

SUCCESSFUL SOTA STRATEGIES

Rex, KE6MT



Summits on the Air
Award Scheme for Amateur Radio Operators

About Rex, KE6MT



- Became California (W6) SOTA Association Manager late 2018
- Hiker, trail runner, mountaineer, web developer
- Love of radio and electronics
- Licensed in 2015 as KK6VSI - wanted more than FRS
- Took a little while to discover SOTA - first activation in 2016
- Got into HF late 2016
- Active in SOTA, both activating and chasing

SOTA Terminology



- **Activator:** Ham operator who climbs a summit with gear and makes contacts with those not on the summit.
- **Chaser:** Ham operator who (hopefully) makes contacts with operators on a summit.
- **Association:** Geographic area with a specific designation (W6, W7N, etc.)
- **Region:** Smaller area that is within an association. (W6/NC, SC, etc.)
- **Activation Zone or AZ:** Area that you must be within to qualify the activation (vertically 25m, or 82ft of the summit elevation). Saddle elevation matters.
- **Summit to Summit (S2S):** Contact made between activators on two different summits.

SOTA Awards



- **Shack Sloth:** Chaser who reaches 1000 points.
- **Mountain Goat:** Activator who reaches 1000 points.
- **Association awards TBD**



SOTA Points System



Points equate to elevation bands for a given SOTA Association. For example, in California, the point bands are as follows:

Band 1, score 1 point	< 2500ft - Coyote Peak, San Bruno Mountain
Band 2, score 2 points	< 4000ft - Black Mountain, Mt Umunhum, Mt Diablo
Band 3, score 4 points	< 5500ft - Copernicus Peak, Western Sierra foothills
Band 4, score 6 points	< 7500ft - Western Sierra Foothills
Band 5, score 8 points	< 11000ft - Most of the Sierras
Band 6, score 10 points	>= 11,000ft - Mt Shasta, Mt. Whitney, Eastern Sierras

SOTA — Why Activate?



- Mountains—"The Mountains are Calling..."
- Health/Exercise
- Knowing your equipment - ready for anything
- Something to do once you've made it to the summit
- Just because!

SOTA — Why Chase?



- Good practice for both CW and voice operations
- Something fun to do
- Knowing your equipment - ready for anything
- Experiencing summits vicariously





Summits on the Air: CHASING










SOTA Chasing - Alerts and Spots



- **SOTAWatch.org** is where Spots and Alerts are posted.
- **Alerts** are **plans** (usually posted by Activator).
- **Spots** are **what's happening now** (posted by Activator, Chasers, or others).
- The **HamAlert** App is the most useful thing if you want to be **notified** of someone activating a summit.

11:06  HamAlert   

LATEST SPOTS

19:04Z 	WA6MM on W0C/FR-054 (5.332 CW) Douglas Mountain, 2911m, 4pt
18:58Z 	WD4CFN on W4C/CM-088 (7.036 CW) Sugarloaf Mountain, 1209m, 6pt: *[RBNHole] at W3LPL 17 WPM 27 dB SNR
18:57Z 	WA6MM on W0C/FR-054 (18.093 CW) Douglas Mountain, 2911m, 4pt: *[RBNHole] at WZ7I 19 WPM 26 dB SNR
18:36Z 	WA6MM on W0C/FR-054 (14.063 CW) Douglas Mountain, 2911m, 4pt: *[RBNHole] at K3LR 19 WPM 30 dB SNR
18:30Z 	K9OZ on W5A/PT-002 (7.032 CW) Petit Jean Mountain, 368m, 10pt: *[RBNHole] at N5RZ 22 WPM 12 dB SNR
18:24Z 	WA6MM on W0C/FR-054 (10.113 CW) Douglas Mountain, 2911m, 4pt: *[RBNHole] at K3PA 19 WPM 24 dB SNR
18:15Z 	K9OZ on W5A/PT-002 (10.111 CW) Petit Jean Mountain, 368m, 10pt: *[RBNHole] at WE9V 22 WPM 7 dB SNR
18:04Z	WA6MM on W0C/FR-054 (7.033 CW)

SOTA Chasing - Equipment



- Can be as simple as an HT, if activation is line-of-sight.
- Good antennas will go a long way toward you hearing the chaser and the chaser hearing you.
- WebSDRs can be a useful (if controversial) tool for listening if you have one nearby.
- Portable operation — locally, Vic AB6SO, Doug KI6DS and many others have mastered portable SOTA chasing.
- Band agility is important if you'd like to chase a lot of different geographic areas with HF.

SOTA Chasing - Operation



- The Activator runs the show.
- A good activator will have a rhythm so you know when to throw in your call.
- Try and be mindful of what the activator is asking for. If they ask for a partial call that doesn't cover you, don't transmit!
- Summit-to-summit (S2S) takes priority.
- To be heard, you'll need two of the following: power, patience, good timing.
- For HF: CW is the best, but SSB is also common. CW Academy is great!
- Logging: some logging software can directly export SOTA CSV files - take advantage of this if available.
- You don't **need** to log, but it's nice to do, and gets you points.
- Manually enter the contacts on sotadata.org.uk or upload CSV.

Summits on the Air: ACTIVATION



SOTA Activation - Planning



- Use [SOTAMaps.org](https://www.sotamaps.org) to find summits—lots of tools for searching and mapping summits (first SSO SOTA app).
- Finding summits on mobile device: SOTAGoat (iOS), SOTA Spotter (Android)
- For mapping/finding routes, [CalTopo.com](https://www.caltopo.com) can be an indispensable tool.
- Find trip reports on the summit pages on [sota.org.uk](https://www.sota.org.uk). These individual summit pages are linked from SOTAMaps.
- Pick a summit within your abilities. If you have little outdoor experience, find a summit that's a short hike or drive-up. If you're a very experienced outdoors person, you know what to do.
- Get out and practice beforehand, if possible - know your equipment.
- Tell someone your plans!

SOTA Activation - Planning (cont.)

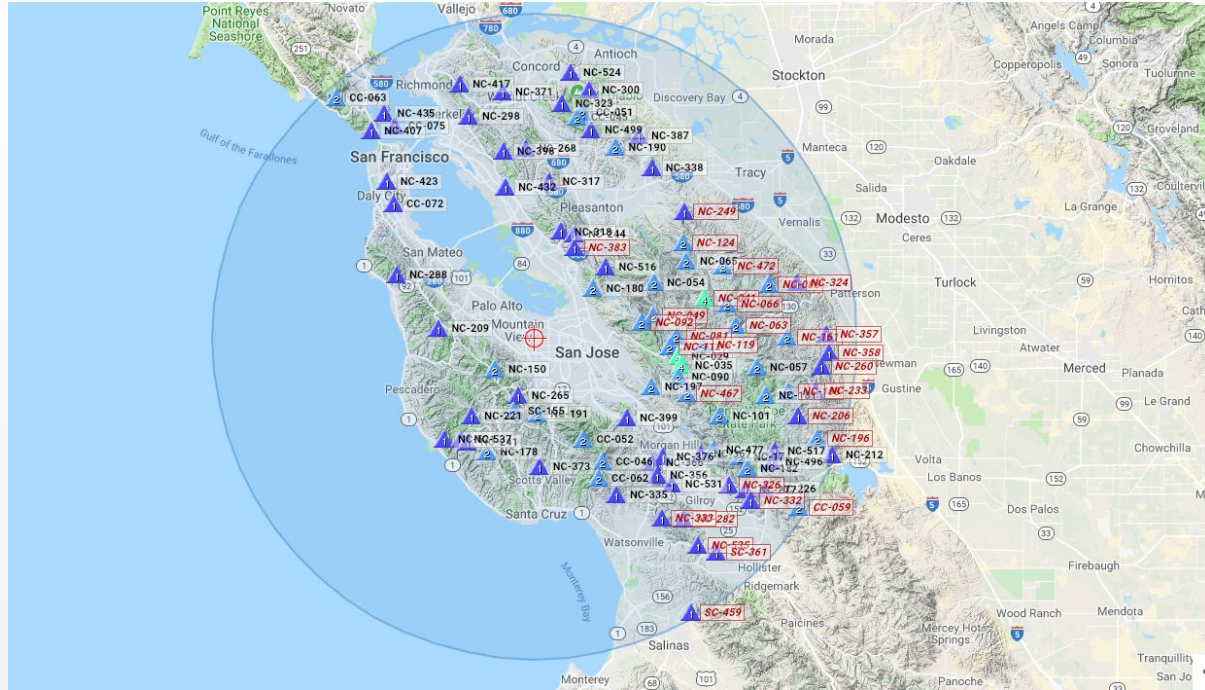


- Don't artificially limit yourself - any summit will do! Just get out there.
- Use [SOTAWatch.org](https://www.sotawatch.org) to post your plans (post an alert) if possible.
- If posting an alert, give yourself plenty of time, then add some more.
- Whether it's SOTA or just a hike prepare by checking forecast, telling someone where you're planning to go, pack extra clothing, snacks/water, perhaps for more than just yourself.
- Use [HeyWhatsThat.com](https://www.heywhats.com) to check line of sight for VHF/UHF activations.
- No trespassing - make sure you can legally access the summit.
- Consider going with an experienced activator your first time.
- Contact Association Manager or Region Manager if you have questions.

SOTA Activation - Planning (cont.)



Summits in the Bay Area - SOTAMaps:



Successful SOTA Strategies

Rex, KE6MT

SOTA Activation - Radio(s)



- Bring an HT at the very least.
- HF not needed in populated areas. If population is line-of-sight, odds of activating with an HT are good. My first Mount Whitney activation was with a borrowed HT!
- For HF - SSB vs. CW - both work well on summits, CW works better!
- The best rig for activating is the one you have.
- Small, lightweight rigs are best. HF commercial portable rigs: Elecraft, Yaesu, Icom. Tiny CW-only rigs: LNR Precision “Mountain Topper” line (designed by Steve Weber KD1JV). Home-brew rigs, kit builds such as the QCX.

SOTA Activation - Antenna(s)



- Masts - not always needed but irreplaceable when needed. Cheapest and lightest are the “7.2m” poles from eBay. Search for “FRP 7.2m.”
- VHF/UHF with handie-talkie - use an aftermarket (longer) whip, or roll-up j-pole. Another option (good for RF-noisy summits) is a beam antenna.
- HF: End-fed half-wave, quarter-wave vertical, dipole, random wire, doublet, whips, mag-loops.
- Build your own, build a kit (QRPGuys), or pre-built (Packtenna, SOTABeams)
- SOTABeams is a good source for antenna wire.
- My favorite is the EFHW. I use the vertical (QRPGuys) when limited in space, or the dipole when running more than 15 watts.
- All bands are popular for SOTA, but 20m, 40m and 30m will get most action.

SOTA Activation - Getting There



- Drive-ups—make sure you're not near the vehicle. It mustn't be part of the activation.
- Hiking, Running, Climbing
- Bicycle, Horseback
- Safety first!
- Checklist - use checklists to pack your gear
- Make sure you bring the “10 essentials.”

Ten Essentials:

1. Navigation
2. Sun protection
3. Insulation
4. Illumination
5. First aid
6. Fire
7. Tools
8. Nutrition
9. Hydration
10. Emergency shelter

SOTA Activation - Setup



- Find a safe and comfortable spot.
- Be very considerate of other visitors (if any).
- Don't worry about making the antenna configuration perfect.
- Throw antenna/rope over a tree or set up pole
- Shelter as appropriate for weather — shade, windbreak, etc.

SOTA Activation - Setup - Radios



FT-891 with:

- Solar power
- 4.5Ah LiPo
- Raspberry Pi
- QRPGuys paddle
- Mic
- Tablet (for the Pi)
- RG-174 to vertical ant.
- Android or Pi logging
- Soft molded case



SOTA Activation - Setup - Radios



MTR-3B with:

- 500mAh LiPo
- Headphones
- Palm Pico Paddle 🗑
- RG-316 jumper
- QRPGuys EFHW matching unit
- Android logging
- Small HDD case



SOTA Activation - Setup - Antennas



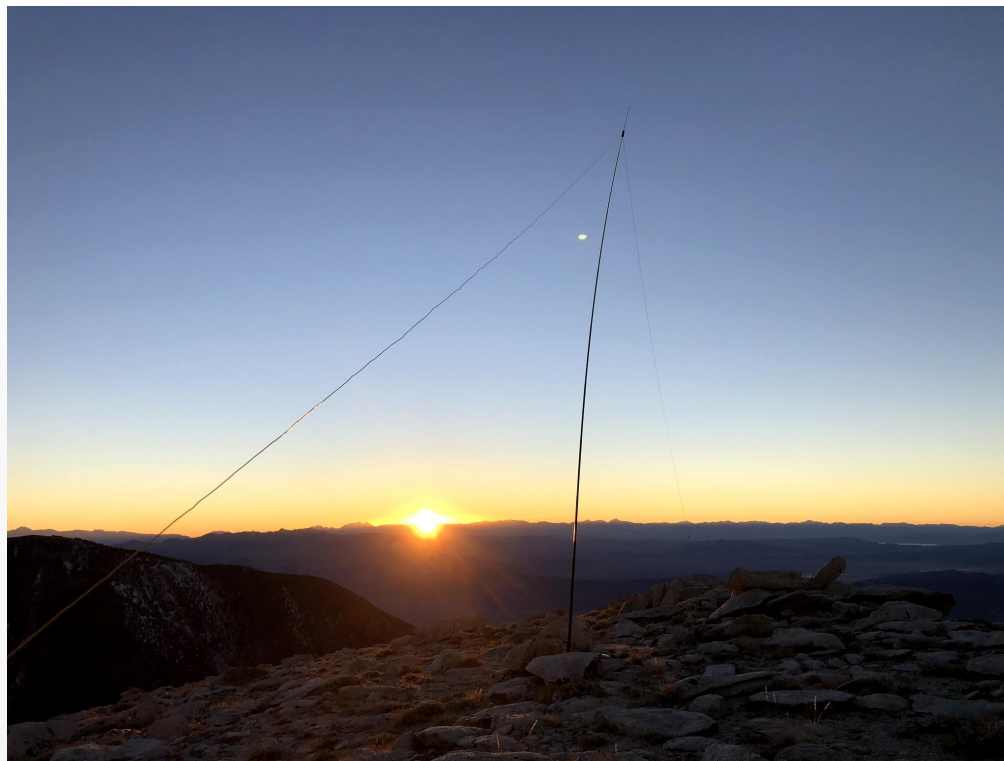
EFHW Inverted-V supported by tree. Near end is connected to radio on/near the ground. Far end is about 3ft off the ground. Top is about 15-20 feet above ground. This is my linked EFHW, with one link to switch between 40/20m and 30m operation.



SOTA Activation - Setup - Antennas



EFHW Inverted-V
supported by mast wedged
into some rocks. Near end
is connected to radio
on/near the ground. Far
end is about 4ft off the
ground. Top is about
15-16ft.



SOTA Activation - Setup - Antennas



EFHW dropped over cliff.
Mast wedged into some
rocks to lift first 20ft of wire
and keep wire off of cliff
face. Careful when you
disconnect a setup like
this!



SOTA Activation - Setup - Antennas



QRPGuys Vertical. This is a quarter-wave on 20m, with switchable loading inductors at the base.

Great antenna. I usually guy the mast for this, since it's one I use mostly on treeless summits. Four 10-ft counterpoise wires are laid across the grass.



Successful SOTA Strategies

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SOTA Activation - Setup - Antennas



My super-fancy guying ring for the cheap/light mast. Drilled a $\frac{3}{4}$ " hole in the middle and three small evenly-spaced holes around the outside. Tied adjustable knots on each of the guy cords. Works great!



SOTA Activation - Setup - Antennas



The vertical antenna also works pretty well with the mast jammed into the rocks. The four counterpoise wires are draped across the rocks.



SOTA Activation - Spotting



- Self-spot if at all possible! This is reasonable and expected for SOTA.
- Use SOTAGoat on iOS, SOTA Spotter on Android
- If you posted an Alert, automatic spotting with CW mode (RBNHole).
- Other methods such as APRS, SMS.
- Ask people on repeaters for simplex contacts.



SOTA Activation - Operation



- The Activator is in charge! Chasers will accomodate.
- Logging: keep it simple—whatever works for you. SOTA logging requires callsign, band, time. I use VK Port-a-Log (Android) or HamLog (iOS).
- Use good amateur practices, e.g., make sure frequency is clear
- Call “CQ SOTA”
- Handling the pileup
- What if nobody answers?
- Example vids on following 2 pages



SOTA Activation - Operation - Examples



Video of K6ARK making various types of SOTA
contacts:

<https://youtu.be/MxfAGgABqHA>

SOTA Activation - Operation - Examples



Video of both sides of a SOTA contact - HF SSB:

<https://youtu.be/gS6nLtqgFgs>

SOTA Activation - Post-Activation



- Reaching the summit is half the journey—make sure you can get back!
- Check your checklist for anything left behind.
- Be careful - 75% of falls/incidents occur on the descent.
- Upload log to SOTAData. Apps can automatically generate CSV for you.
- LoTW — if you use it, it is kind to create new station locations.
- Plan the next one!



Questions?

Other Info



My Info- Email: rex@ke6mt.us | Twitter: [@rex_ke6mt](https://twitter.com/@rex_ke6mt) | Web: ke6mt.us

RF: Chase me on a SOTA summit!

Other portable ops and SOTA info:

Stuart KB1HQS Portable Ops book, Peter VK3YE books

reflector.sota.org.uk / nasota.groups.io / [Facebook SOTA Group](https://www.facebook.com/SOTA.Group)

YouTube channels are also good – KB1HQS, VK3YE, W6RIP, WG0AT, KG6HQD, K6ARK and many others.