

## **In the news from Amateur Radio New South Wales for this week;**

VK2WI News has now resumed both Morning and Evening News bulletins on Sunday. Morning Bulletins will continue with a relay of WIA National News, the Local news including news features, weekend propagation report, club items and a summary of activities on the air.

Evening News bulletins contain expanded club news, technical reports on propagation, along with news and technical features. Starting tonight is a new technical feature series about DMR – Digital Mobile Radio – presented by Matt VK2FLY.

We would like to thank those members that have responded to our recent calls to volunteer. We still need further volunteers for the VK2WI roster, and are also seeking expressions of interest from members interested in remote roles. Contact the office, or [news@arnsw.org.au](mailto:news@arnsw.org.au) for more information.

General enquires can be directed to the ARNSW office via email, to [office@arnsw.org.au](mailto:office@arnsw.org.au), or by leaving a phone message on 02 9444 0123.

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**[Play File: 14-E-ID1.wav]**

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## HF Antenna Day

Starting our presentation program for 2024, members are invited to the first in a series of HF antenna presentations. It starts at 10am on Sunday the 25<sup>th</sup> of February 2024, here at VK2WI Dural.

This event will feature presentations of interest for all levels of expertise. It's a chance to;

- Gain insights into portable operation techniques
- Learn strategies to improve your home station setup
- Engage with practical demonstrations led by experienced operators
- Connects with specialists ready to provide assistance and advice

Reserve your spot now by emailing [events@arnsw.org.au](mailto:events@arnsw.org.au)

That's [events@arnsw.org.au](mailto:events@arnsw.org.au) for a day of practical learning about the world of HF antennas, from 10am on Sunday the 25<sup>th</sup> of February.

*Advised by AI VK2OK  
Event Co-ordinator for ARNSW.*

## **ARNSW 2024 AGM**

The 2024 AGM of Amateur Radio New South Wales will be a hybrid meeting, both online and here at VK2WI Dural, on Saturday the 13<sup>th</sup> of April.

At each AGM, either four or five board members stand down and are eligible for re-election, depending on the year.

To be eligible to be a board member, the constitution requires that you have been a member of ARNSW for a minimum of the past three consecutive years, as must your proposer and seconder. As you are standing to become a board member of a registered company, you will be required to obtain a director ID upon election, if you don't already have one.

This year, we have five board members standing down. While all are eligible for re-election, some may choose not to renominate. So, if you are an eligible member, please consider nominating for the board - bring your skills and passion for Amateur Radio, to help ARNSW continue to evolve and grow into the future. There's a link to a nomination form on the home page of the ARNSW website.

Nominations close 42 days prior to the AGM, at 10am on Saturday the 2<sup>nd</sup> of March 2024. This is also the closing date for notification of any Special Resolutions to be put to the members at the AGM. Note that if you are sending an item or nomination by mail, please post them in time to arrive by Friday the 1<sup>st</sup> of March.

*73 Eric VK2VE  
Secretary, Amateur Radio NSW*

# Weekly Solar and Geophysical Report

For the period of the 2<sup>nd</sup> to the 8<sup>th</sup> of February.

First, the summary of activity;

Dates across the columns are	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>
10cm Flux	143	156	170	173	190	188	185
Fredericksburg A-Index	3	2	5	6	8	3	5
Australian A-Index	1	1	6	7	6	3	3 estimated
T index	129	147	145	148	158	142	159

Solar activity reached R1 warning levels; on the 2<sup>nd</sup> with an M1.1 flare, on the 4<sup>th</sup> with seven M class flares, on the 5<sup>th</sup> with four M-class flares, and on the 6<sup>th</sup> with three M-class flares. The 7<sup>th</sup> reached R2 with an M5.1 flare at 0331UTC and an M1.3 at 1805UTC and the 8<sup>th</sup> was at R1 with 4 M-class flares.

Geomagnetic activity in the Australian region was mostly quiet, remaining below warning threshold.

F2 critical frequencies in Southern Australia were mostly near predicted monthly values, with some periods of enhancement; 15% to 20% on the 3<sup>rd</sup>; 15% during local night on the 5<sup>th</sup>; 15% throughout on the 6<sup>th</sup>; and enhancement of 15% during local night on the 7<sup>th</sup> and 8<sup>th</sup>.

The forecast, issued on the 9<sup>th</sup> of February, through until the 15<sup>th</sup>;

Solar activity is expected to be at R0 to R1, with a chance of R2.

Geomagnetic should be at low to moderate levels.

Maximum usable frequencies should be near predicted, with possible enhancements of up to 15%.

*Data courtesy of the Australian Space Weather Forecasting Centre.*

# Space Weather Summary for January 2024

*Compiled with data from the Australian Space Weather Forecasting Centre*

Solar activity in January occurred in three main clusters; from the 1<sup>st</sup> to the 4<sup>th</sup>, with 5 R1 flares; from the 10<sup>th</sup> to the 12<sup>th</sup>, with 6 R1 flares; and from the 22<sup>nd</sup> to the 24<sup>th</sup>, with 18 flares, the largest M5.1. An isolated M6.8 (R2) solar flare was observed on the 29<sup>th</sup> which was the biggest event of the month. No X-class - or R3 – solar flares were observed.

The sunspot number was relatively high at the beginning of the month, decreasing towards the end. Numerous coronal mass ejections were observed, although none significantly Earth directed. There were numerous filament and prominence eruptions.

Two solar radiation storms were observed in January. The first was from the 3<sup>rd</sup> to the 5<sup>th</sup> of January, after an X5.1 flare on the 31<sup>st</sup> of December. Maximum pfu was 25. The second event occurred after the M6 flare on the 29<sup>th</sup>, resulting in S2 solar radiation storm conditions on the 29<sup>th</sup>, and S1 on the 30<sup>th</sup>. Maximum pfu during this event was 137.

There were no geomagnetic storms at G1 or above during January. The maximum planetary A index for the month was 9, on the 31<sup>st</sup>; and maximum Australian A index was 10, on the 3<sup>rd</sup>.

Ionospheric conditions for HF radio communications were generally good, with only some minor degradations during local night hours. Maximum usable frequencies (MUFs) were generally near predicted with enhanced periods of 25%, however enhancements up to 45% were observed. Sporadic-E was observed over the east coast of Australian most days during local night and dawn hours.

Several minor shortwave fadeouts were observed; on the 4<sup>th</sup>, 12<sup>th</sup>, 23<sup>rd</sup>, 24<sup>th</sup> and 29<sup>th</sup>. A significant fadeout was due to an M6 (R2) solar flare on the 29<sup>th</sup>, that lasted several hours. Transpolar HF circuits may have experienced increased absorption due to the solar radiation storms on the 3<sup>rd</sup> to the 5<sup>th</sup>, and the 29<sup>th</sup> to the 30<sup>th</sup>. Ionospheric scintillation was primarily observed over South America and Africa, with one brief scintillation event observed in Weipa on the 22<sup>nd</sup>.

Australian T-index average for the month was 143.

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**[Play File: 15-E-ID2.wav]**

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## Technical Feature

Our first Technical Feature Series for 2024 is an introduction to DMR. This popular modulation mode is used in many digital repeater networks, including the ARNSW RadNet.

So, starting off with a brief overview, here's Matt VK2FLY;

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**[Play File: 16-B-TF-DMR1.wav]**

*Duration: 3m20s*

*In: DMR, or Digital Mobile Radio...*

*Out:....ARNSW Radnet.*

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*[Transcript]*

*DMR, or Digital Mobile Radio, is a standard developed by the European Telecommunications Standards Institute. It's digital, obviously, but what exactly is DMR, and what are the benefits of the mode? In the commercial world, DMR was born from the need to fit more data into a smaller amount of radio bandwidth. Bandwidth costs money, and DMR channels are only 12.5 kHz wide, the same as narrow FM. However, with DMR, you can have three channels within the same spectrum bandwidth. In most cases, two of the channels are used to send digital voice, while the third channel is used for signaling and clocking, which are key components in digital communications.*

*This feat of technology squeezes a clear voice channel into just 6.25 kHz of bandwidth, effectively doubling, and in the case of the amateur world of 25 kHz FM, tripling the capacity.*

*Let me explain.*

*DMR uses a modulation of 4-state Frequency shift keying or FSK. In simple terms, this means that the data - the digital ones and zeros - are converted into a mathematical code which is transmitted using four frequencies or tones.*

*These frequencies are transmitted via a modulator, which in many ways is very similar to how a modem transmitted data over phone lines in the days of analog telephone lines. At the receiving end, the demodulator converts the tones back into digital data. 4FSK can send data over the air at a rate that corresponds to 9,600 bits per second. Sounds easy, right? But DMR has another trick up its sleeve: it uses TDMA, or Time Division Multiple Access. With TDMA, it can send two FSK data streams together. Notice that I did not say 'at the same time.' It splits the DMR channel into 30-millisecond cycles.*

*Think of it like a lighthouse on the east coast of Australia. A ship down south can see the light as it points in their direction, but a ship to the north sees nothing until the light rotates northward. This is how TDMA works. The receiving station, with its accurate clock, knows when the 'light' should be facing north and when it should be facing south. With that information, it can determine its location relative to the lighthouse. In DMR, there is a single 4FSK data stream, but during the first 15ms, bits are allocated to the first time slot, and during the second 15ms, they are allocated to the second time slot. This leaves 2450 bits per second after overhead for each voice channel.*

*The explanation I've given here is intentionally simplistic; there's quite a bit more going on. But the foundation is all there. What we are left with is a type of modulation that gives us two 2.45k data channels. That's just enough to encode high-quality voice using a mathematical model called a codec.*

*More about that next time till then this has been Matt VK2FLY for the VKDMR network and ARNSW Radnet.*

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And we'll have part 2, on next week's VK2WI Evening News.

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## Foundations of Amateur Radio

This series, written and produced by Onno VK6FLAB, continues a weekly examination, of the building blocks of Amateur Radio.

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### **[Play File: 17-FOAR109.wav]**

*Duration: 2m39s*

*In: There is a time...*

*Out: ...I'm Onno VK6FLAB*

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For more information about this series, including audio, transcripts and other useful amateur radio resources, Onno's website is; [vk6flab.com](http://vk6flab.com); and you can contact Onno by email, to [cq@vk6flab.com](mailto:cq@vk6flab.com).

## [WICEN News]

And now with this week's WICEN News, here's Richard VK2SKY;

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### [Play File: 18-E-WNS0211.wav]

*Duration: 2m01s*

*In: WICEN is supporting...*

*Out: ... at wicen.org.au*

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*[Transcript]*

*WICEN is supporting Dementia Australia's "Memory Walk and Jog" events throughout 2024. The next one is near Jervis Bay on Saturday. Operators are now being sought for the following event in the ACT on Sunday the 25th.*

*The Memory Walks are great "starter" events for new or rusty WICEN members, as they take only a couple of hours. WICEN also provides the radios for these events, so you don't even need to bring your own gear. Why not give one a go? You'll find a link to the events list in the text edition of this news.*

*To participate in any WICEN event, or just find out more about how you can use your Amateur Radio skills to benefit the community, you can email [wicen.ops@vrarescue.org](mailto:wicen.ops@vrarescue.org).*

*WICEN nets take place every Sunday evening, using FM voice, DMR, P25, or HF voice, depending on the week. All WICEN members and other Amateurs are welcome to call in.*

*Next Sunday, the 6pm net will be on the Kurrajong 70cm FM repeater, 439.825MHz and a 91.5Hz tone, with net controller VK2WIB; and the 6.30pm net will be on HF, on or near 7110kHz LSB. Net controller VK2WIZ will announce the call-in sequence and other information.*

*WICEN NSW is a support squad of VRA Rescue NSW, specialising in tactical radio communications. In between activations, WICEN supports local community events: these provide practical training for members, and help raise the public profile of Amateur Radio.*

*To find out more, check out the WICEN NSW web site, at [nsw.wicen.org.au](http://nsw.wicen.org.au)*

*WICEN is also on Facebook, and on X; there, you can find photos and information about recent and upcoming WICEN activities. Links are in the text edition of this news.*

*For information about other WICEN groups around Australia, visit the web at [wicen.org.au](http://wicen.org.au).*

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*[ Memory Walk and Jog Events: <https://www.memorywalk.com.au/find-an-event> ]*

*[ WICEN NSW web site: <https://nsw.wicen.org.au/> ]*

*[ "National" WICEN on Facebook: <https://www.facebook.com/groups/124735400158> ]*

*[WICEN NSW facebook at <https://www.facebook.com/WICENNSW> ]*

*[WICEN NSW X at <https://twitter.com/wicennsw> ]*



## Club News

We start this week with news from the Westlakes Amateur Radio Club.

This year is the 60<sup>th</sup> anniversary of Westlakes; and their first regular car boot sale for 2024, is coming up on Saturday the 24<sup>th</sup> of February. Its at the Club grounds, 6a York Street Teralba, starting at 8am.

You can set up a stall at no charge; but bring your own table. There will also be a BBQ and hot and cold drinks available, and a raffle as well. All are welcome.

Westlakes has several on air nets each week, details are a little later on in this bulletin.

*Advised by Barrie VK2QG  
For the Westlakes Amateur Radio Club*

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## Oxley Region Amateur Radio Club

The Club's next Friday Night Get together is at 7pm this Friday the 19<sup>th</sup> at the SES Building in Port Macquarie.

A slightly smaller than usual group braved heavy rain to attend the Coffee Morning last Thursday the 8<sup>th</sup> of February. The rain didn't last long though and the sun was out by the time everyone was ready to leave.

The club's very popular 2024 calendar will be available at all upcoming Club gatherings.

The next Foundation Licence training and assessment weekend will be held once the new arrangements with ACMA are in place. Candidates for the Foundation Licence and for assessments for all grades of licence should register their interest via the contact form on the ORARC website.

There are two club nets each week; the mid-week net from 7:30pm on Thursday nights, and the weekend net at 9am Sunday mornings. Both are on the VK2RPM 2 metre repeater, 146.7MHz with a 91.5Hz sub-audible tone for access, and on EchoLink as VK2RPM-R. Members and visitors are encouraged to participate in the club on air nets as often as possible.

For more information about the Oxley Region Amateur Radio Club, visit the website at [orarc.org](http://orarc.org). The site contains a wealth of Amateur Radio items in addition to club information. The January 2024 issue of the club's bimonthly newsletter "Oxtales" is now online, and past issues are on the website as well. The club is also on Facebook; just search for Oxley Region Amateur Radio Club.

*From Henry VK2ZHE  
For the Oxley Region Amateur Radio Club.*

## Central Coast Amateur Radio Club

The club rooms at Kariong are open on Saturdays from 10:30am, and as always, members and visitors are most welcome.

At the VK2RAG Somersby repeater site, the 6-metre repeater, D-Star, Rad-Net DMR and 2m EchoLink, 70cm and 23cm, are all fully functional. The WICEN UHF MMDVM is still having problems.

The Somersby WebSDR is online at [websdr.ccarc.org.au](https://websdr.ccarc.org.au); its configured to listen on 6 metres, 2 metres, 70 centimetres and 23cm.

The Club's Regular Morning Tea Net is on at 10am on weekdays, and the weekly club net is on Thursday Night at 8pm. Both club nets are on the VK2RAG 2 metre repeater – 146.725MHz with a 91.5Hz sub-audible tone, and on the CCARCNSW and HAM EchoLink conferences. The Thursday evening net is also live video-streamed on the club's Facebook page.

You can find out more about the CCARC, including information on upcoming social events and all the details we can't tell you about here; on the web at [ccarc.org.au](https://ccarc.org.au) – by phone, 02 43402500 – or social media, search Central Coast Amateur Radio Club; remember to “like” to follow for updates.

*73 Alan VK2MG*

*Publicity Officer, Central Coast Amateur Radio Club.*

## Blue Mountains Amateur Radio Club

The Club's regular monthly meetings are on the first Friday of the month at 7:30pm. The next meeting is on the 1<sup>st</sup> of March at the clubrooms, 4 Moore Street Glenbrook, in the Blue Mountains – doors open from 7pm.

The clubrooms are also open twice a month from about 10am, on the morning of the first and third Saturdays – unless otherwise noted on the Club's Facebook page.

Visitors and prospective new members are always welcome.

There are several weekly nets – we have details in “Activities on the air” later in this bulletin – and the Club is introducing two new net times.

Mondays at 7:30pm is a DMR net on Brandmeister 50520, hosted by Ben VK2AFK.

On Sunday nights at 8pm; the net is on the Club's 6 metre repeater on the 1<sup>st</sup> and 3<sup>rd</sup> Sunday of the month, and on the 70cm repeater on the second and fourth Sunday.

The Club's Foundation Classes resume in April, and Upgrade classes start on the 21<sup>st</sup> of February and continue on Wednesday nights, both on Zoom and in-person at the Glenbrook clubrooms.

With a 98% pass rate, the Club's courses and exam days do fill-up quickly; please contact Club secretary, Irene VK2VAN via email to; [secretary@bmarc.org](mailto:secretary@bmarc.org) for class dates, to register, or for more information.

More information about the club can be found on the website, at [www.bmarc.org](http://www.bmarc.org).

*Advised by Steven VK2TSG  
President, Blue Mountains Amateur Radio Club.*

## [ID4 and Activities on the air]

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### [Play File: 20-E-ID4-AOTA1.wav]

*Duration: 5m40s*

*In: [IDENT 4]*

*Out: "...the office phone, 02 9444 0123."*

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*[Transcript]*

*I'm Mathew VK2YAP.... And I'm Stuart VK2BMX.*

*It's time for your quick trip around the bands for this week, with; activities on the air.*

#### **Daily;**

**Manly-Warringah** "early bird" net, 6:30am on or near 3690kHz LSB; if that's too early, the "morning" net is from 8am on or near 7189kHz.

The **CCARC Morning Tea net** Weekdays from 10am on VK2RAG, 146.725MHz with 91.5Hz tone, also on EchoLink.

**Amateur Radio Central West Group** lunchtime net; 1pm on VK2RCW.

#### **Mondays;**

**Westlakes ARC** net 9:30am on 40 metres, 7115kHz, VK2ATZ Portable.

**Great Lakes Radio Club** net 7pm on VK2RGL; 147.1MHz with 91.5Hz tone, EchoLink VK2RGL-R.

**Hunter Radio Group** VK2AWX News 7:30pm, now on 146.975MHz.

**Amateur Radio Central West Group** net at 8pm on VK2RCW.

**Lightning Net** 8pm on 1860kHz, net control Steve VK2STG.

**HADARC** net 8pm on VK2RNS, 147.25MHz

**Waverley ARS** net 8pm on VK2RBV, 438.1125MHz with 91.5Hz tone. Activities online and on air; see website.

#### **Tuesdays;**

**National VKDMR Net:** starts at 8pm on Talkgroup 505.

**Blue Mountains ARC** net from 8pm, 3543kHz.

**St George ARS** digital net, 8pm on 146.8MHz

**Illawarra ARS** 80m net at 8:30pm, 3666kHz.

*[...continues]*

***Wednesdays;***

**Westlakes ARC** net 9:30am on 7115kHz. 2 Metre nets throughout the week, see website for details.

**Hunter Radio Group** net 7:30pm, on 146.975MHz and EchoLink node 1474.

**HADARC** 8pm on 3608.5kHz

**Blue Mountains ARC** 8pm on VK2RBM, 147.05MHz, 123Hz tone.

**Amateur Radio Central West Group** from 8pm on 3653kHz.

**Armidale District ARC** net 8:30pm on 3633kHz.

***Thursdays;***

**Illawarra ARS** net 12pm; VK2RMP 146.850 and VK2RUW on 146.675.

**Fishers Ghost ARC** net 7:30pm on VK2RFG, 438.65MHz with -7MHz offset and 91.5Hz tone; also, on EchoLink.

**Oxley Region ARC** 7:30pm on VK2RPM 146.7Mhz with 91.5Hz tone.

**St George ARS** 8pm, VK2RLE 146.8MHz.

The **CCARC weekly net** from 8pm on VK2RAG, 146.725MHz with 91.5Hz tone, and EchoLink.

***Fridays;***

**Morning tea with HADARC** 9am on 7106kHz.

**Westlakes** 9:30am on 7115kHz.

**Amateur Radio Central West Group** at 8pm, VK2RCW.

***Saturdays;***

**Westlakes** Stone the Crows net; 6am on 3588kHz.

**Illawarra ARS** net 9:30am on VK2RMP and VK2RUW.

**Snowy Mountains ARC** net 7:30pm on Southeast network; VK2RFS 146.75MHz, VK2RSE 147.375, VK3RDH 146.625, and EchoLink.

***Sundays;***

**Westlakes** DMR Net from 8:00am, usually on Talkgroup 3802.

**Oxley Region ARC** from 9am, VK2RPM.

**WICEN NSW** nets; 6pm on Chatswood 2m or Kurrajong 70cm repeater, 6:30pm on DMR or HF, and 6:45pm on P25. Check website for details.

*Don't forget to get your activities on the air here... send us through the details of your activity!  
Email the details, to [news@arnsw.org.au](mailto:news@arnsw.org.au)... or leave a message on the office phone, 02 9444 0123.*

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