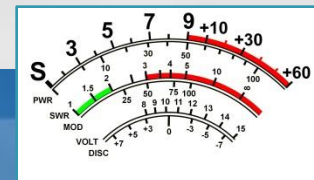


# Mountaintop VHF in the Colorado High Country

Bob Witte, KØNR  
bob@k0nr.com  
Monument, CO





ISSN 1085-0708

# VHF

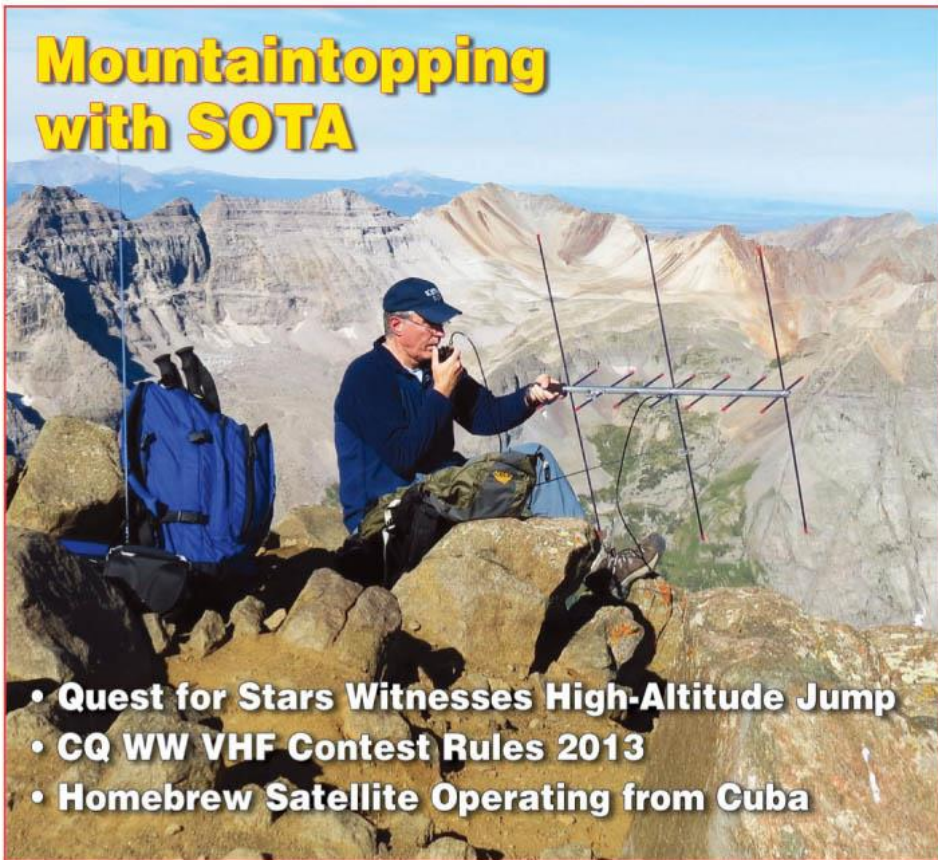
# Ham Radio Above 50 MHz

www.cq-vhf.com

Spring 2013

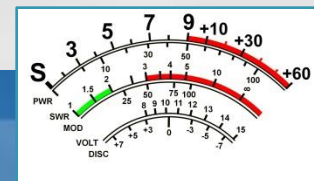
\$7.50

## Mountaintopping with SOTA



- Quest for Stars Witnesses High-Altitude Jump
- CQ WW VHF Contest Rules 2013
- Homebrew Satellite Operating from Cuba

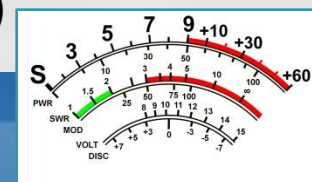
- VHF/UHF Weak Signal
- Projects ■ Microwaves
- Packet Radio ■ Repeaters
- Amateur Satellites
- Interviews ■ Plus...Reviews, Product News, and much more!



# How Far Will My Signal Go on VHF?

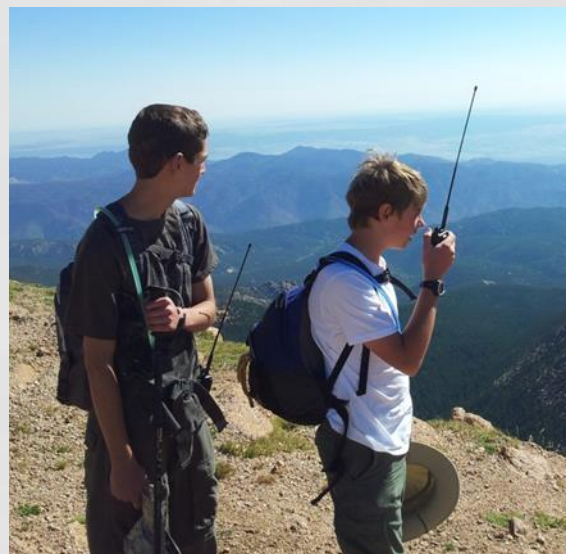


- Optical horizon from Pikes Peak: 120 miles, plus 15% for radio horizon = 138 miles
- Mt Sunflower (highest spot in Kansas) is easily worked on 2M FM from Pikes Peak (160 miles)
- Best 2M FM DX during Colorado 14er Event: Phil NØKE on Mt Bross to Larry NØLL near Smith Center, KS (375 miles)
- Best DX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

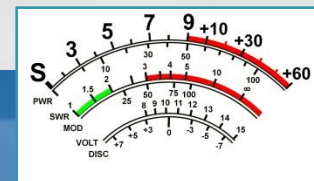


# MOUNTAINTOP VHF

- Summits On The Air (SOTA) Using VHF
- Colorado 14er Event (includes SOTA)
- VHF Contests



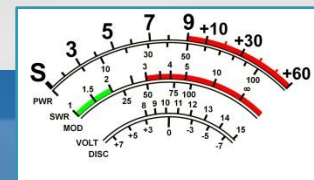
Note: when I say “VHF” I mean any frequency above 50 MHz



# Summits On The Air (SOTA)



- Two ways to participate
  - Activator
  - Chaser
- Over 1700 SOTA summits in Colorado
- A wide variety of difficulty and elevation
  - From 5398 feet to 14,443 feet
- SOTA activation requirements:
  - summit must be on the SOTA list
  - non-motorized ascent (100 feet vertical) and equipment must be carried
  - portable power (no 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)

May vary by association based on terrain





This page refreshes every 1 minute. Last updated **03:33:38** UTC.

## Latest Spots

>> [more spots](#) | [new spot](#)

- Sun 21:25 **K4HYJ** on [W4G/NG-035](#) **14.000** other  
QRT - leaving summit. (Posted by KD9KC)
- Sun 21:19 **K4HYJ** on [W4G/NG-035](#) **14.305** ssb  
Nice sig 57 near Montreal 73\'s de ve2jfm (Posted by VA2VL)
- Sun 21:14 **K4HYJ** on [W4G/NG-035](#) **14.304.7** ssb  
56 in Oklahoma (Posted by KA5WRG)
- Sun 21:13 **K4HYJ** on [W4G/NG-035](#) **14.3047** ssb  
33 in OR (Posted by NS7P)
- Sun 21:11 **K4HYJ** on [W4G/NG-035](#) **14.304** ssb  
NO COPY IN KANSAS (Posted by AA0LV)

## Upcoming Activations

>> [more alerts](#) | [new alert](#)

- Mon 13:00 **DF2GN/P** on [DM/BW-376](#) **28-cw,21-cw,18-cw,14-cw,10-cw,7-cw**  
first cw act. of this summit...also SSB on 14.280 / 7.118 (Posted by DF2GN)
- Mon 16:30 **WO6M** on [W6/CT-009](#) **10.110-14.061-21.062-cw**  
ETA approx (Posted by WO6M)
- Mon 17:00 **NM5S** on [W5N/PW-038](#) **7.031-cw,14.061-cw**  
start on 40m (Posted by NM5S)
- Mon 19:30 **NM5S** on [W5N/PW-037](#) **7.031-cw,14.061-cw**  
Possible access issues. If OK will start on 40m. (Posted by NM5S)
- Mon 20:00 **WO6M** on [W6/CT-054](#) **10.110-14.061-21.062-cw**  
ETA approx (Posted by WO6M)

## Reflector Latest

### [SOTA NEWS MARCH 2013](#)

by G4SSH, #10 by G4SSH, 15days ago

### [Dealing With Disruptive Opera](#)

by G8ADD, #43 by VA2SG, 70days ago

### [The Shropshire 2-pointers...](#)

by M1EYP, 2hrs ago

### [Frenni Fawr today](#)

by GW4VPX, #20 by M1EYP, 3hrs ago

### [Not in log for HB/AR-008?](#)

by HB9DST, 5hrs ago

### [BW-159 delta loop](#)

by DF2GN, 5hrs ago

### [G4YSS:G/NP-006; NP-015; NP-C](#)

by G4YSS, #4 by M0CGH, 6hrs ago

### [VIDEO SOTA EC2AG/P EA2/BIO](#)

by EC2AG, #4 by M6RGF, 6hrs ago

### [Lake Peak, NM Pictures](#)

by KE5AKL, #3 by G6ODU, 9hrs ago

### [SOTA Summit Paddles](#)

by WG0AT, #11 by G8TMV, 12hrs ago

### [Q . When is a spot not a spot?](#)

by G4ISJ, #44 by G4ISJ, 18hrs ago

### [Mt Sterling Activation report a](#)

by KK4NQQ, #4 by N2XJS, 25hrs ago





[Home](#) | [Spots](#) | [Alerts](#) | [Summits](#) | [Reflector](#) | [Website](#) | [Database](#) | [Video](#) | [Photos](#) | [Recent Info](#) | [Shop](#) | [Mapping](#)

## Summit Information for W0/FR-051

### Devils Head - 2965m, 4 points

Association: USA(W0) Region: CO-Front Range

Latitude: 39 15 37 N, Longitude: 105 6 3 W

Today's Sunrise: 11:35 UTC, Today's Sunset: 02:32 UTC

Relative to home QTH: 53.4 km, 293 degrees

[Google Map](#) | [Google Earth](#) | [OpenStreetMap](#)

[SOTA Map](#)

## Resources

Feel free to add external links [↗](#) and articles relating to this summit that activators and chasers may find useful or interesting. Please read the disclaimer notice at the bottom of the page.

## Summit Activity

Total Activations: 5

Latest By:

K0JQZ on 02 Jun 2013

KC0YQF on 02 Jun 2013

K0JQZ on 13 Oct 2012

K0NR on 15 Jul 2012

N6UHB on 13 Oct 2011

First Activated by:

N6UHB on 13 Oct 2011

Activated by You on:

15 Jul 2012

27 QSOs on these bands:

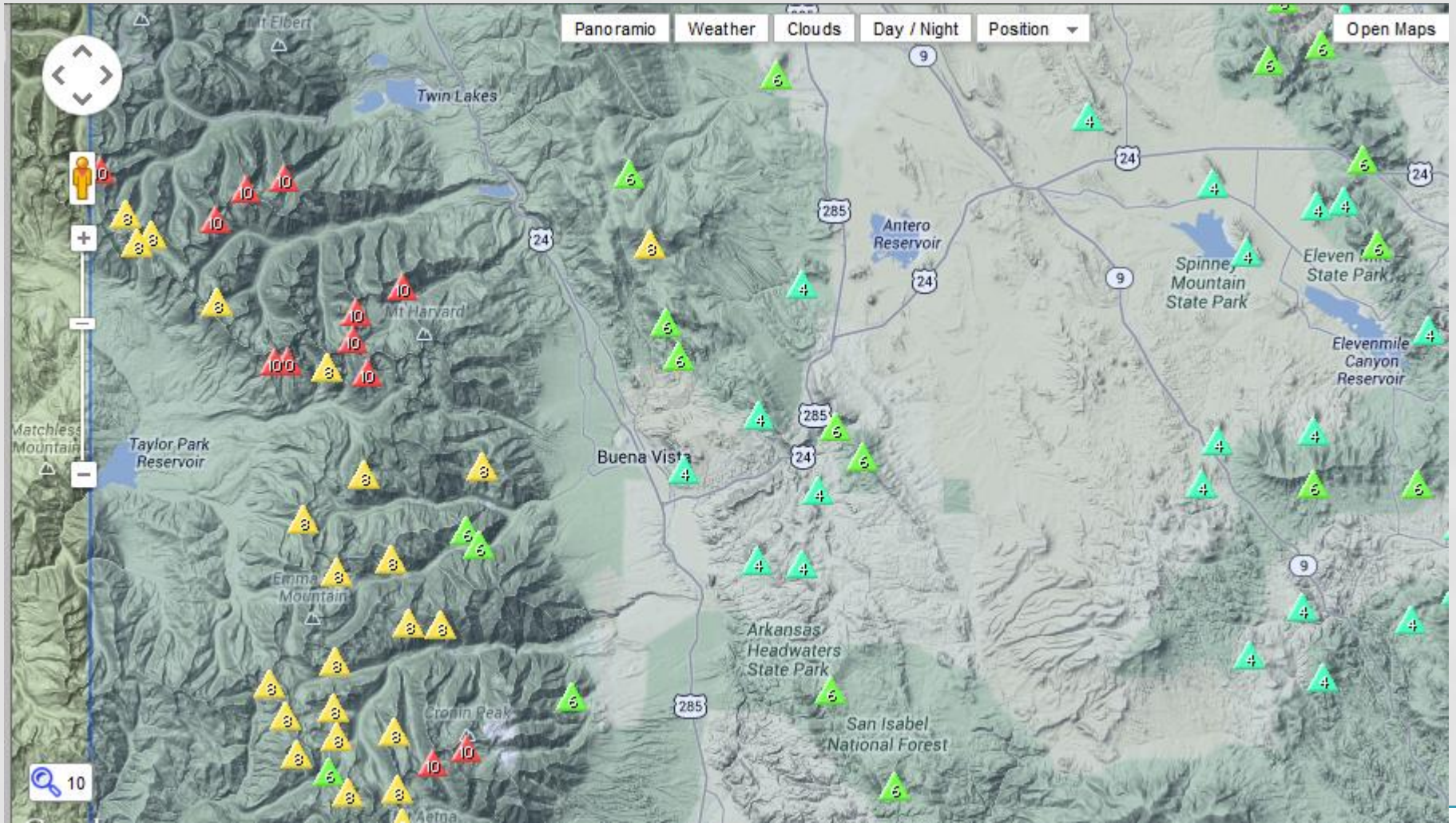
20m 18 67%

2m 9 33%





# SOTA Summits Near Buena Vista



# 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 worlds 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  
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bad bad bad bad bad bad bad bad bad

**BAD**



# The 1/2-wave Vertical Antenna



**MFJ-1714 – SMA or BNC connector**



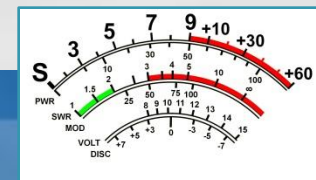
# Improved VHF SOTA Activation

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



Aspen Ridge  
(WØC/SP-084)

10,740 feet elevation



# All Mode VHF SOTA Activation



Also known as “use an FT-817 transceiver and a small Yagi antenna”



Handies Peak  
(WØC/SJ-001)

14,048 feet elevation

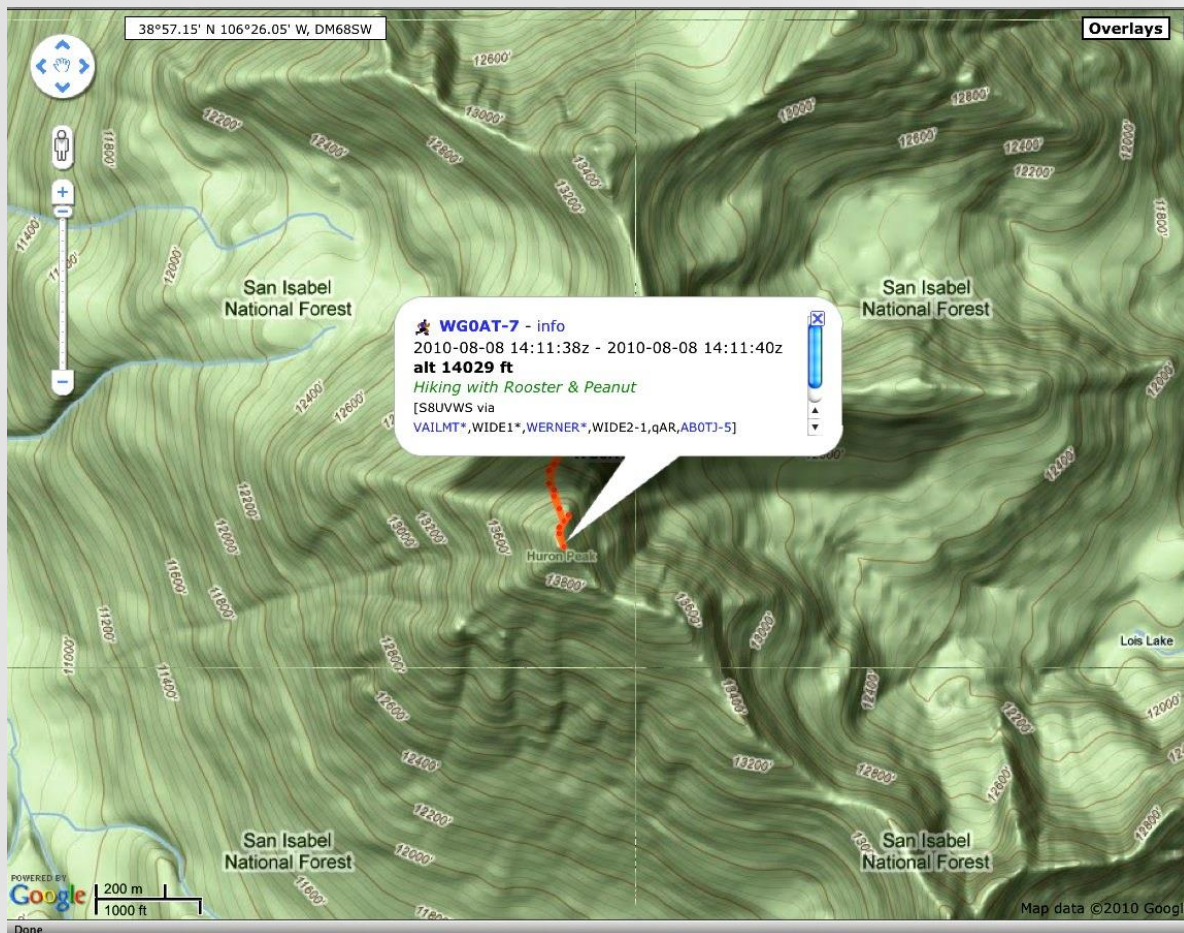
Steve WØAT



# APRS For Position Reporting



Yaesu VX-8GR  
APRS handheld  
w/GPS



# HF Operating, Too



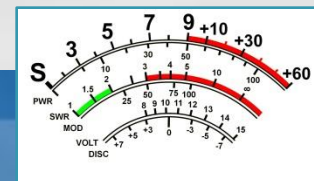


# Typical HF SOTA Antennas



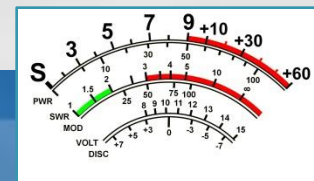
# Steve WGØAT





# The Colorado 14er Event is:

- Held the Sunday of the First Full Weekend in August (August 3, 2014)
- Primary operating time is 0900 to 1200 local, but activity can occur at any time during the day
- A Day for Portable Mountaintop Operating
- Primarily focused on the 54 official 14,000 foot summits in Colorado
- Includes the 1748 SOTA peaks in Colorado
- Includes VHF, HF, all modes
- Lots of fun !!!!

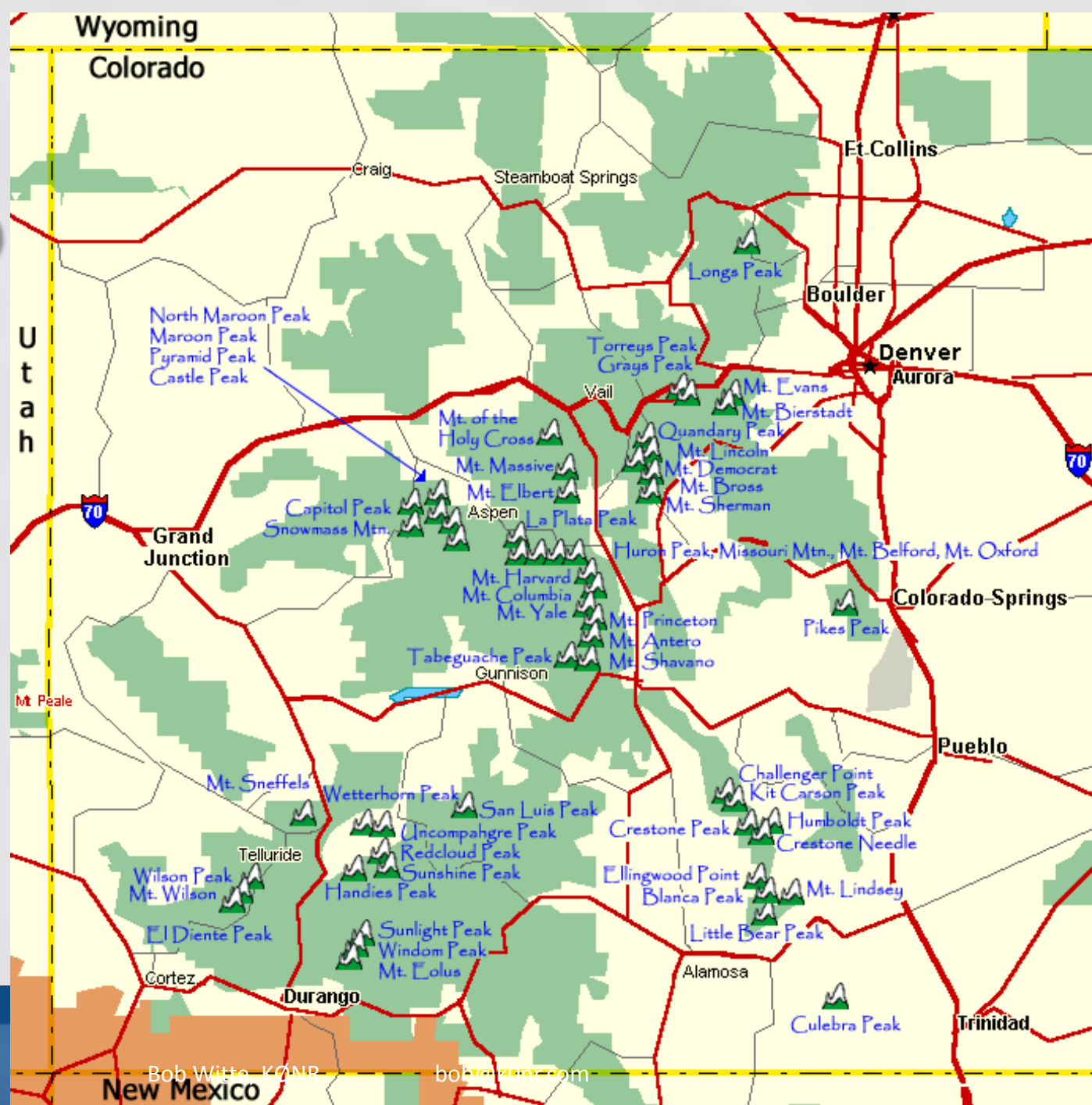


# The Colorado 14ers

- Colorado Mountain Club list of 54 Peaks with elevations 14,000 feet or higher
- Drive Up Mountains:
  - Pikes Peak, Mount Evans, Mount Bross (4WD, check access)
- All of the rest require foot power
  - Varying degree of difficulty, none "easy"
  - Safety first: Be Prepared



# The 54 Colorado 14ers



# Bob KØNR on Mt Sneffels



# Jon WO9S on Mt Bierstadt



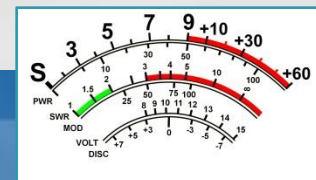




# Joyce KØJJW Humbolt Peak



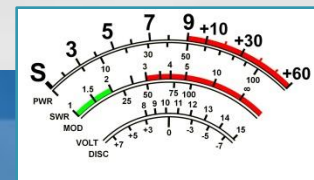
# David KI6YMZ and Ben KDØPNS on Mt Shavano



# Hon Chu KQ6EE on Mt Belford



# Steve WGØAT at 14,000 Feet



# Steve WGØAT and Guy N7UN



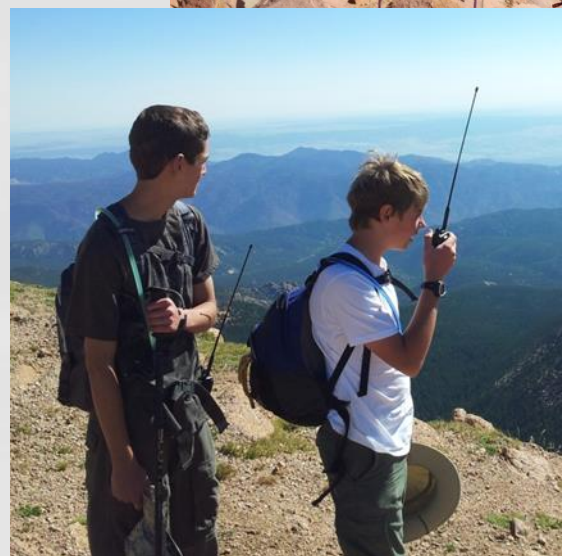
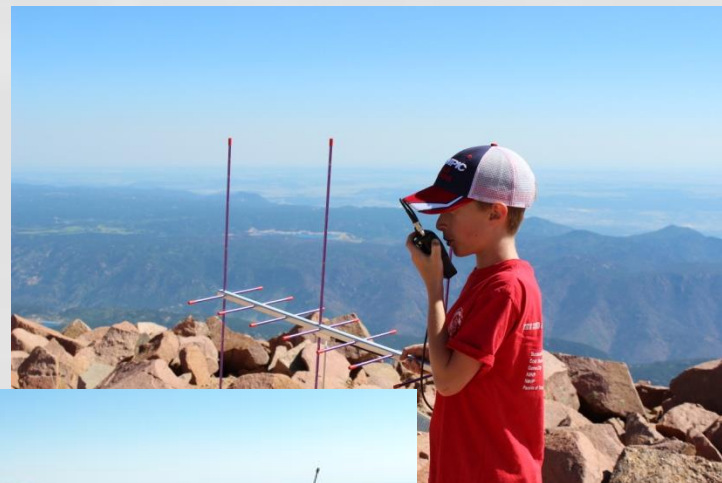
It's Not Always  
Warm and Sunny



# Chris KØCAO with small yagi

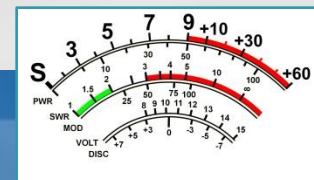


# Boy Scouts On Pikes Peak



# Mt Evans

*not SOTA compliant !!!*





# Peter K3OG on Grays Peak



Note: Yagi for 2M and 70 cm  
Maxon for 6M

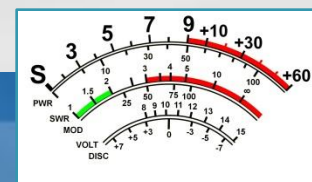


# Rooster and Peanut GoatWear



<http://www.cafepress.com/wg0at>

By Steve Galchutt, WGØAT

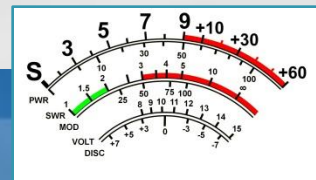


# VHF Contests !!!



# Why VHF Radio Contesting?

- Competition
- Challenge
- Concentrates activity
- Have Fun!

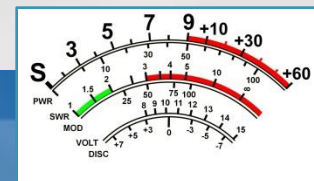


# Contest Format

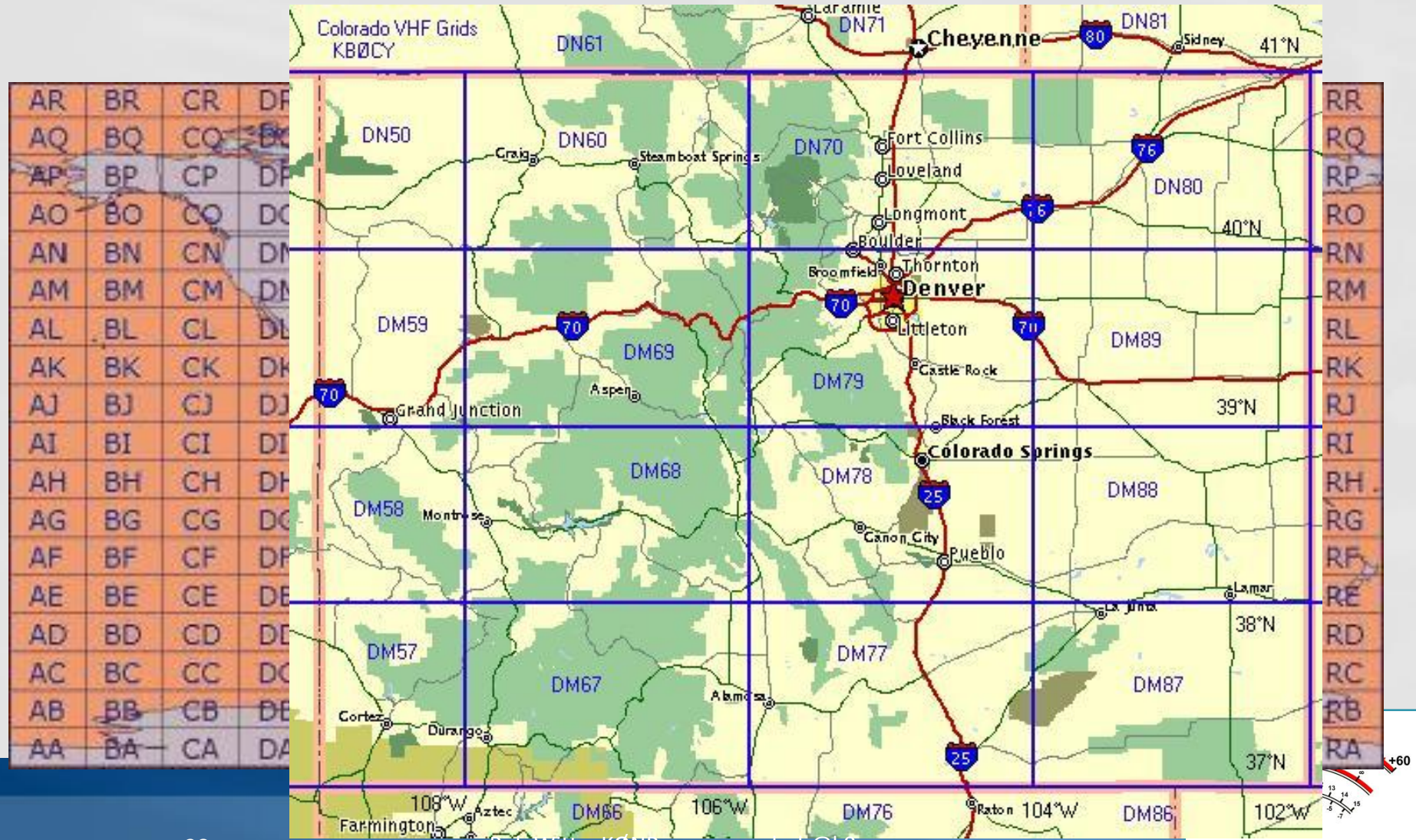
- Use all amateur bands above 50 MHz
- 50 MHz, 144 MHz and 432 MHz are most popular
- Work everyone you can on every band
- Score = QSO points x Total Grids Worked



50 MHz (6 meters)	1296 MHz (23 cm)
144 MHz (2 meters)	2304 MHz (13 cm)
222 MHz (1¼ meters)	3456 MHz (9 cm)
432 MHz (70 cm)	5760 MHz (5 cm)
903 MHz (33 cm)	10 GHz (3 cm)



To make a contact, you need to exchange call sign and grid locator with the other station



# Contest Calendar

- **ARRL January VHF Sweepstakes**

Third or fourth weekend in January

- **ARRL June VHF QSO Party**

Second full weekend in June

- **CQ Worldwide VHF Contest**

Third full weekend in July

6 Meters and 2 Meters only

- **September VHF QSO Party**

Second full weekend in September



# A Few Operating Categories

- Single Operator Portable (“QRP”)
  - 10W max, portable power source and equipment
- Single Operator, 3 Band
  - 50, 144 and 432 MHz only
- Single Operator, FM Only
  - 50, 144, 222 and 440 MHz (FM Only)
- Rover
- Hilltopper (CQ WW VHF Contest only)
  - QRP portable with 6 hour time limit





**Stu WØSTU  
Mt Herman  
January VHF 2011**



# KØNR CQ WW VHF 2006 Mount Evans



# Rover Station Eric KRØVER



## Rove Route – Jun 12-13, 2010



- 1 – DN71, Panorama Pt., NE
- 2 – DN70/DN71 Line and DN70 ops to DEN (PM), CO
- 3 – DN71/DN61 Line, NE
- 4 – DN61 CR-19 Ops to Denver, NE
- 4 (again) – DN60/DN61 Line
- 5 – DN61 More ops to DEN (PM)
- 6 – Night in Fort Morgan
- 7 – DN70/DN60 Line
- 8 – DN61 Microwave Twr. More ops to DEN (AM)
- 9 – DN70 More ops to DEN (AM)
- 10 – DM79/DN70 Line
- 11 – Placeholder to force route onto Rector-Leader Rd.
- 12 – DM89, Cedar Pt. Ops to Denver
- 13 – DM88/DM89 Line
- 14 – DM79/DM89 Line
- 15 – DM78/DM79 Line

Possible Additions: a) DN60/DM89 & b) DM78/DM88 lines  
 a – Four mi. round trip down CR-11 south for microwave twr  
 b - Five mi. round trip down Rt 149 just south of Pt. 14

Pt. 1 to Pt. 14 distance is 238 miles



# Transceivers

Typical multimode transceivers capable of SSB and CW operation



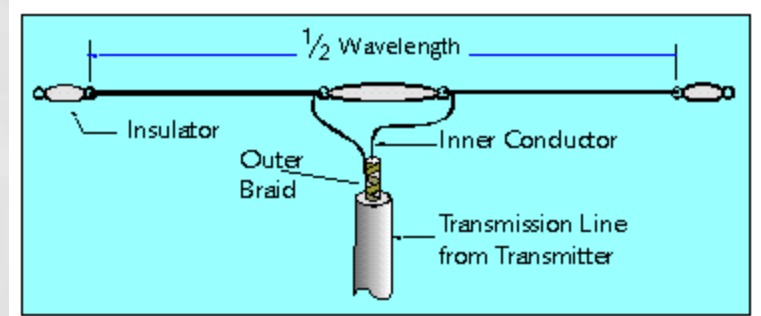
# Antennas

- 6 Meters

- Wire dipole antenna
- Horizontally polarized
- Yagi antenna

- 2 Meters and up

- Usually going to use a beam antenna  
Typically: Yagi
- Horizontally polarized for SSB weak signal work



dipole antenna



# M<sup>2</sup> 2M9SSB

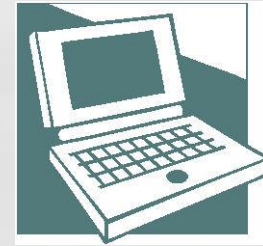


# 6 Meters – The Magic Band

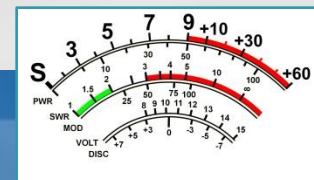
- Propagation is normally similar to 2 Meters
- When sporadic-e (“e skip”) occurs, the band comes alive
  - Sporadic-e openings allow contacts across North America
  - Sporadic-e is very common in June and July
  - Keep listening to the 50.125 MHz USB
  - Move up in frequency as the band gets busy
  - 50.110 to 50.125 MHz is the DX Window, use it only for contacts to other countries



# Logging



- Keep a log of all contacts
- Date/Time in UTC
- Frequency (just the band)
- Call sign and grid of each station worked
- Paper log is OK
- Electronic log is better
  - Shareware software: N1MM logger, W3KM VHF Logger





# Summary: How To Participate (1)

- Summits On The Air

- Check out the WØC SOTA web site:

- [w0c-sota.org/](http://w0c-sota.org/)

- Choose a summit to activate

- Or work the summit activators

- Join us for the Colorado 14er Event

- Web site: [www.ham14er.org](http://www.ham14er.org)

- Ham14er Yahoo group:

- [groups.yahoo.com/group/ham14er/](http://groups.yahoo.com/group/ham14er/)



# Summary: How To Participate (2)

- VHF Contests

- Main contests are

ARRL June VHF Contest ([www.arrl.org](http://www.arrl.org))

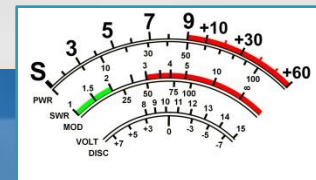
ARRL January VHF Contest

CQ Worldwide VHF Contest (July)

([www.cqww-vhf.com](http://www.cqww-vhf.com))

- Read the contest rules carefully

- Pick a high spot to operate from  
(it is possible to do SOTA activation and VHF contest simultaneously)



# Summary, Q&A

Great combination:

Hiking, VHF and Colorado mountains

- Summits On The Air
- Colorado 14er Event
- VHF Contests

Be safe and have fun!!!

