



## ***The Aero Aerial***

The Newsletter of the Aero Amateur Radio Club  
Middle River, MD  
Volume 18, Issue 1  
January 2022

Editor Georgeann Vleck KB3PGN

### ***Officers***

President	Joe Miko WB3FMT	Repeater	Phil Hock W3VRD Jerry Cimildora N3VBJ Ken Erisman NE3A Dave Brunner AC3EO
Vice-President	Rob Ballou AE3B	VE Testing	Pat Stone AC3F
Recording Secretary	Larry Hill KB3QWC	Public Service	Bob Landis WA3SWA
Corresponding Secretary	Pat Stone AC3F	Webmaster, Facebook	Jerry Cimildora N3VBJ
Treasurer	Warren Hartman W3JDF	Trustee:	Dave Fredrick KB3KRV (W3PGA) Jim Marshalek KC3FBL (AE3RO)
Resource Coordinator	Ron Distler W3JEH	Club Nets	Joe Miko WB3FMT
		Contests	Bob Venanzi ND3D

Website: <http://w3pga.org>

Facebook: <https://www.facebook.com/pages/Aero-Amateur-Radio-Club/719248141439348>

# About the Aero Amateur Radio Club

## Meetings

The Aero Amateur Radio Club meets at 7:30 pm on the first and third Wednesdays of the month at Essex SkyPark, 1401 Diffendall Road, Essex. Meetings begin at 7:30 p.m. local time. Meetings are canceled if Baltimore County Public Schools are closed or dismiss early.

## Repeaters

**W3PGA**      **2 M :** INPUT : 147.84 MHz, OUTPUT : 147.24 MHz, PL 123.0  
**W3PGA**      **70 Cm:** INPUT : 444.575 MHz, OUTPUT : 449.575 MHz, PL123.0  
**W3JEH**      **1.25 M:** INPUT : 222.24 MHz, OUTPUT : 223.84 MHz

## Club Nets

Second Wednesday Net – 70 Centimeters (449.575 MHz Repeater) @ 8 p.m. Local Time

Fourth Wednesday Net – 2 Meters (147.24 MHz Repeater) @ 8 p.m. Local Time

Fifth Wednesday Net – 10 Meters (28.445 MHz) @ 8 p.m. Local Time

## Radio License Exams

The Aero Amateur Radio Club sponsors Amateur Radio License Exams with the ARRL VEC. Examination sessions are throughout the year. Walk-ins are welcome; arrive no later than 30 minutes after start time. \$15 charge.

### 2021 Examination Schedule DUE TO COVID-19 DATES May be **Canceled!**

Time:	12 noon	12 noon	
Dates:	Sat., Jan. 22		
Where:	American Legion, Rosedale	American Legion, Rosedale	

American Legion Post 180, 1331 Seling Ave., Rosedale, MD 21237

Contact: Patricia Stone AC3F, email: [ac3f@juno.com](mailto:ac3f@juno.com), landline: 410-687-7209

## LOCAL AREA NETS

Day	Time	Freq. (MHz)	Net Name
Daily	9 – 10 am	145.330	Oriole Net
Daily	6 pm	3.820	Maryland Emergency Phone Net
Daily	6:30 – 7 pm	145.330 no PL	Balto. Traffic Net (b/u 146.670 PL 107.2)
Daily	7 pm & 10 pm	3.643	MD/DC/DE Traffic Net
2 <sup>nd</sup> Tue	7:30 pm	146.670	Baltimore County RACES Net
2 <sup>nd</sup> Wed	8 pm	449.575	Aero ARC Net
4 <sup>th</sup> Wed	8 pm	147.240	Aero ARC Net
5 <sup>th</sup> Wed	8 pm	28.445	Aero ARC Net
Fridays	7:30 pm	145.330	Back in the Day Net
When activated by NOAA		147.030	SkyWarn (primary)

# From the President's Desk

## AERO ARC Year in Review 2021

by Joe Miko and Patricia Stone

The Aero Amateur Radio Club overall had a good year. The membership decrease from **49** members in 2020 to **46** at the close of 2021. The members were engaged in many operating activities and public service events.

### **COVID-19 Pandemic Continues**

*The Covid -19 Pandemic sarted to decrease during the spring of 2021, and by Field Day weekend, things started to look almost normal. This continued untill November's Thanksgiving holiday with an upshot of the vires with the Greek letters. For political reasons the Greek letter xi was not used. The current varriant is "O" omicron. And as of this article masks are being mandated for the near future. By the second week of December the gains made in the summer months were wiped out! So it's looking like a bleak winter. Please hold on, pray, and help when and where you can.*

### **Club's January Contest "25 days of FUN"**

The year kicked off with the club's **25 Days and 25 Nights of Fun Contest**. And this year's winner was, Bob Landus. He was awarded a Certificate and a Handmade Maryland Flag mouse pad. The Maryland Flag mouse pad get award gets passed along to the winner of the 2022 contest along with a new certificate.



### **Aero Club Radio Nets: CW, Phone, & the Baltimore Traffic Net**

Pat's CW net is held on Sundays at 20:00 on 146.55 simplex. She also runs the CW nets on other days as needed. A big thanks to Coz WA3RQD for his help as net control in her absence.

I hope you will consider checking into one of our "CW Training Nets". We meet on the air every Sunday at 8PM on 146.55 and at 7:00 pm. Hope you will consider joining our "fine fisted folks" one evening during our CW training nets.

I am grateful for the interest and dedication these folks have shown for Mr. Morse and his code. I am also proud to report that all of those who had the pleasure of working with her during the past year and a quarter are becoming true "Brass Pounders". Several of them are already making CW QSOs. I am sure that the rest will be on the air using code within the next few months. Rob Ballou is currently

using his Morse Code skills working as a representative going from the Baltimore Traffic Net (BTN) to the Maryland, Delaware, and District of Columbia (MDD), a CW traffic net.

As for the AERO Amateur Radio Phone nets, there were **24** nets held during 2021. The breakdown for the nets was:

70 cm: **10 nets, 4 hrs 34 mins with 72 check-ins.**

2-meters: **12 nets, 5 hrs 13 mins with 67 check-ins.**

10 meters: **3 nets, 0 hr 48 mins with 11 check-ins.**

**ZOOM Tela-conferences 15 sessions, including 5 dual sessions ZOOM from the airport, 16 hrs 05 mins with 177 check-ins.**

Meetings at the Skypark were: **15 meetings, 11. hrs 55.mins with 147 participants.**

There were **no** snow nets in 2021.

A combined total of **474** people checked into Nets, ZOOM or meetings at the Skypark for a combined time of **38 hrs and 35 mins.**



Also, several of our club members participate in the **Baltimore Traffic Net**, the local part of the National Traffic System (NTS) a voice net held every day at 6:30pm on the Shawsville repeater 145.330r. This net acts as a starting point to move formal traffic in the form of an ARRL Radiogram (Think the old-style Western Union Telegram) within the State and across the U.S. and foreign countries.

### ***Sad Note... A Silent Key and Other Losses***

For the third time in two years the Aero ARC lost a beloved and longtime member, recent member and a member's spouse. Jim "No Call" Dilley was an old time member from the Coffman's Snack Bar era. Russell Harvey W3WFI, a member since 2017, passed away last spring and was buried in his hometown in North Carolina. The third passing was that of George Holy MGySGT, USMC Retired, the beloved husband of Margaret Holy KC3FZZ. A Vietnam combat veteran, George Holy was interred at the Arlington National Cemetery with full military honors to salute his 25 years in the Corps as well as 16 years as a federal law enforcement officer with the Dept. of Veterans Affairs at Fort Howard and the Baltimore VA Medical Center.

## **Aero Club Elections 2021 brought to you by the PA RR**



The club's election was held on May 19. The election of club officers was done during a face-to-face meeting. It happened so fast; people were elected before the polls closed. As I recall, I never saw or heard the train as it went by the station. As in previous elections all of the current officers were railroaded, ... err... re-elected.

Stemmer's Run Station near Orems Road near the Rossville Road overpass



GG1 Electric Locomotive used by the PA RR.

## **VE Testing**



The VE Testing Program was as successful as it could be! For the 2021-year Pat AC3F and her VE's tested worked at 5 test sessions at the American Legion in Rosedale and 1 at the at the Essex Skypark on Field Day Saturday. A tentative schedule has been submitted to the American Legion for next year, testing will still be held on Saturday but the start time will be at 12 noon instead of 1 pm.

All told, we tested 41 applicants with 6 test sessions. The breakdown was **24** Techs, **12** Generals **5** Extras. The number of VE's participating in 2021 was **10**.

VE's Sessions served: AC3F 6

AC3EK 1	N3VBJ 1	N3FQC 5
KD3TP 1	KB3VAE 4	WB3FMT 5
KB3KRV 1	N3RES 5	WA3QLY 6

## **Public Service Support and Club Contest 2021**

The Aero ARC was not able to participate in the customary civic events as we normally do. A number of events this were also canceled. Baltimore County and the Essex Skypark were canceled or became a virtual event because of COVID-19.

On the Public Service front Aero member Bob WA3SWA continued to assist BRATS for various **Multiple Sclerosis Bike Tours** and Walks and participated in other area clubs' activities.

**Essex Skypark's annual pancake breakfast** open to the public usually held in May was not canceled due to COVID-19. The morning started out with light showers and was clear by 10:30.

**Essex Skypark's Wings and Wheels**, a Fly-In and Custom and Antique Cars and Truck display open to the public, held in mid-September, was canceled due to COVID-19 up start and due to prior commitments, car group and catering company could not make that date.

**ARRL Phone Sweepstakes** scheduled for Nov 20 was canceled. This contest was planned for November 20-21 but a scheduling conflict caused cancellation of this event. Hopefully better scheduling next year.

## **Field Day 2021**

First, we had to contend with COVID-19 and all the medical stuff with it. We were able to use the FBO this year for testing. And we only had 1 partially assembled aircraft in the Community Hangar, which gave us ample space for our 4A station setup.



Harry Rundall AC3EK ready at the Key!

So, to get started we decided during our planning meeting that we would operate as a 4A configuration. And we were planning to use three Off Center Fed Dipoles (OCFD) and the 20-meter beam with a rotor. We did not use the club's 5 BTV antenna this year. We put good use to the three OCFD. One station was set up to operate Digital or CW as well as Phone.

Again, Murphy was an optimist! We had not one but two antenna cables, purchased last year, with bad connectors and that old antenna rotor that wouldn't. Instead of going click, click, click to the new antenna position it went werr, werr, click,....., maybe another click.

Providing no idea where the antenna was pointing. Visual sighting of the antenna was the only way we could move and be assured that it did move. I sure hope we can get a better one. (See, Christmas came early.)

Pat AC3F and Jerry N3VBJ

They were also shown our club's displays updated and printed with the help of Rob Ballou AE3B. Thanks for all your efforts in putting this display together. There was also a display by Jerry Cimildora N3VBJ with SKYWARN a National Weather Service program for weather spotters.



Rob's AE3B Club Information Board.

The Aero ARC's modified Field Day setup did have good results. We worked 44 states, Canada, the Virgin Islands Rico. We made 464 contacts, using Phone, and CW, and digital.

**Total Points 2,590 = QSO 1,140 + Bonus 1,450**

**Stats by Band** 80 **CW** 9 80 **Phone** 109 80 **Digital** 0

40	21	40	121	40	31
20	40	20	115	20	4
15	1	15	4	15	0
10	0	10	9	10	0

Totals **71** **358** **35** = **464 Contacts**

This year because of the Pandemic operators could work from home and submit their scores under their call sign and list the club's call sign. QST would then add together the aggregate scores in the December QST.

There were 16 Aero Members Operated and 9 Members Visited during FD 2021.

Thank to Tom Henry N3TJR, we were visited to two of the local Delegates Richard Metzgar and Rick Impallaria. Both delegates were given tours of the radios and antenna setup and shown an example of an emergency communication setup assisting in a disaster situation. Both were impressed with our setup using voice, Morse code using voice, Morse code and digital modes of communications.



House of Delegates Richard W. Metzgar  
(R) District 6 - Baltimore Co.



House of Delegates Richard Impallaria  
(R) District 7 - Balto. & Harford Cos.

Aero members operating and supporting with this event were: Dave KB3KRV, Joe WB3FMT, Larry KB3QWC, Dave AC3EO, Liea & Todd, Bob WA3SWA, Phil W3VRD, Warren W3JDF, Pat AC3F, Jerry N3VBJ, Richard KB3VAE, Ray N3RES, Rob AE3B, Steve KD3TP, Brittany KB3YKN, Dan KB3CMS, Harry AC3EK, John KN4GXB, Molly KC3OUU. And Sue Landis for the Cookies!

Members of AERO ARC members were onsite between 07:00 am on 6/25 thru 4:00 pm on 6/27.



James and Tom



Take a guess how many people are needed to change a light bulb?

Rob almost had the last word, but Jerry wanted to tape it!



The food trough manned by Susan Landis.



Hanger View after setup.

## ***Repeater Upgrade***

The club's repeater system is operational with the following conditions.

The 147.24r using PL 123.0. The id'er now says W3PGA..24 and operates in the Auto mode, which allows for either an Analog FM or C4FM modes.

The 440 repeater 449.575r also using PL 123.0. The id'er says W3PGA...44. This repeater only operated in the Analog FM mode. This change was made after the Thanksgiving school holidays. The reason being that it has a hardware glitch that in certain conditions when hearing a marginal signal, the repeater hangs in a transmit mode, which can only be reset via a power down. Jerry N3VBJ installed a replacement receiver and test the knock down codes for each repeater and power up control for both repeaters. Both worked as tested.

## ***Club's Equipment Trailer***

Thanks to Marty KC3AID, Richard KB3VAE, and Joe WB3FMT, the trailers has a new set of tires installed by Marty, wheel bearings checked and the new stabilizer front and rear jacks were installed. This was a two-day effort by Marty. A couple of hours each day on Dec. 22 and 23 in 2020 made all the difference. We had smooth sailing for FD21. Thanks to Marty KC3AID for a needed job well done! Looks like the trailer is good for another 20 years.

## ***Christmas came early!***

The electronics museum has lost its space. Phil saw they were getting rid of a Ham Rotor II, in good condition. He checked and they wanted \$200 for the unit. After the problems we had with the old

club's rotor we tried to use at FD21 at best it almost worked at worst it didn't. I was going to put out an email to get a club vote to spend the money to get it, but I didn't get the chance. I was called by an anonymous donor who offered to purchase the rotor as a gift to the club. About a week later we had a newer rotor and cable. We may need to get additional cable and mounting hardware; this will be an activity for the spring of '22. Thanks, secret Santa, whoever you are? And thanks to Phil W3VRD for looking out for the needs of the club.

Another activity which helped the club for the next Field Day was performed by Steve KD3TP. He took the 2 rolls of cables that posed a problem during last FD. He checked and removed and replaced the PL259 connectors, all is well. Thanks again, Steve.

## ***2021 Aero Christmas Party***

On December 15<sup>th</sup> the Aero ARC had its annual Christmas get together. Sorry I couldn't be there, but I just read the Police report when it gets published in the local paper. That said, it looks like people had a great time and thanks to Rob who, dropped off goodies to me at GBMC after the get together.



Rob, Steve, Larry, Dave, and Pat



Steve, Bob, Phil, Pat and Dave



Bob, Phil, Pat, Dave, Steve, and someone with gray hair.

Before I close, I would like to thank everyone who made and helped at the face-to-face meetings and a special thanks to Rob AE3B for hosting the bi-monthly ZOOM meetings.

Again, thanks to all the members of the Aero Amateur Radio club, for all your help and continued support. A club is only as good as its members want it to be!

A couple of meaningful quotes!

Imagination is more important than knowledge.

- Albert Einstein

There are some experiences in life they haven't invented the right words for.

**(Words of wisdom sayings)**

If you judge people, you have no time to love them.

-Mother Teresa

Happy New Year, may it bring Peace and Health to everyone.

*Joseph Miko*

WB3FMT

# AERO AMATEUR RADIO CLUB

## BEAT THE WINTER DOLDRUMS – 2021

**Purpose:** To work as many callsign PREFIXES as possible during the contest period. A PREFIX is the letter/numeral combination which forms the first part of the amateur call. Examples: N8, W8, WD8, HG1, HG19, KC2, OE2, OE25, LY1000, etc. Any difference in the numbering, lettering, or order of same shall count as a separate prefix.

**When :** 0000 UTC, Saturday January 1, 2022 (1900 EST, Friday December 31, 2021) thru 2359 UTC, Monday January 31, 2022 (1859 EST, Monday January 31, 2022)

**Eligibility:** All current AERO members.

**Station:** You may operate from any amateur radio station – from your home, a guest's home, terrestrial mobile, maritime mobile, aeronautical mobile.

**Bands & Modes:** Work any bands and modes allowed by your license class. However, Echo Link, IRLP, Wires X (Internet modes) **are not** permitted. Repeater contacts **are** permitted.

**Scoring:** One (1) point per prefix worked. A prefix may be claimed for score ONLY once during the contest period.

**Bonus Points:** NONE

**Other Info:** Net contacts are permissible ONLY if you actually speak to the station. I.e., Station A is net control and Stations B and C check into the net. You check in with net control and pass traffic to Station C but never talk to Station B. You may claim only Stations A and C for credit.

**Logs must be received by WA3SWA before 2359 UTC Monday February 7, 2022. Logs must contain, at a minimum, a list of all prefixes worked. They can be in any standard readable format or hardcopy. It is not necessary to include date, time, band, etc. You may email your log to [wa3swa@gmail.com](mailto:wa3swa@gmail.com) or bring it to the 1st club meeting in February.**

**Results will be announced at the February 16<sup>th</sup> Aero meeting. In the event of a tie, a random drawing will be held at the meeting to determine the winner.**

### Ten Tips for New Contesters and Those with Modest Stations

Former ARRL Headquarters employee turned ham radio retailer John "Bee" Bartscherer, N1GNV, considers himself a casual contesteer with a 100 W transceiver and a wire antenna. As the fall and winter contest season begins, he shared 10 operating tips for new contesters and those with modest stations.

1. **Read the contest rules.** Know which bands are in play, your entry category, and the contest exchange.
2. **Use a logging program.** Quite a few options are out there. Bee's personal choice is [N1MM Logger+](https://n1mm.org/). It's free, has an amazing array of features, and it's updated regularly. Most current logging software will interface with just about any modern HF radio.
3. **More operating time means more contacts.** Get rid of any distractions, such as texting, TV, and email, and concentrate on making contacts. However, Bee does suggest taking breaks. For

5 minutes each hour, get up, stretch, hydrate, and get some fresh air.

4. **Set achievable goals.** If you're not an experienced contestor with a well-equipped station (yet), it's not likely that you'll win a contest. Instead of trying to win, aim to beat your score from last year's contest, try to work DXCC in a weekend, or try to outscore fellow club members.
5. **Study propagation forecasts.** Get a sense of what bands are likely to be open to areas you want to work and when. This will help you come up with a basic operating strategy. Band openings can occur at any time, so if you're operating in a category that allows it, keep an eye on the DX luster to find out when a DX station is on the air.
6. **Don't waste time in pileups.** Early on in a contest, don't waste a lot of time trying to break the pileup. Try a call or two, but if you don't succeed, move on and try again later.
7. **Work multipliers.** Most contests include multipliers in their scoring system, which can help to boost your score. Typically, you multiply your contact points by the number of multipliers (Sections, states, DXCC entities, grid squares) to determine your total score.
8. **Know your radio's knobs.** Familiarize yourself with your radio's front-panel controls, as well as any functions that may be hidden in a menu. Just about every radio has an attenuator, preamplifier, RF gain control, noise blanker, and, frequently, noise reduction. Most will also include an IF shift or passband tuning. Try turning off the preamplifier and turning on some attenuation. This may seem counterintuitive, but if a station sounds loud, chances are you're also loud to them. Reducing RF gain can also knock down strong, close-in interference, so you can hear (and contact) weaker stations that may be drowned out by stronger ones.
9. **Use standard phonetics.** Cute phonetics might be okay to use on your local repeater, but in a contest, other stations will be listening for standard phonetics. Even though phonetics can vary, it's important to be consistent.
10. **Listen before calling.** Make sure you correctly copy the other station's call sign and exchange, which you can enter in your log while waiting in line (this is especially valuable during the ARRL November Sweepstakes, where the exchange is more than a simple signal report). Listen to the other operator's pattern (saying "QRZ?" after each contact, for example). Make sure you're transmitting when the other station is listening. -- *Adapted from [The ARRL Contest Update](#)*



**Contesting at W9SN.**

Source: *The ARRL Letter* for November 12, 2021

## *Net Reports*

No information.

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## *VE CORNER*

*by Pat Stone, AC3F*

The AERO VE Team held its final session of 2021 on November 20th. We served 1 applicant. Congratulations to new Extra Bill KB3FFH.

Many thanks to VE's: WB3FMT, WA3QLY, N3RES AND N3FQC for assisting me with this session. We couldn't do this without you. Hope to see you in January. It's always a joy working with you.

Our next test session will be held on Saturday, January 22 at 12:00PM Noon) at the American Legion Post 180 in Rosedale. Hope to see you then.

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## *Hamfests*

### **Sunday, March 27, 2022: Winterfest, ARRL Virginia Section Convention**

Location: Northern Virginia Community College Annandale Campus, 8333 Little River Turnpike, Annandale, VA 22003

Website: <https://viennawireless.net/wp/events/winterfest/>

Sponsor: Vienna Wireless Society

Talk-In: 146.685 MHz Repeater (neg offset, 110.9Hz CTCSS))

Contact: Mike Aimone , WA9AHZ, 4835 Powell Rd., Fairfax VA, 22032, Phone: 703-870-1730

Email: [dontay155@gmail.com](mailto:dontay155@gmail.com)

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# From the Skies over Mt. Essex

## SKY Events for January 2022

January 1<sup>st</sup> HAPPY NEW YEAR 7E6<sub>I6</sub>

Jan 2<sup>h</sup> – New Moon

Jan 3-4<sup>th</sup> – Quadrantids Meteor shower approx 60 -120 meteors per hour, look NE toward Bootes after mid-night. 4<sup>th</sup> latest sunrise of the year.

Jan 4<sup>th</sup> - Earth at Perihelion (closest to the Sun)  
91,406,842 miles at 1:55 EST.

Jan 7<sup>th</sup> – Mercury greatest Elongation E 19.2° east of the Sun. 11UT, 06 EST.

Jan 8<sup>h</sup> – Stephen Hawking born 1942.

Jan 9<sup>th</sup> – First Quarter Moon

Jan 11<sup>th</sup> – Uranus is 1.5° N of Moon, 11UT, 06EST

Jan 13<sup>th</sup> – Double shadow transit on Jupiter, 6:50UT,01:50 EST.

Jan 17<sup>th</sup> – Full Moon, “Winter Moon” for Traditional and “Whirling wind Moon” for the Passamaquoddy (Great Lakes) American Indian. Also, the smallest Full Moon in 2022.

Jan 25<sup>th</sup> –Last Quarter Moon

## Planet Lookout at mid-Month

Sunrise 07:14 EST and Sunset 17:08 EST

**Mercury** Evening Rise 08:00 Set 18:21; Mag +0.8; Size 8.6 seconds

**Venus** Morning Rise 6:14, Sets 16:33 Mag -4.5 and 61.6 arc seconds.

**Mars** Morning Rises 05:07, Sets 14:40, Mag +1.5 and 4.1 arc seconds wide.

**Jupiter** Evening, rises 09:16, Sets 20:13, Mag-2.1 size 34.4 arc seconds.

**Saturn** Evening, rises 08:19, Sets 18:33, Mag+0.7 size 15.4 arc seconds.

**Uranus** Evening Rises 12:07 Sets 01:46; Mag +5.7 size 3.5 arc seconds.

**Neptune** Evening Rises 10:01 Sets 21:37; Mag +7.9 size 2.4 arc seconds.

## Upcoming Events for 2022

### Planets – Mercury and Venus in 2022

Maximum Eastern and Western Elongations

		Date	°		Date	°	
<b>Mercury</b>	EE	1/7/22	19.2	E	WE	02/16/22	26.3
		4/29/22	20.6			06/16/22	23.2
		8/27/22	27.3			10/08/22	18.0
		12/21/22	20.1				

<b>Venus</b>	WE	03/20	46.6	WE	EE	None	E
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**Mars Opposition** 12/08/22 Closest App 12/1/22 50.6 M miles

### Moon – 2022

**Blue Moon** – (3<sup>rd</sup> FM in a Season of 4 FMs) **None in 2022**

**Black Moon** – (2 New Moons in a month) – April 30<sup>th</sup>, 2022

**Harvest Moon** - 09/10/22

**Hunter Moon** - 10/09/22

**Super Moons** -Full 5/16, 6/14, 7/13 Largest in '22 and 8/12

**Lunar Eclipses in 2022 - 2 Total - Visible in the US 5/16/22 & 11/08/22**

**Sun Ended Sunspot cycle 24 began cycle 25 in Dec. '19**

**Solar Eclipses in 2022 - 2 Partial , Not Visible in US**

### Meteor Showers for 2022 Predictions - 3 Good, 3 Poor

Quadrantids 1/3	New Moon	Poor	60-120 per hr
Eta Aquarids 5/6	1 <sup>st</sup> Qtr.	Good	50 per/hr
Delta Aquarids 7/29	3 <sup>rd</sup> Quarter	Poor	25 per hr
Perseids 8/13	Full Moon	Poor	60-80 per hr
Orionids 10/21	New Moon	Good	20 per hr
Leonids 11/17	4 <sup>th</sup> Quarter	Poor	15 per hr
Geminids 12/14	4th Quarter	Fair	120 per hr

### Seasons in 2022

Earth Perihelion	01/04/2022	01:55 EST	06:55 UT
Earth Aphelion	07/04/2022	03:00 EDT	07:00 UT
Vernal Equinox	03/20/2022	11:33 EDT	15:33 UT
Summer Solstice	06/21/2022	05:13 EDT	09:13 UT
Autumnal Equinox	09/22/2022	21:03 EDT	01:03 UT
Winter Solstice	12/21/2022	16:48 EST	21:48 UT

### Daylight Saving Time 2022

Begins 03/13/2022 - Ends 11/6/2022

### Easter Dates 2022 Full Moon 04/16/2022

Easter Christian (Western) 4/17/2022  
Eastern Greek (Orthodox) 4/24/2022