



# STAR STUFF

The Newsletter of the Ford Amateur Astronomy Club

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November/December 2011

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## Re-thinking an Alien World: The Strange Case of 55 Cancri e

Article provided by NASA's Space Place

Forty light years from Earth, a rocky world named "55 Cancri e" circles perilously close to a stellar inferno. Completing one orbit in only 18 hours, the alien planet is 26 times closer to its parent star than Mercury is to the Sun. If Earth were in the same position, the soil beneath our feet would heat up to about 3200 F. Researchers have long thought that 55 Cancri e must be a wasteland of parched rock.

Now they're thinking again. New observations by NASA's Spitzer Space Telescope suggest that 55 Cancri e may be wetter and weirder than anyone imagined.

Spitzer recently measured the extraordinarily small amount of light 55 Cancri e blocks when it crosses in front of its star. These transits occur every 18 hours, giving researchers repeated opportunities to gather the data they need to estimate the width, volume and density of the planet.

According to the new observations, 55 Cancri e has a mass 7.8 times and a radius just over twice that of Earth. Those

properties place 55 Cancri e in the "super-Earth" class of exoplanets, a few dozen of which have been found. Only a handful of known super-Earths, however, cross the face of their stars as viewed from our vantage point in the cosmos, so 55 Cancri e is better understood than most.

[\(continued on Page 3\)](#)

## President's Corner

By Gordon Hansen

It's hard to believe that almost a year has gone by since I became your president. As I write this, asteroid 2005 YU55 has just whizzed past the earth (operative word "past'!) - that's how this year seems to have flown by. It's been a fun year with great events right from the beginning. Lake Erie Metropark's Ice Daze in January, the Expo & Swap, Club Dinner (another great round of Astro Jeopardy,) Astronomy Day at multiple locations, Beginner's Nights at Island Lake, Astronomy at the Beach, attending Great Lakes Star Gaze, monthly club meetings, and a bunch of outreach events. The best part of all of these events, and to me the reason for being a FAAC member, is the camaraderie we all share.

[\(continued on Page 2\)](#)

# STAR STUFF

Nov/Dec 2011 - Vol. 20 No 11

STAR STUFF is published eleven times each year by:

**FORD AMATEUR ASTRONOMY CLUB**  
P.O. Box 7527  
Dearborn MI 48121-7527

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VICE PRESIDENT: Jon Blum  
SECRETARY: Doug Bauer  
TREASURER: Chuck Jones  
WEBMASTER: Greg Ozimek  
NEWSLETTER EDITOR: Jennifer Zdanowski

## Club Information:

The Ford Amateur Astronomy Club (FAAC) meets on the fourth Thursday each month, except for the combined November/December meeting on the first Thursday of December - at Henry Ford Community College Administration Services and Conference Center in Dearborn. Refer to our website for a map and directions ([www.boonhill.net/faac](http://www.boonhill.net/faac)).

The FAAC observes at Spring Mill Pond within the Island Lake State Recreation Area near Brighton, Michigan. The club maintains an after-hours permit, and observes on Friday and Saturday nights, and nights before holidays, weather permitting. The FAAC also has use a private observing site near Gregory Michigan and Lake Erie Metro Park. See the FAAC Yahoo Group\* for more information.

Observing schedules and additional info are available on our website, or via the FAAC Yahoo Group.\* Or call the FAAC Hotline, for info and leave a message, or ask questions: 248-207-2075. or send email inquiries to [fordastronomy@comcast.net](mailto:fordastronomy@comcast.net).

Membership in the FAAC is open to anyone with an interest in amateur astronomy. The FAAC is an affiliate of the Ford Employees Recreation Association (F.E.R.A.). Membership fees:

Annual - New Members: \$30 (\$15 after July 1)  
Annual - Renewal: \$25 (\$30 after January 31)

Membership includes the STAR STUFF newsletter, discounts on magazines, discounts at selected area equipment retailers, and after-hours access to the Island Lake observing site.

## Astronomy or Sky & Telescope Magazine Discounts

Obtain the required form from the FAAC club treasurer for a \$10 discount. Send the completed form directly to the respective publisher with your subscriptions request and payment. Do not send any money directly to the FAAC for this.

## Star Stuff Newsletter Submissions

Your submissions to STAR STUFF are welcome! Send your story and/or images to the editor at [jenzdanowski@yahoo.com](mailto:jenzdanowski@yahoo.com). Email text or MS Word is fine. STAR STUFF will usually go to press the weekend prior to each general meeting. Submissions received prior to the 15th can be included in that issue.

\* FAAC Members are welcome to join our Ford Astronomy Club Yahoo!Group. Messages photos, files, online discussions, and more! URL: [groups.yahoo.com/group/FordAstronomyClub](http://groups.yahoo.com/group/FordAstronomyClub).

*This months background photos of the moon Page 1 courtesy of John Kirchhoff. See more of John's photos at:*

<http://www.flickr.com/photos/33926475@N06/with/4311533997/>

## Presidents Corner

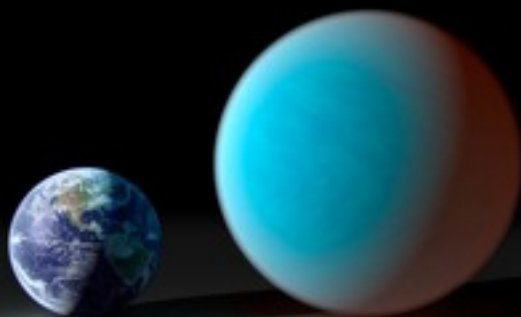
(continued from Page 1)

In the list above of activities we do every year is solar observing outside the Detroit Science Center on Astronomy Day. As I'm sure you've heard, the Science Center ran into financial difficulties and had to close its doors. Over the year's we've developed a great relationship with them. We've helped them out with astronomy events and they've brought their portable planetarium to our outreach events and to Astronomy at the Beach. What's most saddening is several of our club members are employees and their futures are very uncertain. Let's all hope that they can find the funds necessary to reopen their doors. We talk frequently about how to encourage young folk to get interested in astronomy. Not having a hands-on museum in our area where kids can get excited about science is certainly not the way.

Our last meeting of the year is on **THURSDAY, DECEMBER 1ST**. If you show up on our normal fourth Thursday, no one will be there and you'll be in a heap of trouble for missing Thanksgiving dinner! This month's program will be our first look at the newly renovated Science building and the planetarium.

Some year end club business:

- The officer's elections will be in January. Jim Frisbie, Bob FitzGerald, and Frank Ancona are putting the slate of candidates together. If you'd like to run or would like to nominate someone, please see one of them. You can also nominate someone from the floor at the January meeting.
- Its time to pay your dues. Get them in by the end of January and it'll cost you \$25. After that it'll set you back \$30.
- Sirius Award nominees. Please send me your nomination with a brief write-up of why the person should be considered to [President@fordastronomyclub.com](mailto:President@fordastronomyclub.com)



*Artist's rendering compares the size Earth with the rocky "super-Earth" 55 Cancri e. Its year is only about 18 hours long!*

## Re-thinking an Alien World: The Strange Case of 55 Cancri e

*(continued from Page 1)*

When 55 Cancri e was discovered in 2004, initial estimates of its size and mass were consistent with a dense planet of solid rock. Spitzer data suggest otherwise: About a fifth of the planet's mass must be made of light elements and compounds—including water. Given the intense heat and high pressure these materials likely experience, researchers think the compounds likely exist in a "supercritical" fluid state.

A supercritical fluid is a high-pressure, high-temperature state of matter best described as a liquid-like gas, and a marvelous solvent. Water becomes supercritical in some steam turbines—and it tends to dissolve the tips of the turbine blades. Supercritical carbon dioxide is used to remove caffeine from coffee beans, and sometimes to dry-clean clothes. Liquid-fueled rocket propellant is also supercritical when it emerges from the tail of a spaceship.

On 55 Cancri e, this stuff may be literally oozing—or is it steaming?—out of the rocks.

With supercritical solvents rising from the planet's surface, a star of terrifying proportions filling much of the daytime sky, and whole years rushing past in a matter of hours, 55 Cancri e teaches a valuable lesson: Just because a planet is similar in size to Earth does not mean the planet is like Earth.

It's something to re-think about.

Get a kid thinking about extrasolar planets by pointing him or her to "Lucy's Planet Hunt," a story in rhyme about a girl who wanted nothing more than to look for Earth-like planets when she grew up. Go to <http://spaceplace.nasa.gov/story-lucy>.

The original research reported in this story has been accepted for publication in *Astronomy and Astrophysics*. The lead author is Brice-Olivier Demory, a post-doctoral associate in Professor Sara Seager's group at MIT.

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*

Treasurer's Report  
November 15, 2011  
By Chuck Jones

**Ford Amateur Astronomy Club  
Balance Sheet  
As of November 15, 2011**

	Nov 15, 11
<b>ASSETS</b>	
Current Assets	
Checking/Savings	
CD 200599272	1,054.23
CD 89265268	1,098.74
Checking	1,583.97
FAAC Savings	458.67
Petty Cash Account	44.68
<b>Total Checking/Savings</b>	<b>4,240.29</b>
<b>Total Current Assets</b>	<b>4,240.29</b>
Other Assets	
Equipment	1,651.97
GLAAC	1,522.02
Scholarship	277.80
<b>Total Other Assets</b>	<b>3,451.79</b>
<b>TOTAL ASSETS</b>	<b>7,692.08</b>
<b>LIABILITIES &amp; EQUITY</b>	
Equity	
Opening Balance Equity	8,439.30
Retained Earnings	-276.33
Net Income	-470.89
<b>Total Equity</b>	<b>7,692.08</b>
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>7,692.08</b>

## Club Wear

To our "New and Current Members" Our club has "FAAC" Official Club Wear with our Logo Embroidered.

Anyone with an interest or need in FAAC Club Wear, I will be placing an order in the next few months, for more information please call me - Diane at 248 980-7832. The FILES section in the Yahoo group has a form noting each ITEM with PRICES. The listing name - "FAAC Club Wear" - please do not hesitate to call me.

Diane Worth

## Meeting Agenda - December 1st

HFCC – Berry Auditorium -Admin. Services & Conference Center <http://www.boonhill.net/faac>  
5:30

### Opening/Introduction/Member Observing

#### Main presentation:

HFCC Planetarium

### Club Projects/Committees/Member Support

- Lake Erie Ice Daze – January 21st, 2012
- Open Discussion

### Club Business/Secretary/Treasurer/Equipment Reports

## Items For Sale

**Celestron** 6x30 finder scope-\$25

**Starter scope** (similar to the Celestron power seeker) D=60mm F=700mm with tripod, and 3 lenses-\$50

For more information on these two items, please contact Lynn Spielman at: [lynnscats@wowway.com](mailto:lynnscats@wowway.com)

**Orion** 100 mm Achromat refractor, F6, with older CG4 equatorial mount. Diagonal and finder included. Asking \$250

Miscellaneous eyepieces and filters for beginners also available. Ask for \$\$

Call Tom Blaszak at 313.585.3351.

[key\\_string\\_guy@yahoo.com](mailto:key_string_guy@yahoo.com)

**Meade Lightbridge Deluxe 12"** – F/5, 1524mm focal length. Purchased new last year. Perfect condition mechanically, optically and cosmetically. Big, clear deep sky views. Built-in battery powered cooling fan, two-speed Crayford focuser (1.25 / 2-inch). Easy to transport, set up collimate and use - smooth as silk. Upgraded with Bob's knobs and heavier collimation springs. Includes shroud, cover, Telrad and secondary mirror heater. Over \$1000 invested, will sell for \$650.

Contact John Johnson at [jjohnsonpub@yahoo.com](mailto:jjohnsonpub@yahoo.com)

or (248) 515-0014.



## Astro Imaging SIG

Gordon Hansen

*The August meeting was held at HFCC in the Berry Amphitheater in Dearborn*

All are invited to join us in the Astro Imaging SIG meetings, to share and discuss images, experiences, and techniques.

We always have a good time, with lively discussion, and sharing of valuable information.

Next meeting is December 8th. The meeting room location – HFCC Admin. Services and Conference Center (same building), Berry Amphitheater Auditorium.

Topics invited. Pizza served.

### FAAC Events 2011

**December 8th-Astro Imaging SIG group**

*Background Photo from Lunt Solar Scope Image taken at the Hector J Robinson Observatory, June 28, 2010*

### One FAAC members blog

<http://hjrobservatory.blogspot.com/>

A few updates on the observatory, quick articles and photos. I'll try to improve my writing on this blog. Also, I try to keep daily updates on this blog. - Greg Knekleian, HJRO volunteer.

## Items For Sale

*(continued from page 4)*

**MEADE Telescope** and Tripod 6 years old - in excellent shape **LXD 75** - Series Schmidt - Cassegrain 8" f/10 SC-8AT (Super Coated, Autostar Guided) - Focal Length 2000 mm Telescope weight = 24 lbs - with MEADE EMC Super Multi-Coatings and with optional Ultra-High Transmission Coating Tripod weight = 45 lbs - Die cast Aluminum German-Type Equatorial Mount with Variable-Height Field Adjustments Autostar Controller guides to 30,223 objects

Includes a Sun Filter, Overnight Protective Cover, Transportation Containers. Contact phone no. 248-851-5053, e-mail [robertboswell@comcast.net](mailto:robertboswell@comcast.net)



Photo provided by George Korody 9-12-11 at the GKO Observatory

With all this cold weather upon us I thought this beautiful double rainbow and lush green trees could serve to remind us to THINK SPRING!

## FAAC General Meeting Minutes October 27th, 2011

By Doug Bauer, Secretary

### Opening:

- The meeting was called to order in the Berry Auditorium at 5:30 pm by Gordon Hansen., FAAC President.
- All attendees introduced themselves. There were 35 members and no guests present.
- Members contributed their observing experiences. Several members mentioned the aurora displays. Also, the Great Lakes Star Gaze and The Fall Star Party at Bill Beers in Cadillac.

### What's Up In November:

John Schroer gave his What's Up in the November Night Sky talk. He included:

Moon phases

November 2 – 6:44 pm after sunset  
Mercury and Venus will be low in the west  
Jupiter rises in the east around sunset  
and is well positioned for observation all night

Neptune is in southwest in Aquarius

Uranus is west of Jupiter

Mars rises early in the morning near Regulus

Saturn rises in the early morning near Spica

Comet Garradd is visible in Hercules

November 18th – Leonid Meteor shower

### Main Program:

Tom Field gave an excellent presentation on Spectroscopy live from Seattle, Washington. He used WebEx to give the talk and it worked very well displaying his slides while he showed in a video box in the upper right of the screen. He fielded many questions after the presentation. He gave a very good presentation on the history of spectroscopy, what it is, and how it is done. By using a star analyzer

grating it is possible to see the spectrum of the elements in stars, planets, supernova and identify which elements are present. You can also determine redshift. With minimum equipment and expense an amateur can easily get into spectroscopy. All that is required is a digital image capture device (digital camera, or CCD Imager, or WebCamera), a star analyzer grating (\$180), and software (RSPEC - \$99) both of which Tom sells on his website.

Tom Field's Website is: [www.rspectro.com](http://www.rspectro.com)

Tom can be e-mailed at: [Tom@rspectro.com](mailto:Tom@rspectro.com)

Tom also recommended the following books:

Astronomical Spectroscopy for Amateurs – Ken M. Harrison

Spectroscopic Atlas for Amateur Astronomers (Guide to Stellar Spectral Classes) – Richard Walker



*The Webinar video screen as we saw it. Note the 'live' photo insert of Tom Field.*

*This was a first for FAAC, a live, two-way webcast. There may be more. See MEETING MINUTES for details.*

*PHOTOS by Greg Ozimek*

*Camera Equipment: Tim Campbell*

## FAAC General Meeting Minutes October 27th, 2011

By Doug Bauer, Secretary  
(continued from Page 1)

### Tech Talk:

Gordon Hansen gave a presentation on his backyard observatory. He described how he turned a 7 foot by 7 foot Rubbermaid shed into his personal observatory, Gordon's Astronomy Shed (G.A.S.). He used patio stones for the floor and used angle iron and molly bolts to reinforce the joints and provide structural rigidity. He dug a 12 inch hole 55 inches deep for the pier and had a 6 inch pier made for his mount. He used 8 – 80 pound bags of cement to set the pier in the hole. He joined the top two pieces of the roof with metal strips and molly bolts and left the lower pieces separate so that he could lift the roof off easily. He put several tie downs inside the shed to hold the roof down.

Gordon showed a video of himself opening and closing the observatory, which takes about 6 minutes each way.

Total cost was about \$1,300 (\$600 if his wife, Susan, asks).

### Business Meeting:

Secretary's Report as published in the September StarStuff was presented by Doug Bauer and approved.

Treasurer's Report published in the September StarStuff was presented by Chuck J. via Balance and Profit & Loss and was approved.

### Upcoming Project and Events:

Saturday, November 12th – Bob MacFarland has arranged for a FAAC member tour of the EMU Planetarium and observatory – the tour starts at 7:30 PM. If you are interested in attending contact Bob MacFarland.

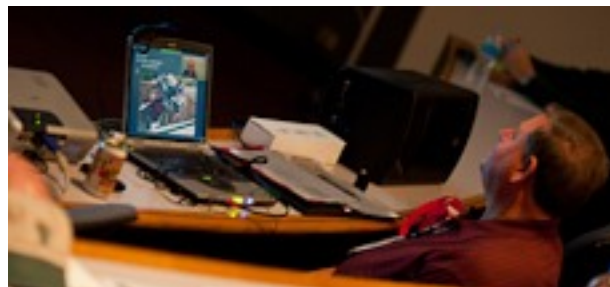
Wednesday, November 16th – 6:00 PM – 8:00 PM -Outreach at the Ann Arbor Hands on Museum. Contact Gordon Hansen if you are interested in helping out.

The Club Scope is available for loan out to members. Let Gordon Hansen know if you would like to reserve it.

It is time for the nominations for Club Officers – If you would like to run for one of the Club positions, please contact Jim Frisbie, Frank Ancona, or Bob FitzGerald.

Nominations for the annual Club Sirius Award are being accepted. This award is given to someone in the club who has been a major contributor to the efforts of the club during their membership. The award will be presented at the 2012 FAAC Banquet. Any club member is eligible, except current club officers. Send your nominations to Gordon Hansen. The Board will select the winner before the banquet.

The meeting was adjourned at 7:30pm.



*At the October meeting, Doug Bauer served as CTO (Chief Technology Officer) for the evening. He successfully coordinated the live Webinar on spectroscopy: the Internet link, the FAAC local webcast (video projector, local computer, and solid Internet connection), audience microphone to talk back to Seattle, PA audio system, and relayed several questions to Tom Field in Seattle, Washington.*

# HJR OBSERVATORY REPORT

By Greg Knekleian

We had quite a few visitors at HJRO during the past month. We had some HFCC club members show up, some FAAC members showed up different nights. To many too list.

## Skies were cloudy for Friday night observing

Friday nights are the most convenient for Lincoln Park High School astronomy club members to observe. If Friday nights have clear skies, the school system's club will likely be using HJRO. This past month, we've had only overcast Fridays. Some Lincoln Park High school students attended a talk by David Cinabro of Wayne State University. The talk was about the end of the universe, according to current scientific theories.

## Donated Equipment - Low Res spectroscopy

Tim Campbell donated a Spectral 100 filter, spacers and software to the observatory to allow students to get into low resolution spectroscopy. Thanks Tim !!!

R-Spec software can be downloaded on individual computers and used for free during a 30 day trial period. Both Tim Dey and I downloaded an expiring trial version on our laptops. We will install the donated licensed software on the observatory computer for students at the HJRO site to use. I did a quick test with a still from my Canon EOS camera and learned a little bit about the R-Spec software and image capture using the diffraction filter. I'm sure I made some mistakes in capturing my first test image. I didn't capture long enough spectral streaks/diffraction patterns due to my not using spacers in front of the filter.

## FAAC Cable show featuring HJRO

The FAAC cable team did a nice job on the cable show and it's now airing on the Lincoln Park cable system.

## Many 8th Grade students - Solar Observe

Tim Dey gave solar lessons to many middle school science classes over two days (11-14 and 11-15) On Tuesday, six classes were able to walk out and visit the observatory. Unfortunately the first two classes missed out on solar observing and were only given an tour of the observatory, due to cloud cover. (We'll reschedule a solar observing session later for those classes.) Four remaining classes were able to view the sun through five telescopes containing safe solar and HA filters. Many students enjoyed looking at the sun or even just touring the observatory.

George Korody brought a pair of telescopes (PST and white light) and Art Parent brought a small Meade telescope and "white light" filter. I learned a lot during the observing session with all these 8th graders.

1. Having a decent sun block to block the sun from the eyepiece is a must. We can do this with a blocking device Greg Ozimek quickly threw together many months ago. Outside we didn't have a blocking device fixed to the solar telescopes. That would have helped a bit.
2. I was holding a blocking device manually much of the time. This reduced my chance to interact with the group a bit and answer questions.
3. The iPad is practically useless in bright sunlight to show a small crowd anything, because of the bright daylight and lack of shade.
4. It's probably better to have two astronomers per telescope with larger groups.
5. The tracking mounts are much better for a large middle school group.
6. Some students will want to look through every telescope they see on display.
7. Four classes of students (120 students) is probably a realistic limit for a crew of three helpers at HJRO.



## HJR OBSERVATORY REPORT

(continued)

### The Sun was very active

Once the sun was visible many sunspot groups could be seen through the "white light" filtered telescopes. The hydrogen alpha Lunt Solar scope showed large prominences on the limb of the sun. An entire row of prominences looked resembled a dragon as they extended 75,000 miles out from the sun's disk. Both George's PST and the Lunt solar scope showed many details. During the lunch break I snapped a few stills through the Lunt HA telescope (and a 15mm eyepiece) with my Canon EOS T1i.

### Details of first tests of RSpec software

I only spent about 15 minutes capturing images for the first test of the new filter and R Spec software. At first I put on the diffraction grating and thought the projected image was too large. I modified the T-mount to bring the filter closer to the image sensor (which was a mistake.) I snapped a few quick JPG stills using the Canon T1i.

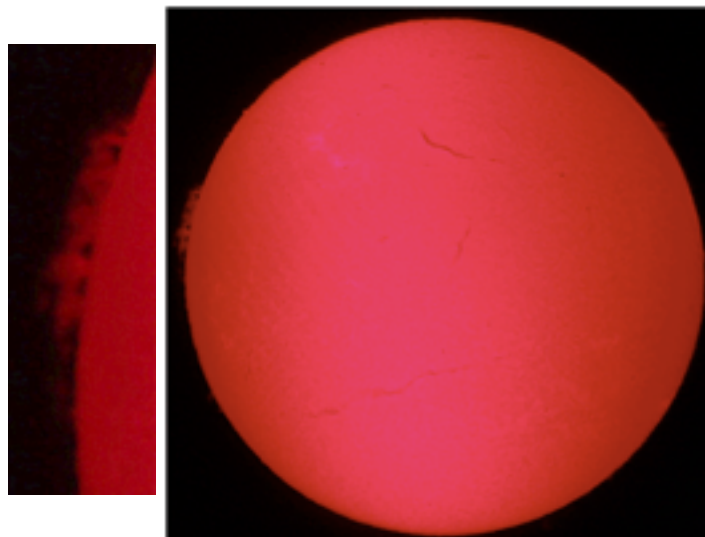
- Some mistakes were made.

I didn't use "video or AVI options" to optimize live video in R-Spec. That would result in better captures.

I didn't use the Stellacam 3 or Meade DSI 3 color camera. The Stellacam 3 or Meade would provide better (hydrogen alpha spectra) performance than a stock Canon EOS. My Canon camera is "unmodified".

R-Spec still gives a nice graphical analysis of the capture. I had some issues finding a way to sync/align the spectral output to angstroms. I hope to improve on with the next capture and test.

Kochab was picked because it's was an easy target. Did you know in ancient times Kochab was the north star?



The sun (above) was active during the viewing by 8th grade students at HJRO 11-15-2011 (Canon t1i handheld through Lunt HA scope.)

(Below) Image crop from the first HJRO spectral frame grab of Kochab, we will get better results with the Stellacam and Meade Cameras.



### The 1977 white tube telescope

I made a little progress at restoring my old telescope. It's a small F4 four inch home built Newtonian. I moved the primary mirror cell forward and installed a new spider. Now it's my "poor man's astrograph". I did a quick test of its photo taking ability at HJRO snapping a 1.6 second still of the double cluster. The photos were very fast exposures because I don't have a decent mount for the telescope. Perhaps I'll purchase a decent tracking mount later. There's still plenty of room for improvement.

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