MARCH 2022 Volume 11 Issue 3

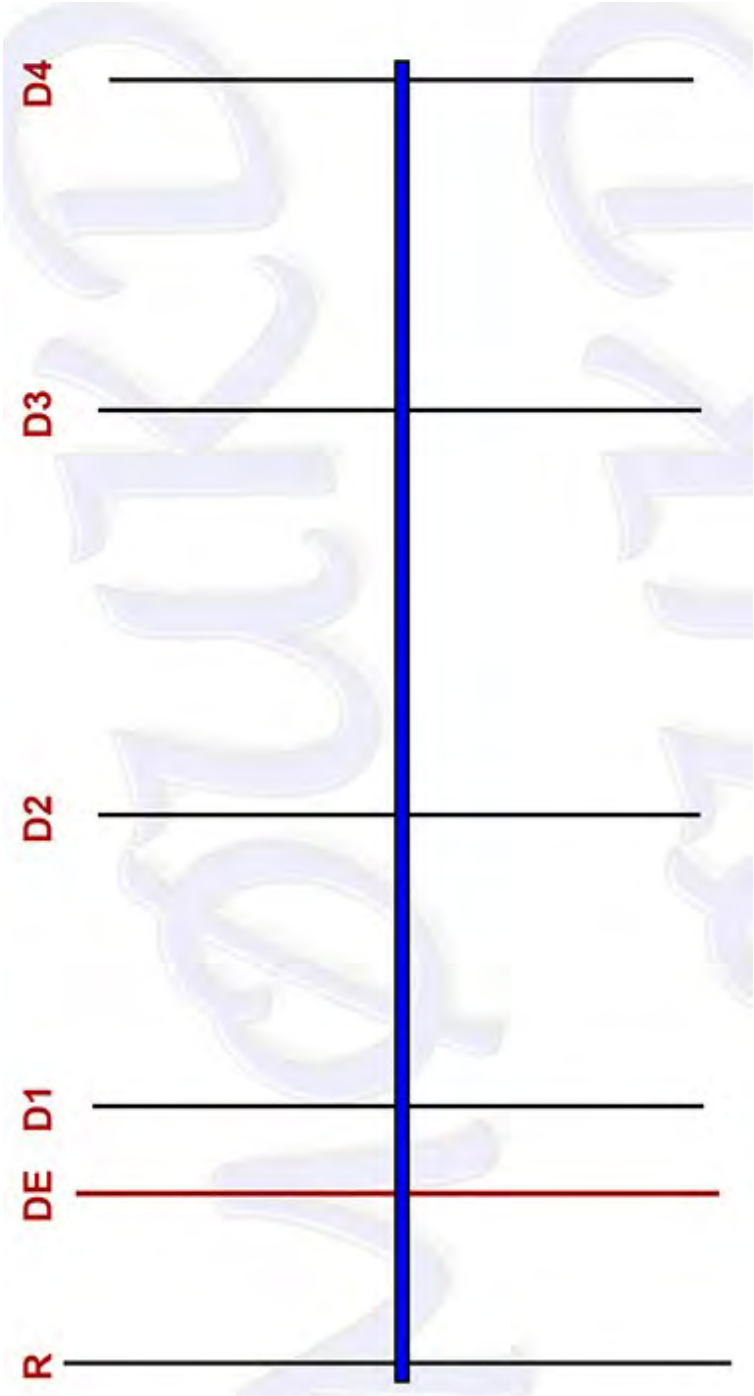
VE3ERC-LUB

President: Ted VE3TRQ
Vice-President: Frank VA3FJM
Secretary: Kirk VA3KXS
Treasurer: Paul VA3PDC
Trustee: Wes VE3ML
QSL Manager: Kirk VA3KXS
Repeater Trustee: Wes VE3ML
Website Admin: Ted VE3TRQ
Lighthouse: Al VA3TET
Maple Syrup Display: Al VA3TET
Newsletter: Bob VE3IXX
ERC Website: https://ve3erc.ca

ERC REPEATERS

UHF 444.700 + TONE: 131.8
UHF 444.700 + TONE: 123.0
VHF 147.390 + TONE: 123.0
VHF 147.255 + TONE: 131.8
EMERGENCY SIMPLEX: 146.550
UHF–IRLP node 2404,ECHOLINK VE3ERC-L
VHF– IRLP node 2403,ECHOLINK VE3ERC-R

In an emergency, tune Into our repeaters, UHF 444.700 or VHF 147.390 or HF 3.755 LSB or Simplex 147.510 For coordination and assignments.



M0UKD's collapsible clothes pin Yagi for easy transport.

See page 7.

THE PREZ SEZ!

This club is Radio-ACTIVE

President's Update for March 2022

Finally, we are getting together in person again at restaurants for coffee and breakfast. A number of us were at Angels in Waterloo on Thursday, then again as a monthly get together for breakfast on Wednesday at the Sunset Grill, again in Waterloo. In person is so much better than Zoom (although that is certainly better than nothing). With luck, we will all be meeting again at the Firehall in Elmira starting in April.

The Elmira Radio Club Annual General Meeting is in May - be sure to mark May 25th on your calendar. That's the day we elect our Club executive for the upcoming year, so it's your chance to have your say. If any member of the Elmira Radio Club wishes to serve on the executive, they need only contact the Nominating Committee of Tom VE3DXQ and Rich VE3DCC.

Ted VE3TRQ

Hear Ye Hear Ye

Read All About It

The Memberships are Now Due

For the Club Dit dit dah dit dah dit dah dit

CONTRIBUTIONS TO VE3ERC-CLUB NEWSLETTER

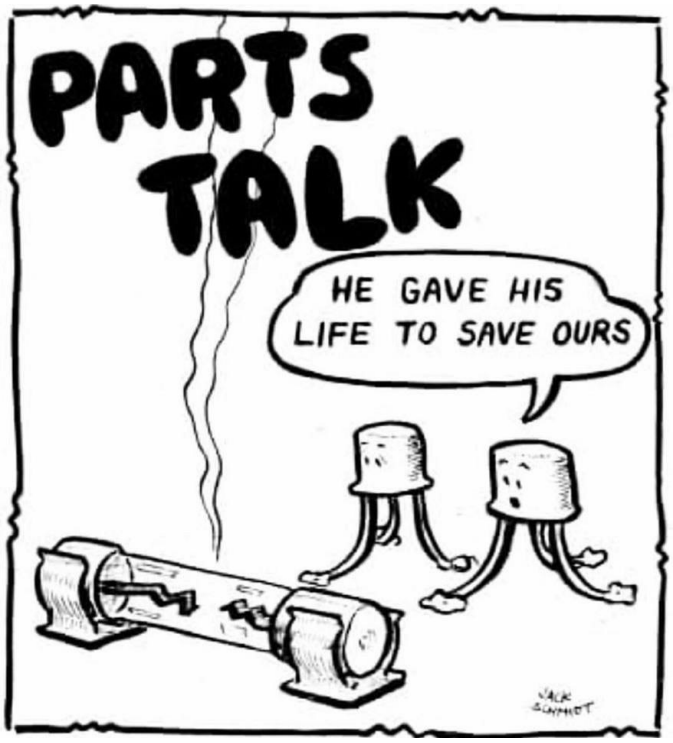
Do you have an article you'd like to submit? Or photos? Do you have any comments you'd like to make?

Perhaps you'd like to share a photo of your shack, a special project you are working on or a special interest!

SEND THEM TO:

Bob bobve3ixx@gmail.com

(519-787-2279)



WEDNESDAY NITE NET CONTROLLERS

FEBRUARY 16 - TED VE3TRQ

FEBRUARY 23 - M E E T I N G

MARCH 2 - BILL VA3QB

MARCH 9 - KIRK VA3KXS

MARCH 16 - REG VE3RVH

MARCH 23 - M E E T I N G

MARCH 30 - FRANK VA3FJM

APRIL 6 - TOM VE3DXQ

APRIL 13 - TONY VE3DWI

APRIL 20 - BRIAN VA3DXK

APRIL 27 - M E E T I N G

MAY 4 - BOB VE3IXX

Thanks to Tony VE3DWI for the following:

Here is an article out of the ARRL bulletin. It's about Bob Bruninga, WB4APR, who was the creator of the APRS system. He passed away on February 08/2022. Picture of him is attached.

From the ARRL bulletin.

I know what Bob Bruninga would say about Vladimir Putin's barbaric war on Ukraine and the calls for the U.S. and its allies to ban the import of Russian oil as a major sanction: "The future is electric vehicles. The more we build them, the more people drive them, the less dependent America will be on foreign oil. We will lick our addiction to fossil fuels."

As an electrical engineer, Bruninga was bullish on electricity and using the sun to make more of it to power our homes and cars.

He was an ingenious and energetic man who, until his death last month, contributed thousands of watts of brain power and voluminous volts of enthusiasm to electrical systems, radio technology, solar power arrays, small satellites and hybrid and electric vehicles.

Bruninga, who was 73, had lived with advanced sarcoma for two years and his family said his death in February "was precipitated by the long-term effects of COVID-19." I wish I had spent more time with him. He was certainly one of the most interesting men I ever met.

People in Anne Arundel County saw him driving around in his customized "woody" Toyota Prius adorned with rooftop solar panels and signs promoting hybrid vehicles. Boaters who cruised into a certain part of Marley Creek might have seen his amazing solar pier jutting out from Bruninga's waterfront property.

Some might have called him eccentric, especially when he drove his solarized "FrankenVolt" between his home in Glen Burnie and his job at the U.S. Naval Academy.

But Bruninga was a serious, forward-thinking citizen of Planet Earth, distressed by climate change and doing everything possible to reduce his carbon footprint and encourage others to do the same.

My first contact with him was by email. He chided me for a column opposing the construction of a third Chesapeake Bay Bridge on the grounds that it would encourage more driving. "I agree that we have too many cars," Bruninga wrote, "but your argument that more cars means more emissions is a disjointed comparison." He then did what he did in numerous emails that followed — flooded me with facts about the robust development of EVs and battery technology and the positive effects renewable energy will have on the environment.

His message was this: The future is here, and if we embrace it now, we might save the planet.

Born in Birmingham, Alabama, he was the son of Ervin Bruninga, an FBI agent, and Maybelle Cornelius Bruninga, a homemaker and community leader. As a boy, Bob Bruninga developed a lifelong interest in electronics and ham radio. He also learned to love nature, joining the Boy Scouts and exploring the waterways and caves of northern Alabama with his siblings. He earned the rank of Eagle Scout and graduated from Coffee High School in Florence, Alabama in 1966.

From there, he undertook studies in electrical engineering at Georgia Institute of Technology on a Navy ROTC scholarship. His senior project foreshadowed his interest in EVs: Bruninga electrified an old Volkswagen for the first MIT/Caltech cross-country Clean Air Car Race in 1970.

He earned a master's degree in electrical engineering at the Naval Postgraduate School in

California, spent 20 years in the Navy, reaching the rank of commander, and landed at the Naval Academy as a senior research engineer in the Aerospace Engineering Department, assisting students with capstone projects.

In 2001, Bruninga founded the academy's Small Satellite Program, helping midshipmen design and build microsatellites and take them to launch. One of the 11 academy satellites in orbit, PCSAT, is considered the oldest surviving student-built satellite in space, according to the academy.

Through all these years, Bruninga maintained a keen interest in the world of ham radio. He was considered a pioneer in the field, having developed the Automatic Position Reporting System (APRS) to use amateur radio to transmit messages and the real-time location of a person or vessel. Thousands of people have used it, according to a biography provided by Bruninga's family.

"Bob [enabled] school groups to talk with astronauts and cosmonauts aboard the International Space Station via ham radio," says the biography. "Bob founded the annual Appalachian Trail Golden Packet event during which APRS users send messages along Appalachian Trail summits from Georgia to Maine each July."

While at the Naval Academy in 1985, Bruninga met his wife, astronomer and professor Elise Albert, when he wanted to build a radio antenna next to the observatory on the Physics Department roof. Bob often quipped that he "didn't get the antenna but did get a wife."

The Bruningas, who were married 37 years, had a daughter, Bethanne, and a son, A.J. Their century-old waterfront home became a solar power showplace, with panels to catch the sun on the roof of the house and garage, on the lawn below their rear deck and along a floating pier. A geothermal system heats and cools the house.

There will be a memorial at the Annapolis Friends Meeting at a date to be announced.

His family had two suggestions for those who wanted to honor Bob Bruninga in some way. The first was to make a donation to an educational program related to the International Space Station called Space Telerobotics using Amateur Radio. The second suggestion requires a bit more effort but strikes me as perfect: "Take a special action of your choice, whether large or small, in his memory that contributes to conserving and sustains our planet".

From the PAST

Rob Kuhn, a meteorologist from Environment Canada sent in this picture.

This photo was taken in the Pacific Storm Prediction Centre, Vancouver, during the 2010 Winter Olympics. Our work stations look very similar to that today.

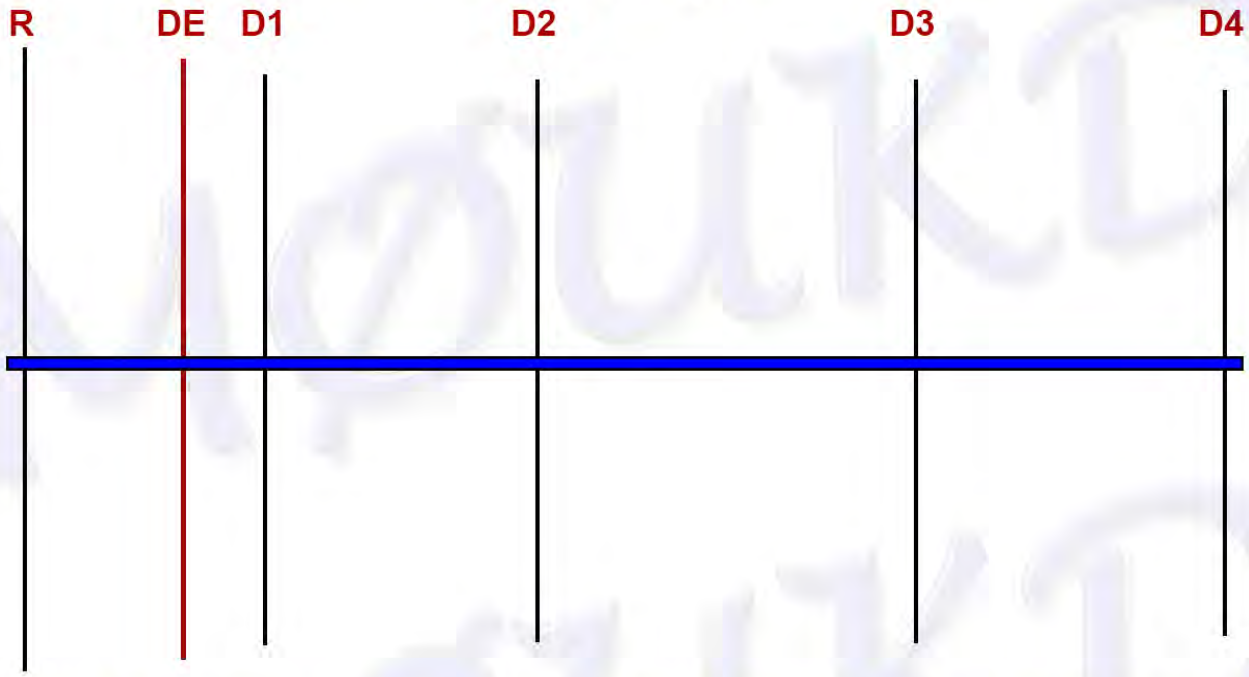
144MHz 2m Portable Yagi VHF Beam Antenna

Version 4 of the portable beam, the 'PegTenna'!

This page contains construction details on a 2 metre 144MHz VHF Yagi beam antenna, designed for portable use. Since an old 5 element version (v1) of my antenna was shown in the July 2011 edition of RadCom, a few people have contacted me asking for some information on how it was constructed. It has gone through a few revisions over the years (this is version 4) and is now a 6 element Yagi Uda (poor Uda never seems to get a mention), based on a DK7ZB design, with a little tweaking in EZNEC.
The challenge for this antenna was that it had to be compact enough to walk up a mountain and be very quick and easy to assemble and disassemble. 6 elements was chosen, as the boom length is 2m (6.5ft) which keeps it portable, whilst still having good gain. The next problem was how to build it so it can be put together quickly. After a lot of thinking, I decided to use wooden clothes pegs to mount the elements and driven element. Previous versions I have made used large screw terminal blocks, perspex, plastic booms, but this is certainly the best version so far!

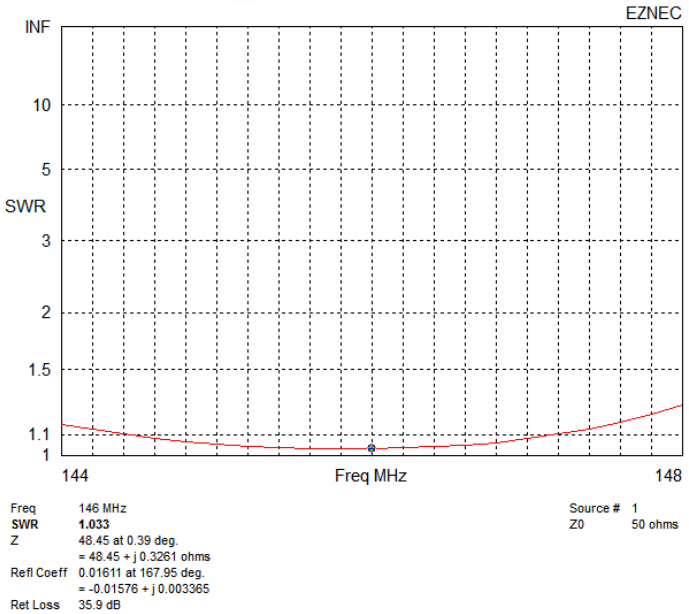
Note: *The original version I built, was optimised for SSB at the low end of the 2m band (144.3MHz) and will not be suitable for using at or above 146MHz. Bill, VE7WNO built this Yagi and observed the SWR shot up above 146MHz, so I have designed a version of this antenna centered on 146MHz for more broadband coverage of the USA/Canadian allocation of 144-148MHz. The dimensions for the all band coverage version can be seen here with SWR plot. It also uses ¼" tubing (6.35mm) instead of 6mm. See Bills comments at the bottom of the page for more info. OK, on with the build…*

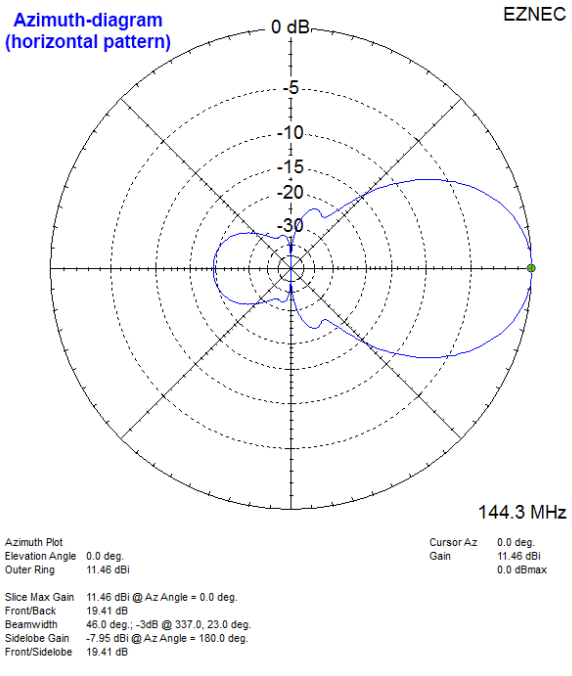
M0UKD 6 element Yagi for 144-148MHz (USA/Canadian version)
11.46dBi (9.31dBd) F/B 17.8dB, -3dB beamwidth 46°, 50Ω feed impedance.
based on DK7ZB design.

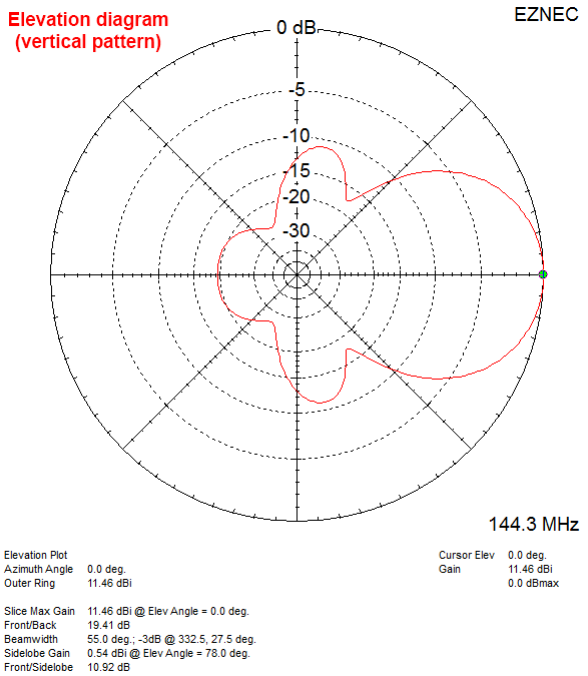


Boom: 1.985m (3cm overhang on each end). Elements all 1/4" (6.35mm) aluminium.
"Boom position" measurements are from the **end of the boom.**

Reflector:	**101.2cm**	**Centre: 50.6cm**	**Boom position: 3cm**
Driven Element:	**98.2cm**	**Centre: 49.1cm**	**Boom position: 25.7cm**
Director 1:	**92.8cm**	**Centre: 46.4cm**	**Boom position: 39cm**
Director 2:	**91.4cm**	**Centre: 45.7cm**	**Boom position: 83.4cm**
Director 3:	**91.4cm**	**Centre: 45.7cm**	**Boom position: 145cm**
Director 4:	**88.8cm**	**Centre: 44.4cm**	**Boom position: 195.5cm**



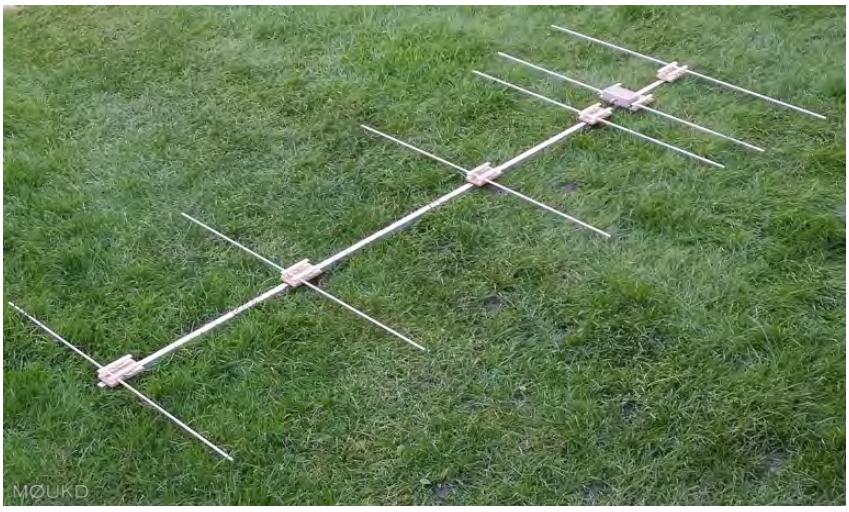




Of course there are many ways to fabricate a Yagi antenna, but hopefully this page gives you some idea of some options. Below are some photos showing in detail how the antenna is put together.

The antenna disassembled. It can be put together in 30 seconds!

The assembled Yagi.

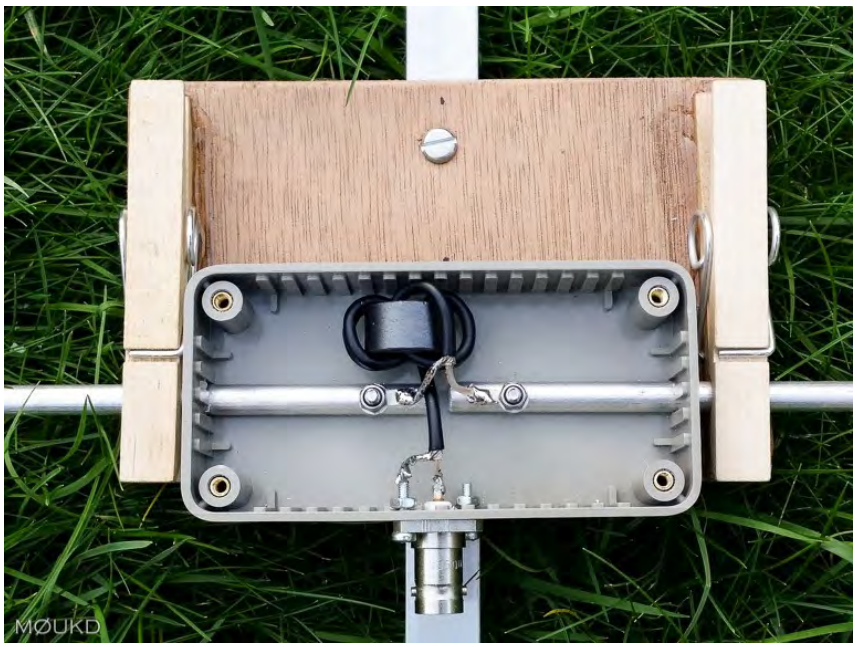


First test with antenna mounted 3m above ground. Very happy to see this on the analyser! Never seen it like this before on any other antenna.

The elements are numbered and marked with a black centre line for ease of assembly.

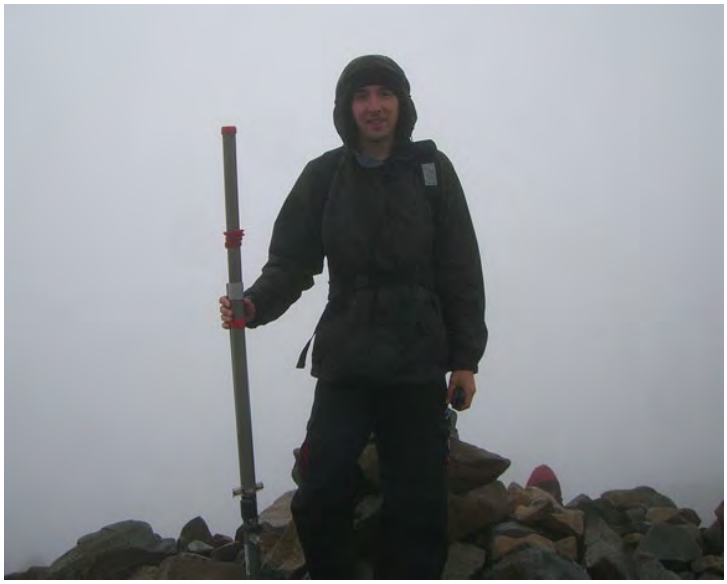
An element in place. The black line is centred to the screw, which is centred to the boom.

The driven element has a larger plate to accommodate the box which contains the choke and driver assembly. See next page



I have used an unknown ferrite with 4 turns of RG174 as a common mode choke. I first tried a small air wound choke, but it was not very effective. I have yet to test this method with 100w of RF power, but I think it will be OK.

John, M0UKD operating on FM with version 1 of the beam orientated vertically. Summit is Robinson.



John, M0UKD on the highest point in England, Scafell Pike.

John, M0UKD on Skiddaw with version 1 of the beam.

If you decide to build this antenna, I wish you good luck. I would love to hear your results if you do, please get in touch! John.

Reprinted with permission.

Thanks to Tony VE3DWI for sending the Following:

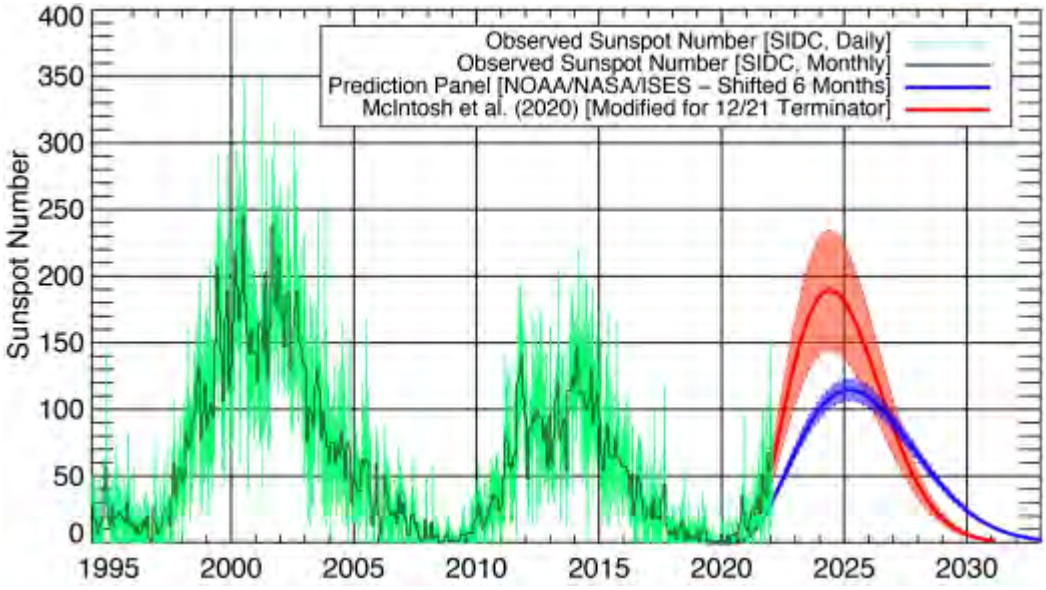
"Old Solar Cycle 24 has finally died--it was terminated!" says McIntosh.

"Now the new solar cycle, Solar Cycle 25, can really take off."

THE TERMINATION EVENT HAS ARRIVED: Something big just happened on the sun. Solar physicists Scott McIntosh (NCAR) and Bob Leamon (U. Maryland-Baltimore County) call it "The Termination Event."

"Old Solar Cycle 24 has finally died--it was terminated!" says McIntosh. "Now the new solar cycle, Solar Cycle 25, can really take off."

The "Termination Event" is a new idea in solar physics, outlined by McIntosh and Leamon in a December 2020 paper in the journal *Solar Physics*. Not everyone accepts it--yet. If Solar Cycle 25 unfolds as McIntosh and Leamon predict, the Termination Event will have to be taken seriously.



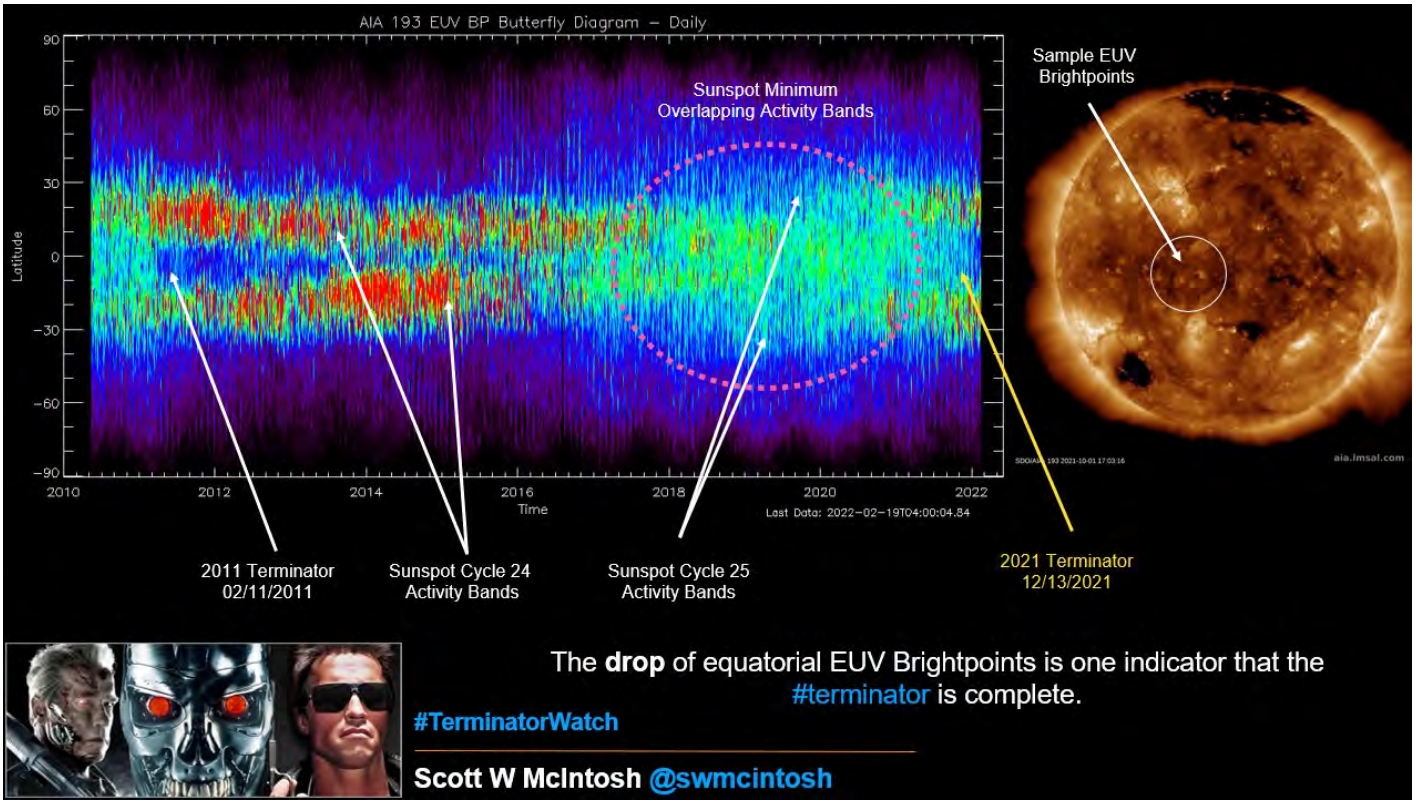
Above: Predictions for Solar Cycle 25. Blue is the official prediction of a weak cycle. Red is a new prediction based on the Termination Event.

The basic idea is this: Solar Cycle 25 (SC25) started in Dec. 2019. However, old Solar Cycle 24 (SC24) refused to go away. It hung on for two more years, producing occasional old-cycle sunspots and clogging the sun's upper layers with its decaying magnetic field. During this time, the two cycles coexisted, SC25 struggling to break free while old SC24 held it back.

"Solar Cycle 24 was cramping Solar Cycle 25's style," says Leamon.

Researchers have long known that solar cycles can overlap. The twist added by McIntosh and Leamon is the realization that overlapping cycles can interact. This makes sense. In the early 20th century, George Ellery Hale discovered that the magnetic polarity of sunspot pairs reverses itself from one cycle to the next; indeed, the sun's entire global magnetic field flips every ~11 years. When adjacent, opposite-polarity solar cycles overlap, they naturally interfere.

Termination Events mark the end of interference, when a new cycle can break free of the old.



Above: Bands of coronal bright points linked to old Solar Cycle 24 vanished in Dec. 2021, signalling a Termination Event. A Twitter thread from Scott McIntosh explains this in more detail.

The timing of the Termination Event can predict the intensity of the new cycle. In their *Solar Physics* paper, McIntosh and Leamon looked back over 270 years of sunspot data and found that Termination Events happen every 10 to 15 years.

"We noticed that the longer the time between terminators, the weaker the next cycle would be," explains Leamon. "Conversely, the shorter the time between terminators, the stronger the next solar cycle would be."

So when did the latest Termination Event happen? Dec. 2021. This yields a specific, testable prediction for Solar Cycle 25.

"We have finalized our forecast of SC25's amplitude," says McIntosh. "It will be just above the historical average with a monthly smoothed sunspot number of 190 ± 20."

"Above average" may not sound exciting, but this is in fact a sharp departure from NOAA's official forecast of a weak solar cycle. It could be just enough to catapult Terminators into the forefront of solar cycle prediction techniques.

--
73,
Lloyd N2KPC TEN-TEC Amateur Radio Net Manager.

ERC Elmira Radio Club Inc. - Meeting Minutes

February 23, 2022

Attendance - Members	**Attendance - Officers**
Bill Reid VA3QB	Ted Rypma VE3TRQ – President
Bob Koechl VE3IXX	Frank Monteith VA3FJM – Vice-President
Bruce McLellan VE3QB	Paul Curtin VA3PDC – Treasurer
David Johnson VE3MRJ	Wesley Snarr VE3ML - Trustee
Gary Kornstein VE3JGK	Kirk Sinclair VA3KXS – Secretary
Graham Bauman VE3BYP	
Jack Sinclair VA3WPJ	**Guests**:
James Clayton VA3JIC	Brian Filbey VA3DXK
Judd Hodge N4WXU/VE3WXU	
Ken Buehler VE3KCY	
Linda Willis VE3CZ	
Marianne Lelieveld VE3MXT	
Mike Willis VE3FE	
Rich Clausi VE3DCC	
Rick Brown VE3IMG	
Rod Murray VA3MZD	
Roger Sanderson VE3RKS	
Teresa Clayton VA3LTH	
Thomas Daniel VA3VRA	
Tom Mahony VE3DXQ	
Tony Lelieveld VE3DWI	

Meeting Location: Zoom

Meeting Minutes

1. **Call to Order:**
    a. Meeting was called to order by President, Ted Rypma VE3TRQ at 7:31pm and he welcomed everyone present.
2. **Roll Call:**
    a. Roll call established those present and it was noted quorum had been attained.
3. **Approval of Agenda:**

a. Ted displayed a copy of the agenda on the screen, which had also been circulated prior to the meeting.

b. Bill VA3QB requested to add a New Business item regarding ordering apparel

c. <u>MOTION</u> to approve the agenda as revised.

Motion By: Gary VE3JGK

Carried

4. **Presentation**

   a. Aircraft Electronics – Tom VA3VRA.

5. **Secretary Report:** Presented by Kirk Sinclair VA3KXS.

   a. Correspondence Received:

      i. None.

   b. Minutes of the February 23, 2022 meeting were emailed to members on the same day.

      i. Corrections were made to call signs for Colin Jones VA3BLW, Al MacDonald VA3TET and Rod Murray VA3MZD.

Tom VA3VRA gave his presentation on experiences of flying the Twin Otter.

c. <u>MOTION</u> to approve the revised minutes of the February 23, 2022 meeting.

Motion By: Kirk VA3KXS

Carried

6. **Treasurers Report:** Presented by Paul Curtin VA3PDC

   a. Details of transactions for the month of February were displayed on screen.

   b. Reminder that dues for the upcoming year are payable in March.

   c. <u>MOTION</u> to approve the financial statements for February 2022.

   Motion By: Paul VA3PDC

   Carried

7. **Presidents Report:** Presented by President Ted Rypma VE3TRQ.

   a. It is nice to be getting together again physically. A good-sized group was able to meet at Angel's Restaurant last Thursday and the Sunset Grill today. With any luck we can meet in April at the Fire Hall for our next meeting. We are told the township intends to change their regulations so we can meet without restrictions. The AGM is in May so we can hopefully meet for that in person - note that the AGM will include a vote for next year's executive.

8. **Committee Reports:**

   a. Summer Field Day Committee - Bill VA3QB

      i. Bill VA3QB reports he plans to start working on this in the next few weeks. Need to be able to visit locations with favourable conditions.

ii. Paul VA3PDC has looked into Laurel Creek where they offer group camping. It does cost a few dollars to come in and visit for the day. We are unable to make reservations until later in the Spring.

iii. Hopefully we can use the airport on 86 & Northfield where Bill is inquiring (this would be our first choice).

iv. The Lions Club in St. Clements could be an option.

v. The Bandshell in Elmira could be good too with lots of public exposure (but perhaps couldn't stay for 24 hours due to generator noise).

b. International Lighthouse and Lightship Weekend - Paul VA3PDC / Kirk VA3KXS

i. Paul VA3PDC has registered the Club with the Point Clark lighthouse with the ILLW committee.

ii. Hopefully we can have a good gathering (weather dependent)

c. Nomination Committee - Rich VE3DCC / Tom VE3DXQ

i. So far the slate remains the same, with no challengers to the incumbents. The slate will be officially set at the April meeting when it is presented to the President. Anyone interested in running for a position should let Rich VE3DCC or Tom VE3DXQ know as soon as possible.

9. Unfinished Business

a. Repeater Technical Committee - Bill Reid VA3QB / Tony VE3DWI

i. Tony VE3DWI reports his DMR repeater is still on the Motorola amateur radio club system (DMARC). Tony is still working on official transfer of the repeater ID. There is a desire to move this to the IPSC system however there are some technical issues connecting. We can use this repeater without it being connected to the Internet if all users are on the same channel and timeslots.

ii. Rich VE3DCC reports the Elmira Fire Chief notified him that a coax cable at the Fire Hall had fallen and was blocking the door. They temporarily secured it and Paul VA3PDC called the fire chief to get additional details. We should plan another trip to secure this and review the installation as the dual-band antenna is also moving quite a bit in the wind.

b. Wednesday Coffee get togethers

i. We may not be able to do breakfast monthly. We will continue to look for another venue (perhaps the Elmira Community Center). Short term plan is to stick with Zoom for now and perhaps John VE3OVO's condo if that is still available.

10. New Business

a. Club Apparel Opportunity – Bill VA3QB

i. Bill picked up a hat order a few weeks ago and noticed they also offer softshell jackets. It appears they would cost $66 each with the club logo embroidered on the chest. Is there any interest in putting together an order?

ii. The general consensus is that it is worth investigating and Bill VA3QB will coordinate attempting to have samples to an in-person club meeting.

11. Announcements

a. The next meeting will be held Wednesday, April 27, 2022. Unless regulations prevent it, this meeting will be in-person at the Elmira Fire Hall with some sort of Zoom session held at the same time.

12. **Adjournment**a.

13. *MOTION to adjourn at 9:16 pm*

Motion By: Ted VE3TRQ

Carried

Thanks to Paul VA3PDC for this handy chart:

Choosing the Wire Gauge

To choose an adequate wire gauge, determine the amp draw (amperage) that the wire circuit will carry for your DC line at 13.8 volts. Then measure the distance that the wire will travel (length) including the length of the return to ground (the ground wire running to the chassis or back to a ground block or battery. Using these two numbers, Amps and length, locate the nearest gauge value in the chart below.

Amps @ 13.8 Volts	LENGTH OF WIRE American Wire Gauge (AWG)						
	0-4 ft.	4-7 ft.	7-10 ft.	10-13 ft.	13-16 ft.	16-19 ft.	19-22 ft.
0-10	16-ga.	16-ga.	14-ga.	14-ga.	12-ga.	10-ga.	10-ga.
10–15	14-ga.	14-ga.	14-ga.	12-ga.	10-ga.	8-ga.	8-ga.
15-20	12-ga.	12-ga.	12-ga.	12-ga.	10-ga.	8-ga.	8-ga.
20-35	12-ga.	10-ga.	10-ga.	10-ga.	10-ga.	8-ga.	8-ga.
35-50	10-ga.	10-ga.	10-ga.	8-ga.	8-ga.	8-ga.	6 or 4-ga.
50-65	10-ga.	10-ga.	8-ga.	8-ga.	6 or 4-ga.	6 or 4-ga.	4-ga.
65-85	10-ga.	8-ga.	8-ga.	6 or 4-ga.	6 or 4-ga.	4-ga.	4-ga.
85-105	8-ga.	8-ga.	6 or 4-ga.	4-ga.	4-ga.	4-ga.	4-ga.
105-125	8-ga.	8-ga.	6 or 4-ga.	4-ga.	4-ga.	4-ga.	2-ga.
125-150	8-ga.	6 or 4-ga.	4-ga.	4-ga.	2-ga.	2-ga.	2-ga.
150-200	6 or 4-ga.	4-ga.	4-ga.	2-ga.	2-ga.	1/0-ga.	1/0-ga.
200-250	4-ga.	4-ga.	2-ga.	2-ga.	1/0-ga.	1/0-ga.	1/0-ga.
250-300	4-ga.	2-ga.	2-ga.	1/0-ga.	1/0-ga.	1/0-ga.	2/0-ga.