After-Action Report
MCACS Winter Field Day 2024

January 27-28, 2024

Participants

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W4DOI
KC3MDX
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AC3N
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Introduction

Eight MCACS members traveled to Assateague Island National Seashore on the last weekend in January to participate in Winter Field Day (WFD). We operated two portable HF stations that were set up in a tent on the beach, and camped for four days (three nights). We completed a total of 535 contacts during 22 hours of operation, reaching 42 U. S. states plus Puerto Rico, four Canadian provinces, and one European country. All participants contributed substantially to the success of the operation, and all had a good time.

Winter Field Day is an annual emergency communications exercise for Amateur Radio operators. The objective is to set up an Amateur Radio station in the field and make contacts with other participating stations, demonstrating the ability to provide emergency communications in the field under winter conditions. Stations in the field may also make contacts with Amateurs using their home stations. This year, almost 1,292 groups and individuals, primarily in the U. S. and Canada, registered to participate in advance of the event.

This after-action report was compiled by the MCACS participants to summarize the highlights of the event and share lessons learned.

Planning

At last year's WFD, there was little coordination ahead of the event to determine who was bringing what. As a result, we had a great deal of unnecessary equipment; so much so that dealing with all of it became burdensome.

For this year's event, K3MRI, our Winter Field Day chair, developed a simple online spreadsheet, listing categories of equipment needed. Participants logged in and recorded what equipment and supplies they had available and were planning to bring. A few days before the event, we met via Zoom to work out logistical details and resolve any redundancies and/or gaps. As a result, we had everything we needed, with a reasonable amount of extra gear as backup. Given the wet weather we experienced, it was a good thing that weren't trying to keep a lot of unnecessary gear dry.

Chronology

During the winter months, campsites at the park are available on a first-come, first-served basis. To ensure that we could claim three contiguous campsites suitable for our needs, six of us traveled to the island on Thursday, January 5 to stake our claim. It was a good thing we did, because while the park was nearly deserted on Thursday, most of the prime oceanside campsites filled up quickly on Friday.

The temperature was unseasonably mild on Thursday, with a high of 60 °F and a low that night in the low 50s. But with very foggy conditions and a light ocean breeze, everything left outdoors was damp, and inside the tents, moisture condensed on every surface.

Our two remaining participants arrived on Friday. We relaxed during the morning hours. Several of us explored the beach, and one of us tried surf fishing. In accordance with Winter Field Day rules, we started setting up our stations and antennas after 2 PM. One of the first things we did was to fire up a propane heater (briefly) in the operations tent to dry it out so we could start bringing in radios and associated equipment. K3MRI set up his ladder-line-fed dipole on a 65' fiberglass mast, while KC3UKX set up an end-fed antenna, also in an inverted-vee configuration. There were our primary antennas.

As the afternoon went on, the temperature climbed briefly into the 70s, so we had the unusual experience – for January – of working in our shirtsleeves. We saw patches of blue sky for a brief period. After dusk, the weather cooled significantly, and we enjoyed a campfire set by K3MRI.

On Saturday morning, we finished assembling our two stations, deployed the generator, and set up two additional antennas. We were prepared to begin operating promptly at 2 PM. Later Saturday afternoon, what seemed like a modest cold front passed through, with rain accompanied by a few moderate wind gusts. The rain continued, off and on, through Saturday night into Sunday.

Unfortunately, the tent we were using to house our two HF radios is a summer-weight tent. Its ceiling is almost entirely mesh for ventilation. The rain fly did a good job of keeping the rain out, but as the outside air temperature dropped into the 50s, the propane heater was unable to keep up. We had a 10' x 10' popup canopy equipped with side walls, so we deployed that over top of the operations tent on the upwind side, and rigged a tarp as an additional wind break. That had an immediate and dramatic effect on the temperature inside the tent, making it possible to operate in reasonable comfort overnight, albeit while wearing jackets and hats. At least we didn't have to worry about carbon monoxide poisoning with all the fresh air passing thorough the tent. We need to consider the acquisition of a winter weight operations tent for future deployments, such as a military-style "command post" tent.

The rain ended early on Sunday, and again, we were treated to unseasonably mild temps and patches of blue sky between the clouds. By noon, our QSO rate was dropping, and we felt that we accomplished all our training objectives. Facing a 3-1/2-hour drive to return to home base, we decided to shut down early. Unfortunately, most of our gear had to be packed wet, but by 3:30 PM, as the saying goes, only our footprints remained in the sand. The trip home was uneventful, although we experienced patches of rain and drizzle most of the way. We were back in the DC area at roughly 7 PM.

Stations

We were fortunate to have two very nice transceivers, and Elecraft K3S and a Kenwood TS-590S. A high-performance receiver is a real benefit when the HF bands are crowded with strong and weak stations operating on adjacent frequencies up and down the band. For actual emcomm operations, a more modest transceiver will suffice. Many of us would prefer not to take an expensive radio into austere conditions. You want a radio that will do the job but that you would not mind (too much) losing – or leaving behind for someone else to use when you return home.

An LDG automatic antenna tuner was used with the TS-590. The K3S had an internal antenna tuner capable of matching an SWR of up to 10:1.

Each station was powered by a 100 Ah battery with an attached battery charger. A spare 100 Ah battery was available but not needed.

Each station was also equipped with a 12V LED task light (i.e., desk lamp). A 12V flexible LED light string provided ample general illumination in the operations tent.

It is important that all equipment be equipped with the ARRL standard Powerpole connectors and properly fused. One of our radios and two of our batteries were not so equipped, so we had to jury-rig a few connections. In addition to the wasted time and stress this imposes, operators sin the field are unlikely to have the proper connectors, terminals, and tooling to do a first-class job of making the required connections. Standardized Powerpole connectors, distribution blocks, and cables streamline setup and reduce the probability of human error leading to blown fuses and/or equipment damage.

A 3 kW inverter-generator provided AC power to the operations tent. Its main function was to power the battery chargers. The chargers kept the batteries from becoming fully discharged over the course of the event. Since all the equipment was powered from the station batteries, there was no interruption when the generator needed to be shut down for refueling. In addition, because the park has quiet hours, we were required to shut down the generator between 10 PM and 6 AM. (This is a not-uncommon requirement during disaster response operations.) During that period, the batteries supplied all of the energy needed for the radio equipment and station lighting.

3 kW was far more capacity than needed for this event, but the generator has an “eco mode” that enables it to run at reduced RPM when lightly loaded, while the onboard sine-wave inverter delivers a clean 120V AC waveform to the load. The modern class of inverter-generators run exceptionally quietly, especially in eco mode. Our generator was completely inaudible inside the operations tent (not to mention in the adjacent campsite).

We initially experienced radio-frequency interference (RFI) from the generator, but repositioning it cured the problem.

Each station was also equipped with a laptop computer running the N1MM logging software. Ideally, each laptop should be equipped with an accessory power adapter than allows it to be operated directly from a 12V source. Our laptops were not so equipped, so we brought along a small sine-wave inverter that we used to keep the laptops running when the generator was shut down for quiet hours overnight. The laptops’ onboard batteries could bridge a short power outage. Some models of small inverters run hot. If your inverter is one of them, make sure the heat doesn’t cause collateral damage, such as melting a hole through a car seat or tent floor – a lesson learned from a past deployment!

Antennas

In this event, in addition to the two previously mentioned wire antennas, we set up a Buddipole antenna and a commercial magnetic loop antenna, both on 20 m. As predicted by theory, both of these allowed us to make contacts, but did not perform as well as the full-sized wire antennas.

The lower HF bands, 80 through 20 meters, are most important for Field Day, and also for emcomm operations. During the daytime hours, 40 m usually works will for regional communications, and 20 m may also be usable, depending on ionospheric conditions. (During the active part of the sunspot cycle, 20 m is often a DX band during the day.) During nighttime hours, 40 m tends to "go long," making it suitable for transcontinental contacts, while 80 m is generally good for regional contacts for all but a few hours per day.

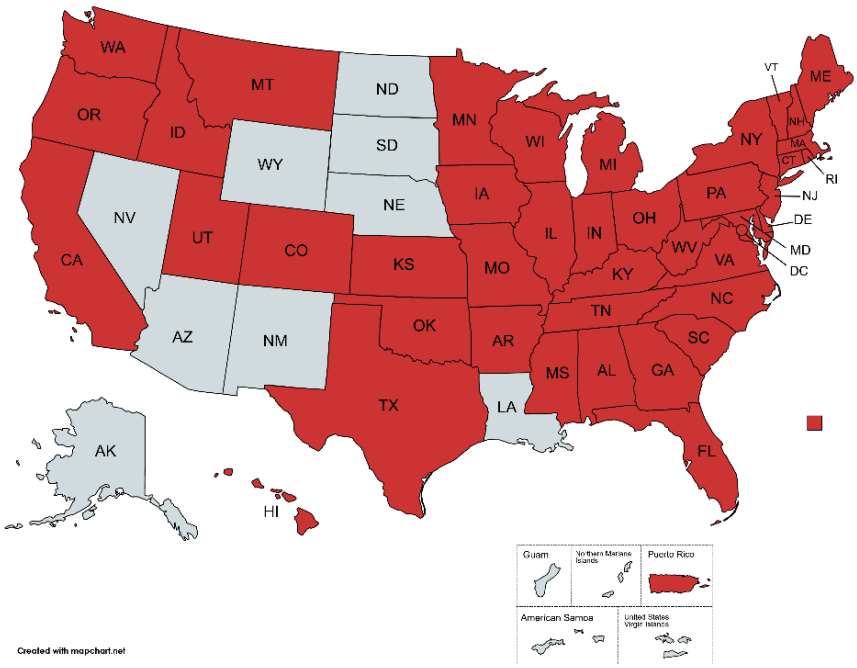
Both of our wire antennas were set up to be a half-wavelength on 80 m. Because of the way they were fed (ladder line for Jim's dipole and a suitable balun for Jeff's antenna), it was possible to obtain a decent match on the desired HF ham bands using an antenna tuner.

The Buddipole uses a loading coil to achieve resonance on a HF band with antenna dimensions that are much smaller than a full-size dipole. The compactness is great for a Parks On The Air activation, but at the expense of reduced effectiveness relative to a full-sized half-wave dipole, as our results showed. In addition, changing bands on the Buddipole requires physical reconfiguration of the antenna, versus pushing a button on the antenna tuner.

Similarly, the magnetic loop antenna trades off effectiveness for compactness, as our experience at WFD showed. However, it should be noted that the magnetic loop antenna has a deep null in the plane of the antenna, so it can be very effective at reducing RF interference from a single nearby source, if you should happen to be plagued by such an issue.

Results

We made contacts with stations in 42 states plus Puerto Rico, as shown in the following graphic. We also made contacts in four Canadian provinces, and we made one contact in Italy. (There was a European DX contest under way during the same time period as Winter Field Day. Numerous European stations were heard; K3MRI also made contact with a Belgian station before the Winter Field Day contest began.) The table on the next page lists the number of contacts by state, territory, and province.



Stations Contacted by State/Territory/Province

AL	8		MS	2	NB	1
AR	7		MT	1	NS	1
CA	3		NC	34	ONT	21
CO	2		NH	1	QC	4
CT	14		NJ	23	4	27
DE	2		NY	37		
FL	16		OH	59	DX*	1
GA	24		OK	4		
HI	1		OR	2		
IA	2		PA	67		
ID	2		PR	1		
IL	5		RI	2		
IN	15		SC	12		
KS	1		TN	22		
KY	6		TX	15		
MA	9		UT	1		
MD	9		VA	33		
ME	3		VT	2		
MI	23		WA	1		
MN	2		WI	21		
MO	5		WV	8		

*The DX station was in Italy.

Acknowledgements

Thanks to KC3MIX and KC3MDX for preparing several delicious and nutritious communal meals.

Thanks to W3TDH and K3RYR for providing equipment used by the team.

Photos

See the photos on the following pages.

Photo credits:

Figs 1, 3, 4, 5: KN3U

Figs 2, 6, 7, 8: K3MRI

Fig 1 Encampment

Rust-colored tent housed the two HF stations. White canopy behind it served as a dining tent. It was later repositioned over top of the operating tent to serve as a windbreak.

Fig 2 K3MRI's 80 m dipole was fed by ladder line, held off the wet ground by non-conductive poles. Just outside the operating tent, a balun transformed the feedline to 50 Ω coax. This arrangement worked well on 80/75, 40 and 20 m.

Fig 3 Another view of the antennas.

KC3UKX's end-fed dipole is in the foreground. The antennas were positioned end-to-end, parallel to the beach. Note the misty conditions, which prevailed for much of the weekend.

Fig 4 AC3N's Buddipole was tuned for 20 m and set up between the two 80 m dipoles.

Fig 5 W4DOI and K3MRI at one of the two operating positions

The Wi-Fi router on top of the radio was used to establish a wireless local area network linking the two laptop computers used for logging contacts.

Fig 6 Dinner in the dining tent

Fig 7 The crew

L-R, F-B: K3MRI, W4DOI; AC3N, KC3UKX, KC3MDX; KC3MIX, KN3U, N3DDS.
The tarp attached to the van kept the rain off the generator.

Fig 8 Moonrise over the Atlantic