

# SPECTRUM

Northern Cross Science Foundation Newsletter

April, 2017

## Looking Up

**April 6, Thursday**

**General Meeting**

7:00 p.m. - Main Program  
Business Meeting to Follow

**April 20, Thursday**

**Board Meeting**

7:30 p.m.  
House of Jeff Setzer

**May 4, Thursday**

**General Meeting**

7:00 p.m. - Astronomy 101  
7:30 p.m. - Main Program  
Business Meeting to Follow

**May 18, Thursday**

**Board Meeting**

7:30 p.m.  
House of Jeff Setzer

**May 29, Sunday**

**Port Washington Street Festival**

Noon - 5:00 p.m.  
Downtown Port Washington

**May 29, Sunday**

**Astronomy Day**  
Dusk - 11:00 p.m.  
Harrington Beach

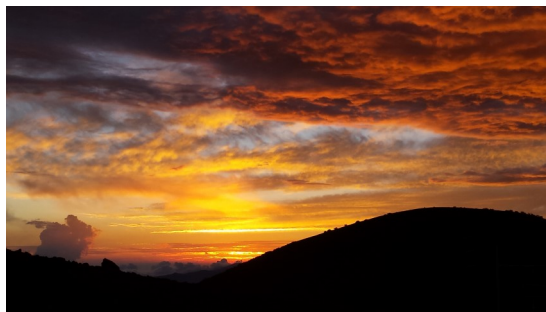
## Stargazing on Mauna Kea *by Dan Bert*

Having recently traveled with my wife Laura to Hawaii on vacation, I made sure to include on our itinerary a visit to the big island and Mauna Kea. To my delight I discovered we would be there the night of Feb 21 so the moon would not interfere. We packed winter coats, hats and even a red flashlight for the occasion. After 8 fun packed days sightseeing, biking down volcano's, snorkeling & whale watching, the night came to head up the mountain. Leaving beautiful Akaka falls and after a quick stop at Kozmic Cones for dinner, we drove out of Hilo in the rain along the saddle road to the Mauna Kea visitor center.

As we climbed to our destination at 9,200ft the clouds and rain were now below us and the skies opened up. Having arrived before dark we put on our warm layers and went to watch the sunset. Following other visitors we journeyed on a 10 minute walk from the visitor center up a large hill across a martian loo kinglandscape.



Here we were treated to a view of the island valley below filled with clouds and a beautiful sunset.

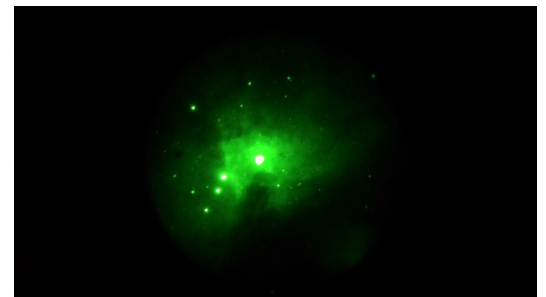


The imposing mountain peak of Mauna Loa loomed in the south and Kohala stood in the north west both about 20-30 miles distant. Heading back down to the center the stars began to pop out and the stargazing program began. The event was free of charge which was a welcome change for us!



Early views of a crescent Venus and red Mars were offered and lines were long. We both kept warm with \$2 hot coco during the well presented laser guided sky tour. The guide asked what the brightest star in our sky is? Sirius? Nope the Sun (trick question I think). It was hard to take your eyes off the heavens above as the stars were very steady and dense making it hard to even spot the constellations. Several black holes in the sky appeared over the summit to the north the result of passing clouds.

Most impressive was something I don't remember seeing, the winter milky way, bright and easily visible overhead. Later as the crowd thinned we enjoyed a unique view of the Orion Nebula thru a 16" SCT with light amplification eyepiece, giving the object a bright and green appearance (taken with phone). The 4 stars of the trapezium were



large round discs in the eyepiece and easily seen. Closing out the evening was a view of the double star Almach, I explained to inquiring guests viewing after me at the unmanned scope. Wishing I could have remained on the mountain all night we descended and drove 1 1/2hrs back to Kona tired but satisfied we went stargazing on Mauna Kea. For more info on the observatories found at the summit see: [www.ifa.hawaii.edu/mko](http://www.ifa.hawaii.edu/mko) and info on the stargazing program: [www.ifa.hawaii.edu/info/vis/visiting-mauna-kea/star-gazing-program.html](http://www.ifa.hawaii.edu/info/vis/visiting-mauna-kea/star-gazing-program.html) Clear Skies.



The NCSF 2017 Holiday Party was once more a big success. Held at the Fox and Hounds Restaurant in Hubertus, those at-

tending shared comradery and stories. Even the waitress joined in the festivities as she stood on a chair to take this picture.



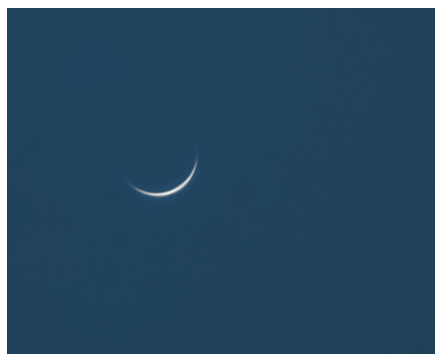
**Venus in Broad Daylight** by Ernie Mastroanni

It was hard to miss Venus this winter, a regal beacon in the southwestern sky glowing brighter than -4th magnitude for weeks. Most of us fielded questions from friends and family members who were curious about the bright star visible in the west after sunset. But the sky's third most luminous object soon faded from public notice as it neared inferior conjunction on March 25. But the planet didn't fade from visibility.

As many seasoned stargazers know, Venus can be seen with the naked eye during the day. Knowing exactly where to look is essential. A dry and transparent atmosphere helps. But the sun's glare foils even the sharpest eye when Venus comes too near the glare, which was the case on March 19 when I observed it from my Whitefish Bay backyard. I found it by first viewing the sun (with a filter, of course), then using the analog setting circles to locate the planet just 12 degrees away. It was easily visible through the 4x viewfinder of my vintage Questar.

With a 54x eyepiece I could see a crisp crescent, only two percent illuminated but 59 arc-seconds in diameter. A green filter suppressed the volatile daytime seeing while I enjoyed the unusual sensation of backyard stargazing while the sun shined warmly overhead. It was 3 p.m.

For this photograph, I used an Imaging Source monochrome camera, which captures up to 30 frames per second on a sensor only 5 millimeters wide. The seeing offered brief moments of clarity, so out of 1600 frames, only 95 were suitable for stacking. I processed them with Keith's Image Stacker, one of the few stacking programs made for Mac computers. I added false color with Photoshop based on a picture of the sky taken at the same time with a digital SLR.



Venus displays a slim crescent just 2 percent illuminated. The blue background is based on color data from a photo of the sky, taken at that same time with a digital SLR.

Due to passing clouds, one set of nearly 200 frames could not be used for the final image.

However, the clouds were broken and thin, revealing the planet as it roiled in the volatile seeing. I rendered these frames into a video, which shows very good example of very bad seeing. The video can be seen on YouTube at this link:

<https://youtu.be/RetXpqHLJHU>



The author's 3.5 Questar is set up for photography, with the camera on the axial port, a par-focal eyepiece on the viewing port, and a laptop with software to capture a rapid-fire series of images.

## April General Meeting

### Main Program

#### Sepideh “Reaching for the Stars”

Award Winning Video

Sixteen-year-old Iranian citizen Sepideh wants to become an astronaut. But at her age the nightly stargazing excursions in the desert are a dangerous thorn in the side of family and traditions. She watches a clip of the first female Persian astronaut *Anousheh Ansari*, and after that she becomes more serious in her efforts. Sepideh writes a letter to Anousheh and this letter changes her life.



#### **A Purchase with History** *Ernie Mastroanni*

Northern Cross secretary Kevin Bert holds an unusual purchase made at the Sheboygan Astronomical Society's 10th annual Swap-n-Sell on March 25. This hefty five-inch refractor is a Moonwatch Apogee Scope, used by observers in the Cold War-era as a tool to accurately track satellites shortly after the Sputnik launch. The Smithsonian Astrophysical Observatory (SAO) started the project in 1956 before Sputnik ever left the ground. The intent was to track satellites launched by the United States during the International Geophysical Year, but the program quickly kicked into high gear after the Sputnik surprise in 1957.

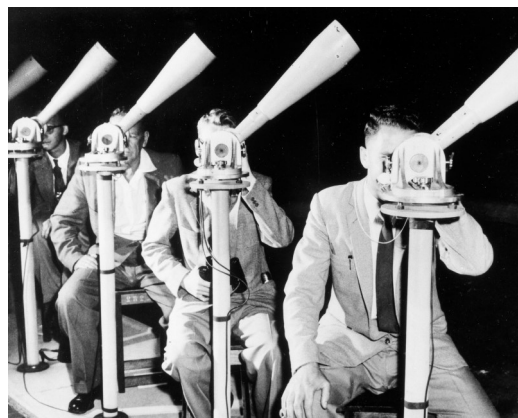
was to collect data from observers posted in key locations around the globe.

The 5-inch, 20-power refractors were meant to look only at the meridian. Each observer watched only a specific part of the sky and noted the time and angle of a passing satellite. With similar observations made by teams at other known locations at known times, precise orbital paths could be calculated. Knowing a satellite's true orbit as compared to the intended one was valuable information for aerospace engineers in the space age's infancy. The program was operational from 1956 to 1975.



Kevin Bert holds the military-grade Moonwatch Apogee scope, which he'll use as a rich-field refractor.

The SAO organized 100 teams of observers around the world in a program known as the Moonwatch Network and equipped them with copies of the unusual telescopes. The moons they sought were artificial, and the only way SAO could accurately determine their orbits



Volunteer satellite trackers in Pretoria, South Africa demonstrate the method used to track satellites using the Moonwatch Apogee scope in this 1965 photo from the Smithsonian Institution Archives.

Kevin's scope appeared to be not too worn, with optics mostly free of scratches, streaks or haze. The eyepiece helical mechanism was a bit tight. He was not able to reach focus at infinity, though he came closer when viewing without his eyeglasses. He notes the field edge was a bit blurry and was looking forward to a clear sky to conduct further tests.

## RELATED INFO

### Star Parties 2017

#### **NCRAL**

**April 21 - 23**

Rochester, MN

[Ncral2017.rochesterskies.org](http://Ncral2017.rochesterskies.org)

#### **WOW**

**June 22 -25**

Hartman Creek State Park

[WWW.new-star.org](http://WWW.new-star.org)

#### **Northwoods**

**August 25 -27**

Hobbs Observatory

Beaver Creek Reserve

Fall Creek, WI.

[www.cvastro.org](http://www.cvastro.org)

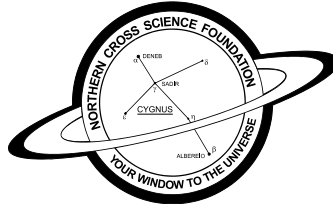
### Final Dues Notice

If you have not yet payed your 2017 NCSF dues you will find a Dues Notice enclosed. This final notice is an opportunity to remind members who want to main on our roster to take care of their status.

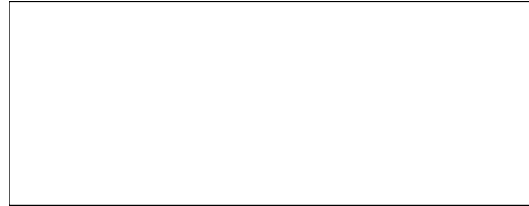
Simply follow the instructions on the notice and return to Treasurer Gene DuPree.



SPECTRUM  
5327 Cascade Drive  
West Bend, WI 53095



Jim & Gwen Plunkett  
OBSERVATORY



### 2017 Board of Directors

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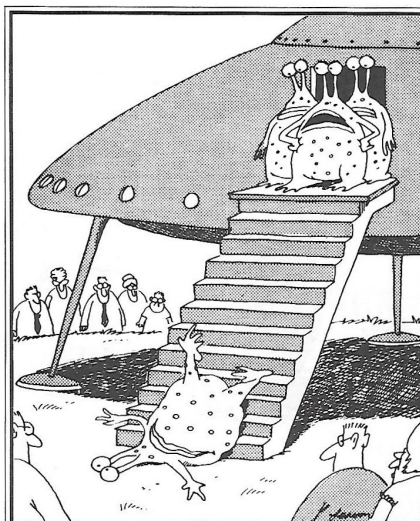
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**Rick Kazmierski - Newsletter**  
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[rickkaz@charter.net](mailto:rickkaz@charter.net)

**For Sale** Impressive large 14.5 inch telescope with unusual F/ 5.6 ratio! Reduced size secondary and curved vanes for less obstruction for planetary views. Custom made mirror made by known mirror maker Jim Mulherin of Torus Optical, now OMI. Taurus specified the mirror "Each mirror is guaranteed to be corrected for spherical aberration to 1/10 wave, peak to valley on the wave front using the Caustic Test with no detectable astigmatism under the Wire Test." My personal notes indicate he might have ground it to 1/16th.

Gorgeous views of M 13, M 81 and 82 in the same field, M 57, M 27, Jupiter, Saturn, Andromeda (M 31), Orion Nebula (M 42).... Includes shroud to keep dew off of main mirror, 2 wood arms to move it on 2 wheels (see picture), older dob driver, 2 inch JMI focuser with 1.25 adapter, 6 inch off axis aperture mask with separate cover, wires for dew heater on the secondary. Have over \$4000 cost but willing to sell for about 1/2 that amount. Height at zenith 77.5 inches; height at 60 degrees is 68 inches.

Nolan 414 333 5248



"Wonderful! Just wonderful! . . . So much for instilling them with a sense of awe."

### SPECTRUM

Published by the Northern Cross Science Foundation, Inc. A non-profit organization based in South-eastern Wisconsin.

NCSF is a member of the North-Central Region of the Astronomical League.



NCSF supports the *International Dark Sky Association*

This Issue, along with back Issues of SPECTRUM, can be found on the NCSF Web Site.

### Monthly Meeting Information

7:00 p.m. Astronomy 101 Mtg.  
7:30 p.m. Main Program  
Location at the -  
GSC Technology Center  
W189 N11161 Kleinmann Dr  
Germantown, WI 53022

Spectrum Newsletter  
5327 Cascade Drive  
West Bend, WI 53095

Please send your Questions, Suggestions, Articles, and photos to:  
[rickkaz@charter.net](mailto:rickkaz@charter.net)