravel spot on the side of the road at about 5,000 feet elevation just short of Bohemia Mountain and the ghost town of Bohemia City. We enjoy spectacular views, steep hillsides, and remnants of mining activities from a hundred years ago on the drive up.

Between us we have 60 years of observing experience. Jerry's a bit of a black box observer, while I'm more of a white box observer. Jerry saunters opportunistically from object to object while I come prepared with my list of dark nebulae, having studied them to death ahead of time.

Per Jerry's black box style, we start with the M13, NGC6207, IC4617 grouping. IC4617 is surprisingly easy, auguring for a spectacular night ahead of us. Jerry wants to see the planetary nebula Pease 1 in the globular cluster M15, so we head over to take a look. The planetary looks like a distinct non-stellar green blob. Since we are looking at grand globular clusters, I suggested the underappreciated M55 just off the southern horizon. Next to it is the faint but resolvable Arp 2 globular, a globular cluster in the Sagittarius Dwarf Elliptical Galaxy.



Pease 1 in M15

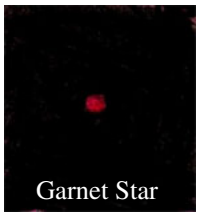


Hoag's Object. Sketch © by Mel Bartels

Hoag's Object as seen by the HST

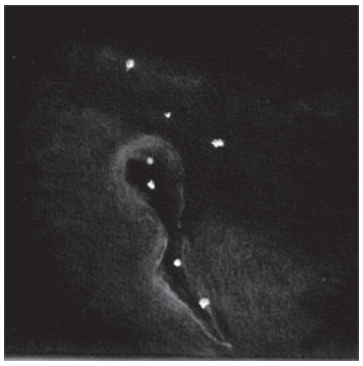
Jerry then aims at Hoag's Object, a ring galaxy. We could see the ring about 20% of the time with

an eyepiece yielding a 4mm exit pupil. Later in researching the galaxy post-observation, I was surprised to read that this object is considered quite difficult with much larger aperture telescopes. Our observation supports the idea that transparency or clarity of the night matters more than aperture.

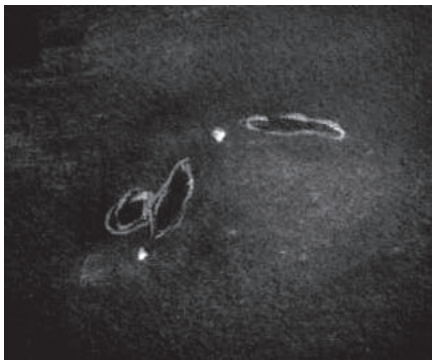

Garnet Star

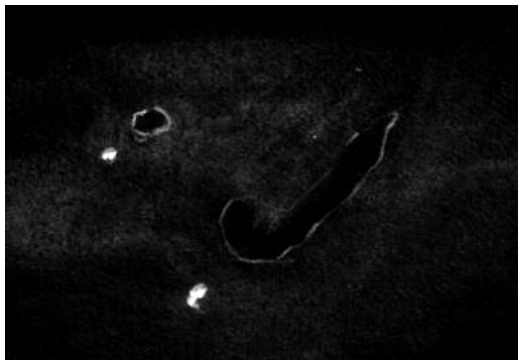
We checked out the pink Garnet Star that serves as a pointer to the IC 1396 area. It is very bright in a large scope; some defocusing helps with the dazzling light.

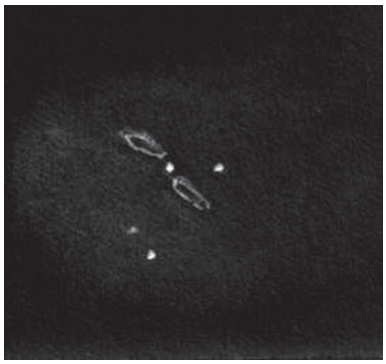
It is time to go white box and dive into my list of 11 dark nebulae: Barnards 151, 153, 154, 157, 165, 166, 167, 360, 364, 367 and Vdb 142 — the Elephant's Trunk. I've sketched about 170 dark nebulae so this list was not exactly show stopper quality, but there was one highlight: the Elephant's Trunk. We spent quite a bit of time, observing with different powers and deep sky filters, increasing our ability to see the trunk. We concluded that the object is best seen at 4mm exit pupil with an OIII filter, though a nebula filter also helps. As we took turns observing we saw more and more of the object until at least in my mind, I found it to be an exquisitely subtle and beautiful object with dusky curved boundaries. The whole area, IC 1396, is worth several nights of observing. All of the dark nebulae on my list were in the immediate area. Though it took time, we managed to track them all down, identify them, and describe their shapes and opacity. It may seem at first blush that dark nebulae are not very interesting, but that's not the case. A hundred years ago astronomers hotly debated whether they were empty regions between stars or some sort of obscuring clouds. Today we know that they are clouds of dust. Along with the dark dust come all sorts of interesting Milky Way objects including globular and open clusters and emission nebulae. I find the views compelling. For example, think of the Horsehead Nebula.


Elephant's Trunk
Sketch © by Mel Bartels

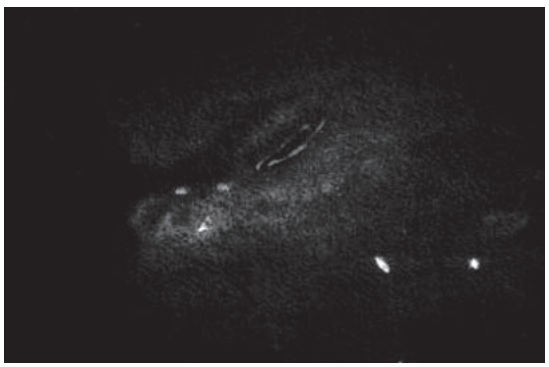
When I can see the Milky Way painted on the dome of the night sky, I know it is a good night. When the Milky Way billows out like clouds then it is a superb night. Tonight the Milky Way billows with great contrast at the edges. The Gegenshein, backscattering light from the solar system's dust, is nicely visible as a several degree glow just to the east-northeast of Capricornus. Jerry used Sky Safari on his iPad to calculate the exact anti-solar point, commanding Sky Safari to point there. Exactly where we saw it in the sky! Later as the night turned to early morning hours, we could trace the Zodiacal Light from the eastern


B165, 166, 167


B157, 364


B153, 154


B151, 360

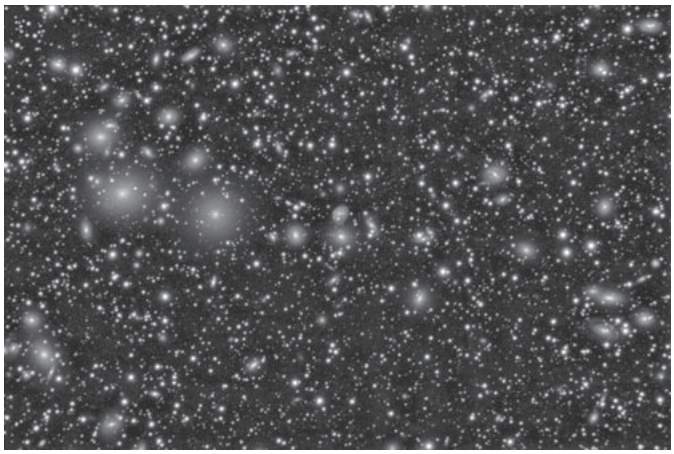

B367

All sketches © by Mel Bartels

horizon rising at a slant, reaching out and touching the Gegenshein; a sign of near perfect observing conditions. Two-thirds of a state away we could see the light dome of Portland as a two degree smudge of light peeking above the perfect northern horizon — amazing. The light glow of Eugene and the Willamette Valley was hidden behind Fairview Peak to the northwest. Consequently the dark sky and stars stretched from horizon to horizon, giving us a sensation of traveling on spaceship Earth.

The Gegenshein to the northeast (left) of Capricornus and the Milky Way to the west (right). Sketch © by Mel Bartels

We jumped into Galaxy Cluster Land, visiting the Perseus Cluster of galaxies (Abell 426) located 250 million light years distant. This cluster is part of the Perseus-Pisces supercluster of galaxies which consist of thousands of galaxies. Anchored by the monstrous NGC 1275 and 1273, many dozens of galaxies glowed faintly in the eyepiece. We traced the cluster's arms for several fields of view. The cluster betrays the dark matter that it is embedded in, shaped by the baryonic oscillation that occurred 380,000 years into the Universe's start when photons suddenly were able to travel with little interaction as electrons and protons formed neutral hydrogen atoms. This release of photons caused baryons or matter to suddenly compress, generating the equivalent of acoustical waves in the early Universe. These waves, 400-500 million light years across now, can be traced by galaxy clusters like the Perseus-Pisces Supercluster.



Galaxy Supercluster Abell 426

Jerry found another favorite cluster, NGC 7619-7626, the Pegasus I cluster, also a part of the Perseus-Pisces supercluster, this cluster located about 180 million light years away. We enjoyed four prominent galaxies along with fainter ones. NGC 7479 was a nice barred-spiral in Pegasus that we could see one arm more prominently than the other. We looked at two edge-on spirals (NGCs 7332 and 7339) in Pegasus that orbit each other and are at right angles to each other. We also saw detail in the Sculptor Dwarf Galaxy, just above the southern horizon.

A favorite of both of us, NGC 891, the Outer Limits Galaxy, glowed from edge to edge in the eyepiece.

We dive into the attractive star hop leading to NGC 253, a galaxy that looks like a city. On the way we visit NGC 288 and a beautiful globular cluster, NGC 247. Nearby is NGC 246, a pretty planetary that is large with detail.

We also checked out the Andromeda galaxy with both dust lanes especially visible. I busied myself counting stars in the Pleiades with the unaided-eye. I reached 19, my record being 23. Nebulae filled the telescope's field of view.

NGC 891, the "Outer Limts" Galaxy

With the occasional screech of the eagles, we decided to call it a night at 2:30 am, running on adrenalin and excitement, not noticing the tiredness until we were well down the mountain.

NGC 90 and Neighbors

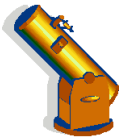
by Brandt Schram

In early September Brandt Schram took an 18-hour exposure of NGC 90 and its neighbors. NGC 90 is the open spiral with the long arms to the left of center. It's about 250 million light years away and about 140 thousand light years across, but its extended arms cover nearly 250 thousand light years.

Not only did Brandt pick up dozens of galaxies in this image, he also picked up the Integrated Flux Nebula, gas and dust in our own Milky Way illuminated by starlight of the general galaxy.

The field of fiew of this image is about 43 arc minutes square. At NGC 90's distance, that would be about 3 million light-years across. It's an incredible image that repays long study. Thank you, Brandt!

M90 and Neighbors © by Brandt Schram



Observing in October

New 1st Q Full Last Q

October 4	October 11	October 18	October 26
Mercury Set: 7:30 PM	Mercury Set: 7:17 PM	Mercury Set: 7:00 PM	Mercury Set: 6:29 PM
Venus Set: 8:26 PM	Venus Set: 8:21 PM	Venus Set: 8:18 PM	Venus Set: 8:17 PM
Mars Rise: 3:00 AM	Mars Rise: 2:55 AM	Mars Rise: 2:50 AM	Mars Rise: 2:43 AM
Jupiter Rise: 12:05 AM	Jupiter Rise: 11:37 PM	Jupiter Rise: 11:12 PM	Jupiter Rise: 10:42 PM
Saturn Set: 8:04 PM	Saturn Set: 7:38 PM	Saturn Set: 7:13 PM	Saturn Set: 6:44 PM
Uranus Set: 7:15 AM	Uranus Set: 6:46 AM	Uranus Set: 6:17 AM	Uranus Set: 5:44 AM
Neptune Set: 4:00 AM	Neptune Set: 3:32 AM	Neptune Set: 3:03 AM	Neptune Set: 2:32 AM
Pluto Set: 11:35 PM	Pluto Set: 11:08 PM	Pluto Set: 10:40 PM	Pluto Set: 10:09 PM

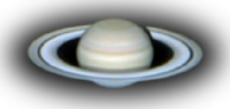
All times: Pacific Standard Time (Nov 3, 2013-March 9, 2014) = UT -8 hours or U.S. Pacific Daylight Time (March 10-November 2, 2013) = UT -7 hours.

Date	Moonrise	Moonset	Sunrise	Sunset	Twilight Begin	Twilight End
10/1/2013	03:45	17:04	07:10	18:53	05:34	20:29
10/2/2013	04:47	17:32	07:12	18:51	05:35	20:27
10/3/2013	05:51	18:01	07:13	18:49	05:37	20:25
10/4/2013	06:56	18:31	07:14	18:47	05:38	20:23
10/5/2013	08:04	19:04	07:15	18:45	05:39	20:21
10/6/2013	09:12	19:41	07:16	18:44	05:40	20:19
10/7/2013	10:21	20:24	07:18	18:42	05:42	20:18
10/8/2013	11:27	21:14	07:19	18:40	05:43	20:16
10/9/2013	12:30	22:10	07:20	18:38	05:44	20:14
10/10/2013	13:26	23:13	07:21	18:37	05:45	20:12
10/11/2013	14:15		07:23	18:35	05:47	20:11
10/12/2013	14:58	00:20	07:24	18:33	05:48	20:09
10/13/2013	15:36	01:30	07:25	18:31	05:49	20:07
10/14/2013	16:10	02:40	07:26	18:30	05:50	20:06
10/15/2013	16:42	03:50	07:28	18:28	05:51	20:04
10/16/2013	17:12	04:59	07:29	18:26	05:53	20:02
10/17/2013	17:43	06:07	07:30	18:25	05:54	20:01
10/18/2013	18:15	07:14	07:31	18:23	05:55	19:59
10/19/2013	18:50	08:19	07:33	18:21	05:56	19:58
10/20/2013	19:28	09:21	07:34	18:20	05:57	19:56
10/21/2013	20:10	10:20	07:35	18:18	05:59	19:55
10/22/2013	20:56	11:15	07:36	18:17	06:00	19:53
10/23/2013	21:46	12:04	07:38	18:15	06:01	19:52
10/24/2013	22:39	12:48	07:39	18:13	06:02	19:50
10/25/2013	23:34	13:27	07:40	18:12	06:03	19:49
10/26/2013		14:02	07:42	18:10	06:05	19:47
10/27/2013	00:32	14:34	07:43	18:09	06:06	19:46
10/28/2013	01:31	15:03	07:44	18:08	06:07	19:45
10/29/2013	02:31	15:31	07:45	18:06	06:08	19:43
10/30/2013	03:33	15:59	07:47	18:05	06:09	19:42
10/31/2013	04:38	16:29	07:48	18:03	06:10	19:41

All times are for Eugene, Oregon, Latitude 44º 3' Longitude 123º 06' for listed date

Items of Interest This Month

Uranus at its best this month
Comet ISON becoming visible in scopes in early mornings; near Mars all month
Taurid meteors visible all month. Low hourly rate, but occasional fireballs.
10/3 Uranus at opposition
10/6 Crescent Moon between Mercury and Saturn
10/9 Mercury at greatest eastern elongation (but still near horizon at sunset)
10/11 First Quarter Friday Star Party
10/16 Venus near Antares. Good time to see a star during daylight!
10/21 Orionid meteor shower peaks (alas, washed out by nearly full Moon)



For Current Occultation Information

Visit Derek C. Breit's web site: http://www.poyntsource.com/New/Regions/EAS.htm

Go to Regional Events and click on the Eugene, Oregon section. This will take you to a current list of Lunar & asteroid events for the Eugene area.