In Memory of “Dr. Doom”
Dr. Gene Zimmerman – W3ZZ



“QRM in heaven just went up 20 dB!”

Life After Spruce Knob

Moving K8GP to the “Flat Lands”



History

- In 1997 DVMS received a ***Limited Use Permit*** from the US Forestry Service for Spruce Knob, WV. The first K8GP operation on Spruce Knob was in June of that year
- The last operation from Spruce was in 2008
- Buses and operators getting too old to make the trip and coordinating 10 peoples' schedules to take five days off was just too much

History

- Station consisted of three, full-size school buses, each outfitted with two or three 30- to 40-foot towers on special “swing mounts”, raised with 12V ATV winches
- All antennas small boom length, small dishes on 2.3 and above

Final Spruce Knob Antenna Layout 2008



Some of the K8GP Spruce Knob Highlights

- Only multiop to have beaten W2SZ/1 4 times. June ‘00, June ‘06, ‘07 and Sept. ’07
- Attained 10 band VUCC in 3 contests - Sept ’98, Sept ‘01 and June ’07
- Only limited multi to break 1 million points
- Consistently matched 6m scores from midwest stations

What Next?

- Spruce Knob is one of the quietest radio locations, with commanding shots in all directions, how can you do better?

YOU CAN'T!!!

- Alternative - Find a location that is less than one hour from the main K8GP core operators

What Next?

- Understand that whatever location you find, it will never be as good as Spruce Knob
- How many potential lost QSOs and Multipliers can be made up with tall towers and LOTS of antennas?

W4RX

- I do tower work for Jim Alhgren, W4RX who has a station on Mount Weather, west of Leesburg, VA, near the FEMA Mount Weather EOC
- Jim already has five towers for HF and a monster self-supporting tower for VHF
- The mountain location is ~1850’ MSL – no where near Spruce Knobs’ 4863’ MSL, but a lot closer

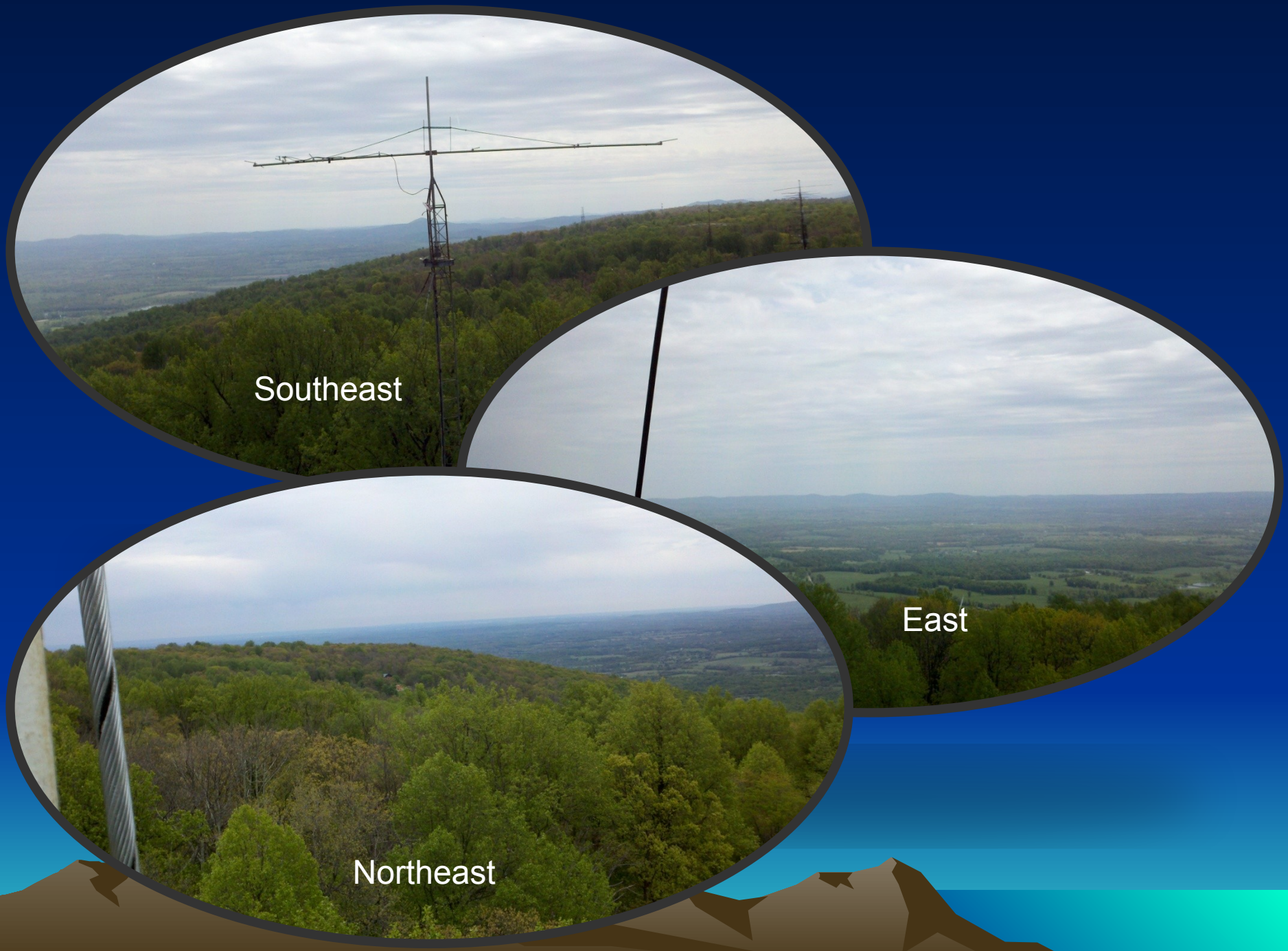


Views from atop the 140’ Microwave tower








Southeast
East
Northeast

W4RX

- Jim and I reached an agreement to move K8GP to his site, with almost unlimited site use as long as Jim could have access to our antennas when he operated

This site affords us nearly 100 acres of tower possibilities!!!!

The Design

- The results of lengthy discussions between Grid Pirate Band Captains, regarding towers and antennas, follows:
- All towers must be ≥ 130’ to clear trees and a ridgeline to the NE of the site
- Separate towers for 6, 2, 222, 432, 902/1.2, 2.3 and up, and EME towers

The Design

- Layout towers so no antennas point NE through another tower, and assure 6m antennas don’t point at any other tower
- Use existing buses as operating positions, R&R, and sleeping quarters

22 yard concrete truck makes his way to the first pour, the rotating microwave tower





The work “crew” L-R
Terry – W8ZN
Russ – W3RST
Mike – N2NAR
Chuck – W4XP
Andy – K1RA

Pile o’ tower!





Mike, N2NAR works concrete around tower

The “boss” arrives – Craig, N4OHE is Jim’s caretaker for the site – and keeps us in line!



Antennas

- 6m – 56 elements
- 2m – 332 elements
- 1.35m – 32 now, 116 planned
- 70cm – 144 elements
- 33cm – 180 elements
- 23cm – 220 elements

Antennas

- If you want to attract attention during a contest by calling CQ – large, sharp-patterned arrays are undesirable

- Because of extreme weather conditions of wind and ice in winter, and wind and often violent thunderstorms in summer, all towers must be at least Rohn 45 or 55

Antennas

- 6m –
  - 135’ Rohn 45 with 4 x 5-element Yagis NE
  - 2 x 5-element Yagis SE
  - 8 x 3-element Yagis West (on 432 tower)
  - 7-element rotatable at 135 feet
    - 7-element rotatable at 35 feet on a separate tower.

Any single array, or all arrays, can be fed





Antenna selection switch (note Cisco VoIP phone to left)



Antennas

- 2m –
  - 190’ Rohn 55 with 16 x 6-element NE
  - 16 x 6-element NW
  - 16 x 6-element SW
  - 4 x 5-element SW
  - 2 x FO12’s right at 200’

Any one array or all arrays can be fed

The 2m Tower o' Power!



Antennas

- 222 – Shared with Jim's 10m antenna on a 125' SSV self-supporting tower
  - 2 x FO16's but going to 8 x FO12s rear mount w/ elevation for EME
  - 4 x 5-element NE
- 432 – 130' Rohn 45
  - 4 x FO25s vertically stacked
  - 4 x 11-element NE
- 902/1.2G - Will be shared on 135' 6m tower
  - 4 x 45-element loops for 902
  - 4 x 55-element loops for 1.2





Antennas - Future

- Microwaves – All on 140’ rotating Rohn 55 tower
  - 2.3G – 8’ dish, mono-band feed mounted at 125’
  - 3.4G – 6’ dish, mono-band feed mounted at 130’
  - 5.7G – 4’ dish, mono-band feed mounted at 135’
  - 10G – 3’ dish, mono-band feed mounted at 140’

Antennas – Future

- Microwaves – All on 140’ rotating Rohn 55 tower
  - 24G – 2’ dish, mono-band feed mounted at 140’
  - 47G – 1’ dish, mono-band feed mounted at 140’
  - With the recent announcement by the ARRL creating an FM only class, K8GP is planning pretty big FM arrays for the lower 4 bands with decent power. Being 30 miles from D.C. and 40 miles from Baltimore, we want to be ready for it.





EME

- Leaving Spruce, we estimate we will lose 10% of the total grids we normally worked. To make up the difference (and more!), EME stations are planned for all bands except 6m and 902. All EME arrays will be full AZ/EL with separate hardware allowing simultaneous operation

EME Arrays by Band

- 2m – 4 x FO19's
- 222 – 4 x FO16's or 8 x FO12's (also terrestrial array)
- 432 – 8 x/16 x FO22's H/V polarity

EME Arrays by band

- 1.2G – 8.5m Kennedy dish + 1 kW
- 2.3G – 3.6m dish + 400 W
- 3.4G – 3.6m dish + 100 W
- 5.7G – 3m dish + 500 W TWT
- 10G – 3m dish + 500 W TWT

EME area with 28’ dish, tower for dish and 2m EME Array - 4x FO19’s (Large self-supporting tower is Jim’s single op station)



28’ Kennedy dish waits for positioner to be completed



Station Layout

- Bus #1
  - Two 6m stations side-by-side
    - Both with 1500 W SSPAs
    - Station 1 uses high rotatable and all fixed arrays
    - Station 2 uses low rotatable
      - XFER flips the two arrays

Station Layout

- Bus #1
  - 222
    - 1500w SSPA
  - 52, 146, 223 and 450 FM
    - High power SSPA's
  - Sleeping for 4

Station Layout

- Bus #2
  - Two 2m stations side-by-side
    - Both with 1500 W SSPAs
    - Station one uses all LVA's
    - Station two uses rotatable array
    - XFER flips arrays
  - 432
    - 1500 W SSPA

Station Layout

- Bus #2
  - 903/1.2G
    - 800 W/1 kW SSPAs
  - 2.3 and above
  - Sleeping for two

Station Layout

- Bus #3
  - All amps and transverters located in walled-off space in rear to dampen noise and remove heat from operating areas
  - Front of bus is used for R&R, has refrigerator and microwave oven
  - Sleeping for two

Well, not quite a doublewide but from 80 feet up on the 2m tower, they don't look too bad!



New amplifier room in the rear of our third bus. 903, 1296 and power supply in place



June 2012, the First Unlimited Multiop Effort from the New Location

