

Successfully Operating a Portable Amateur Radio Station: Reactions of NPOTA Activators

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I tend to focus my operating on working DX stations. However, the year 2016 was different. I, like so many other hams, got enticed with hunting for and contacting ham radio stations operating portable at locations governed by the U S National Park Service (NPS). Some were at National Parks, some were at National Monuments, some were at Historic Trails, etc. They were everywhere. There were 489 different NPS Units that could be activated as part of NPOTA – National Parks on the Air¹. Well over a million contacts were made² with about 1500 “Activators”³ criss-crossing the country putting the units on the air.

As the year progressed and my “Chaser” totals started to increase I began to hear familiar calls. I might work a station one day at the Golden Gate Recreation Area (RC11) and a few days later I again worked the same station - this time from Mojave National Preserve (PV13). I started asking stations where they were going next (itineraries were often posted on QRZ.COM or Facebook) and I would try and follow them as they moved about the country.

I was very impressed with how dedicated these Activators were. They often shared information with me about the equipment they were using, problems they were experiencing, ways to do it better next time, and a success story or two.

Finally, as the year began to draw to a close, I realized that 2016 could rightfully be called “The Year of the Portable Station”. And, not having done much portable operation of my own, I felt a need to try and learn from this stalwart group of hams. Maybe it was time for me to put together a portable station of my own.

I then did what all good retired university professors tend to do. I decided to collect some data! I wanted to see what I could learn about assembling and operating a portable station. I created a short survey, field tested it with a few friends, and sent it out to a sample of the most active NPOTA Activators.

I wasn't attempting to do a statistical quantitative study (no random sample, no testing for significance, etc.). Instead, I wanted to do a descriptive qualitative study. I wanted to find out about their experiences in their own words.

Here's what the sample looked like:

Sample size:

75 NPOTA Activators (out of a total population of 1492 Activators)

How selected:

Activators with the most activations were included in the sample. The busiest Activator in the sample managed to put 503 NPS units on the air and the least active ones put 44 on the air. This was certainly an extremely experienced sample of portable station operators.

Table 1 Number of Activations for Sample

Greatest Number of activations	Smallest number of activations	Average number of activations per activator
503	44	116.7

And here's how the study was conducted:

Administration of the Study:

The email address for each Activator was collected from QRZ.COM. An Activator with no listed email address was eliminated from consideration. Activators were sent a short email invitation (Appendix 1) that briefly explained the survey and requested their participation. A hot link was provided in the email that took them directly to the survey (Appendix 2 & 3). Only one mailing of the invitation was made and there was no attempt to follow-up with non-respondents.

Instrumentation:

A survey was developed that consisted of 10 questions in two areas of inquiry (Appendix 3). The first area of inquiry, consisting of five questions, focused on the specific equipment they used. The second area of inquiry was subjective and included five questions asking for their thoughts/opinions related to the experience of operating a portable station. All responses were free form, they were not given any guidance for their response, and Activators were told they could use short or long answers and there was no "right" answer.

SurveyMonkey (www.surveymoney.com) was used as an online vehicle for administering the survey (a 10 question survey could be done for free). The selected Activators were informed that the collected data would be summarized in a draft report and sent to them for their reactions before being shared with anyone else (Appendix 2). It was also stated that the researcher was not associated with any manufacturer or organization and that no identities (call letters, names, etc.) would be used in the report. Data would be aggregated and findings would be reported anonymously.

Data collection and analysis:

The email invitation was sent out on January 3, 2017 and data analysis began on January 26, 2017. A total of 58 (out of 75) Activators completed the survey by the time data analysis began. The response rate for the group was 77%.

Table 2 Survey Return Rate

Invitations to Participate in Survey	Number of Surveys Submitted	Return Rate
75	58	77%

Responses to individual questions varied in length from just a word or two ("Portable", "SSB exclusively", "Just do it!!", etc.) to one respondent who wrote over 1,000 words in response to "What problems did you experience in your activation?"

Responses for each question were examined and discrete comments were extracted from the response and added to a listing. This meant that for a respondent with a short answer there might be only a single discrete comment added to the listing, whereas for others who provided a more extensive response a number of discrete comments were added.

Once all comments for a particular question were listed, similar comments were grouped and categorical names were identified to label each group.

And here's what was learned:

Area of Inquiry 1 – Specific Equipment

Survey Question #1 – What type of transceiver did you use and how much power did you operate?

Not surprisingly a variety of commercially available equipment was identified. No one identified a homebrew rig. The most popular transceivers used by the 58 respondents were manufactured by Yaesu (26), ICOM (23), and Elecraft (16). And the transceivers used the most were the Yaesu FT857 (12) and the Elecraft KX3 (12). Interestingly, 17 (30%) of the Activators used more than one transceiver. For many of the Activators who used more than a single transceiver, one rig was QRP and the other was full power (60-100 watts).

Table 3 Types of Transceivers Used

Yaesu		ICOM		Elecraft		Kenwood		Alinco		FLEX		TenTec		YouKits	
Model	#	Model	#	Model	#	Model	#	Model	#	Model	#	Model	#	Model	#
FT857	12	IC7300	6	KX3	12	TS480	3	DX70	1	6700	1	Eagle	1	HB-1B	1
FT817	5	IC706	4	KX2	2	TS570	1								
FT897	3	IC7000	3	K3	2	TS440	1								
FT450	2	IC7100	3			TS590	1								
FT60	1	IC718	2												
FT100	1	IC7200	2												
FT847	1	IC703	1												
FT991	1	IC746	1												
		IC756	1												
Total	26		23		16		6		1		1		1		1
Grand Total	75 (1.3 transceivers/activator)														

A total of 17 (30%) of the Activators identified a low power transceiver (5-15 watts) which was often used when hiking/backpacking and 41 (73%) identified a high power transceiver (50-100 watts) especially when operating mobile. Some commented that the challenge was to work as many Chasers as possible which encouraged the use of high power.

Survey Question #2 – What type of antenna did you use most often and how was it supported?

The selection of antenna is certainly the cornerstone of a portable operation such as NPOTA. Activators described good antennas that were portable, light weight, easy to quickly setup, and high enough to get out a good signal. In addition, as many Activators identified, the National Park Service often required that it had to be self-supporting (not tied to trees) and with no stakes or ground rods driven into the ground.

The most used type of antenna was a vertical that was either magnetic mounted to a vehicle or permanently mounted to a vehicle via a screw-on mount. A total of 38 Activators described this type of antenna which included Hamstick, Tarheel screwdriver, Hustler and MFJ. A total of 16 Activators described using a doublet/dipole/inverted V that was supported using a fiberglass push-up mast, a painter's pole, or supported by trees. Next most used were center loaded

verticals (13) such as a Buddipole or the MP1 SuperStick that could be erected in the bed of a pickup truck or mounted on the bumper/side of a vehicle. Then came tripod supported verticals with ground radials (11) such as the CrankIR or Wolf River Coil.

Table 4 Type of Antenna Used

Vehicle Mounted Vertical	Doublet, dipole, inverted V with pole/tree	Center loaded vertical	Tripod supported vertical with radials	End fed long wire	Yagi/beam	Loop antenna on tripod	End fed dipole
38	16	13	11	6	5	4	3
Mag mount, screw-on	G5RV, dipole, inverted V	Buddipole, MP1 SuperStick	CrankIR, Wolf River Coil		Hexbeam, spider beam, Arrow II, SOTA beam	W4OP, Alex	

When considering an antenna, Activators often focused on the specific location to see how an antenna might be positioned or supported. Activators were most likely to bring with them more than one antenna - 1.64 antennas/activator - so that a unique situation could be accommodated. Antennas were often band-focused – a different antenna for a different band – rather than a single multi-band antenna.

Survey Question #3 – Which mode(s) did you use?

SSB was by far the preferred mode for the greatest number of Activators with 91% indicating they used SSB at some time in their activations. CW was at some time used by 45% of the Activators and only 19% indicated they used a digital mode (PSK31, RTTY, JT65/JT9).

Table 5 Mode used

All/Mainly SSB	SSB & Some CW	SSB & CW	CW & Some SSB	All/Mainly CW	Some Digital	All Digital	Some FM (Satellite, 2M)
30	11	8	4	3	10	1	3
SSB (53)							FM (3)
CW (26)							
Digital (11)							

Survey Question #4 – How would you best describe your NPOTA activation?

Many of the Activators identified more than one type of portable operation in which they engaged during the NPOTA year. Portable operation was the most popular (76% of the Activators), followed by mobile operation (50%) and backpacking (19%).

Table 6 Type of Activation

Portable (Camping, Picnic Table, Fixed Mobile)	Mobile	Backpack (SOTA, Trail, Hiking)
44 (76%)	29 (50%)	11 (19%)

Survey Question #5 – What was your power source?

The most popular power source for portable operation was the battery. This included portable external batteries, a car/vehicle battery, or a battery internal to the rig they were using. In addition there was some use of solar power, often used to recharge a battery, and generators.

Table 7 Type of Power Used

Battery			Solar	Generator
Portable External Battery	Car/Vehicle Battery	Internal Battery (contained in rig)		
56 (97%)	16 (28%)	2 (3%)	11 (19%)	3 (5%)

Many Activators (23%) identified batteries manufactured by Bioenno Power, especially the rechargeable lithium iron phosphate (LiFePO₄) batteries, as preferred due to their light weight and dependability. Also mentioned was the use of deep-cycle marine batteries.

Area of Inquiry 2 – Thoughts/Opinions on Operating a Portable Station

Survey Question #6 – What problems did you experience during your activation?

When asked about problems associated with their activations, the respondents provided answers that could be grouped in 6 categories. The category with the greatest number of responses dealt with **On Air/Operating** (29). Poor band conditions were cited most often along with QRM – both purposeful and not. The next greatest categories of responses were the **National Park Service** (19) and **Station equipment** (19). Ten respondents identified NPS personnel as less-than-helpful and/or unaware of the NPOTA activity. In addition, 7 responses related to difficulty in obtaining a permit to transmit from the park. Problems with station equipment were most heavily focused on antenna problems (10) followed by equipment problems (6). One other major category identified in the responses was **Logistics** (18).

Table 8 Activation Problems

Activation Problems	
29 On Air/Operating	<ul style="list-style-type: none"> 8 Poor band conditions, propagation 7 QRM from non-participating stations/nets, malicious interference 6 Noise - local line noise, charger noise, urban areas, car ignition noise, street lights 3 Trying to operate during a major on-air contest, finding clear frequency 3 Trouble getting spotted 1 Pileups can be intimidating 1 Interference with other stations onsite
19 National Park Service	<ul style="list-style-type: none"> 7 Difficulty in obtaining Special Use Permit (SUP) 7 Some less-than-helpful NPS staff, Park Police, Secret Service 3 Park rangers not aware of NPOTA activity 2 Not allowed to use stakes on NPS land
19 Station Equipment	<ul style="list-style-type: none"> 10 Antenna problems – balun failure, time consuming to find low SWR, bad connectors, high SWR, broken wire 6 Equipment breakdown - overheating, short 2 Forgot some parts/equipment 1 Operator error – incorrect radio settings
18 Logistics/Plan of Operation	<ul style="list-style-type: none"> 6 Bad weather 3 Poor phone/Internet service 3 Bad information, inaccurate rumors about park, park website incomplete, poor park maps 2 Long driving distances between parks/QTHs 1 Parking unavailable near the sites 1 Uneasy about operating in isolated areas 1 Space couldn't accommodate antennas 1 No overnight accommodation
8 Computer Equipment	<ul style="list-style-type: none"> 7 Computer problems – crash, screen washout due to sun when working outside of vehicle, laptop causing noise, logging 1 PSK31 Digipan software latchup due to close proximity to antenna

Survey Question #7 – What did you do to make your operation a success?

This question was an attempt to uncover those specific strategies/techniques/ideas that Activators employed to improve the success of their operation. Three categories received the greatest number of responses – Logistics/Plan of Action (30), Station Equipment (27), and On Air/Operating (23). Using the worldwide web – spotting networks, the NPOTA website & Facebook – were the specific strategies receiving the greatest mention.

Table 9 Strategies for Success

Strategies for Success	
30 Logistics/Plan of Action	<ul style="list-style-type: none">10 Posting info on NPOTA website or Facebook page5 Having XYL/son help (drive, setup, scouting locations), bring another ham to help/change-off, had a 2-man team4 Detailed itineraries/drive times/notes from NPS staff/etc on spread sheet, carefully planned all aspects3 Paper log so permanent record, in case computer issues2 Kept gear in car 24-71 Learned how to effectively/efficiently use vehicle1 Choose locations with cell phone service1 Relied on family to pick up slack while I was gone1 Focused on local NPOTA units1 Found quiet locations1 First activation close to home in case I forgot something
27 Station Equipment	<ul style="list-style-type: none">7 Backup antenna, variety of antennas to meet any situation, kept antenna system simple, quickly deployable antenna, pre-tune antenna6 Have a Go Box with all needed eqpt, extra coax and connectors, spare gear, field kit6 Backup radio, have dedicated transceiver for portable operation4 Extra battery, battery fully charged, use LiFePO4 batteries2 Good/quality equipment1 Added lots of radials to the vertical1 Making antenna connection in middle of car roof
23 On Air/Operating	<ul style="list-style-type: none">13 Using spotting networks, phone a friend for spotting, self spotting2 Never left a park when there was a pileup2 Ran 100 watts, no QRP1 Learned how to work pileups1 Find another NPOTA station and then announce up or down from his freq1 Spent time to chat with Chasers1 Calling Chasers by number in call1 Operated on many bands1 Concentrated on 20M and 40M
7 National Park Service	<ul style="list-style-type: none">3 Contacted park ahead of time to secure permission, scouted park ahead of time2 Create PDF file with pictures of setup that could be sent to NPS staff, binder with complete info and pictures2 Always informed park staff that we were there and our location, gave Ranger ARRL trifold, talked with park rangers
7 Test equipment/practice ahead of time	<ul style="list-style-type: none">4 Testing everything at home before departing, being very familiar with my setup, practiced at home2 Made changes to reduce setup/breakdown time1 Stayed with what worked, didn't make unneeded changes
6 Personal Emphasis	<ul style="list-style-type: none">2 Made sure I was having a good time, positive attitude1 Enjoyed the views in the park1 Spoke with other park visitors1 Answered questions from park visitors1 Patience

Survey Question #8 – If NPOTA were to happen again, what changes would you make in your portable operation?

Question #8 gave respondents an opportunity to identify changes they would make if NPOTA was to be offered again. The greatest number of changes related to Station Equipment (35) and within that category the Antenna System (12) and a Better Battery (6). No Changes (16) was the next largest category followed by Logistics/Plan of Action (11).

Table 10 If another NPOTA, what changes?

If another NPOTA, what changes would you make?	
35 Station Equipment	
	12 Better antenna system (higher mast)(collapsible pole)(rotatable dipole)(20/40 wire vertical)(back-up antenna)(large diameter wire)(string winders)(loop for urban areas)(resonator for 80M)(vertical on top of vehicle)
	6 Better/lightweight battery, LiFePO4 battery
	4 More seamless operation of eqpt within vehicle, permanent setup in vehicle, permanent battery connection
	2 Be more careful with equipment (don't leave out in storm)
	2 Light headset, headlamp to wear
	2 Have gear which is lighter/more portable
	1 Better carry bag
	1 Better microphone
	1 Memory voice keyer
	1 Use a collapsible pole for antenna
	1 Need to develop a Go Kit
	1 More HF capability
	1 Better transceiver (KX3)
16 No changes	
11 Logistics/Plan of Action	
	6 Start earlier in the year
	1 Better vehicle
	1 Give activator awards for unique parks activated, not same one over and over again
	1 Bring hiker's tarp for rain protection
	1 Operate more from East Coast, more dense population
	1 More operation during weekends
8 On Air/Operating	
	3 CW (operate more cw, have better cw paddle)
	1 Shut down when storm in the area
	1 Use spotting more often
	1 Use split operation
	1 More 6M and 2M in urban areas
	1 Operate PSK, digital modes
4 Computer	
	3 Logging, use electronic logging so easier to upload to LOTW, better laptop for logging, better logging program
	1 Smartphone app to help Activator (spotting, etc.)
2 Personal Emphasis	
	1 Get out of car more often to "see" the park
	1 Create more videos to show others the operation
1 Test equipment/practice ahead of time	
	1 Better planning would have allowed more activations

Survey Question #9 – What suggestions do you have for others who are about to operate portable?

This question was probably the one holding the most relevance for the researcher since it provided suggestions for someone wanting to begin operating a portable station. The greatest number of suggestions fell into two different categories – Station Equipment (36) and Practice Operating Portable (25). The largest number of suggestions underscored the idea Practice Ahead of Time (15) followed by a concern for Antenna (10).

Table 11 Suggestions for Others Operating Portable?

Suggestions for Others Operating Portable?	
36 Station Equipment	
	10 Use efficient antenna, choose antenna wisely, use wire antennas, good antenna system, use longest wire antenna you can put up, dipole is good antenna, loop antenna
	5 As minimal as possible, don't need expensive setup, keep it simple, keep it light as possible
	4 Run at least 100 watts, at least until conditions improve
	4 Use LiFe batteries from BioEnno, LifePO battery, LiFe PO4 battery (small and light weight), make sure battery will supply sufficient power
	3 Use best eqpt you can afford
	2 Bring spares, have a spare radio
	2 Bring tools for field repairs
	2 Use rope to mark distance between mast and stakes, pre-measure guy ropes
	1 2kw generator (big enough but not too big)
	1 Bond everything
	1 Go Box
	1 Use antenna analyzer
25 Practice Operating Portable	
	15 Practice ahead of time, dry run in back yard, test eqpt at home, learn how to use your gear, know your antenna system
	4 Just go and have fun, just do it, the more you do it the better you will become
	3 Keep it simple to setup, improve as you gain experience,
	2 Practice operating portable during Field Day and contests, participate in SOTA
	1 Read a lot before deciding what you'll use
18 Logistics/Plan of Action	
	3 Just do it, it's okay to fail (you will learn from it)
	2 Create and use a checklist
	2 Make sure you are comfortable, plan on bad weather, dress appropriately
	2 Be aware of surroundings, let people know where you are, get permission ahead of time
	1 Operate with a group
	1 Large Rubbermaid container with contents listed inside lid
	1 Operate from hilltops if possible
	1 Use social media to advertise where you are
	1 Keep gear in car and use it regularly
	1 Research location ahead of time
	1 Prepare for the unexpected, have a plan
	1 Check out propagation probability ahead of time, know which bands to operate
	1 Be entirely self-contained
2 On Air/Operating	
	1 Use CW
	1 Operate QRP (allows for lighter station)
1 Computer	
	1 Use laptop computer (easy to upload to LOTW)

Survey Question #10 – Other Thoughts/Comments

The final question was a “catch all” that gave respondents an opportunity to reinforce something they had stated earlier or to bring out an idea/concern that might have been missed. The responses grouped into three strong categories – Suggestions (20), Personal Emphasis (16), and Overall Experience (15). The greatest number of Suggestions were in the area of Suggestions for Operating (8), followed by Suggestions for ARRL (4), Suggestions for

Equipment(4), and Suggestions for Needed Skills (4). The category of Personal Emphasis (16), though seen in the responses to two earlier survey questions, was strongest here at the end of the survey. The responses grouped in the two areas of Encouragement (9) and Self-Reflection (7). And finally, the excitement of the Overall Experience was underscored by fifteen respondents.

Table 12 – Other thoughts/comments

Other thoughts/comments	
20 Suggestions for...	
8 ...Operating	<ul style="list-style-type: none"> 2 Encourage participation in SOTA, county hunting, etc. 1 Used same skills as SOTA 1 Use enough power to be heard 1 Spotting, social media really helped 1 80M was great band for close-in and night operating 1 Would like to see more satellite operation 1 Give your call and location frequently
4 ...ARRL	<ul style="list-style-type: none"> 2 Should consider making this an ongoing contest/competition like SOTA or IOTA 1 ARRL should improve computer score posting/updating (learn from Spain's Miguel de Cervantes SE) 1 ARRL should encourage more participation in future in this type of activity 1 Rules should allow reactivation of a NPS unit after 18 hours, rather than 24 hours
4 ...Equipment	<ul style="list-style-type: none"> 1 Having one multi-band antenna is way to go 1 Check out eqpt and antennas ahead of time 1 Have a vehicle "jump pack" in case your vehicle battery runs down 1 Keep spares in the car
4 ...Needed Skills	<ul style="list-style-type: none"> 1 Learn CW 1 Good to have fabrication skills (wood, fiberglass, welding, etc.) 1 Need to understand CW abbreviations (can't only depend on computer) 1 Didn't like poor operating by those calling
16 Personal Emphasis	
9 Encouragement	<ul style="list-style-type: none"> 2 Involve others (family, friends, hams) as much as possible 1 Get on the air and enjoy 1 Need to step out of your comfort zone and learn new things 1 Ask others for advice 1 Just do it 1 Do good planning 1 Encourage operating portable outside (tunes you into nature) 1 Learn to shake off problems
7 Self-Reflection	<ul style="list-style-type: none"> 2 Liked being the basis of a pile-up, on other side of the pile-up 1 I now plan to do more portable operating in the future 1 Have patience 1 Personal growth was off the charts 1 Developed close relationship with many hams (never before like this) 1 NPOTA made me realize how much I enjoy operating portable
15 Overall Experience	<ul style="list-style-type: none"> 15 An awesome portable year, once in a lifetime, best event I ever participated in, got to see many parks I would have never seen, most fun I've ever had with ham radio, an experience I will never forget, a lot of fun, it was a blast, now experiencing withdrawal, overall good experience, NPOTA was great for fostering learning and experimenting

Summary and Conclusions

A short survey was designed and sent to 75 of the National Parks on the Air Activators who had the greatest number of activations during 2016. The purpose of the survey was to draw insight and understanding from this very experienced group of portable station operators. The goal of the project was to develop a better understanding of the specifics of operating portable so that others could be encouraged to operate portable and to benefit from the ideas and suggestions of the respondents.

Email invitations to participate were sent to the Activators within a few days of the conclusion of NPOTA. The invitations were sent only once and there was no attempt to identify individual respondents or to follow-up in any way.

The following conclusions are drawn from the 58 surveys that were completed and returned to the researcher.

1. The ***NPOTA Activators are a highly motivated group***. A response rate of 60% is considered “very good” for a survey that is administered via email⁴. The survey response rate for the NPOTA Activators was 77%.
2. The ***NPOTA Activators were very enthusiastic about the year of operating portable*** with many comments describing the excitement they felt, the encouragement they had for others, and their willingness to share ideas of every sort imaginable.
3. The concern for ***having a good antenna system*** came out on a number of different questions. It was suggested that antennas be tried out and tuned ahead of time, that more than one antenna be brought along for a portable operation so that local conditions can be better accommodated, and it was best if the antenna could be erected without being dependent on what might be available at the location.
4. The ***most popular antenna was a vehicle mounted vertical*** that could be easily deployed.
5. ***Having enough power available for a portable operation*** was mentioned over and over again. Rechargeable lithium iron phosphate (LiFePO₄) batteries were identified as working well in portable situations.
6. Though there was considerable variety in the type of transceiver that was used for operating portable, the ***Yaesu FT-857 and the Elecraft KX3 were the most popular transceivers***.
7. Though many Activators used more than one mode for their operations, the ***most popular mode was single sideband (SSB)***.
8. Activators ***enjoyed operating from units of the National Park Service*** but cautioned that the ***rules, regulations, and staff of the NPS can make it difficult to effectively operate a radio station***. It is important to ***be aware of all NPS rules and regulations*** and to ***make contact with the NPS Unit ahead of time***. ***Sharing complete information with NPS staff*** about your proposed activation can help avoid problems on site.
9. The idea of ***good planning*** was mentioned throughout the survey as was the need to ***practice before leaving home***.

10. The use of computers for logging was seen both positively and negatively. Some felt *computers made sense since log data would be uploaded to LOTW*. Others felt that computers were still risky and a *paper log provided insurance from a computer crash*.

11. Using *social media was an excellent vehicle for boosting the productivity* of their operations. However, *having a friend prepared to spot your information* was essential when there was the possibility that you might be out of range of cell phone service.

Clearly, NPOTA was a banner year for those who activated NPS Units. Portable stations were setup throughout the country with thousands of QSOs made each day. Activators were encouraged to move from one NPS unit to another. And, there was always a large group of Chasers ready to make a contact. In a short period of time NPOTA Activators were able to amass a great deal of experience on how to plan, setup, and operate a portable station. Hopefully the sharing of their experiences and advice through this survey will help others successfully venture into the world of operating a portable amateur radio station.

¹ ARRL National Parks on the Air. (n.d.). Retrieved February 27, 2017, from <https://npota.arrl.org/>

² National Parks on the Air Statistics (n.d.). Retrieved February 27, 2017, from <https://npota.arrl.org/nps-stats.php>

³ National Park Service On the Air Event Leader Board. (n.d.). Retrieved February 27, 2017, from <https://npota.arrl.org/leader-board.php>

⁴ Response Rates. (n.d.). Retrieved February 27, 2017, from https://facultyinnovate.utexas.edu/sites/default/files/response_rates.pdf

Appendix 1 - Email Invitation

*From: <W8JRK@arrl.net>
Date: Tue, Jan 3, 2017 at 7:00 AM
Subject: NPOTA Activator Survey
To: AA8AAA@gmail.com*

Hi XXXX -

I'd like to ask your assistance in filling out a short survey reflecting on your participation as an Activator during the now-concluded NPOTA year. The survey is designed to gather information about the equipment you used for your portable operation and the suggestions you would like to share with others.

The survey is being sent to about 75 Activators who had the greatest number of activations. And, you are certainly a key member of that group.

The survey is very short, only 10 questions, and should only take a few minutes. It can be found at:

<https://www.surveymonkey.com/r/X9DNMZR>

Many thanks for your participation as a NPOTA Activator and your assistance with this survey.

All the best for a Happy and Healthy 2017!

73 -

Joe W8JRK (w8jrk@arrl.net)

NPOTA Activator Survey

This short survey has been designed to document the types of portable stations used by NPOTA Activators during 2016 and their comments/suggestions regarding their portable operation. With over 1400 Activators participating in NPOTA, 2016 was clearly the “Year of Portable Stations” in the US. Before the year is forgotten it’s important to find out what has been learned about operating a portable station that can be shared with the ham radio community.

The following 10 question Activator Survey consists of two parts – 1. Portable Station Equipment and 2. Lessons Learned. As a major NPOTA Activator, your responses to both parts would be most appreciated.

You can use short or long answers – it is your choice. And, of course, there is no “right” answer. This is a qualitative survey to better understand the “best practices” that were used by NPOTA Activators.

The collected data will be summarized into a draft report. Once the draft report is completed you will receive a copy for your reactions. The report will then be finalized and shared with the amateur radio community. Having your responses included in the report will be most appreciated.

Also, you should understand that I am doing this as an individual – I am not associated with any manufacturer or organization. No identities (call letters, names, etc.) will be used in the report. Data will be aggregated and findings will be reported anonymously. If you have any questions, please feel free to email me (W8JRK@arrl.net).

Thanks for your activation and your help with this survey!

73 –

Joe W8JRK

NPOTA Activator Survey

1. What type of transceiver did you use most often for your activations (QRP, IC718, KX2, Homebrew, etc.) and how much power did you operate?

2. What type of antenna did you most often use (G5RV, vertical, wire dipole, Hamstick, whip, Buddipole, etc.) and how was it supported (car/RV, tree, fiberglass pole, building, etc.)?

3. Which mode(s) did you use (SSB, CW, RTTY, PSK31, etc.)?

4. How would you best describe your NPOTA activations (mobile, portable, backpack, SOTA, etc.)?

5. What was the source of power for your station (portable DC battery, generator, car battery, solar, AC, etc.)?

6. What problems did you experience during your activation?

7. What did you do that helped make your operation a success?

8. If the NPOTA year were to happen all over again, what changes would you make in your portable operation?

9. What suggestions do you have for others who are about to operate portable?

10. Other thoughts/comments regarding your portable NPOTA operations that you would like to share with others.