NORTHERN VEIL NEBULA MOSAIC – BILL NEUBERT

https://sites.google.com/site/wjnastronomy/announcements/2019-11-23vielnebulamosaicnort hernsection
December Calendar

Social

December 5 - Beginner Meeting 6:00-8:30 @ Weldon Springs Interpretive Center, 7295 HWY 94 South, St. Charles, MO 63304

December 14 – 5-8pm (Doors open @ 4:30, social hour 5pm, dinner @ 6pm, meeting at 7) Monthly meeting @ Weldon Springs Interpretive Center, 7295 HWY 94 South, St. Charles, MO 63304. This is our Christmas Dinner. Main dish to be ham by Doug Gilmore. Side dishes welcome, desserts are encouraged and welcome.

December 17 – 7-9pm DigitalSIG Astrophoto group meeting Weldon Spring Interpretive Center, 7295 Highway 94 South, St. Charles, MO 63304. Steve Boerner will talk about plate-solving.

December 25- DIY-ATM group meeting Weldon Spring Interpretive Center, 7295 Highway 94 South, St. Charles, MO 63304. No meeting this month, too close to Thanksgiving.

December 6,13,20,27 - 7 pm start times Broemmelsiek Park Public viewing, 1593 Schwede Road, Defiance, MO 63341, weather permitting.
CONTRIBUTORS TO THE OCTOBER NEWSLETTER

DAN CROWSON — ASSOCIATE EDITOR

JIM TWELLMAN
CHUCK SIMMS
LISA BARNES
STEVE BOERNER
GRANT MARTIN
GREGG RUPPEL
JOE ZIHA

A newsletter is only as interesting as the material sent in by contributors.

Would you like earn the eternal gratitude of your fellow club members and intergalactic recognition in our newsletter? Send a note to your friendly editor on any astronomy related subject at newsletter@asemonline.org I'll get it posted in the monthly newsletter.

Your editor at large (not large editor),

Jim Curry
GREETINGS!

The holidays are upon us, along with all of the bright Christmas lights! Only to be followed by clouds due to all of the astronomical Christmas presents! Note that the ASEM calendars do NOT bring clouds! We still have about 20 (out of 150 printed) not ordered at this point. Probably double that many that still need to be picked-up or handed off. Hopefully most of those will happen at our Dec 14 ASEM meeting. I'm hearing lots of praise for our calendar, and although I hear it every year I never get tired of hearing it!

Jim Roe reports that the 32” re-build is proceeding well (see photo later in this newsletter), and it may be on-site at Broemmelsiek (with more work to be done locally) before the month is out. Once we get close enough for final assembly we will then need to fully develop safe operating procedures and security measures for it. Not everyone will be able to view thru it due to the need for a large ladder. We will likely require two operators to move it in and out safely.

I would like to take this time to THANK all of our volunteers for all that you do and have done this past year. From those who take care of our various meetings at Weldon Springs, to the volunteers at FNOHs, Library Scope events, calendars, websites, newsletters, etc. We would not be such a great club without you!

Clear skies!

Jim Twellman
Broemmelsiek, Danville (and other) Reports!

Submitted by our Star Party Animal

Lisa Barnes

It's Lisa! Here are the counts for the Nov. 1 2019 Brommelseik FNOH:

Total Count: 86.

Public Count: 75, including a boy & girl scout troop

ASEM: 11; Fred, Glenn, Steve Boerner, Stacy Thater, Ed & Amy, Aaron Hardebeck, my mom, Jim S., Carl Turek & Bill Fisher.

There you go! 😊

Here are the counts for the Nov. 8 2019 FNOH:

Total Count: 90. Public: 82. ASEM: 8; Janet Kunzhe, my mom, Carl Turek, the Whites, Jim S., Stacy Thayer and Justin.

There you go! 😊

Lisa

Danville email report:

Yes, it was only “ok” with the best targets high in the sky. Nice views of NGC891, 772 and M74. Seeing was marginal at best and worsened later. Still saw the Horsehead nebula and a muddy M42. Always fun to get out, even with the late night deer hunters.

On Nov 25, 2019, at 7:47 AM, Dan Crowson wrote:

Jeff Heckenkamp and I made it out to Danville last night. There were clouds to the west but they seemed to dissipate after a couple hours. Seeing was just so-so. It was better than a night at home but fairly poor otherwise. The seeing when Jeff left around 1:30 AM was so bad that the trapezium was a blob and it was near the meridian. Thirty minutes later is was back to ok. My FHWM was 100% better but still not good.
I managed to finish off capturing data for NGC 7009 – mainly the dust around it along with a nice frame of M77 and NGC 1055 (this is the galaxy with a dark dust lane under 2-3 bright stars). I finished off by pointing at 2I/Borisov. It has brightened (I can catch it with a 90mm refractor) but it still looks stellar unless you have a Gregg Ruppel scope and his processing skills.
Alfred Schovanez is the mentor for the ASEM Beginner Meetings. These are scheduled for the first Thursday evening of every month in the meeting room of the Weldon Spring Center.

You don’t have to be a beginner to come to the meetings. Many an old pro will admit that there is always more to learn. There is always time to address issues and questions.
2020 ASEM photo calendar!

All photos are from ASEM members predominately in the past year. Several of our local St Louis astrophotographers have had photos featured in major Astronomy magazines. August page features Solar Eclipse photos, and some members’ award-winning photos are also included. Size will be 12”x12” spiral-bound.

$15 each (plus $5 ea. shipping if necessary) – supports the mission of the Astronomical Society of Eastern Missouri to educate and entertain the public of the wonders of Astronomy.

Orders: email to  JTwellman@asemonline.org
Hi there!

I was interested in seeing if you would be able to join us for our school's Science Night? We are looking for groups to have tables for the families to walk up to and learn about something STEM related or you could have a space to perform a demonstration for the families that attend. Our evening is set for January 30, 2020 at Forest Park Elementary School (Fort Zumwalt School District) in O'Fallon, MO from 6-7:30 pm. Please check your schedule and let me know if you are able to help us to make this year’s Science Night amazing!

I look forward to hearing from you.

Thank you for your time!
Bolide News

A great link! Videos, too.

https://www.amsmeteors.org/2019/11/fireball-spotted-over-missouri-on-nov-11th-2019/?fbclid=IwAR0w2UcIPkhB7Fxmt-cBftglnTeIqR2k705cw3_GlyCVM4-Wjuk5MhJ1G-I
ASEM is well represented in the December, 2019 AL Reflector Magazine:

Bill Neubert’s fantastic image of the Tulip Nebula is on the cover.

Rick Steiling’s ISS lunar transit image can be found in the Gallery section along with Gregg Ruppel’s vdB 107 image which was also featured in the December, 2019 Sky & Telescope.


Rick Steiling’s image of M45 is being used for a museum exhibition in Tahiti:

The exhibit "TUPUNA ➔ TRANSIT" debuted on Mar 30 2019 and will remain open at least through Sep 20 2020. It focuses on the transformation of the museum as it is fully refurbished during a multi-year renovation throughout which hundreds of ancestral artifacts housed by the museum remain on display as part of this exhibit. The Pleiades is used as a backdrop because of its role in Polynesian mythology - According to legend, the Pleiades once shined as a single star in the sky. But the Polynesian god Tane disliked it as it boasted endlessly of its own beauty. As a show of his might and superiority, Tane smashed it into pieces, making the cluster we see today.

http://www.museetahiti.pf/evenements/tupuna-%e2%9e%94-transit/?lang=en
ASEM ATM-DIY Special Interest Group

November 2019 Meeting

No meeting notes this month.
November’s meeting consisted of a presentation on the ASIAir (now discontinued due to the eminent release of the ASIAir Pro) by Steve Boerner. You can find the slides from the presentation starting right after this page.

I gave an abbreviated presentation on using DeepSkyStacker and Adobe PhotoShop using Charles Kwas’ DSLR data collected at Buford Mountain. Someone took the VGA cable (who knew they were in such demand) so I could not use the projector.

Grant Martin spoke briefly about his Mercury Transit images. His trials and tribulations can be found in the pages following Steve’s slides.

December’s meeting is Tuesday the 17th. Steve Boerner will talk about plate-solving and Bill Neubert will talk about Orion AccuFocus.

If you have something you would like to present or something you would like to know about, please send me an email (dcrowson at crowson dot com).

Lastly, we still have some calendars left. If you have an need for more (and why wouldn’t you?!), let me know ASAP and I can bring them to the meeting.

The latest Digital SIG news can always be found in the ASEM Digital SIG group here - https://groups.io/g/ASEMDigitalSIG. Discussions in the last month have been on images, what science can be done, new equipment and various other things.
What it can do?

- create a 5G hotspot for wireless control (2.4G avail.)
- control INDI supported mount (1)
- polar alignment
  (beta add on—min. 24 arcmin max. 33 degree FOV)
- control some camera(s)...exposure and sequence (2-3)
- plate solve
- auto guide
- control ZWO autofocuser (4)
- control ZWO filter wheel (5)

If you already have a rig that does it all don't consider it because it won't do anything better than
What's on the inside?

Raspberry Pi 3 B+, locked up Linux & max 2.5A
What do you get?

Like most hardware, the manual lags.
What it doesn't do...

- automate darks, bias, flats
- limited built in atlas provisions
- stack
- multiple targets with one click

Note: I don't have a filter wheel or autofocuser
Controlled via a free App

ASiair
How to Configure

If you are unsure of the FL just enter “0” and it will be determined.
Main Screen (Beta)

A bit cluttered for a tiny phone screen
Transferring/Managing images...

- Swap out the micro SD card to a reader on laptop.

- Connect file manager to \ASIAIR either over ethernet or wirelessly (have to be on same network)

- If DSLR write to SD card (but RAW only)

- Provisions from app to delete single/multiple/ or all images.
What is good

- wireless control from inside house or car
- easy to configure
- low power requirement (5V DC--PowerBank)
- compact size for scope mounting
- fairly fast image downloads and processing
- cheap vs laptop
- blazingly fast plate solves (vs SGP)
- plate solves give optical train fl
- easy connection with SkySafari for targeting
- autocentering with camera and plate solve
- runs if phone/tablet is turned off
What is neutral

- headless control with app for Android or iOS (unfortunately your device won't be on the Internet)
- no Windows unless emulated (and then SLOW)
- velcro mounting at scope*
- no power out from ASIAir*
- images as fits onboard or RAW on DSLR
- RPi3 does have ethernet
- Backing up the SD card is important.
What it bad

- No USB3*
- No real time clock?
- RPi3 has 4 USB ports
- DSO only*
- 25 GB on board storage*
- Only ZWO and Canon/Nikon DSLRs*
- fragile case*
- no stacking/pre or post processing for EAA*
- limited objects in DB and no way to find out what's there
- no fiddling... locked up
- no folders for images
- Availability?
Why might you want one?

- Just getting started
- Firesale in advance of the ASIAir Pro?
- Don't want to fiddle with software
- Don't like Windows or the upgrades
- Limited packing space for lots of equipment
- Easy polar alignment and features for wide field
- Off the grid for days with power issues

- Another possibility:
  Stellarmate https://www.stellarmate.com/
ASIAir Pro  $300 (not yet available)

Will it be worth the upgrade?

The software & additional features haven't been announced.
Final details will be released in due course but the high level details are:

- ASIAIR Pro hardware is base on the Pi4 board and OS has been rewritten for that platform - USB3 is now standard on Pi4.
- 64GB of built in space and a 64GB flash drive giving a total storage of 128GB
- Pi4 has 4GB of RAM and a new CPU - 30% faster than Pi3.
- Housed in a CNC milled aircraft grade aluminum housing - available ZWO red
- The housing will have mounts to allow it to be installed on the finder foot and the finder/guidescope can mount on the ASIAIR Pro.
- ASIAIR Pro integrates simple power management with 4 x DC outlets (3A each - 10A max total) - will be controllable from the ASIAIR app. (some ports will be PWM controllable for dew controllers)
- ASIAIR Pro will have a DSLR shutter control line to control the snap socket on many cameras.
- ASIAIR Pro will support all the latest cameras and devices such as EAF
- There are plans for discounts for existing owners of genuine devices - likely to be on return and discount basis - details will be announced closer to release date.
Mercury Transit Adventure

By Grant Martin

So the transit of Mercury was scheduled for 11 January 2019 from 6am till noon St. Louis time. Unfortunately inclement weather was also scheduled at the same time. It was going to be a race to find a good observing site for a very rare event. But isn't that the law? The rarer the event, the greater the chances of it being weathered out. Maybe hope will win out over experience this time.

Since I've been imaging the past transits of Venus and Mercury in white light and since I've recently been imaging the Sun in hAlpha light, I really thought that it would be possible to image Mercury AFTER C4 as silhouetted against the faint hAlpha background beyond the bright limb of the sun.

Watching the various weather maps, it became apparent that having clear skies anywhere within 1000 miles of St. Louis was going to be hard to come by.

As Monday got closer, a few holes to the West were being predicted. Unfortunately they were in southern Colorado about 12 hours away (and nowhere near the friendly confines of Rancho Hidalgo).

By Sunday morning it was apparent that I was going to have to drive to Alamosa Colorado for that “One shot”. Early Sunday Afternoon I left the clear, sunny skies of St. Louis where the local temperature was in the high 60’s for a rendezvous with meteorological mayhem.

Up ahead were the two huge storm systems that were going to collide over central Kansas and Missouri and then move due east early Monday morning – the plan was to slip under them and get to Colorado before the collision. The photo (right) shows the Northern Front (on the right) barreling down towards the Southern front (on the left), which is moving headlong towards the northern front. I 70 is dead square in the middle. They were (and did) collide like two steam engines with full heads of steam.

Driving across Kansas, at night, without distractions gives one plenty of time to think. Things like “What the hell am I doing here” is an oft occurring thought followed by
“You’re actually driving west to points unknown, under two major fronts, late at night, hoping to get somewhere by 0600 tomorrow morning for a chance to take photographs through sucker holes that may or may not exist between 6am and noon?!?!”

My answer to myself was always two fold based on which side of my brain was responding: “Why, yes, of course, because ‘That one shot’” followed by “This whole trip is nothing more than a triumph of Hope over good judgement”. Neither side would give an inch.

And then the collision happened. Just outside of Topeka Kansas, the Northern train ran headlong into the Southern train. The Northern front must have been the stronger one because the winds across highway 70 had to be blowing more than 30 MPH. From Topeka to Oakley Kansas, three hundred miles, the steering wheel was hard over to the two o’clock position and half of that time it was moving to three o’clock. It was a heckofa workout I’ll say that.

By 2AM Monday morning, I ran out of gas. And by running out of gas, I mean running out of (relatively) good driving weather and energy.
I pulled over in Oakley along with the start of the blizzard and 16 degree temperatures. It was kind of part of the plan anyway, pulling over in Oakley that is, not the blizzard and frigid temps part. I intended to stop here so I could check the most recent weather data and see where the new clearings would be forming.

Storms like these always outrun the longer term predictions. And I was banking on that. Oakley is at the intersection of fast highways leading North, South and West. Holing up here would provide the best jumping off point to whichever direction promised the clearest skies soonest.

By around 4AM. I found the skies had a pretty good chance of starting to clear up south westward around 10ish that morning. So it looked like there was a good chance the transit would be seen. But still, the fronts were rapidly changing in unpredictable ways – and the thing about sucker holes and retreating fronts is, by their nature, they are always unpredictable.

7AM: The weather forecasts, maps and satellite imagery were showing sucker holes continuing to open up over south western Kansas by 11AM with the closest over Marienthal, 60 miles south (So long Alamosa, it was nice thinking about you ).

SoOoO...I hit the road at 8:30AM with horizontal snow still blowing south. I kid you not; all night long this stuff was blowing horizontally. I swear, if it weren’t for that wind from the north, there would have been six inches or more of snow on the ground. Fortunately it was all blown down to Oklahoma and out of my way.
I made Marienthal around 10 am and drove around looking for good setup sites. Turns out I needed a page from Jeff Heckencamp’s book and found a nice little cemetery set off from the road.
The sucker holes arrived a little early but I was all setup
and taking the first image by 11:15AM. Not bad, the transit was nearly over but the best was yet to come in 45 minutes.

Mercury moved off right on time at 12:04PM and that was it. The images were captured and now months of post processing time was in order.
All packed up and back on the road by 2PM WITH completely clear skies no less. Wouldn't you know.

The trip home took three days but that's because Cosmosphere in Hutchinson Kansas

And Bar-B-Que in KC (so many award winners, so little time).
Later that month:

The imaging wasn’t the best due to the tail of the fronts but it sure was better than nothing.

More processing needs to be done but I’m happy with what I was able to capture:

And the one I REALLY wanted to get: Mercury silhouetted by spicules on the edge of the sun

Yeah, it certainly was a triumph of luck AND better judgement that’s for sure.
## ASEM Loaner Equipment

**By Chuck Simms**

### Equipment Check Out

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 inch scope</td>
<td>Nolan’s 12:</td>
<td>Jim Twelme (6/5/2016)</td>
</tr>
<tr>
<td>Big Binoculars-25x100 Borska</td>
<td>25x100 Borska binoculars</td>
<td>Dave Reed (10/16/2018)</td>
</tr>
<tr>
<td>Canon TII camera</td>
<td>Canon TII camera</td>
<td>Chuck Simms (7/1/2019)</td>
</tr>
<tr>
<td>Celestron StarHopper 8” dob</td>
<td>Celestron StarHopper 8” dob (Tritrad, 25, 15 &amp; 9.7mm epi)</td>
<td>Justin Thompson (7/13/2019)</td>
</tr>
<tr>
<td>Coronado PST</td>
<td>Personal Solar Telescope</td>
<td>Don Ludwig (8/1/2019)</td>
</tr>
<tr>
<td>Denkmeier Bino-Viewer</td>
<td>Denkmeier Bino-Viewer</td>
<td>Chuck Simms (12/8/2018)</td>
</tr>
<tr>
<td>Denkmeier Bino-Viewer 2</td>
<td>1.25” Denkmeier Bino-Viewer, &quot;STAR SWEEPER&quot; - 2 pcs, 2x Multiplier - 2 pcs</td>
<td>Amy White (12/9/2017)</td>
</tr>
<tr>
<td>Eye-piece/Filter kit</td>
<td>various 1.25 inch eyepieces &amp; filters (O III, HI Beta, UVHC)</td>
<td>Fred Schovanetz (10/14/2017)</td>
</tr>
<tr>
<td>Lunt - Stack Filter</td>
<td>Stack filter used on Lunt Solar telescope</td>
<td>Chuck Simms (8/2/2019)</td>
</tr>
<tr>
<td>Lunt Solar Telescope and mount</td>
<td>L55OFHa filter - 60mm</td>
<td>Chuck Simms (8/2/2019)</td>
</tr>
<tr>
<td>Orion SkyQuest XT6</td>
<td>6” dob with 10mm &amp; 25mm eyepiece</td>
<td>Mary Anderson (6/11/2019)</td>
</tr>
<tr>
<td>SBIG STI-1001 camera</td>
<td>SBIG STI-1001 camera</td>
<td>Kirk Steinbruegge (5/12/2018)</td>
</tr>
<tr>
<td>Star Atlas</td>
<td>Herald Bossroff Astrotanza</td>
<td>Chuck Simms (12/9/2017)</td>
</tr>
<tr>
<td>Starmaster 14.5” telescope</td>
<td>Starmaster 14.4 inch telescope</td>
<td>Stacey Thater (6/7/2019)</td>
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<tr>
<td>WC2-Made Ultra Wide Angle 4.7mm</td>
<td>WC2-1.25” Made Ultra Wide Angle 4.7mm MBL-Coated eyepiece</td>
<td>Kirk Steinbruegge (10/14/2017)</td>
</tr>
<tr>
<td>18” Dob - Obsession</td>
<td>28” Dob - Obsession</td>
<td>Fred Schovanetz (6/5/2019)</td>
</tr>
</tbody>
</table>
BUY/SELL - SWAP/TRADE - WANTED

Please shoot me a note if your ad is no longer current

jjc@structureguard.com
ASEM Members Photography

A section for ASEM members to distribute their photographs within the Society. Whether you’re shooting digital, film or working in charcoal (hand sketching), this page(s) is for members to show us what you’ve seen and how you recorded it. Sunsets, supernovas, sundials, Stonehenge. Crepuscular rays, planetary alignments, or Markarian’s Chain. If it’s something we have to look up to see it will probably interest this crowd of inquisitive folks.

Barnard 157 + 364 + Sharpless 127 – Dan Crowson – Dardenne Prairie MO
https://www.flickr.com/photos/dcrowson/49148709062/
Arp 295 – Dan Crowson – Animas NM

https://www.flickr.com/photos/dcrowson/49147252278/
M77 + NGC 1055 – Dan Crowson – Danville (New Florence MO)

https://www.flickr.com/photos/dcrowsn/49144140751/
Arp 298 – Dan Crowson – Animas NM

https://www.flickr.com/photos/dcrowson/49143999566/
NGC 797 + 801 – Dan Crowson – Animas NM

https://www.flickr.com/photos/dcrowson/49139329117/
NGC 7009 – The Saturn Nebula – Dan Crowson – Danville (New Florence MO)

https://www.flickr.com/photos/dcrowson/49137614771/
NGC 7769-71 – Gregg Ruppel – Animas NM

http://www.greggsastronomy.com/ngc%207769.html
Cactus Conjunction (Venus and Jupiter) – Gregg Ruppel – Tucson AZ
Sharpless 223 and C/2017 T2 PanSTARRS – Gregg Ruppel – Animas NM

http://www.greggsastronomy.com/Sh2-223.html
Mercury Transit and Clouds – Gregg Rupple – Tangerine Sky Park - Marana NM
Mercury Transit (at least what the clouds allowed) – Gregg Ruppel – Marana NM
Mercury Transit – Joe Ziha – Captiva, Sanibel Island FL
Sharpless 201 – Dan Crowson – Animas NM

https://www.flickr.com/photos/dcrowson/49046958761/
Abell 80 – Dan Crowson – Animas NM

https://www.flickr.com/photos/dcrowson/49038839151/
IC 239 – Dan Crowson – Animas NM

https://www.flickr.com/photos/dcrowson/49015218872/
**Club Contacts**

**Membership**

Membership issues can be addressed through our executive director Jim Twellman at these addresses:

**Email:** itwellman@asemonline.org.

**Snail mail:**

Alliance for Astronomy (ASEM)

8 Rudder Court

Lake St. Louis, MO 63367

**Committees**

Comments, questions, suggestions and money (just kidding) may be sent to the following addresses:

**program@asemonline.org**

Use this address to communicate with the program committee. If you have something to present at a meeting or wish to contribute and let someone else perform, send it here. Questions and/or suggestions about programming etc. Remember, they are here to help you. This is a user friendly society and we like to see members get up and share.

**equipment@asemonline.org**

This address is used to find out about ASEM loaner equipment. If you find something amiss at BPark by all means report it here. If you are curious about borrowing an item, put in a request via this address.

**hospitality@asemonline.org**

Got a main dish you’d like to bring to the potluck? We sure could use it AND you will be reimbursed for your expenses.

**newsletter@asemonline.org**

Primary contact for the newsletter. Got an article or notice you’d like to see published? Send it here and be famous!

**Outreach@asemonline.org**

Special requests for groups at Broemmelsiek Park including:

- Notice of large party (more than groups of twenty)
- Request for specific requirements needed (school assignment, merit badge requirements, etc.)
- Requests for Star Party / Telescope event at another location

**webmaster@asemonline.org**

Kirk Steinbruegge is now our webmaster. Shoot him anything you want posted on our Web page

Late breaking news and member adventures (or shenanigans as the case may be) can usually be found at STL Astronomy in yahoo groups. If you aren’t a member, you should join. Go to http://tech.groups.yahoo.com/group/STLAstronomy/ and click “Join”

Think Clear, dark skies