IO - April 2015

Issue 2015-04
Eugene Astronomical Society

Eugene Astronomical Society
Annual Club Dues $25
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EAS is a proud member of:

The Astronomical League
The World's Largest Federation of Amateur Astronomers

Next Meeting Thursday, April 16th
Astroscanning with Norm Sperling

Norm Sperling is the designer of the Astroscan, quite possibly the most popular telescope in the world. Norm is also a polymath of the highest order, with interests in almost every field imaginable. According to his bio: "When not watching baseball, Norm Sperling edits the science humor magazine *The Journal of Irreproducible Results* (www.jir.com), teaches freshman astronomy for the University of California, Berkeley, roams the US and Canada on the Great Science Trek (www. greatsciencetrek.com), and blogs on science, nature, and the public at www.everythingintheuniv.com."

He will be in Oregon in April, and has agreed to stop in Eugene to talk to our club about, well, just about everything. Come listen to one of our country's finest scientific minds as he talks about his rich store of experiences.

At our meetings we also encourage people to bring any new gear or projects they would like to show the rest of the club. The meeting is at 7:00 on Thursday, April 16th at the Science Factory planetarium. Come early to visit before the program starts.

Next First Quarter Friday: April 24th

Our March 27th star party was rained out, and our backup star party on Saturday the 28th almost didn't happen, but the sky cleared enough to lure half a dozen of us to the College Hill Reservoir with our scopes. There was high haze over 2/3 of the sky, but the Moon and Jupiter shone nicely through it at sunset and the seeing was incredibly steady as it often is when there's high cloudiness. Jupiter's Great Red Spot stood out in near-photographic detail and festoons were readily visible in the bands. On the Moon, the Straight Wall was in peak form, as was the Hyginus Rille and Plato crater. The Orion Nebula put in a show through a largish sucker hole, too.

We had about a dozen customers eager for a view, and they seemed very pleased with what we could show them. Despite the clouds, it was a successful star party.

Our next star party is on April 24th. First Quarter Fridays are laid-back opportunities to do some observing and promote astronomy at the same time. Mark your calendar and bring your scope to the College Hill Reservoir (24th and Lawrence in Eugene) and share the view with whoever shows up. Here's the schedule for the rest of 2015. Star parties start at dusk or 6:00, whichever is later.

April 24 (42% lit)	May 22 (26% lit)	June 26 (75% lit)
July 24 (60% lit)	August 21 (43% lit)	September 18 (28% lit)
October 23 (84% lit)	November 20 (70% lit)	December 18 (55% lit)

March 19th Meeting Report

At our March 19th meeting, Ken Martin gave a talk about the upcoming star parties in the Northwest this summer, starting with the Prineville Reservoir State Park Star Party on May 16 and ending with the Brothers star party on September 9-13th. He then tempted us with the ultimate dream star party for a northerner: the Oz Sky Star Party in Australia on April 17-24th. Book your tickets now!

Major star parties are great opportunities to get together with dozens to hundreds of like-minded amateur astronomers and swap stories, talk about equipment, and share the view through many different telescopes. If you've never gone to one, you should do so this year!

Here's a list of the star parties Ken talked about in chronological order:

Prineville Reservoir State Park Star Party – May 16 (http://oregonstateparks.org/index.cfm?do=parkPage.dsp_parkEvent&parkId=26&eventId=43390)

Oz Sky Star Safari (Australia) – April 17-24 (http://ozsky.org/)

Dexter Star Party – July 11 (http://www.eugeneastro.org/)

Golden State Star Party – July 15-19 (http://www.goldenstatestarparty.org/)

Oregon Star Party – August 11-16 (http://oregonstarparty.org)

Brothers Star Party – September 9-13 (http://www.mbsp.org/)

After Ken's talk, Mel Bartels talked about the "Council of Giants," the recently discovered ring of galaxies that surrounds the Milky Way. Our galaxy and the Andromeda galaxy are at the center of a ring of major galaxies, and it looks like this is not a coincidence. All the bright galaxies within 20 million light years of us are organized in a "Local Sheet" 34-million light years across and only 1.5-million light years thick. The two oldest and largest galaxies lie on opposite sides of us, and it's theorized that their formation created pressure on the intergalactic medium that in turn formed the Milky Way and the Andromeda galaxies. Also interesting to note: several of the galaxies in the ring are in pairs, and the orientation of those pairs all point to the center — i.e. to us.

Our local ring of galaxies is just a tiny part of a huge string of galaxies and galaxy clusters that are in turn just a portion of the vast web that fills the universe. At the moment we think dark matter provides the underlying structure upon which these galaxies formed, but we're still learning how and why that works. Astronomy Professor Marshall McCall of York University, who discovered the Council of Giants, sums it up nicely: "Recent surveys of the more distant universe have revealed that galaxies lie in sheets and filaments with large regions of empty space called voids in between. The geometry is like that of a sponge. What the new map reveals is that structure akin to that seen on large scales extends down to the smallest."

If you'd like to view some of these local galaxies, look for M83, M64, M94, M81 & M82, IC 342, Maffei 1 and 2, and NGC 253 (the famous "Silver Coin" galaxy). If you venture into southern skies, you can also look for the Circinus Galaxy, Centaurus A, and NGC 4945.

We had several new people at our meeting, including three who expressed interest in joining (and who took home applications to do just that). Our outreach efforts via our website, Meetups, Facebook, and word of mouth seem to be working well. Thanks to Ken and Mel for their great programs, and thanks to everyone else for helping make our club so much fun.

International Dark Sky Week April 13-18

April 13th through 18th is International Dark Sky Week. This is a good time to change out that porch light that shines beyond your property line, and encourage your neighbors to do the same. Write a letter to the newspaper about light pollution, or talk to the owners of any of the many businesses that blast way too much light into the sky. Be polite and educational rather than confrontational, but do something this week to help combat light pollution. The only way to fix it is to get out there and make a difference.

Astronomy Day April 25th & Astronomy Month

April 25th is Astronomy Day. We don't typically do anything official during Astronomy day due to the iffy weather in April, but if the sky is clear this would be a good night to go out with a telescope and do some sidewalk astronomy. Our First Quarter Friday will be the previous night, so that's also a good opportunity to spread the word that astronomy is a fun and rewarding hobby.

As if International Dark Sky Week and Astronomy Day weren't enough, Astronomers Without Borders has declared April to be Global Astronomy Month. They encourage amateur astronomers to step up their outreach efforts and promote astronomy, dark skies, and science in general during the month of April. For more information visit www.gam-awb.org

Lunar Eclipse April 4th

The western half of the US will be treated to a total eclipse of the Moon on the morning of April 4th. Unfortunately that's the *early* morning of April 4th, but for those hardy enough to miss some sleep it promises to be a good show.

First contact with the Earth's umbral shadow happens at 3:15 a.m. Totality begins at 4:54 a.m. The moment of deepest eclipse is at 5:00 a.m. Totality ends 5:06 a.m. (only ~10 minutes after it begins), and last contact is at 6:45 a.m. Sunrise on the 5th is at 6:47 a.m. and Moonset is at 7:27 a.m., so the Moon will be very low on the horizon at the end of the eclipse. (It will be at 19 degrees elevation in the west-southwest during totality.)

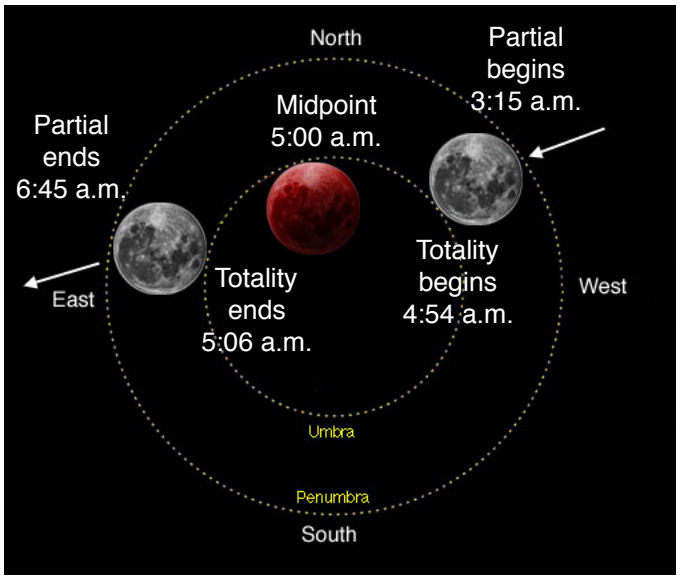
Totality will be short because the Moon just barely dips into Earth's umbral shadow. The top part of the Moon will probably not get all that dark, and totality may seem to be a few minutes shorter or longer depending on your definition of "total." The partial phases will last a while, though, and it's always fun to watch the Earth's shadow creep across familiar lunar features.

Due to the awkwardness of the hour, the EAS will not host a formal star party. (Read: "We don't really want to upset a bunch of neighbors with a big crowd.") However, many of us will undoubtedly gather at the College Hill Reservoir to watch it, and perhaps at other places around town and beyond. You'll want a low west-southwest horizon if you plan to watch this one all the way to the end.

Even if you can't get out to watch the whole thing, set an alarm for 4:50 and watch the last few minutes of the partial phase turn into totality, then go back to bed content that you at least saw it.

For those with telescopes, check out the 9th-magnitude elliptical galaxy NGC 4697 only one lunar diameter to the west of the Moon during totality. That should provide a nice contrast between near and far. People with dark sky and large scopes could try for 11th-magnitude NGC 4731 even closer to the south.

Whether you observe this from a dark-sky site or just from your bedroom window, make an effort to see it. Lunar eclipses are a great chance to watch our solar system in action, and our next chance won't be until September 27th.



Cottage Grove Library Star Party

On Monday, March 16th, the EAS put on a star party for the Cottage Grove Library as part of their annual series of astronomy workshops. Our past events there have always been fun, and this time was no exception. The sky was characteristically iffy all day, but it cleared up beautifully by evening and we had great viewing all night. We had six telescopes on hand for the 50 or so people who came to look through them.

The sky in Cottage Grove is surprisingly dark for the middle of town. We could see the Orion Nebula very clearly, and the galaxies M81 and M82 were bright and distinct. Comet Lovejoy was obvious even in the smallest scope as it cruised past Ruchbah in Cassiopeia. Jupiter put on a great show, too, with the Red Spot centered during the peak of the star party.

NASA astronomer Teena Della was the library's special guest for their astronomy workshop, and she attended the star party, as did another professional astronomer whose name I never learned. Both of them kept us on our toes but also helped answer the many questions asked by the rest of the star party attendees.

Bill Basham demonstrated astrophotography with his 4.5" Vixen scope and a digital camera. People were able to see the comet's green coma and the Orion Nebula's red hydrogen emission in real time as he shot frames of them while the audience watched.

All in all it was a great star party. Thanks to everyone who helped make it so!

Comet Lovejoy near Ruchbah in Cassiopeia

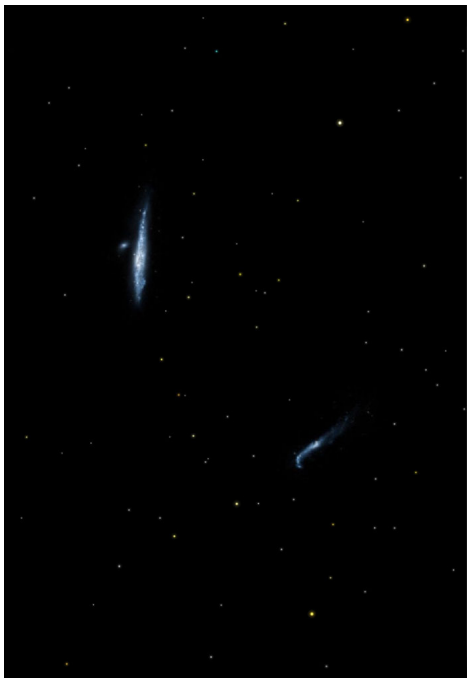
Orion Nebula from Cottage Grove Library star party

Thank You Castle Storage

For the last several 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.

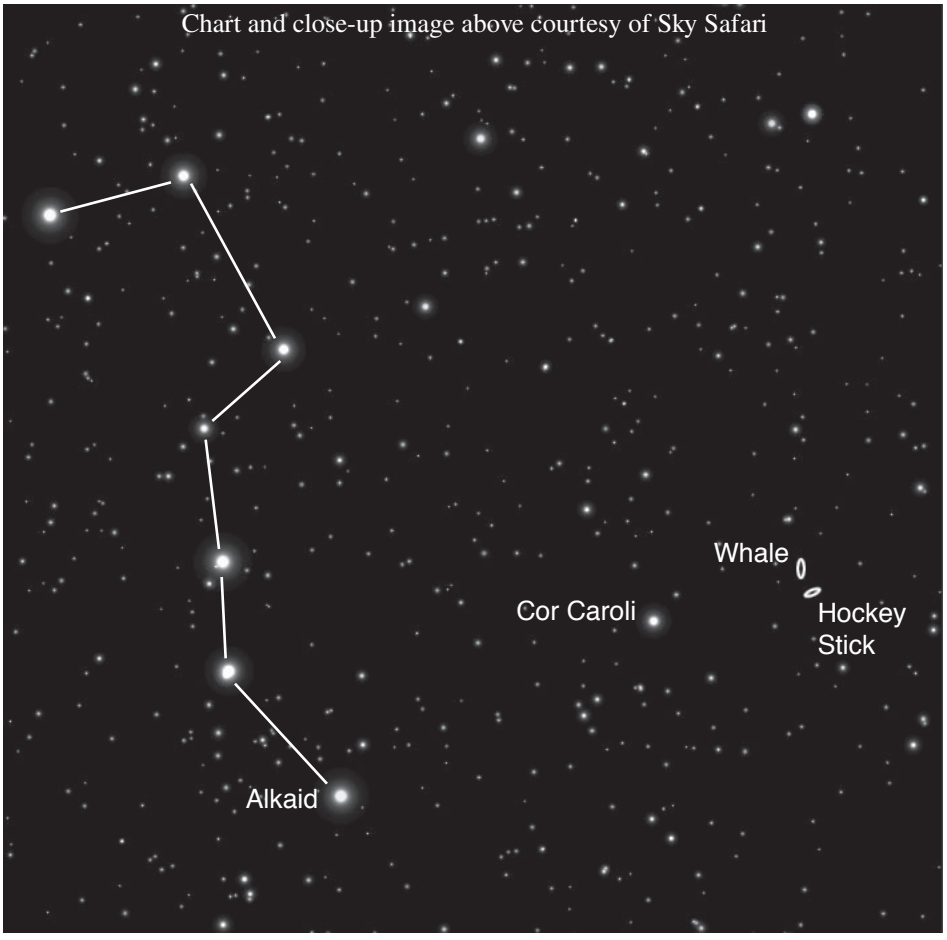
Observing Highlight: The Whale and the Hockey Stick Galaxies

Nearly straight overhead in the springtime sky, Canes Venatici lies inside the curve of the Big Dipper's handle. And within Canes Venatici lie several dozen galaxies. Two of them are especially nice: NGC 4631, the Whale Galaxy, and its close companion, NGC 4656, the Hockey Stick Galaxy. These galaxies are relatively large and bright (half a Moon diameter each and 9th magnitude for the Whale and 10th magnitude for the Hockey Stick), and should be easily visible in 6" or greater apertures under dark sky.



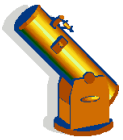
The Whale Galaxy is a spiral seen edge-on at a distance of about 25 million light-years. It doesn't look quite like the average edge-on spiral, though. Gravitational interaction with a smaller companion galaxy very close by (NGC 4627) and possibly with the Hockey Stick have distorted its lens-shape to give it a greater bulge on one side of the nucleus than on the other, giving it the blunt head and tapered body of a whale. The Hockey Stick is even more distorted, with one end bent at a surprising angle.

Both galaxies will fit comfortably within the field of view of a low-power eyepiece, but both also respond well to high power. The Whale has a mottled appearance and a calf swimming just above it (to the left in the photo), while the Hockey Stick has a bright shaft and blade, and a long fade-out on the handle end.



Finding them is easy: Start at Alkaid, the end of the Big Dipper's Handle, and go through Cor Caroli (itself an interesting double star, so stop and admire that on the way), then continue onward 1/3 the distance you just travelled. Drop just a touch to the east and the Whale will swim into view. The Hockey Stick will be just above it in a Newtonian scope (a little farther east).

The Whale and Hockey Stick are just two of dozens of galaxies in the area. Swim around this part of the sky and see how many you can find!



Observing in April

Full | Last Q | New | 1st Q

April 4, 5:05 AM	April 11, 8:44 PM	April 18, 11:57 AM	April 25, 4:55 PM
Mercury lost in Sun	Mercury lost in Sun	Mercury Set: 8:53 PM	Mercury Set 9:41 PM
Venus Set: 11:02 PM	Venus Set: 11:19 PM	Venus Set: 11:35 PM	Venus Set: 11:50 PM
Mars Set: 9:17 PM	Mars Set: 9:17 PM	Mars Set: 9:17 PM	Mars Set: 9:16 PM
Jupiter Set: 4:41 AM	Jupiter Set: 4:13 AM	Jupiter Set: 3:46 AM	Jupiter Set 3:19 AM
Saturn Rise: 11:58 PM	Saturn Rise: 11:16 PM	Saturn Rise: 10:47 PM	Saturn Rise: 10:18 PM
Uranus lost in Sun	Uranus Rise: 6:31 AM	Uranus Rise: 6:04 AM	Uranus Rise: 5:37 AM
Neptune Rise: 5:37 AM	Neptune Rise 5:10 AM	Neptune Rise: 4:42 AM	Neptune Rise: 4:15 AM
Pluto Rise: 2:50 AM	Pluto Rise: 2:23 AM	Pluto Rise: 1:55 AM	Pluto Rise: 1:28 AM

All times Pacific Daylight Time (March 8 – October 31, 2015 = UT -7 hours) or Pacific Standard Time (November 1, 2015 – March 12, 2016 = UT -8 hours)

Date	Moonrise	Moonset	Twilight Begin	Sunrise	Sunset	Twilight End
4/1/2015	17:18	05:34	05:14	06:54	19:39	21:19
4/2/2015	18:16	06:02	05:12	06:52	19:41	21:21
4/3/2015	19:14	06:29	05:10	06:50	19:42	21:23
4/4/2015	20:13	06:57	05:08	06:49	19:43	21:24
4/5/2015	21:12	07:27	05:06	06:47	19:44	21:26
4/6/2015	22:12	07:59	05:04	06:45	19:45	21:27
4/7/2015	23:11	08:35	05:02	06:43	19:47	21:29
4/8/2015		09:16	04:59	06:41	19:48	21:30
4/9/2015	00:09	10:02	04:57	06:40	19:49	21:32
4/10/2015	01:04	10:55	04:55	06:38	19:50	21:34
4/11/2015	01:55	11:54	04:53	06:36	19:51	21:35
4/12/2015	02:42	12:58	04:51	06:35	19:53	21:37
4/13/2015	03:25	14:07	04:49	06:33	19:54	21:39
4/14/2015	04:05	15:18	04:47	06:31	19:55	21:40
4/15/2015	04:42	16:31	04:44	06:29	19:56	21:42
4/16/2015	05:17	17:46	04:42	06:28	19:58	21:44
4/17/2015	05:53	19:00	04:40	06:26	19:59	21:45
4/18/2015	06:30	20:14	04:38	06:24	20:00	21:47
4/19/2015	07:09	21:25	04:36	06:23	20:01	21:49
4/20/2015	07:52	22:33	04:34	06:21	20:02	21:50
4/21/2015	08:39	23:34	04:31	06:19	20:04	21:52
4/22/2015	09:30		04:29	06:18	20:05	21:54
4/23/2015	10:24	00:29	04:27	06:16	20:06	21:56
4/24/2015	11:20	01:17	04:25	06:15	20:07	21:58
4/25/2015	12:17	01:58	04:23	06:13	20:08	21:59
4/26/2015	13:15	02:34	04:21	06:12	20:10	22:01
4/27/2015	14:12	03:07	04:19	06:10	20:11	22:03
4/28/2015	15:10	03:36	04:16	06:09	20:12	22:05
4/29/2015	16:07	04:04	04:14	06:07	20:13	22:07
4/30/2015	17:05	04:32	04:12	06:06	20:14	22:08

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

Items of Interest This Month

4/2 Io shadow transit 10:09 – 12:27 PM
4/4 Total Lunar eclipse 3:15 – 6:45 AM
4/8 Europa occults Io 8:51 PM
4/8 Europa eclipses Io 10:38 PM
4/10 – 4/12 Venus near Pleiades
4/15 Europa and Io near miss 11:04 PM
4/16 Io and Callisto near miss 10:50 PM
4/18 Io shadow transit 8:28 – 10:46, Europa eclipses Ganymede 9:59 – 10:08 PM
4/19 Mercury, Mars, and crescent Moon close together at dusk, low on horizon
4/20 Io eclipses Europa 8:43 – 8:48 PM
4./21 Ganymede shadow transit 9:59 PM – 1:38 AM
4/22 Lyrid meteor shower
4/22 Europa shadow transit 8:04 – 10:58 PM
4/24 First Quarter Friday Star Party Callisto and Ganymede close all night
4/25 Europa and Ganymede near miss 9:30 PM, Io shadow transit 10:23 PM – 12:41 AM
4/25 – early May: Mercury visible in evening twilight
4/27 Io and Europa near miss 9:07 PM, Io eclipses Europa 10:58 – 11:03 PM
4/29 Europa shadow transit 10:40 – 1:34 PM