NIGHTFALL

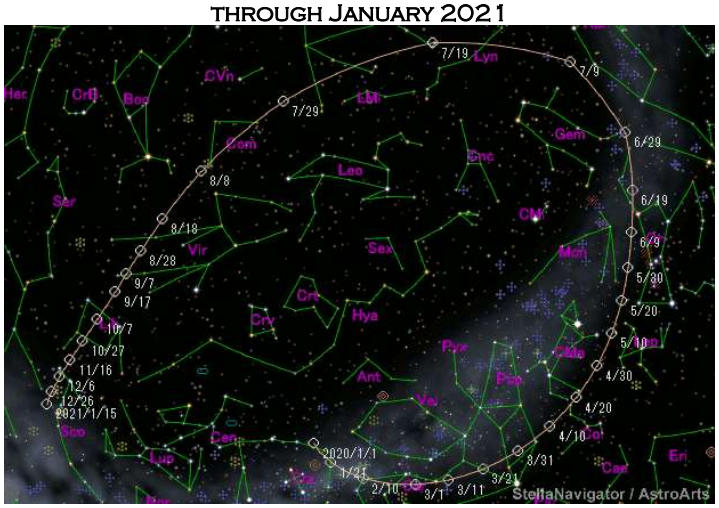
A PUBLICATION OF THE HUACHUCA ASTRONOMY CLUB

AUGUST 2020

PRESIDENT'S NOTES

Comets come and go, and C2020F3 Neowise is going now. It had a great run during its time whipping around the inner solar system, but it's now on the way to the dark reaches beyond the planets; OK, at least beyond the known planets. Well, our star system's known planets anyway. Many of us got to see it early on as a morning visitation and as an evening dazzler. Lots of images were taken (see beautiful examples elsewhere in this newsletter). It was viewed by a range of means, from bio-optics, to small and large binoculars, to large-diameter, high power telescopes. Comet Neowise is now considered to be the brightest comet seen in a decade, and probably the most observed since Comet Halley's last visit. We who follow comets had said we were overdue for a grand comet, and there it was. I must add that we comet followers always say we are overdue, always believe we are overdue, and will now begin to say we are overdue for a bigger brighter comet than C2020F3 Neowise.

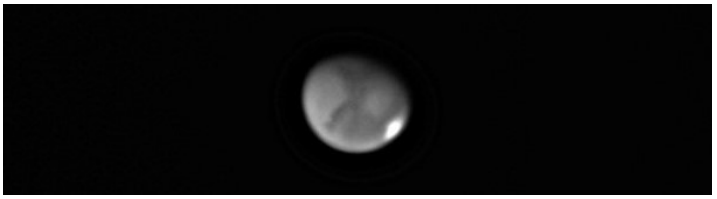
FINDER CHART FOR C/2020F3 NEOWISE THROUGH JANUARY 2021



Source: Seiichi Yoshida (comet@aerith.net) http://aerith.net/comet/catalog/2020F3/2020F3.html

Although the comet is well beyond its most glorious manifestation, it may be in our sights for several months to come, albeit much smaller and much dimmer. The finder chart, above, shows you when and where to find it through the end of the year. Notice how the dates and positions start clumping up in October? That is a dead giveaway that the comet is moving nearly directly away from us and the warmth of the inner solar system. So, no more solar heat to melt ice from the nucleus. Nor is there such an energetic solar wind to blow the ice, dust, and gases away from the nucleus and out into tails. The remnants of the comet will refreeze and follow along an orbit that will come around again if nothing out there perturbs it. So, do not expect too many more splashy photos. Still, it was quite a show while it lasted. We will see it next in about 6,300 years; don't wait up. And by that next time 'round, some comet follower will point out it was way overdue.

MARS IN B&W (ARE THOSE CANALS?)



Source: David R; 7/31/2020; a small stack of sub-exposures from an AVI video processed in RegiStax.

Also out there, many have not noticed that Mars has been steadily increasing its apparent size and showing surface features. Not noticing it is relatively simple when it is in line with Saturn and Jupiter. We cannot see any of the nonexistent H.G. Wells Marian launch sites nor the canals Percival Lowell described, but everyone should be looking just the same. We've still got a couple of months before Mars makes its closest approach on October 6th, but it is already high overhead in the wee hours of morning when the skies are calm and our mirrors and lenses have become temperature stabilized.

Oh and one last note, we are still revving up to begin virtual meeting, but to get practice as both hosts and audience we will be starting a series (i.e., more than one) of virtual star parties to iron out all the bugs and unforeseen problems before we ask speakers to enter the fray. Watch the HAC group for dates and times of the events and be ready to ask questions and help in the debugging of our new reality.

As always, get out there and stare.

Scholarship awards

HAC is supporting the scholarship efforts of the University South Foundation. We have accumulated some extra funds from the sale of donated gear, and the board has decided to use the funds to best advantage by doing some good with it.

We are supporting the foundation's "Golfing Fore Cyber Security" golf tournament this month as a "Bot Net" lunch sponsor and a "Hole Sponsor" (total $600). Proceeds from the tournament will go toward scholarships for Cyber Students.

We have also arranged for two needs-based scholarships to be awarded in the name of the club to local students attending classes at UA Sierra Vista College of Applied Science and Technology (CAST). Each scholarship is for $1,000 and will be awarded at the scholarship reception on August 6.

HAC members are invited to watch the presentation live on Facebook on August 6. The Celebration will begin at 5:30 pm and will stream on the University South Foundation Facebook.

Share this link with your family and friends to watch University of Arizona students from Southeastern Arizona receive their awards:

https://www.facebook.com/universitysouthfoundation/

You do not need to have a Facebook account to watch the event.

NASA Night Sky Notes August 2020

This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.org to find local clubs, events, and more!

Summer Triangle Corner: Deneb

By David Prosper

The Summer Triangle is high in the sky after sunset this month for observers in the Northern Hemisphere, its component stars seemingly brighter than before, as they have risen out of the thick, murky air low on the horizon and into the crisper skies overhead. Deneb, while still bright when lower in the sky, now positively sparkles overhead as night begins. What makes Deneb special, in addition to being one of the three points of the Summer Triangle? Its brilliance has stirred the imaginations of people for thousands of years!

Deneb is the brightest star in Cygnus the Swan and is positioned next to a striking region of the Milky Way, almost as a guidepost. The ancient Chinese tale of the Cowherd (Niulang) and the Weaver Girl (Zhinü) - represented by the stars Altair and Vega - also features Deneb. In this tale the two lovers are cast apart to either side of the Milky Way, but once a year a magical bridge made of helpful magpies – marked by Deneb – allows the lovers to meet. Deneb has inspired many tales since and is a staple setting of many science fiction stories, including several notable episodes of Star Trek.

Astronomers have learned quite a bit about this star in recent years, though much is still not fully understood – in part because of its intense brightness. The distance to Deneb from our Sun was measured by the ESA's Hipparcos mission and estimated to be about 2,600 light years. Later analysis of the same data suggested Deneb may be much closer: about 1,500 light years away. However, the follow-up mission to Hipparcos, Gaia, is unable to make distance measurements to this star! Deneb, along with a handful of other especially brilliant stars, is too bright to be accurately measured by the satellite's ultra-sensitive instruments.

Deneb is unusually vivid, especially given its distance. Generally, most of the brightest stars seen from Earth are within a few dozen to a few hundred light years away, but Deneb stands out by being thousands of light years distant! In fact, Deneb ranks among the top twenty brightest night time stars (at #19) and is easily the most distant star in that list. Its luminosity is fantastic but uncertain, since its exact distance is also unclear. What is known about Deneb is that it's a blue-white supergiant star that is furiously fusing its massive stocks of thermonuclear fuel and producing enough energy to make this star somewhere between 50,000 and 190,000 times brighter than our Sun if they were viewed at the same distance! The party won't last much longer; in a few million years, Deneb will exhaust its fuel and end its stellar life in a massive supernova, but the exact details of how this will occur, as with other vital details about this star, remain unclear.

Discover more about brilliant stars and their mysteries at nasa.gov.

Long exposure shot of Deneb (brightest star, near center) in its richly populated Milky Way neighborhood. Photo credit: Flickr user jpstanley. Source: https://www.flickr.com/photos/jpstanley/1562619922 License: https://creativecommons.org/licenses/by-nc-sa/2.0/

Pictures from HAC Members

Comet Neowise by David Roemer

Comet Neowise by Glen Sanner

Comet Neowise by Jay LeBlanc

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HAC Aug/Sep Calendar of Events

SU	MO	TU	WE	TH	FR	SA
2 Aug Saturn 2 degrees from moon	**3** **8:59 AM**	**4** **ALL IN-PERSON EVENTS ARE**	**5** **SUSPENDED INDEFINITELY**	**6** USF Scholarship reception on Facebook 5:15	**7**	**8**
9	**10**	**11** **9:45 AM** Perseid meteors	**12** Venus Western elongation Perseid meteors	**13** Perseid meteors	**14**	**15** Venus 4 degrees fm moon
16	**17**	**18** **7:42 PM**	**19**	**20**	**21**	**22**
23	**24**	**25** **10:58 AM**	**26**	**27**	**28** Ceres opposition	**29**
30	**31**	**1 Sep** **10:22PM**	**2**	**3**	**4**	**5**
6 Mars 0.03 degrees S of Moon	**7**	**8**	**9** Mars stationary	**10** **2:26 AM**	**11** Neptune at Opposition	**12** Jupiter Stationary
13	**14**	**15**	**16**	**17** **4:00AM**	**18**	**19**
20	**21**	**22**	**23** **6:55PM**	**24**	**25** Jupiter 1.6 deg N of moon. Saturn 2 deg N of moon	

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Send an email to: HACAstro+subscribe@groups.io