

Rochester DX Association



**Next Zoom meeting:
June 15 2021.**

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**Deadline for next issue:
August 31, 2021**

IRVFEST 2021

Save the Date: 5:00 pm - Wednesday 18 August 2021

Dolomite Lodge, Penfield, NY

Please bring a dish to pass and your own beverages

Club will provide meat, rolls, condiments, plastic utensils, charcoal, fluid, paper plates, plastic cups....

Dues will be accepted

More info to follow VIA EMAIL as the event gets closer

YOU WILL NEED TO SIGN UP BEFOREHAND SO WE CAN GET AN ACCURATE COUNT ON ATTENDEES (and not get 20 mac salads. . .)

President's Letter

I hope this article finds you all in good health and able to resume life as we knew it many long months ago.

I'm sure as you, seeing your friends and family "in person" has been a welcomed change to the lives we've lead for the last year and a half.

Many of the groups I'm involved with have slowly begun to hold face to face meetings for those that feel comfortable enough to do so. Zoom is a good alternative but honestly lacks any "personal" touch. As we are all involved with "communications" as it were, many aspects are lost on a computer screen.

I will say though, our attendance numbers have been very good, programs have been exceptional and overall, I'm pretty pleased at how we've held things together.

Looks like there will be several opportunities over the summer to see everyone – one being IRVFest, the other the ROC City Hamfest.

IRVFest will be the first time since February of 2019 we've been able to meet, not due to anything the club did but just following "guidance".

We've rented the Dolomite Lodge once again – we held a similar picnic there years ago which was well received.

The club will provide all meat and associated items – please bring a dish to pass as well as the beverage of your choice. We will require notification on who and how many will be attending as this will guide us on purchases and prevent having only one type of dish to pass.

If all goes well, Irv may be able to attend!

The ROC City Hamfest will be held on Saturday 28 August at the Log Cabin Restaurant in Macedon, NY. The event begins at 7:00am and I'm sure will be well attended if the wx cooperates. More information can be found here : roccityhamfest.com

So once again it was decided that FD should be an "on your own" effort but that doesn't mean we (as a club) should not do our best to submit a good score.

Details of your particular FD will be discussed at the next (Zoom) meeting on 15 June. We're hoping for a good showing and look forward to seeing everyone before our summer break.

I'd like to thank this year's board of directors for providing guidance and support to the club as we navigated another tough year. As many have decided to stay on, our hope is to transition into "in person" meetings as quickly as possible. We may not be able to use the EOC so are actively pursuing other options in hopes we can hold a "regular" general membership meeting in September.

If not before, enjoy your summer, get on the air and I hope to see you at one of the upcoming functions.

Best DX'es 73,

Chris, K2CS



Meet Your Officers

The Newsletter sent a list of questions to the club officers, as asking about their ham radio hobby.

Here are their replies:

Chris Shalvoy – President

1. *How long have you held your current office in the RDXA?*
2. *What other positions do you hold in the club?*
3. *When were you first licensed?*
4. *Many people (like me) have had gaps in their ham career. How many years total have you been active?*
5. *What class license do you hold?*
6. *Do you now or have you ever held a license from another country?*
7. *Do you use any other radio services? For instance FRS, GMRS, CB, MARS?*
8. *What are your main ham activities? For example, dxing, rag chewing, contesting, building and repairing, emergency services, moonbounce. or anything else.*
9. *Favorite bands? Specific bands or just HF, VHF, etc.*
10. *Favorite modes?*
11. *FT8 - good, evil, or meh?*
12. *What other clubs and groups are a member of or are active in? For instance, ARRL, RARA, RVHFG, Roc City Net, Squaw Island, CW Ops, 10-10, ARES, RACES*

As you're probably well aware, I'm Chris Shalvoy, K2CS – current (and past) President of the Rochester DX Association.

On a national basis, I currently hold the position of Chairman of the DXAC, having been the Atlantic Division Representative for years.

As for the RDXA, I have been an active member for almost 30 years, having been introduced to the club by KB2SE (Fred Gern, K2FR, SK) while on a 2m repeater conversation (on "79") shortly after getting my license in 1991 (as N2PEB). My interest in radio began years before as a CB operator, first AM then on to SSB.

First becoming a 20wpm tech, I currently hold and Extra Class license and have for almost all of my amateur radio "career".

I've never really "lapsed" in my fascination with the hobby and always seem to find another aspect of it to focus on.

Holding 5 band with 2 different calls and only needing 3 more for Top Honor Roll, new challenges keep my interest alive. Most of my HF awards were accomplished on a G5RV and TS440sat, knowing propagation and operating patterns is key.

With HF being so miserable the last few years, I've focused on 6m and FT8 as a way to stay active.

Most recently, I've also gotten familiar w/ MSK144 while at W2CCC (FN23) as the noise floor is so low, I hear (and work) stations consistently all the way down to Florida and approaching the west coast nitely. DXing and contests are my main interests in the hobby with DXing (of any type) holding the edge.

As for a mode, CW is king...

I've been an active member of the Rochester VHF Group and in years past, the "79" repeater club (which many RDXA members we involved with as well). I have been an ARRL member since first licensed.

Recently, I've applied for Irish Citizenship and would love to think I could hold a license there someday....I have operated from C6 as K2CS/C6 while on the island.

Mike Sanchez – Treasurer

1. *How long have you held your current office in the RDXA?*
I have been Treasurer since 2014 I think.
2. *What other positions do you hold in the club?*
I am also on NYQP team to manage sponsorship incoming for plaques.
3. *When were you first licensed?*
Licensed in 1974. KYG18574. (CB)
4. *Many people (like me) have had gaps in their ham career. How many years total have you been active?*
11 years or so active Amateur Op.
5. *What class license do you hold?*
Extra class (no code)
6. *Do you now or have you ever held a license from another country?*
No
7. *Do you use any other radio services? For instance FRS, GMRS, CB, MARS?*
CB
8. *What are your main ham activities?*
Antenna modeling and build and test including symbolic format build in 4NEC2
9. *Favorite bands? Specific bands or just HF, VHF, etc.*
HF
10. *Favorite modes?*
SSB, FT8, psk31
11. *FT8 - good, evil, or meh?*
FT8 is an interesting option. Particularly useful for deaf Ham operators
12. *What other clubs and groups are a member of or are active in?*
RARA

Using an Antenna Analyzer to Derive Manual Tuner Initial Settings

Dave N2CK

I came upon an interesting use for the old MFJ 259B (think I purchased it at the Batavia Hamfest many years ago) as a driver to map out initial manual tuner settings by band and frequency. Let's start with some background; the antenna farm at the N2CK ranch consists of a Mosley beam antenna (house roof mounted) for 40 – 10 (it started as a Classic 33, and I added the 12/17 and 40M add-on kits), and a Gap Titan DX vertical antenna (garage mounted) covering 80 – 10. I have a less than legal limit amp (someday I'll hit the lottery!), and I also have an AT2K 2000 watt, roller inductor tuner. The tuner has 3 tuned inputs Coax 1 and 2, and balanced coax. The 2 antennas are connected to the coax inputs.

I wanted to generate a pre-determined list of initial tuner settings, by band and frequency in band for each antenna, so that if a DX station came on that I wanted to work – while the amp was warming up, I could make the appropriate (initial) settings on the tuner. The solution I came up with is to use the antenna analyzer as my RF source – instead of the radio; the logic being I wasn't abusing the finals in the radio, or had to ensure the power was lowered. The analyzer was connected in place of the radio. I connected to each antenna and with the analyzer set to a specific frequency, I adjusted the input, output, and roller inductor settings until I found the specific settings that showed the best SWR, and impedance. I started at the bottom frequency of each band that antenna was capable of and worked up the band (typically in 50kHz increments) seeking the optimum tuner setting for that antenna and frequency. I created a simple word document with tables for each antenna. The tables have 6 columns band, freq, input, output, roller inductor, SWR and impedance. As I discovered the best settings for that antenna / frequency, I logged those settings into the word doc.

The idea is that if I see a station I really want to work, and they're at 14.023 – I know to choose antenna 1, set the input to 67, output to 91, and roller inductor to 260 – my radio should see a 1.1 SWR and a 50 ohm impedance. I preset these values, and confirm initial settings are ok with a short transmission at 100W (taking care to move off the stations' listening or transmitting frequency). It's shown to be a fairly handy reference guide – I keep it right at the station. Right now, I haven't mapped out settings for 10M, but as we transition back to more solar activity, I will add additional settings for those bands.

I've heard that more accurate SWR readings can be attained using higher RF output, but I've found this approach – gets me in the neighborhood of where I need to be. That I'm not abusing the output stage of the radio or adding additional QRM on the bands is a plus. I tried to find the RF output of the MFJ I have – but have not found where it's documented. If it's more than ½ watt – I would be surprised.

As an aside – a good reason to record these settings – is to verify your antenna system. I initially mapped out my antennas on 1/12/2016. I decided to revisit those settings again. In March, I again connected the MFJ and walked through my matrix of frequencies and settings. I was happy to see very few (and minor) changes from the settings I identified 5 years ago.

Field Day – Support Our Club

Although we have decided not to hold our usual club Field Day event at Webster Park this year, the ARRL will once again be collecting and posting aggregate club Field Day scores. This means they will add up all Field Day logs with “Rochester (NY) DX Assn.” as the club and publish the totals of all clubs reporting. Your log will count no matter what class you operate in.

Last year our club score ranked seventh overall – a good showing.

Let’s see if we can do even better this year!

What’s on My Workbench?

John AC2RL

I’m a big fan of the Ham Radio Workbench Podcast, <https://www.hamradioworkbench.com/>. Hosts George KJ6VU and Jeremy KF7IJZ, and their guests, talk about a wide range of technical and maker topics related to ham radio. Each episode begins with each one answering the question “What’s On Your Workbench?”.

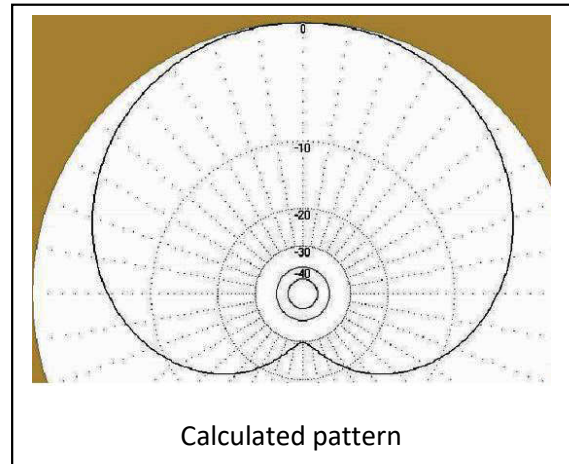
I had hoped to be able to write an article for this issue about one of the projects that I have been working on this year but, alas, they are all still works-in-progress. Instead, I’m going to summarize three different efforts that I have underway: a phased receiving antenna array, a tuned, recording field strength meter, and an antenna rotator remote control.

Phased Receiving Antenna Array

The idea: I have only 1/3 acre in suburban East Irondequoit, so Beverage antennas are not an option for me. I want a receiving antenna system for 160-40 meters with enough directionality to let me peak weak signals or null strong interfering signals. Three small, active, receiving antennas forming an equilateral triangle can be phased to provide the desired directionality.

Take any pair of antennas. If one delays the signal from the “rear” antenna by 28 ns and subtracts it from the signal from the “front” antenna, then signals coming from the rear will be cancelled. This gives a cardioid pattern with a nice sharp null in back. A six-position switch lets me select pairs of antennas to point the pattern in six directions, 60 degrees apart.

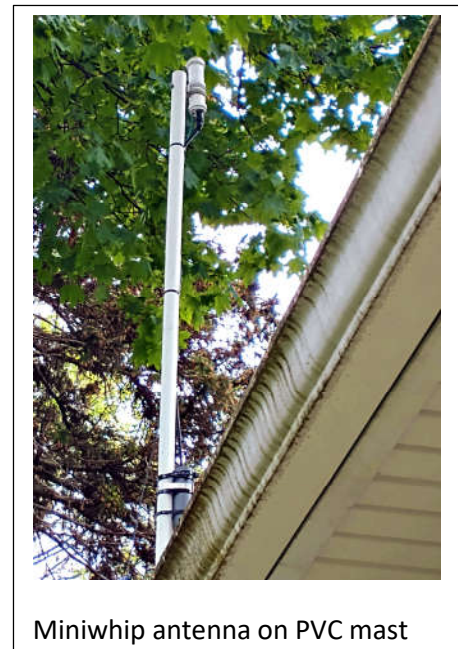
This paper by Chavdar, LZ1AQ, describes the theory in detail: http://lz1aq.signacor.com/docs/phased-array/2-2-1-phased_array11.pdf



Progress so far: I have three identical PAORDT-style miniwhip active antennas on the edge of the roof of my house, at the tips of an equilateral triangle, about 55 feet on a side. The antennas are from <https://transverters-store.com> and cost \$20 apiece. Despite the name “miniwhip”, there is no whip, just a little circuit board in a pvc pipe enclosure. Each one acts as an e-field probe, wired to a 4” ground rod directly below it. Equal lengths of RG-6U coax run from the antennas to bias-tees in my shack.

Identical antennas with identical feedlines should have identical time delay. If a line between two antennas points to a distant radio source, there will be a time delay between when the signal is received at the nearer antenna and the farther. In the case of my 55’ antenna spacing, that works out to about 28 nanoseconds.

The antennas are up. The feedlines and bias tees are working. The six-way switch is wired. I’ve done some experiments building discrete R-C delay lines. (This was a good excuse to buy a 200MHz scope!). I’ve also tried feeding the two antennas directly (with no delay line) into an MFJ-1026 antenna phasing unit. Results were mixed. The delay through the MFJ phasing unit varies with frequency, so it must be retuned whenever the frequency changes. A delay line provides the same delay for all frequencies and so doesn’t require retuning



Miniwhip antenna on PVC mast

To do:

- Since this is a subtractive process, to get the best null, the signals being subtracted should have equal amplitudes. Since there is some loss in the delay line, I need to add some attenuation, probably variable, to balance the signals.
- Also, I need to experiment to find the best delay. If the signal were parallel to the ground it would be 28 ns as calculated, but the takeoff angle of the incoming signal reduces that by a cosine term. I’d like to find a fixed delay that works well instead of using a variable phase shifter

- Investigate coaxial cable delay lines. Are they better than discrete R-C lines?

Recording Field Strength Meter

The idea: The goal here is to build a device that I can carry around, or mount on my car, that will record periodic signal strength readings at a particular frequency as well as the GPS position where each reading was made. I walk or drive this device around a fixed antenna emitting a continuous signal. Knowing the position of the transmitter and the position of each reading, I can calculate the bearing and range from the transmitter. I can use the inverse-square law to normalize the readings to account for the range to the transmitter. Plotted on polar coordinates, I can draw the actual radiation pattern of the antenna.

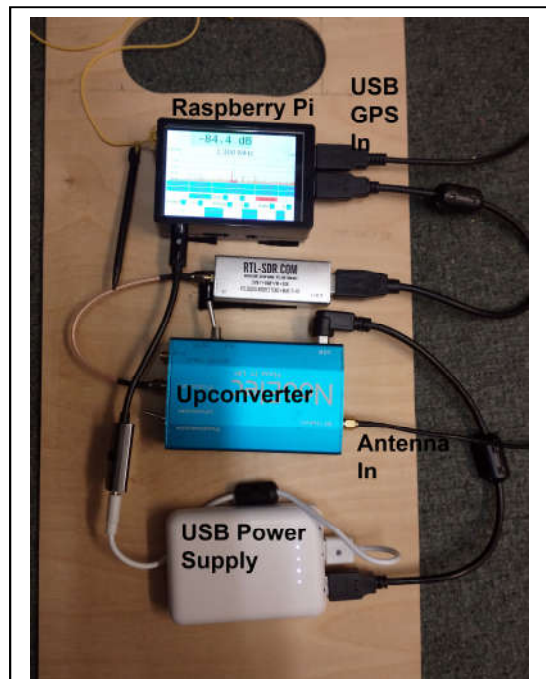
Progress so far: The hardware is all off-the-shelf: a raspberry pi 3B+ with a 2.8 inch color touch screen connected to a USB RTL-SDR dongle. An HF->VHF upconverter to tune HF bands (RTL-SDR dongles work best above 30 MHz). A USB GPS module provides positioning information. Software is written in Python using standard libraries to read samples from the RTL, do a Fast Fourier Transform to get them into the frequency domain, and calculate the received power in dB. Another standard library reads and interprets the GPS input. I've built a simple GUI to allow me to tune it, control RF gain, and start/stop recording.

It sort-of works. Walking around the neighborhood, trying to profile my 2-meter J-pole, I get a pattern, but it's jagged and ugly – nothing like the omnidirectional pattern I hoped for. I believe this is because of reflection and absorption of the signal from houses and trees in the neighborhood.

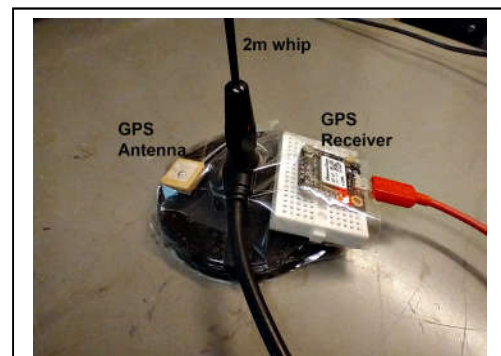
When I tried to profile my horizontal loop on 80 meters, I had to move farther away to be sure I was in the far field, but found that at on the local roads at that distance a 20-watt signal was lost in the system noise. I suspect the little whip antenna I was using just wasn't working too well on 80 meters.

To do:

- Take my 2 meter antenna out to the middle of a big, level field and walk a circle around it there.
- Find a better HF antenna for the car, maybe with a tuner and a preamp to see if that increases its sensitivity on HF.



Velcro and plywood breadboard construction



Mag-mount for vehicle

Antenna Rotator Remote Control

The idea: Several years ago, I was given an old CDE AR-22R rotator, which has been doing a fine job spinning my hexbeam. It was built as a TV antenna rotator and it reports its position by opening and closing a switch every five degrees of rotation. This fires a solenoid in the control box that moves a pointer around a compass scale to show the heading, to the accompaniment of a loud CLACK-CLACK-CLACK sound. Having no brake, strong winds sometimes turn the antenna when it's powered off, so it points in a different direction than that shown on the control box.

I want to eliminate the positional uncertainty, get rid of the CLACK-CLACK in the shack, and put all the electronics at the antenna with only a 120 VAC power cord to the shack.

A microcontroller in a weatherproof box at the antenna will talk to my home Wi-Fi network. It will receive positioning commands and report the antenna position to a web browser on my shack PC, my phone, or any other web-capable device. The microcontroller will control the rotator motor and an electronic flux gate compass module mounted on the antenna will report the antenna's true heading, no matter how the winds may blow it.

Progress so far: I'm just starting on this one. I have a Raspberry Pi Zero W connected via I2C to an electronic compass module. The Pi runs an app, I wrote with Node Red, which serves a web page over Wi-Fi that shows the heading of the compass.

To do:

- Get the Pi up on the roof in a weatherproof box and the compass attached to the rotator. Run an AC extension cord up to the Pi's power supply.
- Still using the original control box and wiring to operate the rotator, see if it reports antenna heading accurately.
- Transmit a kilowatt through the hexbeam and see if the heading remains stable and the Pi tolerates the high-RF environment.
- If that works, add a transformer and relays to the box to run the rotator motor. Add direction control code to the web interface.
- For extra credit, figure out how to get Ham Radio Deluxe and N1MM to control the rotator directly.

Project Description for Amateur Radio adif log to kml

→ [@jms_code @ github.com](https://github.com/jms_code)

Mike Sanchez KM2B

Goal: Create a robust, stand alone, python- based capability to generate a kml file that can be imported by Google Earth or Google Maps to visualize Amateur Radio contacts exported from any logging software in a standard adif format file.

Code Location for Access:

https://github.com/mikekm2b/jms_code/tree/master/kml_scripts

Example Use Cases:

1. Amateur Op completes a contest and desires to visualize, in google earth, his contacts for that contest.
2. Amateur Op desires to visualize contacts, in google earth, made in the year 2019 from his/her logbook.

Project Code Type:

Python

Project Files:

`function_km2b_adif_2_kml_PointsLines.py`

The driver function invoked to generate the kml file for use at google earth/google maps.

`OK4BX_adif.py`

The dependency function utilized to parse an adif into a python dictionary for subsequent use.

`grid6_longlat.py`

The dependency function utilized to convert a six character maidenhead grid square into Longitude and Latitude coordinates. Six character grid squares are commonly exported for CW and SSB contacts that are generated during lookup from various logging software.

`grid4_longlat.py`

The dependency function utilized to convert a four character maidenhead grid square into Longitude and Latitude coordinates. Four character grid squares are logged by wsjt-x FT-8 and FT-4 software. Most logs today have a mix of four and six character grid squares associated with contacts in a log.

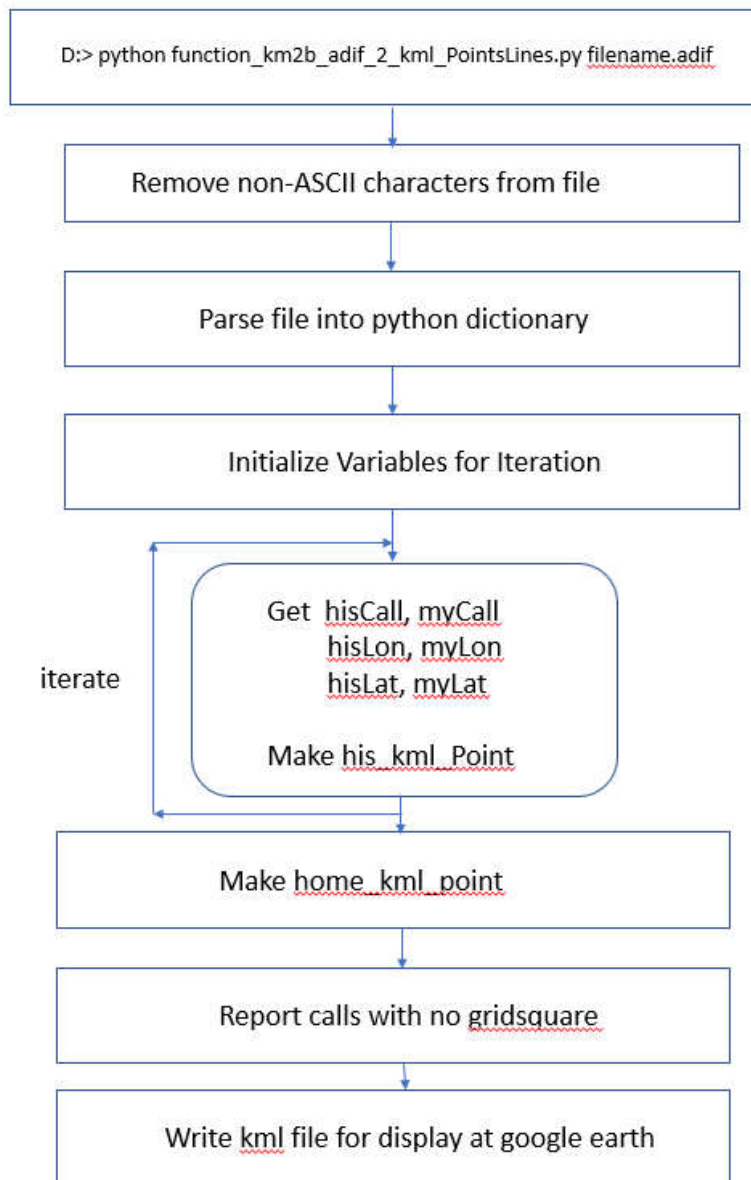
Code Usage/How to make a .kml file from an adif format log

To generate a .kml file that can be utilized at google earth/google maps:
In a directory containing all project files at github, in a Windows cmd shell type:

```
D:\directory\> python function_km2b_adif_2_kml_PointsLines.py filename.ADI
```

High Level Code Flow of function_km2b_adif_2_kml_PointsLines.py

kml file generation code flow



Python install requirements to run the program.

Python 3.8 or later

<https://www.python.org/downloads>

Import simplekml

Wheel (.whl file) located at:

docs: <https://simplekml.readthedocs.io/en/latest/>

whl file: <https://pypi.org/project/simplekml/>

import argparse

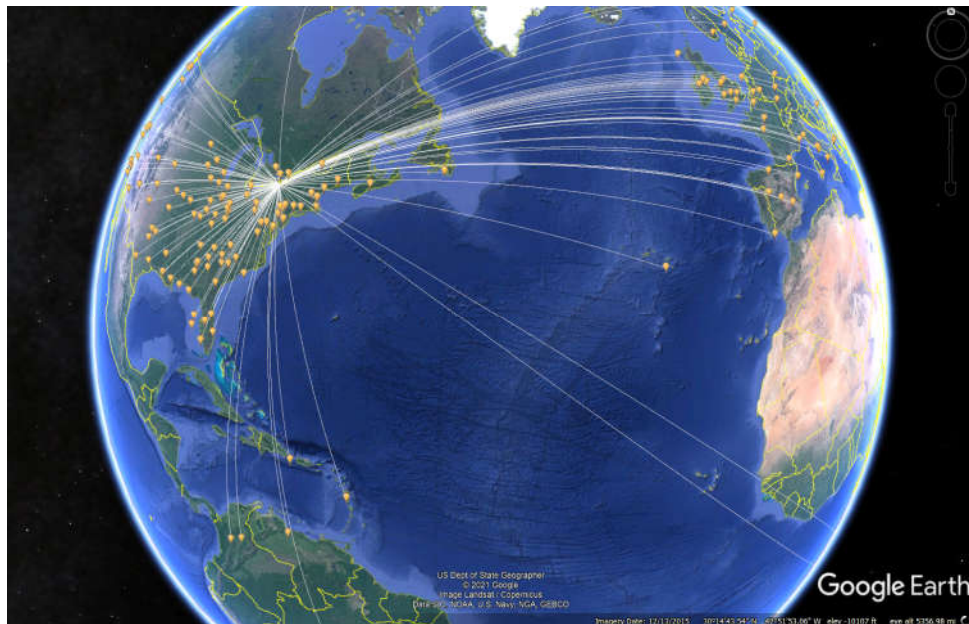
<https://docs.python.org/3/library/argparse.html>

<https://pypi.org/project/argparse/>

Example of kml file use at Google earth.

Once the file is created in the run directory, assuming google earth is installed on your computer, either:

1. Double click on the kml file and google earth will open with the contacts shown.
2. Launch google earth and select file -> Import and select the kml file from the directory.



2020 NYQP Update

Doug N2BEG

Well I'm sure all would agree that 2020 was a year like no other. As all of us struggled through the year dealing with all things COVID related, the annual NYQP proceeded as close to normal as it could. The 3rd Saturday in October spurred all manner of amateurs far and wide onto the air waves en-masse to seek and work us lucky folks in NY. As Jeff's write up indicated, this was a record year for NYQP participation with 544 logs received. (a 56% increase over the previous record!) The NYQP has finally finished the work involved with all of the checking, processing, rechecking and the making of the actual plaques which were delayed due to everyone's busy schedules. All 32 plaques have been shipped out and hopefully all delivered to the lucky winners. (Waiting on confirmation of the DX award going to OM2VL, whose last plaque also fell victim to the COVID lockdown) Congratulations to all the winners and participants. See you all on October 16th!



The NYQP Team

K2RNY, KM2B, W2FU, WA2CHV, NW2K, WJ2O, N2BEG

RDXA 2020-21 Calendar

September 2020

1 — BOD — K2CS (MacGregor's)
 10-12 — **ARRL September VHF**
 15 — Meeting — Zoom — Show shack
 26-27 — **CQWW RTTY**

October 2020

6 — BOD — K2TER
 20 — Meeting — Zoom — DX-Eng
 17-18 — **NYQP**
 24-25 — **CQWW SSB**

November 2020

4 — BOD — ~~WED~~ — K2DH
 7-9 — **ARRL SS CW**
 16-18 — **ARRL SS SSB**
 17 — Meeting — Zoom — TBA
 21-23 — **CQWW CW**
 30 — **BULLETIN DEADLINE**

December 2020

2 — BOD — ~~WED~~ — Zoom — FD
 4-6 — **ARRL 160m CW**
 12-13 — **ARRL 10m**
 26-27 — **Stew Perry 160m CW**

January 2020

2-3 — **ARRL RTTY Roundup**
 5 — BOD
 16-18 — **ARRL January VHF**
 19 — Meeting — Zoom
 29-31 — **CQWW 160m CW**



February 2021

2 — BOD
 13-14 — **CQWW WPX RTTY**
 20-21 — **ARRL DX CW**
 16 — Meeting — Zoom
 25-28 — **CQWW 160m SSB**
 28 — **BULLETIN DEADLINE**

March 2021

2 — BOD Zoom
 6-7 — **ARRL DX SSB**
 16 — Meeting — Zoom — FD
 27-28 — **CQWW WPX SSB**

April 2021

6 — BOD Zoom
 20 — Meeting — Zoom

May 2021

4 — BOD Zoom
 18 — Meeting — Zoom
 21-23 — Dayton Hamvention CANCELED
 29-30 — **CQWW WPX CW**
 31 — **BULLETIN DEADLINE**

June 2021

1 — BOD
 15 — Meeting — Zoom Field Day
 17-18 — **ARRL June VHF**
 26-27 — **ARRL Field Day (on your own)**

July 2021

10-11 — IARU
 18-19 — **CQWW VHF**

August 2021

18 — **IRVFest — Dolomite Lodge**
 28 — ROC City Hamfest
 31 — Contest season concludes
 Membership year concludes
 31 — **BULLETIN DEADLINE**

Rochester DX Association

Club Station — W2RDX

Club Website — <http://www.rdxa.com>

Facebook group — RDXA QTH

This Bulletin is the official publication of the Rochester DX Association and is published Quarterly.

All those with an interest in amateur radio, DXing and contesting are cordially invited to any meeting and to join RDXA.

Meetings are held at 19:30 L... 3rd
Tuesday... June.
M...
E...
S...

IN-PERSON MEETINGS ARE CANCELLED DUE TO THE PANDEMIC. See Calendar and first page for online meeting schedule.


President,.....Chris Shalvoy – K2CS
president@rdxa.com

Vice-President.....Mark Hazel — K2MTH
vicepresident@rdxa.com

Treasurer ..Mike Sanchez –KM2B
treasurer@rdxa.com

Secretary.....Bill Rogers – K2TER
secretary@rdxa.com

Please send all newsletter submissions, comments, and complaints to the editor:
John Hall AC2RL -- newsletter@rdxa.com



Board of Directors

- Chris Shalvoy – K2CS
- Mark Hazel – K2MTH
- Bill Rogers-K2TER
- Mike Sanchez – KM2B
- Lynn Bisha – W2BSN
- Dave Hallidy - K2DH
- Doug Stewart-N2BEG
- Don Dever – KD2CTZ

Appointed Positions

- | | |
|--------------------------|------------------------|
| Webmaster | Carey Magee K2RNY |
| Calendar Chairman | <vacant> |
| DX Chairman | Chris Shalvoy –K2CS |
| Contest Chairman | Charles Kurfuss-WB2HJV |
| Banquet Coordinator | Gayle Shalvoy - N2TWI |
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| Board Support | Vic Gauvin – K1PY |
| | John Gilly – W3OAB |
| | Gene Fuller – W2LU |

Membership Dues can be sent via:

- Paypal: treasurer@rdxa.com
- US Mail: Mike Sanchez KM2B
8 Piccadilly Square
Rochester, NY 14625

Regular Membership: \$25.00

Family, Full time Student or Out of State member: \$6.25

