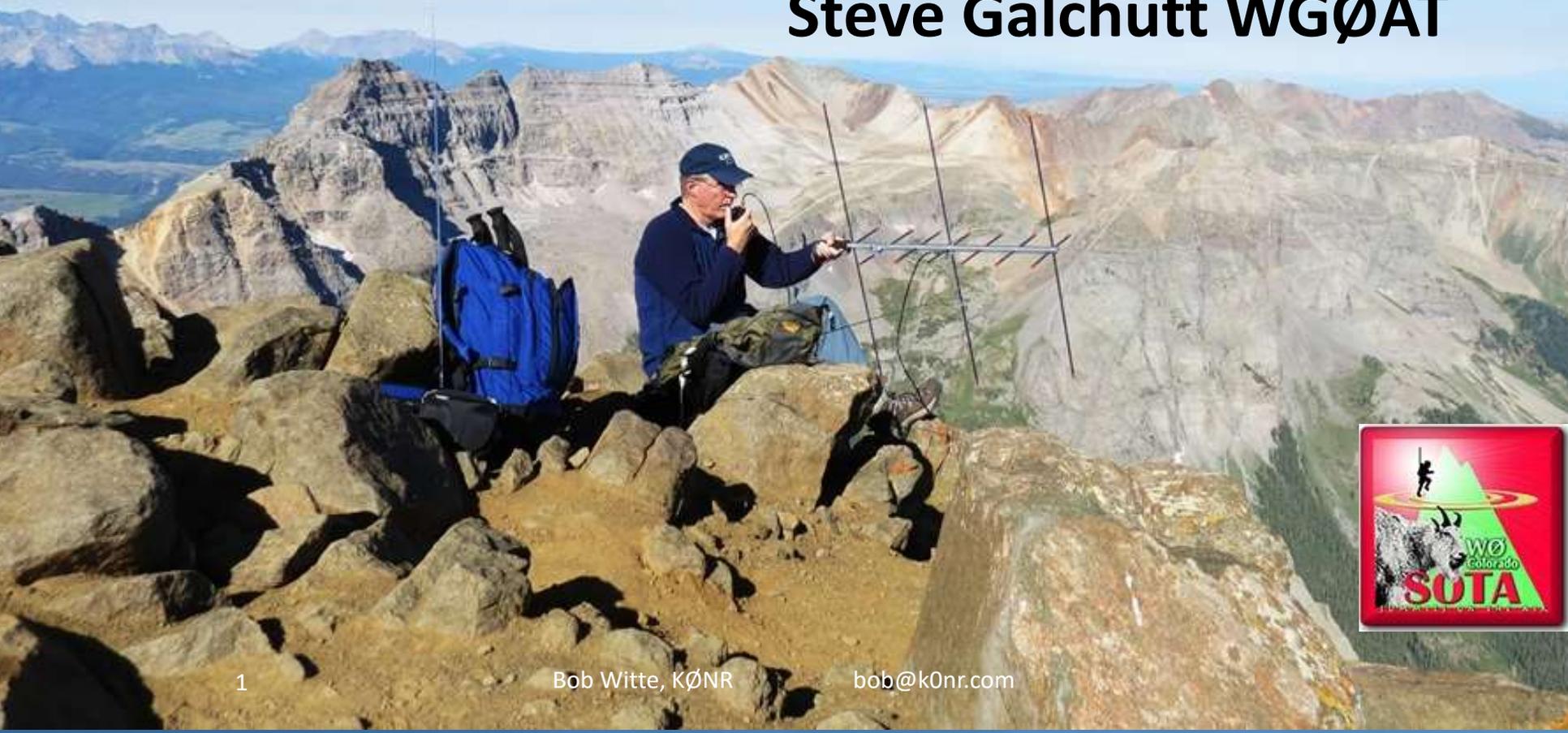


Having Fun With Summits On The Air

Bob Witte, KØNR
Steve Galchutt WGØAT



Agenda: Summits On The Air

- Summits On The Air (SOTA) Program -Bob
- VHF Operating -Bob
- HF Operating -Steve
- Chasing is Fun -Steve
- Some easy local summits -Steve/Bob
- Q&A -Steve/Bob



Safety First

Hiking/Climbing In the Mountains has risk:

- Lightning
- Getting Lost
- Gravity
- Temperature
- others



Warning: Climbing mountains is inherently a dangerous activity. Do not attempt this without proper training, equipment and preparation.



Summits On The Air (SOTA)

- Two ways to participate
 - Activator
 - Chaser
- Points and Award System
- 1805 SOTA summits in Colorado
- A wide variety of difficulty and elevation
 - From 5324 feet to 14,443 feet
- SOTA activation requirements:
 - summit must be on the SOTA list
 - Activation Zone (AZ) is within 25m (82 ft) of the summit
 - equipment must be carried (no minimum distance)
 - portable power (no fossil fuel generators)



SOTA Scoring

Based on ASL elevation of a qualified peak

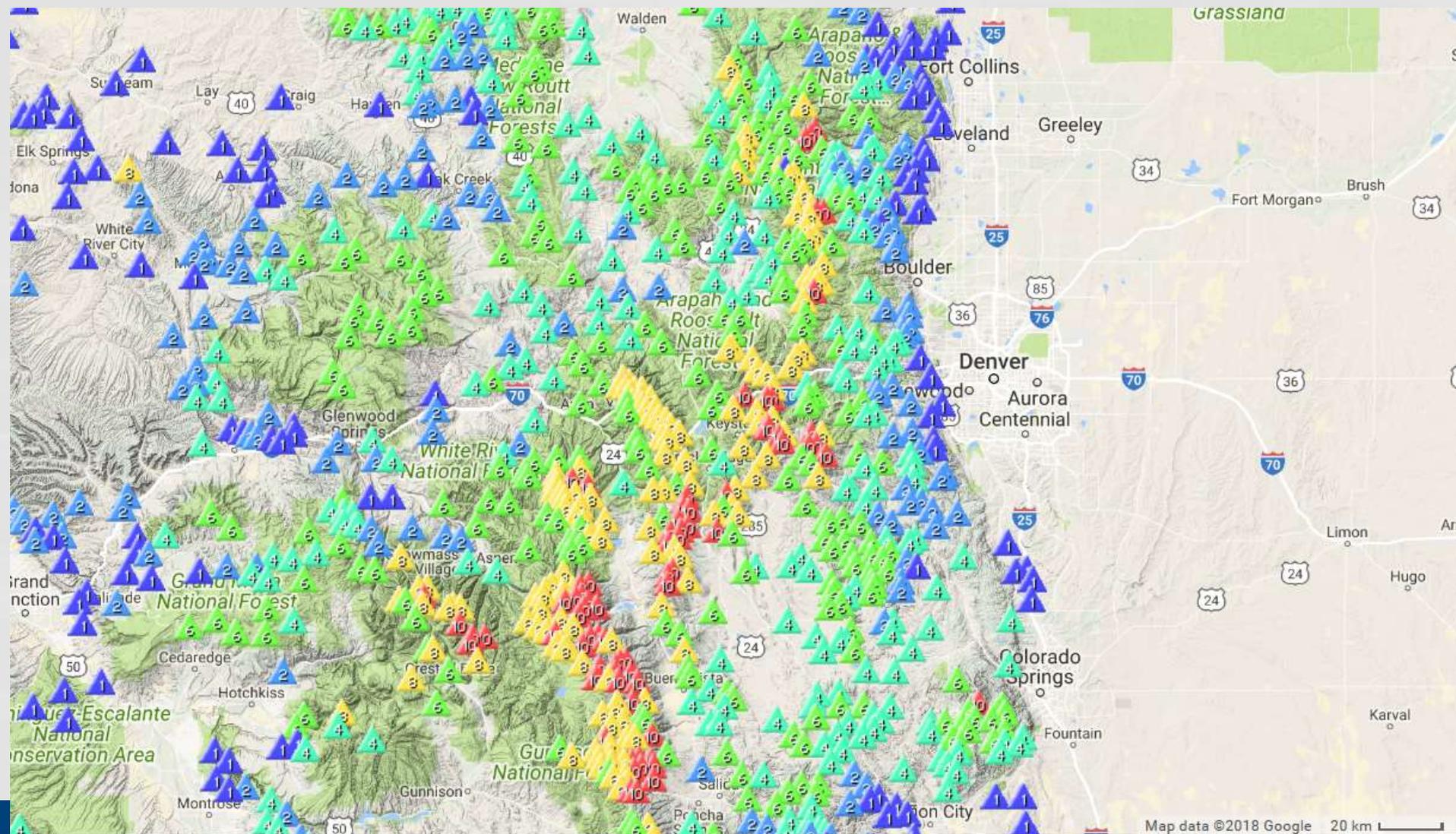
May include a “seasonal bonus” for activators

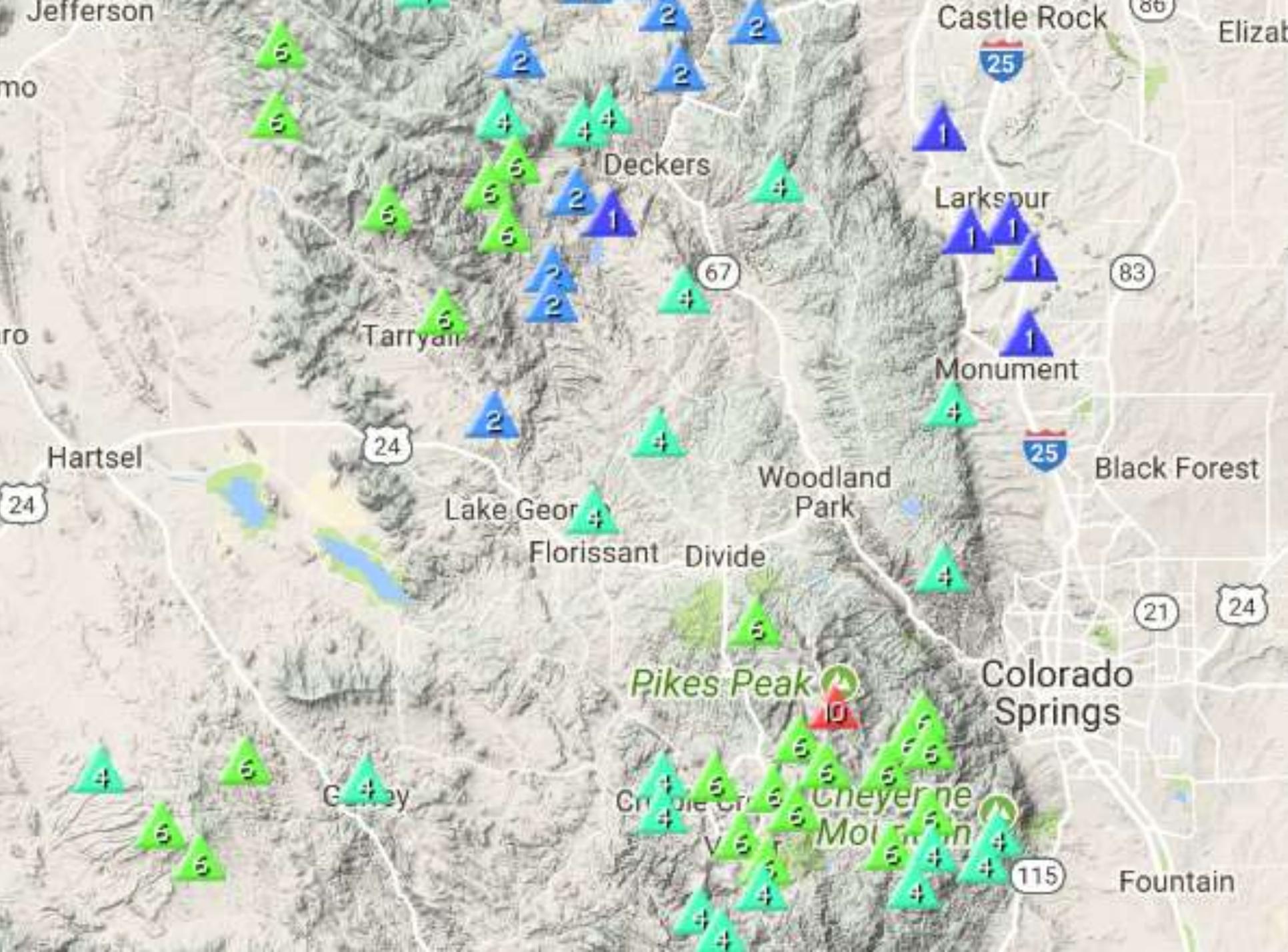
Scoring for WØC – Colorado:

Under 8000'	1 point	(225 peaks)
8000' to <9000'	2 points	(245 peaks)
9000' to <10500'	4 points	(360 peaks)
10500' to <12500'	6 points	(440 peaks)
12500' to <13500'	8 points	(345 peaks)
13500' +	10 points	(181 peaks)



SOTA Summits in Colorado





WØC Activators

Position	Activator Callsign	Summits	Points	Seasonal Bonus	Total Score	Avg. points per Expedition	View Log
1	KXØR	768	3245	450	3695	4.81	View
2	WØCCA	189	1465	75	1540	8.15	View
3	KØMOS	245	1335	180	1515	6.18	View
4	KØJQZ	278	1295	213	1508	5.42	View
5	WØGØAT	266	1135	309	1444	5.43	View
6	WØCP	204	1200	153	1353	6.63	View
7	NØTA	261	1156	159	1315	5.04	View
8	K7PX	197	935	255	1190	6.04	View
9	KCØYQF	189	1007	156	1163	6.15	View
10	KC5CW	198	1083	36	1119	5.65	View
11	WØ6MM	140	1012	102	1114	7.96	View
12	KDØYØB	171	737	39	776	4.54	View
13	KØNR	100	553	54	607	6.07	View
14	NØBCB	77	348	36	384	4.99	View
15	WØMNA	62	336	0	336	5.42	View
16	WØERI	59	330	0	330	5.59	View
17	N6UHB	48	268	57	325	6.77	View
18	ADØKE	47	251	51	302	6.43	View
19	KØJJW	71	271	27	298	4.20	View
20	KDØPNK	43	219	60	279	6.49	View
21	N1ØIE	40	200	33	233	5.83	View
22	NØMTN	38	160	15	175	4.61	View
23	KØFTC	32	128	3	131	4.09	View
24	KØZV	19	105	21	126	6.63	View
25	KI6YMZ	11	106	9	115	10.45	View
26	KIØG	24	75	15	90	3.75	View
27	KD2FPP	10	80	0	80	8.00	View
28	KØØBV	11	66	12	78	7.09	View
29	NØXDW	11	67	3	70	6.36	View
30	NØYE	15	62	3	65	4.33	View
31	AØØAX	12	45	18	63	5.25	View
32	AI8Z	10	56	0	56	5.60	View
33	W4XEN	7	36	18	54	7.71	View
34	ADØKI	9	47	3	50	5.56	View
35	WØECE	8	49	0	49	6.13	View
=35	NØEMU	6	34	15	49	8.17	View
37	AG5CQ	12	46	0	46	3.83	View
38	KEØHNW	12	43	0	43	3.58	View

Questions for the audience:

1. Who has activated a SOTA summit?
2. Who has made contact with (chased) a SOTA summit?

<http://www.sotadata.org.uk/activatorresults.aspx>



The Colorado 14er Event is:

- Held the First Full Weekend in August (August 4-5, 2018)
- Primarily focused on the 54 official 14,000 foot summits in Colorado
- Includes the 1805 SOTA peaks in Colorado
- Includes VHF, HF, all modes
- Activate summits and chase summits



VHF Operating



How Far Will My Signal Go on VHF?



- Optical horizon from Pikes Peak: 120 miles, plus 15% for radio horizon = 138 miles
- Mt Sunflower (highest spot in Kansas) is easily worked on 2m FM from Pikes Peak (160 miles)
- Best DX between two 14er summits on 2m FM (Colorado 14er Event):
Andy AAØCM on Longs Peak to Jan W3GEY on Sunshine Peak (188 miles)
- Best 2m FM DX during Colorado 14er Event: Phil NØKE on Mt Bross to Larry NØLL near Smith Center, KS (375 miles)



Easy VHF SOTA Activation

Also known as “take along a 2M handheld on a hike”



Kaufman Ridge HP
(WØ/SP-081)

10,765 feet elevation



No Rubber Duck Antennas

A rubber duck antenna is the world's most convenient crappy antenna.

Bad bad bad bad bad bad bad bad bad
bad bad bad bad bad bad bad bad bad
bad bad bad bad bad bad bad bad bad
bad bad bad bad bad bad bad bad bad
bad bad bad bad bad bad bad bad bad
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bad bad bad bad bad bad bad bad bad
bad bad bad bad bad bad bad bad bad

BAD



**New Improved!
Dualband 2m/70cm
halfwave antenna
Search amazon for
TWAYRDIO RH770**

**SMA (male or female)
BNC**

\$17 delivered



Improved VHF SOTA Activation

Also known as “bring along a small 2-Meter Yagi antenna”



Aspen Ridge
(WØC/SP-084)

10,740 feet
elevation

Arrow 3-element
Yagi for 2m



Operating Tips for VHF

Who do you usually find on

Radio ops that hang out
Mobile stations
SOTA chasers

Use the FM calling frequency

“CQ 2 meters, this is KØNR”

Consider your location:

Front range summit near
Generally no problem
More remote summits:

There may not be anyone around on 2m FM
Weekends are usually better than weekdays

Send Invitations:

SOTAwatch.org
Email your friends
Make a specific schedule with other radio operators

If you are struggling for 2m fm contacts:

- Be patient and keep calling
- Call on other 2m fm frequencies (146.46, 146.49, 146.55, 146.58, etc.)
- Ask for help on a local 2m repeater
- Have your hiking partner hike down out of the activation zone and call you (desperation move)



Arrow II 146/437 Yagi Antenna



**Bob KØNR
Mt Sneffels**

Crossed Yagi Design

**Two antenna
connections, or use
duplexer**

\$83 to 89

2m gain= 5.9 dBd
70cm gain= 8.2 dBd
(2009 CSVHFS)



Elk Log Periodic Antenna 2M/440L5



Scott ACØFQ
San Luis Peak

One feedline
connection for
2m & 70 cm

Same
polarization on
both bands

\$125 to 150

2m gain= 6.6 dBd
70cm gain= 7.0 dBd
(Mfg datasheet)



Portable VHF Transceivers



Yaesu FT-817ND
HF, 6m, 2m, 70cm



Elecraft KX3
HF through 6m
Optional 2m Module



**Any old
FM
handheld**



Mt Herman
WØC/FR-063
9063 feet



VHF Contest plus SOTA
2016 January VHF Contest (KØNR)
2m & 70cm fm and ssb
Use of 146.52 MHz now allowed in
contest
17 QSOs in about one hour
Best DX: Wyoming DN71 (140 miles)

Summits

in association with U



Microwa

Band: 23cm

Bob
K0

In recognition of
54 km in the A



50 - 200km



Certificate No.: SMA-016

Steve WGØAT at 14,000 Feet



David KI6YMZ and Ben KDØPNS on Mt Shavano



Peter K3OG on Grays Peak



Note: Yagi for 2m and 70 cm

Maxon for 6m



David KI6YMZ on Mt Elbert 2015



Steve WGØAT and Guy N7UN



It's Not Always
Warm and Sunny



Steve WGØAT on Handies Peak



Handies Peak
((WØ/SJ-001)

14,048 feet elevation







HF or VHF?

Take Your Pick, Or Do Both

VHF/UHF

Height Above Average Terrain

Basic/compact equipment: Handheld Transceiver (HT)

Dependent on local chasers

FM most common, SSB for VHF contests

Technician Licensees can play

HF

Classic QRP operating (CW and SSB)

Longer distance contacts

More radio contacts

Recommended: General License Class or higher



HF SOTA Equipment

HF SOTA Equipment

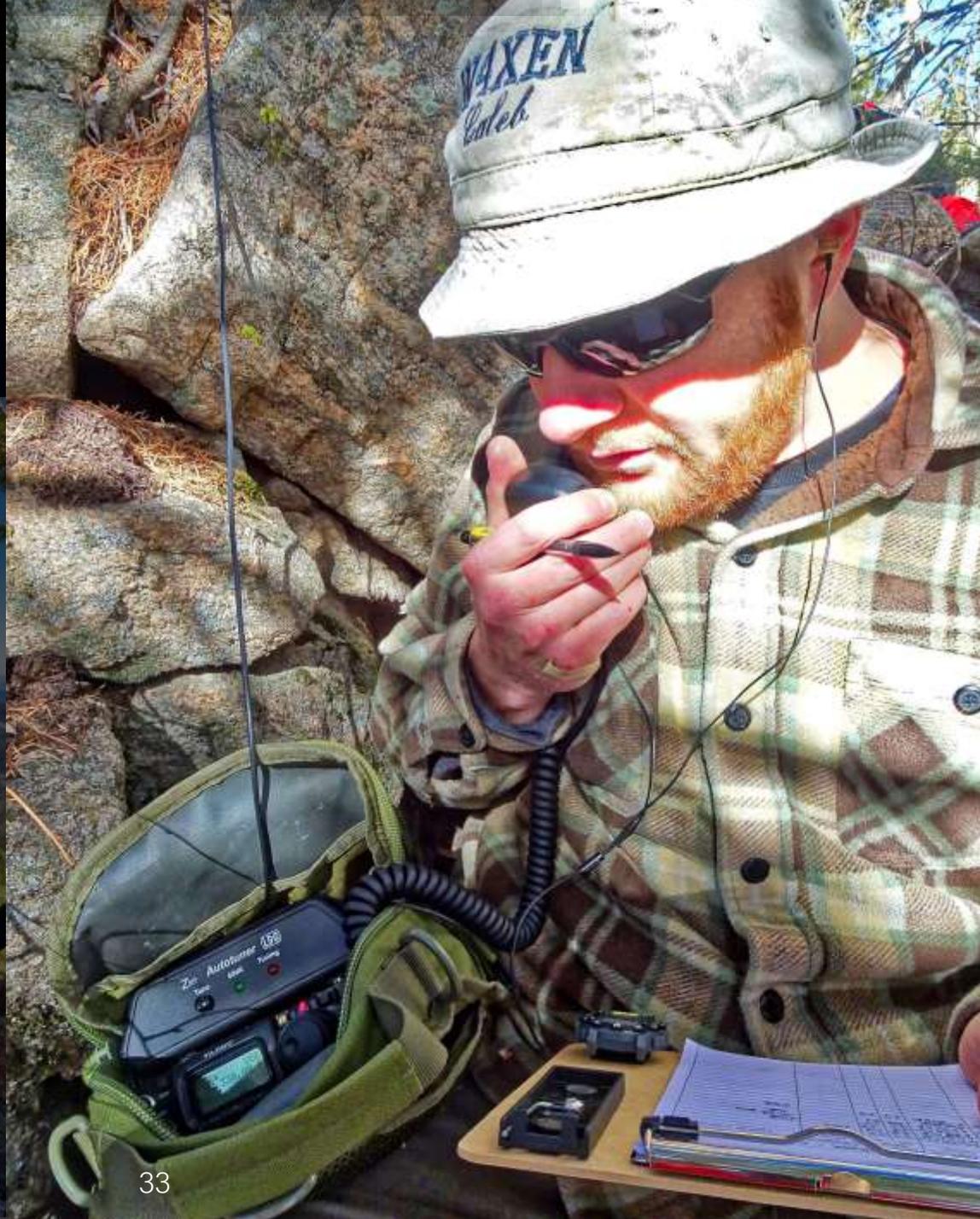
- Radios
- Antennas
- Operator Tools



Silver Peak - WA

- + 'Swiss Army Knife'
- + 160m -70cm!
- + All Modes! (2.5 lbs)
- .5A/H on RX!
- Lacks ATU!

8





- + 160-6m (+2m)
- + All modes (1.5-lbs)
- + .3A/H on RX
- + ATU, paddle



- + 80-10m (13-oz!)
- + All modes
- + .2A/H on RX!
- + ATU, paddle



2026
27
28
29

W2RV
W0MA3
K4SQ
W0EE
W0ZF
K1LB
W0ECP

+ Excellent ATUs
+ Optional plug-in Paddle





Other

- ATS, MTR
- RockMite
- Pixies





38-oz
(2.4-lbs)



22-oz



17-oz



14-oz

Station Weights

- Dipole vs EFHW
- ATUs
- Deploying
- Packaging

41



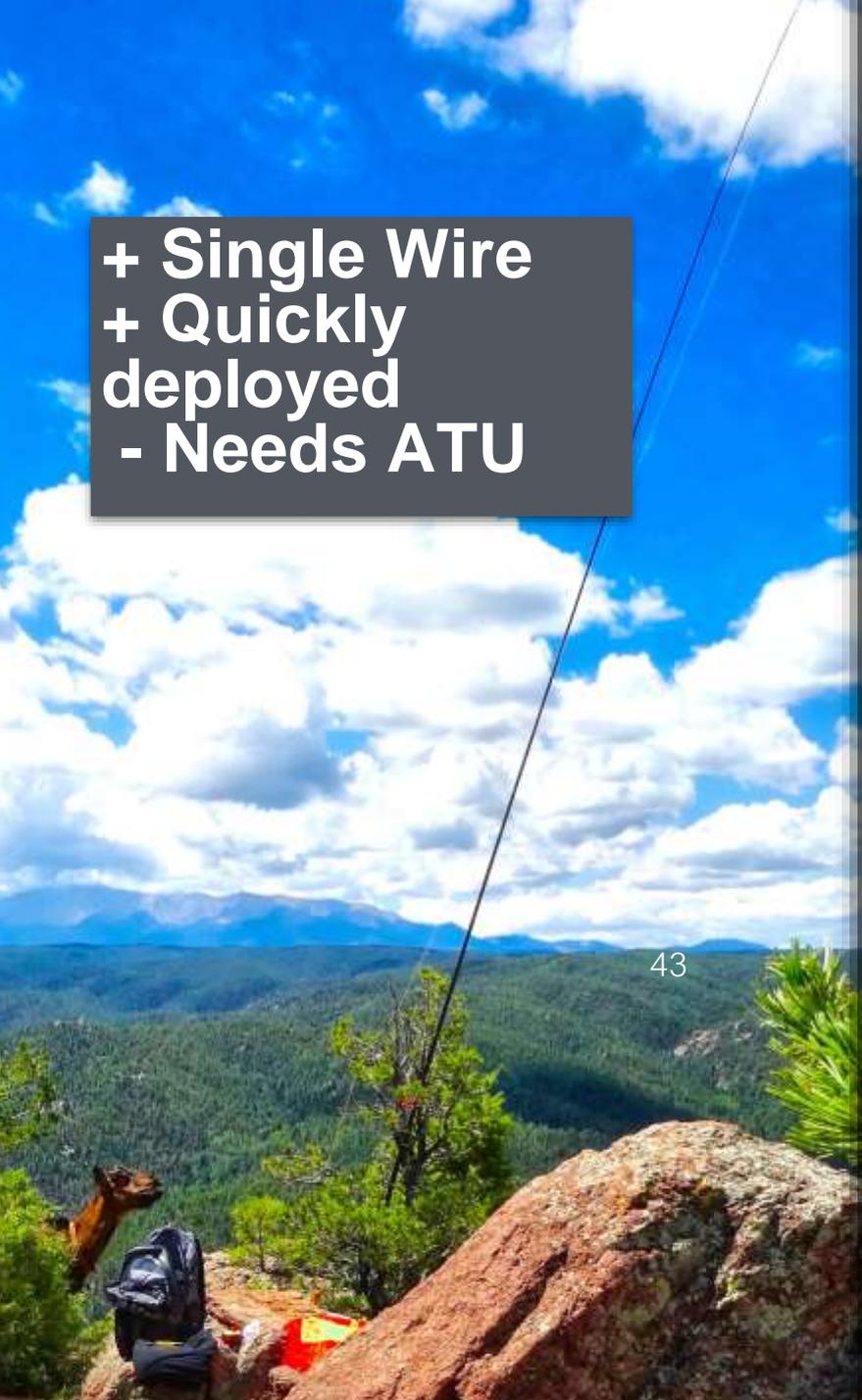


- 50-70ohms
- no ATU
- Center support
- Coax

42



- + Single Wire
- + Quickly deployed
- Needs ATU

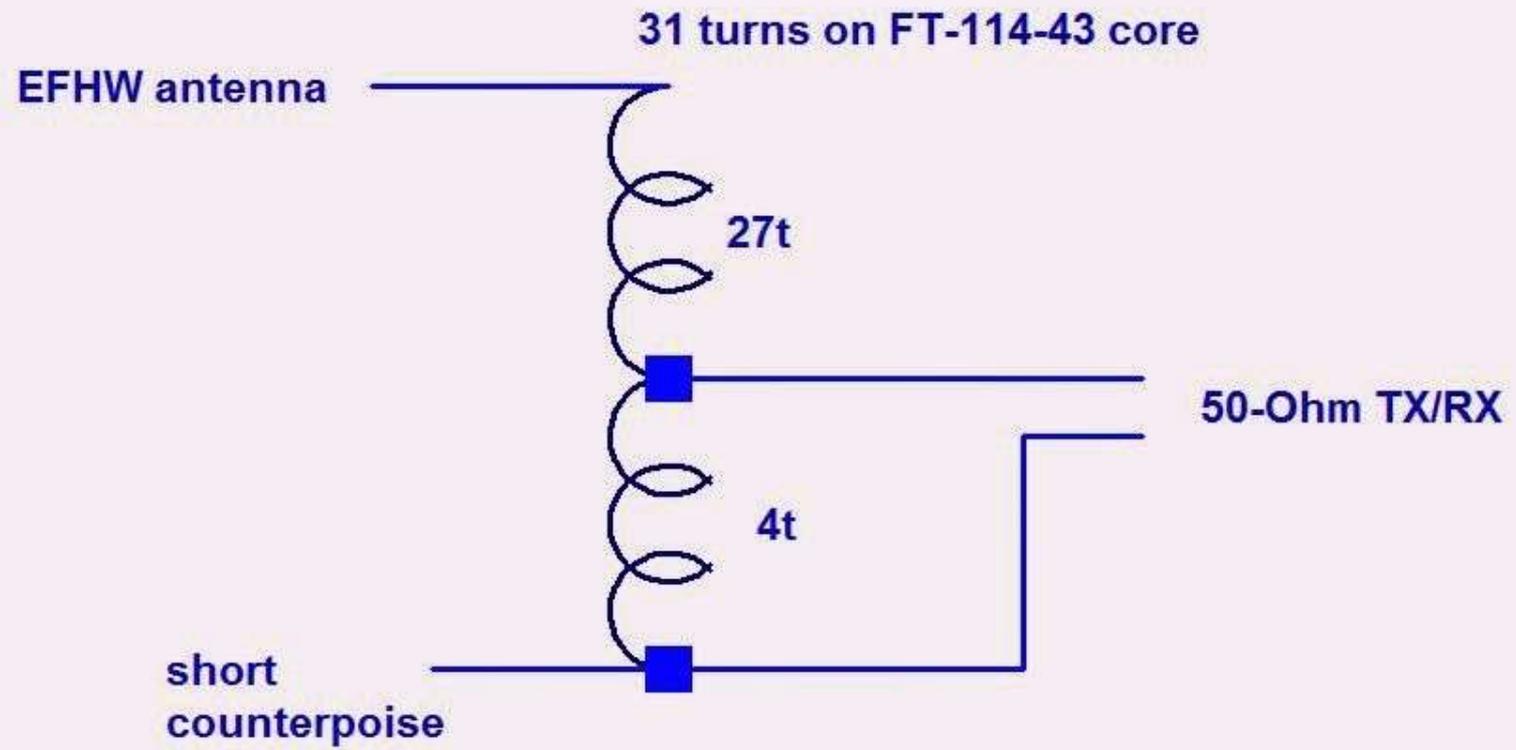


43



E

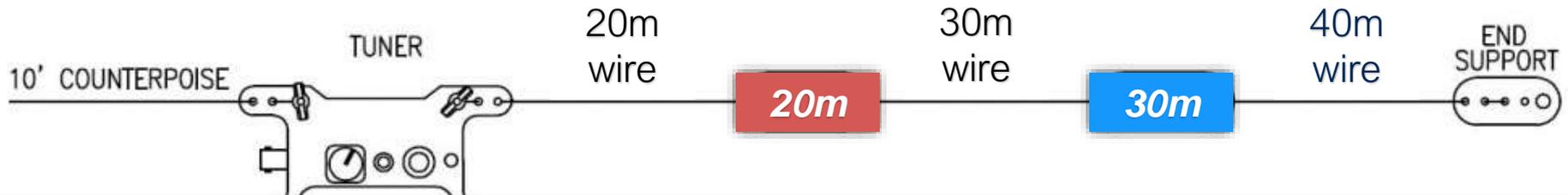
"NO TUNE" EFHW MATCHER



Tap 31 turn coil 4-turns from the ground end
Alternately, use 31 turn primary and separate 4 turn secondary

- Single Wire with 2-traps
- Fix matching unit

FHW-trapper



Operator Tools

- Operating
- Antennas
- Staying Warm



Antennas

- Masts
- Spools/winders
- Throw weights



29' 35.5' 41' 58' 71' 84'

<http://www.hamuniverse.com/randomwireantennalengths.html>



Antennas

Big twist ties
Gear Snake @
Walmart

Dry/Warm!

- Bothy
- Umbrella
- Tarps



Navigation Tools

50

iOS app *TopoMaps+*



SOTA Chasing

- Why Chase
- Tools
- Awards

51



Why Chase?

main@nasota.groups.io

Is it the points/awards? ...Bragging rights?

*Fine tuning and keeping your station/
antenna in peaked performance?*

Respect? Payback for being chased?

52

Why is it FUN for you??

Why Chase Responses

Larry K0RS writes:

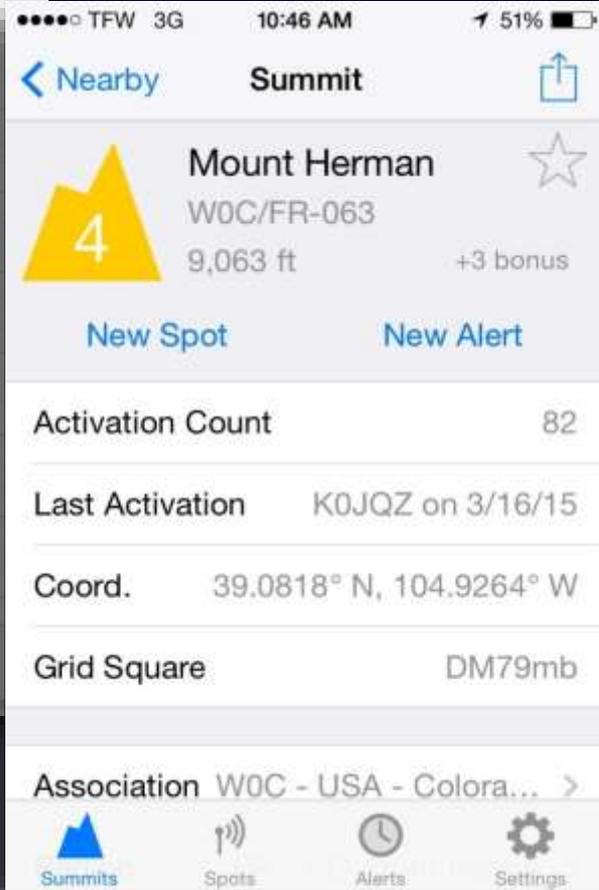
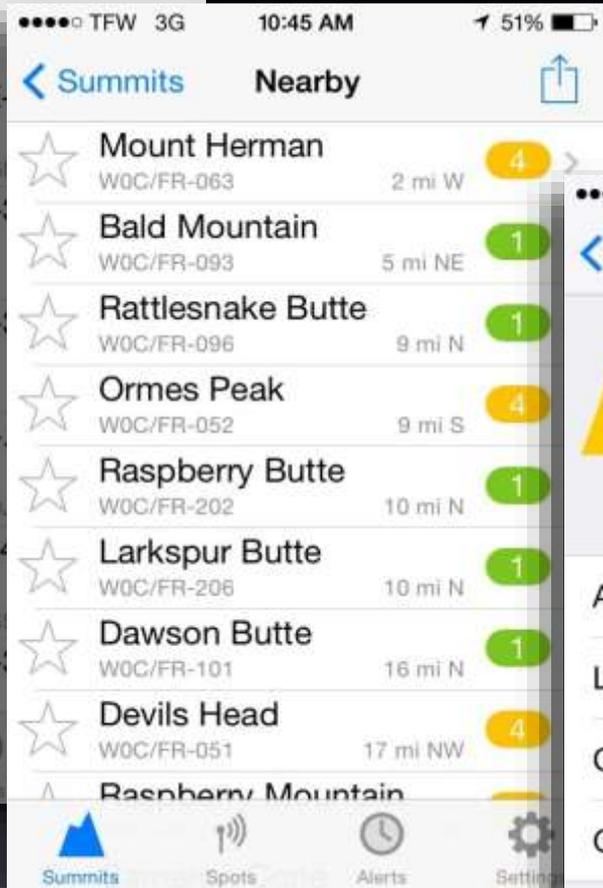
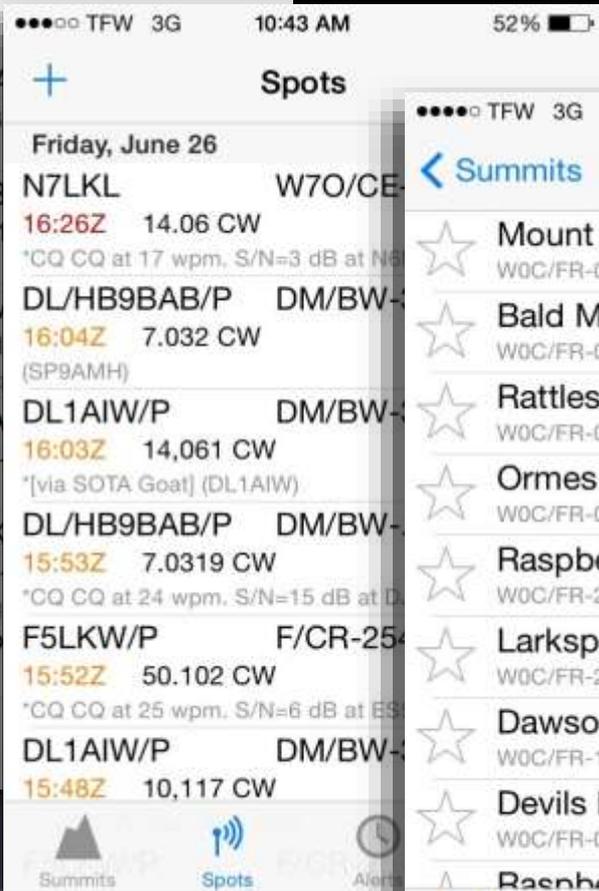
*Chasing QRP stations with improvised antennas...frequently on another continent...**is a real DX challenge.** Pulling a weak signal from the noise teaches one how to **get the most from one's radio** as well as **fundamentals of propagation**.⁵³ And a dose of patience as well. The problem is, SOTA is addicting.*

Paula K9IR writes:

When you chase summit activators, you can:

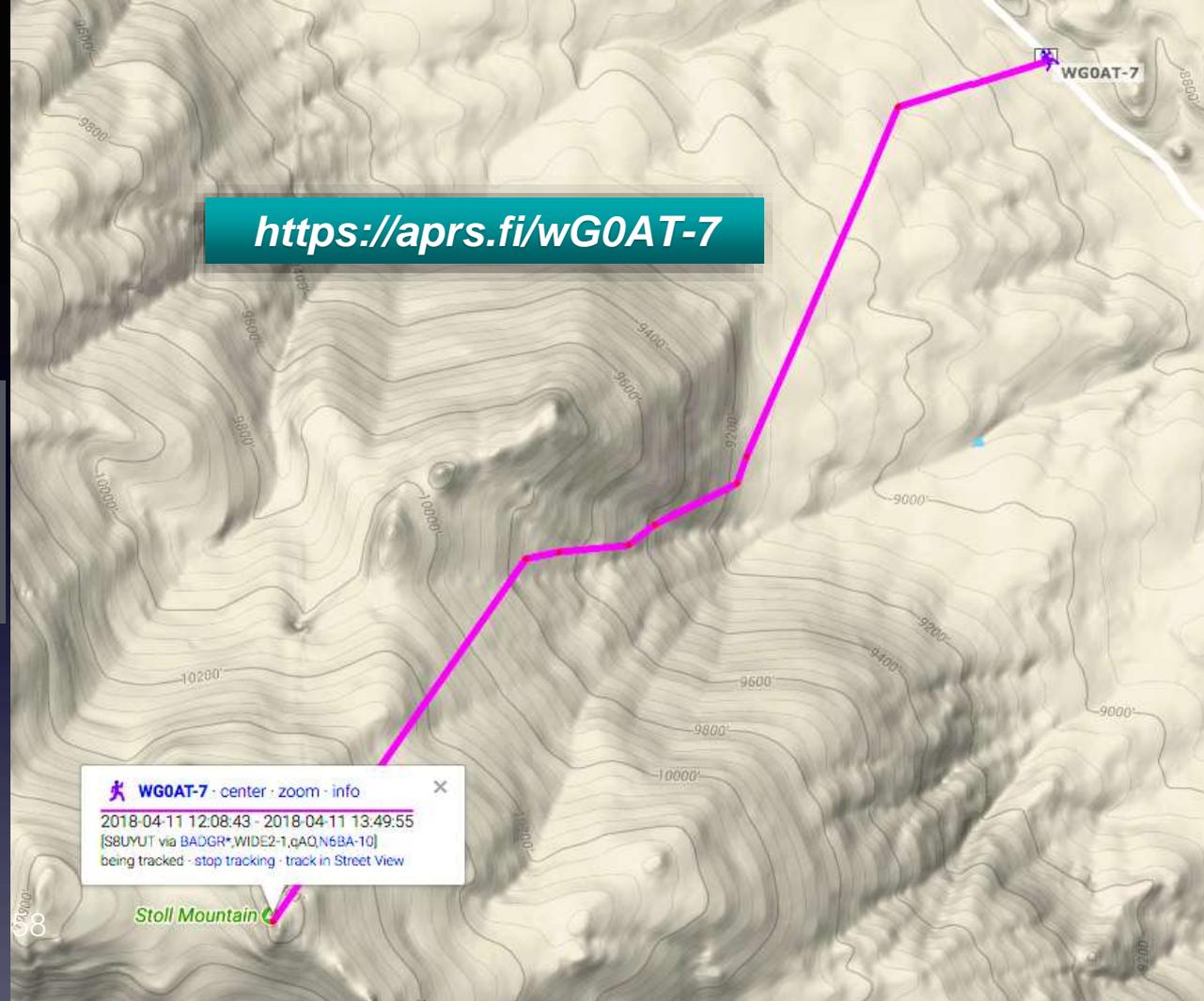
- 1. Join over 6,300 other hams in the chase (nearly 4,000 of whom also activate summits).***
- 2. Enjoy making contacts and qualifying for awards without needing a super-station.***
- 3. Improve your ability to tune in, hear and work weak signal stations.***
- 4. Help activators⁵⁶ log the required minimum 4 QSOs to qualify for activation points.***
- 5. Understand how to use APRS.***

SotaGoat App for iOS & Android



Chaser Tools

- APRS
- ALERTs/SPOTs



“Easy” Summits

- **Pikes Peak** (W0C/FR-004) – drive up
- **Mt Evans** (W0C/FR-003)- drive up then ¼ -mile, 130 feet vertical hike
- **Trail Ridge** (W0C/FR-123) – 0.8 miles, 300 vertical feet
- **Genesee Mountain** (W0C/FR-194) – drive up then 200 ft hike
- **Chief Mountain** (W0C/FR-030) – 1 mile hike, 700 feet vertical
- **Prospect Mountain** (W0C/FR-069) – take the tram, then 300 feet vertical
- **Monarch Ridge South** (W0C/SP-058) – take the tram
- **Mount Bailey** (W0C/FR-062) - local park trailhead 1-mile hike, 500 feet vertical



Questions

60

?