

# Portable VHF Hilltopping

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*Combine the excitement of VHF contesting with adventure radio, and hang on for a spectacular operating experience like no-other!*

For the past 2 decades, my most memorable amateur radio operating experiences have been on weak-signal VHF. This article presents how I learned the sport, one triumph or defeat at a time, and how it evolved for me in to what I refer to as *Portable VHF Hilltopping*. Equipment choices are discussed, along with tradeoffs for backpack-portable operation. Most of the emphasis is placed upon just how much fun I have had with this unique form of amateur radio operation. I hope to inspire other operators to join in this sport during future VHF operating events.

## Discovering a New Sport



**Figure 1 “Senior Skip Day,” Summit of Mt. Hood, May 1982, CN95**

Growing up in the North-West, I was fortunate-enough to have many opportunities to explore the Cascade and Olympic mountains. Combining backpacking outings with small, portable, HF equipment was just a way of life in the Hayward household. After obtaining my Novice in 1979, I joined Dad (Wes, W7ZOI) and his regular FD co-operator, Roy Lewallen, W7EL. They formed a “club” (per se), and a few portable FD sites were found over the next few years.



**Figure 2 W7ZOI, W7EL, KA7EXM, Field Day 1982, CN95**

What I found during those earlier FD outings was the excitement of operating away from city lights & noise, and usually slightly-better operating conditions than I had at home. This was usually because the abundance of trees and features of the hills could be exploited to get the antennas much further off the ground than we could in a residential setting. We had great HF conditions, but I didn’t feel like we were taking full advantage of the “line of sight” locations that we had at many of these locations. After the first couple of outings, and an upgrade to General, I

wanted to bring my FM HT with me and see what I could scare up on 2 meters. With a simple “tinker-toy” 2 element quad, I was able to work back in to the Portland area on 2m simplex without any problems.



**Figure 3 W7EL (& W7ZOI), "1B OR" from Ghost Ridge, 1982 (CN95)**



**Figure 4 KA7EXM on 2m for FD 1982 (CN95)**

My first 2m rig was a Yaesu FT-207 (FM HT). I was motivated by friends who also had FM HT's, and the interest in public service / repeater operation. I traded the rig away a couple of years later when the FT-290R was introduced. The FT-290 was a battery-operated, 2m all mode synthesized rig, in the spirit of the IC-202. Ironically, my FT-290R was only used for Satellite and weak-signal operation from home, but never taken out on an expedition. I sold the rig when heading off to college, a sale I regret making.

During my Senior year of high school, a climb to the Summit of Mt. Hood included a 2m HT for safety and VHF exploration. Unfortunately arriving at the summit at 10 AM on a week-day, there was nobody to operate.

2m FM Hilltopping had its limitations. One of the largest limitations was the lack of other operators even bothering to listen. If anyone was

going to be on 2m for FD, it was going to be on 144.2. We were still a dozen years shy of the IC-706, and the increase in SSB VHF / UHF activity these new radios brought to the mainstream amateur community.

If there weren't operators available on 2FM Simplex, there were certainly repeaters to operate through. From the summit of Mt. Hood, one can bring up more than 4 repeaters on some crowded channels. From Mt. Anderson in the heart of the Olympic Mountains, we had to ask operators on a Canadian repeater to refrain from operating so we could make a phone patch back to Western Oregon's South Saddle, just over 150 miles away from our QTH.

The exposure with the FM Handie Talkies revealed that there was an opportunity here. Switching modes to SSB, and hoping for more activity, was going to be the trick.



**Figure 5 Phone-Patch from Mt. Anderson, Olympic National Park, CN87 to South Saddle, CN85**

My first post-college job was for an engineering firm in Sunnyvale, California. Due to the nature of the business, the workplace attracted numerous amateur operators. The company was quick to declare how many PhD's worked there. However, the PhD's were greatly outnumbered by licensed amateurs.

In the late 1980's there was quite a bit of SSB activity in the San Francisco Bay area. Most operated from their homes. The typical home in the Bay area is only a few dozen feet above sea level, at-best. Mark Hansen, KI7N, a college friend / co-worker, and I, took to the hills above Stanford to check out the propagation by looking down upon the entire Bay area. We visited Mt. Tamalpais<sup>1</sup> in Marin County, an incredible spot for VHF / UHF operation. From Mt. Tam, we could operate in to the Bay area, as well as to the East, well beyond Sacramento. We knew that

horizontal polarization was a must. With a simple 4 element Cushcraft yagi, we were able to work a few dozen amateurs with 5 Watts from the peak of Mt. Tam.

I started to note a few important things for portable VHF operation. A yagi was probably going to be a requirement, and the 25W 2m all mode mobile we were using required a lot of batteries (even on low power). The sting of selling the FT-290R years earlier was catching up with me.



**Figure 6 Jack WB6JZY, Summit Pinnacle of Mt. Conness, Yosemite NP (DM07)**

Meanwhile, back at the lunch table, I met Jack Trollman, WB6JZY. Jack has been involved with communications systems all his life (not just via amateur radio), and enjoys backpacking as well. That was enough for the two of us to hit it off. In the summer of 1989, we ventured out to climb Mt. Conness in the Yosemite National Park, coincident with the September VHF contest. Jack offered to bring his IC-202 and a yagi; all I had to do was bring a keyer<sup>2</sup>. From the summit pinnacle of Mt. Conness, we operated back in to the Bay area without any problems. We heard activity into the Los Angeles basin as well.

Although our operating time was limited due to the climb involved, I was hooked. This was a clear demonstration that it was indeed possible to bring relatively light weight VHF equipment in to the mountains and put it on the air.

### Building the portable VHF station

In the fall of 1990, I made my move home to Oregon. Graduate school at Oregon State was the official excuse that brought me back home to the North West. In September 1991, I had the opportunity to try out my own VHF contest. But what was I going to need?

- Incredible Vantage point: How about the summit of the South Sister? A long 5 hour slog, elevation 10,358 feet.
- 2m SSB Rig: Borrowed Mizuho MX-2, 200mW SSB / CW HT
- Yagi: Hobbled-together 5 elements from the ARRL handbook. This was not much more than a “directional dipole.”
- A college buddy to share the excitement.

This was more-than-enough to put CN94 on the air. Or was it? (I’d say it was!)



**Peak experience:** Roger Hayward, KA7EXM, of Corvallis, Oregon, combines backpacking, contesting and QRP as he operates in the September 1991 ARRL VHF QSO Party with a 200-mW hand-held SSB/CW transceiver atop Oregon’s South Sister (elevation 10,358 feet). Elsewhere in this issue, Hayward describes the other radio he took on the trip: A 1.5-watt 40-meter CW rig. (photo by Scott Brown, WB7SHE/3)

**Figure 7 QST Insert from June 1992**

Despite the odd arrangement of a VERY low power rig, and an antenna that had zero field



testing on it, we were able to operate in to Portland with relatively few problems. We even nabbed one CW contact to Seattle (CN87).



**Figure 8 View to the North from the South Sister, CN94 (September VHF Contest, 1991)**

The antenna and rig are shown in Figure 9. The Mizuho MX-2 HT is unique, and can be found on eBay occasionally. Although the 200mW output level might be a little low, a small linear amplifier could be added easily.



**Figure 9 Mizuho 2m SSB/CW HT, Yagi Configuration**

The first antenna was built with dowels, scraps of masonite, and wingnuts. The boom would fold up in place and secure by moving two

wingnuts. The elements of the antenna were made of welding rod, and were cut to half-element length and crammed in to the pre-drilled holes on the mast. For this first arrangement, the coax was connected to the driven element with a pair of clip leads.

With the lack of time to investigate the yagi, no improvements were made in time for the January 1992 VHF contest. I headed up to Mary's Peak for a gorgeous day of operating (CN84). This time, I had the Mizuho, as well as a borrowed FT-290R, modified to allow for 5W of output.

The experience from the summit of Mary's Peak was incredible. Ignoring the commercial communication system at the summit, I had a spectacular view of the cascades, spanning from the Sisters, North to Mt. Hood and Mt. St. Helens. Operating was even better. With contacts clear in to CN87, a boat-load of contacts in to Portland (CN85), and even a QSO over my shoulder to the Oregon coast (CN72), it proved once-again that a couple of watts and even a lousy antenna could be heard.



**Figure 10 Mary's Peak, Oregon, January 1992, CN84**

After graduate school and a move back to the Portland area, it became time to gear up for real. I considered a small PA for the Mizuho to bring up its output power, but the owner wanted the rig back. I elected to pick up a FT-290Rii and the companion battery pack. With this combination, I had a slightly over-weight 2.5W 2m SSB/CW rig. The next destination? Cooper Spur, 9200 feet up Mt. Hood's North-East ridge for the September 1992 VHF contest.



**Figure 11 Cooper Spur (Mt. Hood),  
September 1992 CN95**

After a trip like this, one finds faults with the ARRL's scoring system. For starters, most trips of this sort are best performed with a party of two or more<sup>3</sup>. This allows one person to take photos of the other, and frees up a little time for the operator to take a break, eat, etc. The second fault is that there are no points given for the scenery.

I realized I had done it. The weight of the day pack was totally reasonable. Without too much work, one could probably bring overnight gear along with the rig. The longest elements of the antenna were reduced down to a few 3' dowels I just held in my hand for transport. These can be lashed to a pack with ease, if required, or carried in a poster-tube.

For the next few years, a number of favorite operating locations were found, and yielded similar results. One favorite Field Day location, "Ghost Ridge" along the Pacific Crest Trail, yielded mixed results on VHF, as Mount Hood shadows the path to the North. Finding an antenna design that would not-only provide a decent match, but be light-enough and collapse

down for transport, seemed to be the greatest challenges.

In the spring of 1997, I had an opportunity to visit Penn State for a conference, immediately after the June VHF contest. I brought my FT-290Rii and the portable yagi along. We had replaced the driven element with a gamma-match configuration, but were still uncertain about its overall performance. I found Mt. Davis, the highest point in Pennsylvania. A 40' lookout tower greeted me when I got to the summit. Unfortunately, the antenna situation destroyed my chances for experiencing the VHF contest from the North-East. It was time to dump the design and search for a decent replacement.



**Figure 12 Summit of Mt. Davis, Pennsylvania  
(June 1997 VHF Contest), FM09**

### **Portable Antennas that Work**

Along comes an elegant, simple yagi design from Kent Britain, W5VJB<sup>4</sup>. If you haven't built a few of his yagi's yet, you really must. Kent took a very different approach to the Yagi. He chose a simple feed system using half of a folded dipole, then arranged the first director to form a good match to this driven element. The result is a family of yagi's with *good-enough* performance, simple-enough that one can construct it to be easily transportable.

W7ZOI built a 3-element yagi using #10 wire for the driven element, and a similar material for the director and reflector. The elements, along with the boom, could be stowed inside a typical backpack. Two 5' tent poles were stacked over each other to form the mast. With a couple of additional hand-made pieces, we had a nice take-anywhere 3 element 2m antenna<sup>5</sup>.

The next opportunity to try out the new yagi setup was in January 1999. Although the peak at Ghost Ridge is not on the trail, it was a popular winter destination. W7ZOI and I got up super-early and headed for the hills, with the FT-290Rii, the new yagi, and snow shoes.



**Figure 13** Ghost Ridge, January 1999 CN95

The trip to the ridge was quite a lot of work. It would have been much harder, but we were able to follow a trail that had been broken by someone the previous night. On the top of the hill, the air was absolutely still, and probably around 20 degrees. It was surreal.

Unfortunately the ARRL rules emphasize that in moments like this, one must actually put the gear *on the air* in order to achieve some sort of *score*. This is quite unfortunate at times, as the day was already declared a total success prior to breaking out the radio.

The yagi worked, and it worked well. Other operators could hear us, and we could hear them. Our 2.5W signal appeared to be on-par with most everyone else. The “QRP ridicule” was finally gone. Of course, most OM’s couldn’t believe we were sitting in a hole in the snow, at 4925’, staring at Mt. Hood only 5 miles away. The unfortunate downfall of Ghost Ridge is that Seattle is shadowed by Mt. Hood itself.

When operating the rig in cold conditions, I found the normal winter gloves to be inadequate. Small buttons, pencils for logging contacts, and thick insulation on the glove do not go well together. I found ultra-thin poly-propylene gloves, made of material similar to that used in modern long-underwear. These gloves proved thin-enough to allow operation of the rig without the need to expose the bare hand to the elements.

### Multiple-Band Backpack Portable

After the absolutely wonderful experience on Ghost Ridge in January, we elected to return to the same QTH for the June contest. This time, W7ZOI brought along a home-brew 6m DSB rig. It was a beautiful early spring day, and conditions were favorable on both bands. For 6 meters, a simple dipole served as our antenna.



**Figure 14** W7ZOI Operating 6m DSB from CN95

On 2 meters, we still used the 3 element WA5VJB yagi. Although everyone knows that “more elements means higher gain,” few remember that this gain is obtained by increasing the directional nature of the yagi. We found that 3 (and later 4) elements on 2m proved a very good compromise for hilltop operations. It is small-enough that it is portable, provides a little bit of forward gain, but also allows you to hear signals off of the sides of the yagi. Some stations would-have been missed with a higher-gain antenna, not because we couldn’t work the



other station, but because we wouldn't have heard them off the side of the antenna.



**Figure 15 A Spectacular Day from CN95!**

Ironically, this rule seems to apply for other stations. We had the rare opportunity of hearing W6MMM during the Ghost Ridge outing<sup>6</sup>. We wonder if they heard us calling back, as their long arrays were quickly swiping across our location.

After adding the 2<sup>nd</sup> band to the mix, I noted we carried redundant power up the hill. I could have operated from the Gel Cell battery. In place of the snap-on C-cell pack, I could have carried the 25W linear (and run it in 5W mode). Perhaps the extra 3dB would have clinched a couple of additional contacts.

With numerous outings at this point, thoughts turned towards finally accomplishing a contact with Canada from CN95 (or better), as well as perhaps increasing the operating time. From Beaverton to Mt. Hood and back in a day, the typical day-hike only allows for a few short hours to operate. I wanted a better vantage point to the North, as well as more time to operate.

Both of these goals were accomplished in September 2000 with an overnight hike to a

location East of Mt. Hood. This time, the Portland area was in Mt. Hood's shadow, but Seattle was a clear shot.



**Figure 16 Lookout Mountain, CN95**

Notes from this trip<sup>7</sup> revealed that the backpack was in excess of 60 pounds. OUCH. Luxury items included adequate water for an overnight stay, extra fuel, a tarp in addition to the tent, and TWO 8 pound Gel Cell batteries. Although the weight of the pack could certainly be optimized to roughly 40-45 pounds with ease, it seemed apparent that a companion hiker would help offset the weight of the gear (one can carry the bulk of the common gear, the other carries the radio and antenna). With short hiking distance of just over a mile, the weight was still bearable.

The overnight experience was new, and fun. I enjoyed the opportunity to ragchew with other stations in the evening, hanging out in other various hilltop locations for the night. It was unfortunate that I had just the one band, as I finally had the time available for more bands. Very shortly after getting home from this trip, I found my next portable radio, the FT-817.

### **The Ultimate Backpacker**

I think I was the only person in the country that saw the introduction of the FT-817 as a more-

flexible, lower-weight “FT-290iii, plus HF.” Most saw it the other way around. A little sweet-talking to Yaesu and I had the first FT-817 delivered in Oregon.

Very shortly after receiving the FT-817, it was put on the bench for a number of tests. MDS, Dynamic Range, and a number of on-air tests were performed. The receiver is quite good, if you consider the overall weight of the radio (just over 1 kg), and the extremely limited size.

The one disappointment noted almost immediately was the relatively high current consumption of the radio during receive. Average current consumption was around 300mA. This value varied band-to-band, depending upon how many non-latching relays were actuated. The internal AA battery pack would not last very long with this sort of drain.

Due to the overwhelming capabilities of the radio for its size and weight, we understood how Yaesu engineering had to make some concession in order to bring the radio to market at such an extremely competitive price. However, one can argue whether this should really be considered the “ultimate” backpack rig.

I scrambled quickly to build up a 432 antenna for the next outing, January 2001. I elected to build an 8 element ‘VJB yagi. To match the boom length, I built a companion 4 element yagi for 2m. We ventured out to Bennett Pass, another hill East of Ghost Ridge (near Mt. Hood) in CN95.

With the slightly lighter payload in the pack, I was able to carry an extra antenna. The ‘817 worked as advertised, and received a “Two Thumbs Up” recommendation from us. We learned the hard way that Sealed Lead-Acid batteries do NOT operate well when they are placed directly on the snow.

Winter operation has proven to be a great experience. If for no other reason, the ritual of the contest forces us to head out in to the snow. Without the scheduled event, excuses to put off a snowshoeing trip may postpone things until springtime. The unfortunate circumstance of Winter adventures has been finding a readily-accessible vantage-point that would allow for overnight camping.



**Figure 17 Bennett Pass, CN95 with FT-817 and 3 bands**

### **Two Awesome Portable Experiences**

The next adventure with the FT-817 came in June of 2001, with a trip up to the Summit of Mt. Ellinor, in the Olympic National Park (CN87). My climbing buddy was my nephew, Tom, KD7LXL.

Tom had recently obtained his Technician-class license, and had chosen to purchase a FM HT to get started with amateur radio. Two other generations of Hayward’s were eager to see him on HF, or VHF for some long-haul contacts. What better way to show another amateur operator how much fun this is, than to bring him along and let him share in the experience.

Due to conditions on the summit, we chose to descend to a lower location for the evening and pitch a tent. Rain slowed us down a little-bit. We had the 3 “FT-817” bands with us. Because of weight considerations, I chose to carry 3 full sets of AA batteries this time. Unfortunately, this was our limiting factor.

This was the first time I combined a long evening of operating with multiple bands at an awesome vantage-point. The only thing we



didn't have was a rare grid. It didn't seem to matter, as we were able to work in to Portland when many other Seattle stations could not.



**Figure 18 KA7EXM (KD7LXL, op) From Summit of Mt. Ellinor, Olympic NP, CN87**

With a 14 year old aspiring amateur watching your every move, you tend to hope for an exciting evening of operating. What happened that evening was far-beyond exciting. We heard a very weak station pop up on 2m, slowly increasing in signal strength. The station was WB6FFC, in CN82, on Mt. Ashland (Oregon border to California). I switched to CW, and took the output power up to 5W, knowing that this might drain the life out of an entire set of AA batteries.

He heard us, and we worked him. With only 4 elements, and a nice tall hill on the Olympic Peninsula, we worked a station over 350 miles away.

What happened next was even better. We worked the same station on 432.

As for KD7LXL, Tom promptly purchased an FT-817, and an M2 yagi. He has been active on VHF ever-since, from Gig Harbor Washington.

In September 2001, W7ZOI and I finally combined everything we had learned about VHF hilltopping for a weekend that really had no

comparison<sup>8</sup>. We chose Maxwell Butte, a 5 mile hike up to a peak just West of Three Fingered Jack, in the Mt. Jefferson wilderness area of Oregon (CN94). We had to carry our own water for the weekend, as well as overnight gear, and the rig. With a party of two, there were no compromises to the station. We operated 6m, 2m and 432, with the FT-817.

From this location, we operated up and down the Cascades, as well as one contact to CN88 in Canada. The bands were hopping, we had ample battery power, gain in the antenna, and a spectacular vantage point.



**Figure 19 Wes (W7ZOI) on Maxwell Butte, near Three Fingered Jack, CN94**

When operating portable, one has to look at radio equipment in the same way an ultra-light backpacker looks at equipment. That is, everything you carry must have at-least one purpose, or it should stay home. Luxury items, such as an operating table, or even a clip-board, are left behind.

I found a convenient zipper-case years back that happens to be just-about the right size to carry nearly everything, with the exception of the yagi's, and the battery. The FT-817, ropes, coax, log books, pencils, wingnuts, power cable, keyer paddle, all fit conveniently into the case. Once I

get to the operating location, this case doubles as a place to prop the rig up for operation.



**Figure 20 The entire 4-band Station**

Despite the weight penalty, I found it especially useful to carry along my trusty Sony MDR-V6 headphones. This one luxury item allows for intense listening on CW (worth a few dB in itself), and allows you to operate without blaring a speaker all over your camp area. Although the object is usually to get away from other people, some locations attract a few visitors.

With concerns of weight, antenna bulk, and current consumption always a factor, it has been hard to venture in to additional bands for the VHF operating experience. A transverter for 222 has been built, as well as another WA5VJB yagi for the kit. The extra power penalty of running a transverter needs to be offset with additional grids operated (on that band). We believe 222 can be added to the kit with about a 2 pound increase in the backpack.



**Figure 21 KA7EXM at the base of the antenna.**

Venturing in to higher bands involves a radical shift in antenna mounts. This will be the next

area of experimenting. DEMI transverters are great, but they are a little heavy. Despite the high weight, only field testing will show us what to do next to optimize the wilderness experiment on UHF.

### **Other Operating Positions**

I have to admit that some times, sleeping on the ground isn't exactly comfortable. This is a compromise one has to make when camping away from cars & roads, and all the noise that comes from everyday life. Usually, the serenity achieved by backpacking easily makes up for some of the rough or cold. Still though, it is worth looking around to see if there are other ways to camp, not just via "traditional" light-weight backpacking.

My wife was inspired to inquire about the Fire Lookout Tower winter rental program. We put in a bid and got to rent a lookout tower for 3 nights in February 2004.



**Figure 22 One alternative to sleeping in a Tent: Clear Lake Lookout Tower, CN95**

We rented the Clear Lake Lookout Tower, which is poised about 1/3 of the way between Mt. Hood and Mt. Jefferson, in Oregon, CN95. The trip required a 4 mile hike on snow-shoes, up about 800 feet of elevation. Although we had to carry our own food, stove and sleeping bags, the tower

itself had a propane stove, as well as a wood-burning fireplace. Roughly 50 cords of wood were available for the guests. The only catch was that each piece of wood had to be hauled up the 40 feet by pulley.

Due to the lottery-nature of handing out reservations, it would be nearly impossible to get to rent the tower over the weekend of the January contest. (But it is worth trying until I get it!)

I managed to talk my wife in to letting me bring the FT-817, as "this would be how we could keep in touch with the kids." I scheduled to operate on a daily 75m net with W7ZOI. In addition, I brought material for 2m and 6m dipoles.

After sitting in a snow-hole for some of those VHF contests, this was like staying at the Hyatt Regency. I found a window that I could run coax through, and set up the 75m inverted vee. The top-point was on the railing of the tower. For 2m, I found a spare nail and hammered the centerpoint of the antenna on to the rail as well. A BNC-to-binding-post adapter was used to screw on to two stiff #10 pieces of wire. This formed a dipole that required no guy.



**Figure 23 KA7EXM Checks in with "Grampa" on 75m**

For the two VHF bands available, it was indeed a killer location. Although I worked Fred

WA7TZY in CN87 with the dipole, it was clear that the 4 element yagi would prove more useful in a contest situation.

The disadvantages of the Lookout tower are twofold. First of all, there aren't that many of them. Secondly, you can't really choose when you get to stay in them. This is up to the Forest Service's lottery system.

So how can one find suitable lodging on top of any hill in the winter? What would provide the ability to hoist a variety of VHF antennas, yet still provide warmth and comfort from the elements?



**Figure 24 Icebox<sup>9</sup> Igloo, near Timberline Lodge, Mt. Hood (CN95)**

One idea that certainly comes to mind is constructing an igloo. Igloo's are warmer in many respects than a tent, since it shelters you from the wind.

Figure 24 shows the igloo that KI7N and I built for the January 2003 contest. We built the igloo on the day prior to the contest, hoping to visit it for either an overnighiter or a long day of operation. Due to strange weather conditions that winter, and the immense popularity of the Timberline ski area, we were unable to get to the parking lot that day. (There were just too many visitors up there). We opted to go for a hike



instead, and scrap the “contest-igloo” for ’03. This concept will be visited again soon.

The greatest concern we have with trying to operate portable VHF from an igloo is....would anyone actually believe us if we told them?

### Concluding Comments

After operating VHF-portable by backpack for over a dozen years, I noted a few things that were worth comment. Above everything else, I found that I don’t really learn anything without trying it. Although sometimes I just want to operate the contest, other times, I have to understand that a change to the equipment may have negative effects.

- Plan for experimentation. Base your success on how much fun you had, and not what the ARRL thinks of your “score.”
- Optimize for the first few dB of gain in the antenna system. Side-lobe patterns on short yagi’s allow you to hear in nearly-every direction.
- 5W is fantastic for line-of-sight on 2m. With very few exceptions, I’ve never heard someone I couldn’t work, with only 5W.
- Choose a rare grid. How often does Seattle work CN94 during the contest? (How often on 222? Or 902, or 1296?)
- Know your equipment’s battery-burn rate. Don’t carry more battery than you need, but use all that you brought along.
- Try out different locations. For me, VHF hilltopping became far-more exciting when finding new angles to shoot over (or around) the mountains.

Thanks goes to my friend and my Dad, Wes, W7ZOL, for all of his encouragement for the past 40+ years. It should be obvious that his pursuit of HF Adventure Radio had a direct influence on my pursuit of VHF Hilltopping. Thanks also to Wes and Scott Brown WB7SHE for many of the captured photos.

### Bio

First Licensed in 1979, Roger Hayward, KA7EXM is active in VHF Hilltopping adventures, as well as experiments in the shack.

He is married with two children in Beaverton, Oregon. Experiment notes and a chronicle of past adventures may all be found at the North West Ham website, [www.nwham.net/ka7exm](http://www.nwham.net/ka7exm).

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<sup>1</sup> Mt. Tam is 2571 feet above sea level. Next to the Bay Area, this is like standing on top of Mt. Rainier in Washington!

<sup>2</sup> Note to operator: Factory-Stock IC-202’s have no side-tone generator built-in. This severely hampered our abilities on CW. Even the simplest interfaces require testing prior to hauling up the 12,590’ mountain!

<sup>3</sup> There are single and multi-op categories, but QRP Portable is noted as single-operator.

<sup>4</sup> Kent Britain, WA5VJB, "Proceedings of Microwave Update, 1994," available from ARRL. See also CQ-VHF, August & October, 1998.

<sup>5</sup> A Portable Yagi for 2M SSB/CW [http://www.arsqrp.com/ars/pages/back\\_issues/1999\\_text/0899\\_text/zoi\\_yagi.html](http://www.arsqrp.com/ars/pages/back_issues/1999_text/0899_text/zoi_yagi.html)

<sup>6</sup> Correspondence with W6MMM revealed that they were on a high ridge in CM89, near Williams, CA, approximately 425 miles away.

<sup>7</sup> See the Adventure Radio Society back-issue at [http://www.arsqrp.com/ars/pages/back\\_issues/2000\\_text/1100\\_text/oregon\\_style.html](http://www.arsqrp.com/ars/pages/back_issues/2000_text/1100_text/oregon_style.html)

<sup>8</sup> See <http://www.nwham.net/w7zoi/maxvhf.htm> for more details on the Maxwell Butte trip.

<sup>9</sup> [www.grandshelters.com](http://www.grandshelters.com).