

# **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)**

**VOLUME 54 NO. 8 August 2019**

## **Regular Meetings**

**9/9 & 9/23 Monday 7:30  
DeCorso Community Center**

## **Upcoming Events**

**See the Presidents Column for information  
Concerning the September 9 meeting.**

**This year's TCS New York City Marathon is set for Sunday, November 3, 2019.**

**Contact Tim Farrell, KD2EKN, for full information.**

## Meeting Schedule

**Regular Meeting:** 7:30—9:00 PM  
**2nd & 4th Monday  
of each month** at the  
NP Senior & Adult Center  
15 East Forth Street  
New Providence

**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 2018

President: W2PTP Paul Wolfmeyer  
201-406-6914  
Vice President: K2GLS Bob Willis  
973-543-2454  
Secretary: K2AL: Al Hanzl  
908-872-5021  
Treasurer: K2YG Dave Barr  
908-277-4283  
Activities: KA2MPG Brian Lynch  
973-738-7322

## —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  
First & Third 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](mailto:nparc@mailman.qth.net)  
Contact K2UI, Jim

## MOUNTAIN SPARK GAPS

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WB2OOQ Rick Anderson  
W2PTP Paul Wolfmeyer  
K2UI Jim Stekas

## Climatological Data for New Providence for July 2019

The following information is provided by  
Rick, WB2OOQ, who has been recording daily  
weather events at his station for the past  
38 years.

### TEMPERATURE -

Maximum temperature this July, 96 deg. F  
(July 21)  
Last July(2018) maximum was 99 deg. F.  
Average Maximum temperature this July, 87.0  
deg. F  
Minimum temperature this July, 65 deg. F  
(July 1)  
Last July(2018) minimum was 59 deg. F.  
Average Minimum temperature this July, 71.5  
deg. F  
Minimum diurnal temperature range, 6 deg.  
(77-71 deg.) 7/8  
Maximum diurnal temperature range, 22 deg.  
(91-69 deg.) 7/18

Average temperature this July, 79.3 deg. F  
Average temperature last July, 78.2 deg. F

Maximum daily temperature of 90 degs. or  
higher - 8 days this July;  
11 days last July.

### PRECIPITATION -

Total precipitation this July - 9.16" rain  
Total precipitation last July - 6.48" rain

Maximum one day precip. event this July -  
July 17, 3.51" rain  
Measurable rain fell on 11 days this July,  
11 days last July.

YTD Precipitation - 42.9"

=====  
Rick Anderson  
8/7/19

243 Mountain Ave.  
New Providence, NJ  
(908) 464-8911  
[rick243@comcast.net](mailto: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 August 2019

In August, we welcomed visitors and new members: Brian KD2SND at the August 12 meeting and Doug W2DHS and Leslie KB2UAL at the August 26 meeting. Glad to have you in attendance! Let us know how we can help you...

We received a nice thank you for our memorial donation for James Brown WB2EDO to the Cheshire Home. Their "unique facility offers individualized treatment and rehabilitation programs that are state-of-the-art and have been recognized nationally." Their focus is on individuals with "neurological impairment caused by accident or disease..." If you wish to make a separate donation, the address is Cheshire Home, 9 Ridgedale Ave, Florham Park, NJ 07932. From last month...

"Over the last few years, we have had a practice of very limited distribution of our club roster. However, this "works against us" in encouraging members to talk to other members when they need "ham" assistance. One of the real benefits to club membership is other members being willing and able to share expertise. The Executive Committee has talked this through. So we will soon be publishing a member roster with limited contact info and will plan to issue it yearly (after renewal period). We would ask you **NOT** to share it outside the club in respect to privacy."

We did issue the roster for this year. However, several of you reported that their information needs to be updated (for whatever reason). **If your info needs to be updated, please report the update to Al at [k2al@arrl.net](mailto:k2al@arrl.net)**. This year only we will be issuing another edition in a couple of weeks. **So please review your info and get any update to Al soon.**

**Ria N2RJ, our Hudson Division Director will be our speaker September 9 . Please plan to attend.**

Ria will be delivering a presentation on Software Defined Radio (SDR) technology, titled "2019 State of SDR." This will feature a basic "boot camp" on SDR, and then proceeds to detail several new developments in the SDR realm. This includes new rigs by mainstream manufacturers, updates from SDR specialist manufacturers, experimental kits and cheap ways to get SDR in your shack. You all know Ria as the Director of the ARRL Hudson Division but she is also a keen enthusiast of all kinds of software defined radios. A senior software and systems engineer, she has spent many years in several industries including Government, pharmaceutical, financial and media. Ria is an alum of Polytechnic University in Brooklyn NY, which is now the NYU Tandon School of Engineering. She has had lots of insight into the development of Linux based direct sampling Software Defined Radios and has in the past been awarded "Top Elmer" by a prominent SDR manufacturer.

Also: December 7—first Saturday in December—our holiday party!!

73 for now

Wolf W2PTP, 201-404-6914, [w2ptp@arrl.net](mailto:w2ptp@arrl.net)

The last pages consist of the Field Day pictures taken by Jon, AE2JP

## Computer Languages for Hams

Jim Stekas - K2UI

Typically, the first question out of the mouth of a newly licensed ham is “What rig should I get?”, which inevitably receives the disappointing response, “Well, what are you looking to do?” A better, and crueller answer might be “What kind of antenna are you going to use it with?”

Every ham should be able to solder a PL259 on the end of a coax cable, and be able to hack a little code. Truth be told, you can get a lot more functionality with a lot less effort by writing code than you can with your soldering iron. In the old days a home brew rig required drilling a front panel to accommodate potentiometers, switches, meters, tuning dials, etc. Unless you were a retired machinist, what you ended up didn't look very professional, especially after the white on wood grained Dymo labels were stuck on. Now, for less than a tuning dial would cost, you can control your new project with an Arduino and touch sensitive color display.

A great many ham projects published in QST (and on the net) are built around an Arduino. That's because it is cheap, easy to program, and has a rich set of interfaces to hardware. Most Arduino projects are programmed in C/C++ using the free IDE.<sup>1</sup> The Arduino coding style is mostly simple C-language, easy to read and understand. Understanding and modifying the source code of an Arduino project is a great way to learn C. With just a few lines of C you can customize the project by adding a new menu item, changing default values or displaying your call on the startup screen. Unlike hacking a circuit, your software hacks will cause no damage and be completely reversible.

Anyone serious about programming will need to learn C/C++ because that's what's consuming 99% of the CPU cycles in the world. But C/C++ is not necessarily the best place for a beginner to start because it takes a long time before you can do something beyond homework problems, like drawing a plot or showing a picture on your laptop screen. But if your goal is to put the Arduino to work for you then C/C++ is a good place to start.

Since its invention 25+ years ago the Python language has steadily gained in popularity, particularly with high tech companies like Google and Facebook. Based on recently graduated new hires, I would guess that Python has become the language most studied in introductory programming courses. Python incorporates most of the good features of C/C++ and leaves out most of the more cumbersome elements, freeing the programmer to focus on the problem to be solved and not how the computer works. Python is the shortest path to getting a computer to do useful things, and if you want to learn programming you should start with Python unless you have a damn good reason not to.

Python is also the language of GNU Radio, at least on the outside. GNU Radio is mostly a collection of SDR algorithms controlled and configured by a Python GUI<sup>2</sup>. From the outside GNU Radio looks to be 100% Python, but the bulk of the heavy lifting is done by signal processing libraries written on C/C++. This isn't a knock on Python or C/C++. It is a sensible division of labor that uses each language in the domain where it works best. Much of Python's greatness stems from standing on the shoulders of C/C++.

If you want to analyze and plot data, the language of choice is “MSL” (Matlab script language). Matlab is a proprietary software package with a large collection of libraries for math, statistics, signal

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1 Integrated Development Environment, with everything you need to code, build and load Arduino programs.

2 Graphical User Interface presents the user with point-and-click menus to control a program.

processing, genetic codes, and lots of other amazing stuff. A Matlab license will set you back ~\$1000+ but a free alternative, Octave, is available. Octave doesn't have all the features of Matlab, but it has the critical ones (for me) and is slowly closing the gap. Because Octave is free, you can install it on every PC you own, and even ones you don't.<sup>3</sup>

So why Matlab/Octave? Because there isn't anything better for data plotting and analysis. Reading in a table of data and plotting two columns against each other takes only two short command lines:

```
x = load( 'my_table' );  
plot( x(:,1), x(:,4), '*-' ); % Plot w/ markers and lines  
print 'my_table.1v4.png';    % Save a picture
```

Once you learn a little Octave you will never go back to Excel. Where Octave/Matlab really shines is for looking at SDR signals, and testing signal processing code. You can code up the world's greatest low pass filter in Python, but without Octave/Matlab you won't know if it really works.

If you want learn to code you've got three good languages to pick from: C/C++, Python, and Octave/Matlab. Regardless of which one you pick to start with you will find that something that's excruciating in language X can be knocked of easily in language Y. My recommendation is to become familiar with all three. You'll find that being partially fluent in three languages is better than being a master of just one.

### Gratuitous Comments

1. The best way to learn how to code is to find a software project similar to what you want and hack it to do what you want to do. I rarely start with a clean sheet.
2. Most programmers use an IDE to write, edit, build, run, and debug their code. Once you pick an IDE you will have a hard time moving to something different. This is especially true of Microsoft Studio, a velvet trap.
3. Don't get seduced by the latest new language. By the time you learn enough to do something useful, it will have vanished.
4. If I was stuck on a desert island and could only have one language, it would be awk.
5. Don't waste your time learning `perl`, a language that tries to do everything, but does nothing well. It is aptly called a "write-only language".
6. Just about every new language that came after C looks a lot like C. Hmm...
7. `java` is a language that has gone in and out of fashion, now largely displaced by `python`.
8. In 1985, Turbo pascal was the alpha and omega. On a desert island or not.
9. `forth` is a language with a reverse Polish syntax designed for small computers (think Atari 800). I wanted to love `forth` but couldn't bring myself to even like it.
10. The Atari 800 was my Arduino in 1985. I programmed it to send and receive RTTY using the *Action!* language.
11. I thought Fortran was a good language, but I was wrong.
12. Linus Torvalds (developer of Linux) has a well reasoned hatred of C++.
13. Don't waste time optimizing code until you benchmark it.
14. Do not write in assembly language. Spend a few bucks and get a better processor.

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<sup>3</sup> I have a licensed version of Matlab with a slew of advanced packages on my work laptop (quad i7 w/ 32G ram) and I find myself using Octave more than Matlab.

