MOUNTAIN SPARK GAPS

NPARC—The Radio Club for the Watchung Mountain Area

Website: http://www.nparc.org
Club Calls: N2XJ, W2FMI
Facebook: New Providence Amateur Radio Club (NPARC)

May 2024

Volume 57 No. 5

Regular Meetings

Second & Fourth Mondays

May 13 - Business Meeting at SBS
May 27 - Zoom Only (SBS Closed)

Upcoming Events

May 18 – Loantaka Fox Hunt
May 27 – Memorial Day parade.

Digital Net Mondays at 9 PM – 28.086 MHz (+/-)
CW Net, Thursdays at 9 PM – 28.050+QRM

Meeting Schedule

Regular Meeting: 7:30—9:00 PM
2nd & 4th Monday
of each month
Watch for Emails

Everyone is Welcome
If a normal meeting night is a holiday, we usually meet the following night.
Call one of the contacts below or check the web site

Club Officers for 2024

President: K2UI, Jim Stekas
908-868-4970
Vice President:W2EMC Brian DeLuca
973-543-2454
Secretary: K2AL: Al Hanzl
908-872-5021
Treasurer: K2YG Dave Barr
908-277-4283
Activities: KC2OSR, Sam Sealy
973-635-8966

On the Air Activities

Club Operating Frequency
145.750 MHz FM Simplex

Sunday Night Phone Net
Murray Hill Repeater (W2LI) at 9:00 PM
Transmit on 147.855 MHz
With PL tone of 141.3 Hz
Receive on 147.255 MHz
Net Control K2AL

Digital Net
Mondays 9 PM
28,084 — 28,086
Will be using PSK and RTTY
Net control K2YG

Club Internet Address

Website: http://www.nparc.org
Webmaster KC2WUF David Bean
Reflector: nparc@mailman.qth.net
Contact K2AL, Al

MOUNTAIN SPARK GAPS

Published Monthly by NPARC, Inc.
The Watchung Mountain Area Radio Club
P.O. Box 813
New Providence, NJ 07974

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Acting Editor: K2UI Jim Stekas
Contributing Editors:
WB2QOQ Rick Anderson

Climatological Data for New Providence - March 2024

The following information is provided by Rick, WB2QOQ, who has been recording daily weather events at his station for the past 43 years.

TEMPERATURE -

Maximum temp. this March, 71 F (Mar 14)
Last March(2023) maximum was 64 F.
Average Maximum temp this March, 53.0 F

Minimum temp this March, 24 F (Mar 22)
Last March(2023) minimum was 24 F.
Average Minimum temp this March, 37.0 F

Minimum diurnal temp range, 4 F (45 - 41 F) 3/5
Maximum diurnal temp range, 30 F (71 - 41 F) 3/14

Average temp this March, 45.0 F
Average temp last March, 41.5 F

PRECIPITATION -

Total precipitation this March –
7.52” rain/melted snow, trace snow
Total precipitation last March –
3.27” rain/snow melt; 2.30” snow

Maximum one day precip. Event - March 23, 2.51” rain.

Measurable rain fell on 12 days this March
13 days last March.

YTD Precipitation – 15.13”

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Rick Anderson 4/2024
243 Mountain Ave.
New Providence, NJ
(908)464-8911
rick243@comcast.net

Lat = 40 degrees, 41.7 minutes North
Long = 74 degrees, 23.4 minutes West
Elevation: 380 ft.
CoCoRaHS Network Station #NJ-UN-10

President's Column

This month we have two NPARC activities to look forward to:

May 18 – Walking Fox Hunt at Loantaka Brook Reservation.
May 27 – New Providence Memorial Day Parade (see article by WB2QOQ)

Keep an eye on the reflector for updates.

We recently learned of the passing of Paul Campano, N2KDK. He was a practicing attorney who was an active NPARC member for many years and served as President in 2011 and 2012. In addition to ham radio Paul had an eclectic list other interests, including model building, football, drawing, stage acting, rocketry, astronomy, gardening, reading and crosswords. The club will donate $250 in his memory to Tabby's Place in Ringoes, NJ. (Obituary)

73,
Jim – K2UI

Popular Contests in May 2024

Dave Barr – K2YG

Contest Name	Dates	Mode	Exchange	Notes & Websites
ARI Int DX Contest	5/4 Sat 8 am to 5/5 Sun 8 am	CW Phone RTTY	Italy: rs(t)+prov code non: rs(t)+serial #	QRP/LP/HP 80-10 meters https://concursos.ure.es/en/eartty/bases/
7th Area QSO Party	5/4 Sat 9 am to 5/5 Sun 3 am	CW Phone Digi (no FT)	7's: rs(t)+st&cnty non: rs(t)+state	QRP/LP/HP 160-10 m Exch=5 letters: 2 letters for state and 3 for county. Only 2 letter state code for us. http://7qp.org
Indiana QSO Party	5/4 Sat 11am-11pm	CW Phone	IN: rs(t)+county non: rs(t)+state	QRP/LP/HP http://www.hdxcc.org/inqp/rules.html
Delaware QSO Party	5/4 Sat 1 pm to 5/5 Sun 8pm	Phone Digi RTTY CW	DE: rs(t)+county non: rs(t)+state	QRP/LP/HP 160-10 meters, VHF https://www.fsarc.org/ Bonus K3QBD
VOLTA RTTY Cont	5/11 Sat 8am to 5/12 Sun 8am	RTTY	RST + Serial # + CQ Zone	No power restrictions 80-10 meters http://www.contestvolta.it/rules.pdf
Canadian Prairies QSOP	5/11 Sat 1pm -11pm	CW Phone	VE4-6: rs(t) +district Non: rs(t) + state	QRP/LP/HP 40-10m (no 80m) https://cpqp.ve6hams.ca/
Arkansas QSO Party	5/18 Sat 10am-10pm	CW, Phone, Digi (no FT)	AR: rs(t)+county non: rs(t)+state	QRP/LP(150w)/HP 160-2 meters http://www.arkqp.com/ Bonus: WR5P
Feld Hell Sprint	5/18 12 noon to 4 pm	FeldHell	Name, FH# (if member); QTH; Grid	No power restrictions. See website for freqs & get member #. https://sites.google.com/site/feldhellclub/Home/contests/sprints/Happy-Birthday-Rudolph-Sprint
CQ WW WPX CW	5/24 Fri 8pm to 5/26 Sun 8pm	CW	rst + serial #	QRP/LP/HP 160 – 10 meters https://www.cqwpx.com/rules.htm

Check www.contestcalendar.com or contest specific websites for more information on these and many other radio contests.

- State QSO Parties allow out-of-state stations to contact only in-state stations for that specific contest. In-state stations may contact all contest stations. See websites for county abbreviation lists. The county codes for the New England QSO Party have changed radically since last year.

- The 7th Area QSOP includes AZ, ID, MT, NV, OR, UT, WA & WY. The New England QSO Party includes: CT, MA, ME, NH, RI & VT. All New England, 7th Call Area, Indiana and Delaware county codes are 5 digits beginning with the 2 letter state abbreviation and followed by a 3 letter county code. The N1MM logging program has a logging choice named "IN7QPNE" which will log all qso's in the 7QP, the NEQP as well as the concurrent INQP and DEQP in a single log. That (Cabrillo format) log can be uploaded to each of the 4 qsop's sites which will automatically sort QSOs into the four contests. The advantage is we do not have to switch from one log to another as we participate in these four qso parties.

New Providence Memorial Day Parade

Rick Anderson - WB2QOQ

NPARC members are invited to participate in this years Memorial Day Parade, taking place on Monday, May 27. Our club has participated in this town event, for many years.
This is the one public event where hundreds of town's people get to see the club members, and a good attendance from our members is most welcomed.

Our unit will walk the parade route, down Springfield Ave., between Central Ave. and Academy St. Please consider taking part in this community event. As last year, Paul W2PTP, has offered one of his classic cars, for members who may not be comfortable walking the route. Please reach out to me to register for this event, either walking or riding; or questions. Limited room in car. Further details on club reflector.

Rick Anderson, WB2QOQ, rick243@comcast.net; (908) 464-8911. Thanks Much !

Salt Brook School Stem Fair 2024

Kevin Glynn– N2TO

On Wednesday, 03/13/24, Don, K2DAM, Jay, KD2ZRO and I had the opportunity to support the Salt Brook School STEM Fair 2024. When I met with Principal Drexinger last October to discuss the possibility of having Kids Day 2024, I was informed of the STEM Fair. She asked if we would like to share our knowledge in ham radio with the students and parents. I loved the idea and said I would bring it to my club.

I did just that and Don and Jay volunteered. Don wore two hats by running a 2 Meter rig and as photographer. The Tri-County Radio Association graciously allowed us use of the W2LI repeater. Jay presented two terrific Raspberry Pi 5s with monitors and keyboards. I setup my Yaesu FT-857D rig as a code oscillator with a Navy Flameproof straight key. I made laminated signs MORSE CODE, LOCAL CONTACTS and RASPBERRY Pi 5. My XYL Mary taped them to the table and we were good to go. I wanted all our equipment to be battery powered for simplicity in setup.

We were located in the corner of the gym near the 3rd graders. Mary and I were so impressed with their presentations. We spoke with some presenters early on and were completely blown away by the students' knowledge and enthusiasm.

Don, Jay and I had lots of students and later parents stop by to see what Ham Radio is all about. About ten students and three adults were curious about Morse Code. I asked them to sit in the driver's seat and have at it. I taught them how to send their name and additional information. When asked how this stuff works, I spoke of radio wave propagation and how satisfying it is to speak with hams all over the world.

I was so happy to see the enthusiasm, participation and work done by the students. This comes from the top and Ms. Drexinger and the school did a fantastic job. I am happy to report that NPARC will be invited to future events at SBS.

New Providence Amateur Radio Club was invited to present facets of our activities at the annual STEM night at Salt Brook School. Jay Morreale (KD2ZRO), Kevin Glynn (N2TO) myself, Don Madson (K2DAM) arrived at about 6:30pm and were led to the gymnasium, where a table in a corner position was provided.

Jay assembled his intricate Raspberry Pi exhibit/demonstration, Kevin set up a CW sending station (utilizing his HF radio that he brought), and I set up my UHF/VHF station, with my Yaesu FTM6000, a copper J-Pole antenna, and a Bienno battery.

Jay's end of the table was an immediate hit, with groups of students and their parents clustered around him while he explained, demonstrated, and taught how it operated. Kevin and I were pretty busy, too, with Kevin having several students learning how to transmit their names with the CW key.

Total Solar Eclipse 2024

Al Hanzl - K2AL

On April 8th, the path of totality ran from Texas through Maine in the US.

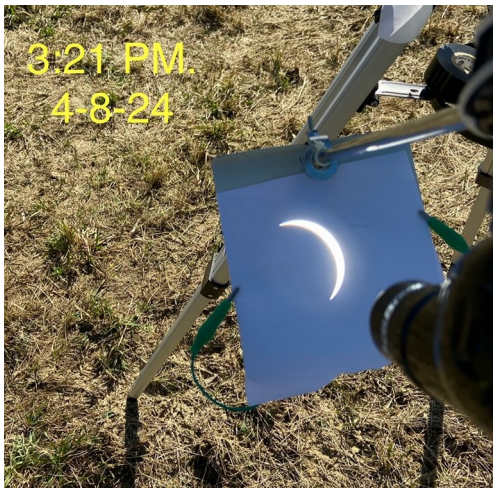
My brother Ken, W2IOC, and I and several other family members traveled to Vermont to witness totality. Due to the threat of clouds moving in from the west, we decided to travel farther east to Colebrook, New Hampshire in the “Great North Woods” area near the Canadian border.

We were rewarded with perfectly clear skies and a magnificent view of totality.

With solar maximum the corona visible at totality was impressive, and several solar prominences were visible with the naked eye. Venus and Jupiter were also visible during totality as day turned to twilight.

Other family members who traveled to see the eclipse were, my daughter (to Ohio), and my nephew, K2ESH, (to Texas). All got a memorable view.

Al - K2AL



What is the Frequency of a PSK Signal?

Jim Stekas - K2UI

Going through some recent emails motivated me to change the topic to address a pet peeve, namely "What frequency should we use for PSK signals?"

When dealing with SSB signals we normally report a frequency that corresponds to the carrier frequency of the signal. A USB signal will contain audio from roughly 300-2300 Hz, so if we set the rig to 7200 kHz and call CQ, the USB signal occupies 7200.300 - 7202.300 kHz. Note that no energy is transmitted at the carrier frequency, 7200 kHz.

For CW, when I tune to 7100 kHz and call CQ, my transmitted signal will occupy a narrow bandwidth centered on 7100 kHz. A CQ response on 7100 kHz will generate a tone of 700 Hz, my sidetone setting. Internally, the rig would adjust LO and BFO frequencies for this to happen when the dial is set for 7100 kHz.

If we set mode to USB at a frequency of 28084 kHz and whistle a 1000 Hz tone into the microphone, we would transmit a CW carrier at 28085 kHz. If instead we used *fldigi* to generate an audio PSK signal centered at 1000 Hz, we would transmit a narrow PSK signal centered on 28085 Hz. Alternatively we could tune to 28083.5 kHz and apply an audio PSK signal centered at 1500 Hz to generate the PSK signal at 28085 kHz.

Note that in each of the above examples a narrowband signal at 28085 kHz was generated[1], and a frequency counter at the transmitter output would read 28085 kHz. Unfortunately, it is common to give a PSK frequency as a dial frequency and *fldigi* signal offset: 28084+1.0 kHz or 28083.5+1.5 kHz. Confusing?

Internally, *fldigi* generates baseband PSK as a complex signal (I/Q) centered 0 Hz. To interface this to USB, *fldigi* needs to mix the baseband signal up in frequency (+Δf) so all the positive and negative PSK components fall within the USB passband. On the receive side, *fldigi* mixes the USB audio down (-Δf) to recover the baseband PSK signal.

The optimum value of Δf will depend on the rig. Generally, it should fall in the middle of the USB audio passband[2]. For a 2.4 kHz crystal IF filter a Δf of 1.2 kHz is close to optimum. My IC-7300 has digital filtering, and when using digital modes the filters are narrow and centered on 1.5 kHz making Δf=1.5 kHz optimum for the IC-7300.

If we had a direct sampling SDR transceiver we would set the LO to 28085 kHz and process PSK at baseband with Δf=0 Hz. We should specify the PSK frequency as if we were using such a SDR and back out whatever Δf we are using in *fldigi*. That gives a unique and unambiguous definition of PSK signal frequency.

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1 - 28085 kHz is what a frequency counter would read.

2 - By centering Δf in the IF passband we minimize aliasing when converting digital signals to analog.