

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

Firstly, a note about VK2WI news for next weekend.

Next Sunday is the CCARC's annual field day, Mayham, at Wyong. As has been the case for many years, there will be no Morning bulletin from VK2WI; instead, there will be a special bulletin, on Saturday evening the 30<sup>th</sup> of April. This bulletin will start at 7:30pm with items from VK1WIA National news, followed by an update on Mayham news and events, then a summary of news from around the state. The VK2WI Sunday evening bulletin on the 1<sup>st</sup> of May, will be in the usual evening format.

ARNSW is reintroducing in-person activities at VK2WI Dural, in line with current public health guidance. Where possible, these activities will be organised as hybrid events, so members that can't attend on site will have the ability to participate as well.

As always, you can contact the ARNSW office via email, to [office@arnsw.org.au](mailto:office@arnsw.org.au), or by leaving a phone message on 02 9651 1490.

Later in this bulletin, we have a summary of on-air activities from both Sydney, and across New South Wales. We would welcome any updates from club and groups; simply email [news@arnsw.org.au](mailto:news@arnsw.org.au) – we don't need full items, just the details of the activity and contacts. Don't forget, we always welcome reports on the outcome of recent activities, as well.

Tonight, we again welcome listeners on the EchoLink "HAM" conference, and the Australian & New Zealand EchoLink Network. Callbacks will also be taken after tonight's bulletin; our thanks to John VK3HJQ, and the Australian & New Zealand EchoLink Network team, for making this relay available.

VK2WI news bulletins are streamed live from our website, [arnsw.org.au/audio](http://arnsw.org.au/audio), and recordings of previous bulletins are also available.

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## **Meccano Exhibition**

Older amateurs with memories of building Meccano models in their younger days will be interested to know about an exhibition by the Meccano Modellers Association, on Saturday 7th May.

On display will be a large number of models from all eras of Meccano, ranging from large and complicated constructions to small and simple ones. Some models feature electronic controls.

So come along and bring your grandchildren to show them what a great engineering hobby Meccano was in its heyday.

On Saturday 7th May at the Mount Colah Uniting Church, on the corner of Pacific Highway and Amaroo Ave, Mt Colah.

The time is 10am to 4pm and a small admission fee will be charged.

*Advised by Peter VK2BEU*

# Weekly Solar and Geophysical Report

For the period of the 15<sup>th</sup> to the 21<sup>st</sup> of April;

This report issued on the 22<sup>nd</sup> of April.

First, the summary;

Dates across the columns are	15 <sup>th</sup>	16 <sup>th</sup>	17 <sup>th</sup>	18 <sup>th</sup>	19 <sup>th</sup>	20 <sup>th</sup>	21 <sup>st</sup>
10cm Flux	110	122	135	135	135	160	164
Fredericksburg Index (Afr)	14	7	9	7	8	9	9 observed
Australian Index (Aaus)	20	5	6	5	5	4	8 estimated
T index	45	59	66	75	70	77	76

Solar flare activity started out at minor level, with two M class flares on the 15<sup>th</sup> and one on the 16<sup>th</sup>. The 17<sup>th</sup> reached warning level R3 with three M class flares and an X1.2 flare at 0334UTC. The 18<sup>th</sup> saw minor activity with 4 M class flares, as did the 19<sup>th</sup> with 3 M class. The 20<sup>th</sup> again reach waring level R3 with 3 M class flares and an X2.2 at 0357UTC, then the 21<sup>st</sup> was at R2 level with an M9.6 flare at 0159UTC.

Geomagnetic activity was mostly quiet, although minor storm conditions were observed on the 15<sup>th</sup> of April with SWS magnetometer data showing a weak impulse of 9 nanoTesla at 0735UTC.

F2 critical frequencies in Southern Australia, were mostly near predicted. Depression of 30% was observed during local day on the 15<sup>th</sup>. The 18<sup>th</sup> saw enhancement of 20% throughout, followed by some periods of enhancement during local daylight hours; 15% on the 19<sup>th</sup>, 20% on the 20<sup>th</sup> and 21<sup>st</sup>.

The forecast for the 22<sup>nd</sup> to the 28<sup>th</sup> of April;

Solar activity is expected to be elevated, between R1 to R3 warning levels. Geomagnetic activity is expected to be at quiet to unsettled levels.

Maximum Usable Frequencies are likely to be near predicted monthly values, with some enhancement likely.

*Data courtesy of Space Weather Services.*

## Solar Flux Index update

Here are the updated Solar Flux Index (SFI) figures for this week.

Having finished March, we had a;

Minimum of 94, Average of 115 and a Maximum of 156  
With peak dates from the 6<sup>th</sup> to the 15<sup>th</sup>, and the 27<sup>th</sup> to the 31<sup>st</sup>.

So far for April, we are expecting a;

Minimum of 96, Average of 135 and a Maximum of 160  
With peak dates from the 1<sup>st</sup> to the 4<sup>th</sup>, and the 19<sup>th</sup> to the 30<sup>th</sup>.

And looking ahead to May, we are expecting a;

Minimum of 125, Average of 131 and a Maximum of 140  
With peak dates from the 12<sup>th</sup> to the 26<sup>th</sup>.

*Update with thanks to Noel, VK2FUL.*

[using daily data updates from:

<http://www.swpc.noaa.gov/products/usaf-45-day-ap-and-f107cm-flux-forecast>]

## The Australian Space Weather Alert System

You may have noticed some changes in our space weather reports recently. We obtain our space weather information primarily from Space Weather Services or SWS, the department of the Australian Bureau of Meteorology responsible for forecasting and real-time observations of space weather. The space weather specialists also produce space weather warnings and alerts.

Recently, the Australian Space Weather Alert System, or ASWAS, has been developed to communicate space weather conditions and their possible effects. The scales are based on those produced by the United States National Oceanic and Atmospheric Administration (NOAA). While these scales are not formally agreed by the World Meteorological Organization, they have seen widespread adoption amongst many space weather monitoring agencies.

ASWAS uses 3 scales; the R-scale for radio blackouts, the S-scale for solar radiation storms, and the G-scale for geomagnetic storms.

Each scale ranges from 1 to 5, where 1 is an event of the weakest intensity, and 5 is the strongest. The higher the number, the greater the likelihood that a larger number of systems will be impacted to a greater degree.

The R-scale is for radio blackouts. Also known as short wave fadeouts, these are caused by solar flares - large eruptions of electromagnetic energy from the Sun, mainly in the X-ray and extreme ultraviolet frequencies. The intensity of solar flares is described by a sequence of letter classes A, B, C, M and X. A-class flares are minor eruptions and X-class flares are the most powerful. Each letter class is further divided into a 10-point scale. For example, an M9 flare is 9 times more powerful than an M1 flare.

Radio blackouts of R4 to R5 levels may mean; complete radio blackout on the daylight side of the Earth, lasting from about ten minutes up to a few hours; and outages of low-frequency navigation systems causing loss in positioning and increased satellite navigation errors.

R5 radio blackout conditions occur fewer than once per solar cycle, causing complete radio blackout on the daylight side of the Earth, lasting from about ten minutes up to a few hours. They occur for rare extreme solar flares of X20 class and greater. The last R5 event was in November 2003, estimated to be X28.

The S-scale is for solar radiation storms – surges in high-energy protons beamed towards the Earth from the Sun. Solar radiation storms typically last from several hours to two days and they are very difficult to predict.

The GOES-16 weather satellite has a radiation detector that measures the arrival of high energy protons. One proton flux unit is equal to one proton with an energy of 10 million volts or greater reaching Earth per second, per unit area, per unit solid angle. The solar radiation S-scale is determined by the number of these high-energy protons reaching Earth per second. Solar radiation storms of S4 to S5 levels may lead to high radiation hazard to astronauts and people in high-flying aircraft at high latitudes; disrupt satellite operations in various ways, and lead to complete blackout of HF communication in the polar regions.

An S5 radiation event corresponds to the high-energy proton flux exceeding 100,000 proton flux units. These extreme conditions are very rare and occur fewer than once per solar cycle typically last from several hours to two days. The last S5 event happened prior to 1976.

The G scale is for global geomagnetic activity – variations to Earth's magnetic field, caused by currents flowing in space. The G scale is derived from measurements of magnetic field variation, or Kp values. For example, a Kp value between 5 and 6 is the threshold used to designate a G1 event, and a Kp value of 9 and above is used to designate a G5 event. Geomagnetic storms generally last between one to four days.

Geomagnetic storms of G4 to G5 levels may cause: Disruption to operation of power grids; disruption of satellite functions or temporary/permanent loss of some satellites; and disruption to HF communications for several hours.

## What use is an F-call?

Tonight, we continue with this series, written and produced by Onno VK6FLAB. Each episode looks at different aspects of the diverse hobby of Amateur Radio.

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*Duration 1m36s*

*In: "What use is an F-call?"*

*Out: "I'm Onno VK6FLAB"*

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For more information about this series, including transcripts and useful resources for F-calls, Onno's website is; [vk6flab.com](http://vk6flab.com), or follow him on Twitter, @VK6FLAB.

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## **ARRL DX news**

CYPRUS; Philipp, DK6SP is active as 5B4AQC until May 2. He is emphasizing operations on the 30, 17, and 12 metre bands, as well as 6 metres, and Satellite QO-100, using CW and various digital modes.

MALDIVES; Braco, OE1EMS is active as 8Q7DX from Baa Atoll, IOTA AS-013, until April 27. Activity is holiday style on 80 to 6 metres using CW and SSB.

MOZAMBIQUE; Pedro, CT7AHV is active as C91AHV from Chinonanquila, Matola Rio until May 4, only during weekdays. Activity is on 40 to 10 metres using CW, SSB, and FT8.

FRANCE; Special event station TM15SOTA will be active this weekend to celebrate the 15 years of the Summits On The Air event.

AUSTRAL ISLANDS; Rob N7QT, Walt N6XG, Heye DJ9RR, Gene K5GS, Steve W1SRD, Melanie N7BX and Doris, K0BEE are active as TX5N from Raivavae Island, IOTA OC 144, until April 28. Activity is on 160 to 10 metres using CW, SSB, and various digital modes.

SAINT MARTIN; Marco, KC9FFV is active as FS/KC9FFV until the end of 2022. Activity is in his spare time on 40 to 6 metres.

MINAMI TORISHIMA; Take, JG8NQJ/JD1 has been active using CW on 15 metres between 0800 and 1100UTC.

SVALBARD; A large group of operators are active as JW0X and JW100QO from Longyearbyen until April 26. Activity is on 160 to 6 metres using CW, SSB, RTTY, FT8 and FT8 in DXpedition mode, with five stations active. This includes being active on Satellite QO-100.

ALAND ISLANDS; Operators SP1EG, SP1QY and SQ3PMX are active as OH0EG until April 29. Activity is on 30 to 12 metres using CW, SSB, and various digital modes.

DENMARK; A group of operators are active as 5P5Bl/p from Bornholm Island, IOTA EU-030, until May 1. Activity is on the HF bands with three stations.

PAPUA NEW GUINEA; Alberto, EA4PL is active as P29LL from Port Moresby. Activity is on the HF bands.

ST. KITTS AND NEVIS; John, W5JON is active as V47JA from Calypso Bay, IOTA NA-104, until April 28. Activity is on 160 to 6 metres using SSB and FT8.

NORFOLK ISLAND; A group of operators are active as VK9NT until April 25. Activity is on 160 to 10 metres using CW, SSB, and FT8 in DXpedition mode.

ROMANIA; Special event station YO22WARD is active until April 25 as part of World Amateur Radio Day activity.

SERBIA; Special event station YU75ACR is active from the city of Zajecar until December 31 to mark the jubilee of the foundation of the Amateur Radio Union.

THIS WEEKEND ON THE RADIO. The NCCC RTTY Sprint, NCCC Sprint, K1USN Slow Speed CW Test, 10-10 International Spring Digital Contest, QRP to the Field, SP DX RTTY Contest, Helvetia Contest, North American SSB Sprint Contest, ANZAC Day Contest, UA1DZ Memorial Cup and BARTG Sprint 75 are all on over this weekend.

The K1USN Slow Speed CW Test, QCX CW Challenge, OK1WC Memorial, Worldwide Sideband Activity Contest, RTTYOPS Weeksprint, SKCC CW Sprint, Phone Weekly Test, A1Club AWT, CWops Test, Mini-Test 40, Mini-Test 80, 432 MHz Spring Sprint, CWops Test and UKEICC 80-Metre contest are scheduled from April 25 to 27.

## Club News

We start this week with news from the Oxley Region Amateur Radio Club; The next meeting is the May general meeting, which will be at 2pm on Saturday the 7<sup>th</sup> of May, in the SES Building in Port Macquarie. The meeting will be held in accordance with the club's COVID-19 Safety Plan.

The club's Telegraph Point site suffered a major lightning strike on the evening of Friday the 25<sup>th</sup> of March; all VK2RCN repeaters are currently off-air. Repairs are expected to take several weeks, as a new underground power line is required to be run to site, along with repair of damaged equipment. Work is underway at the new Telegraph Point site; however, the repeaters will be restored at the existing site, and will be transferred when the new site it is completed.

Now is the time to plan to attend the Oxley Region Amateur Radio Club's annual field day on Saturday and Sunday the 11<sup>th</sup> and 12<sup>th</sup> of June, during the Queen's Birthday Long Weekend. The Field Day will be at the spacious Wauchope Showground Hall, with the Field Day Dinner at Port Macquarie Golf Club on Saturday night.

Candidates for the Foundation, Standard and Advanced Licences can contact the club via PO Box 712 Port Macquarie NSW 2444. A Foundation training and assessment weekend is planned for the near future, and Assessments for other licences will run once sufficient candidates have registered their interest.

There are two club nets each week; the mid-week net starts at 7:30pm on Thursday nights, and the weekend net starts at 9am Sunday mornings. Both nets are on the VK2RPM 2 metre repeater, 146.7MHz with a 91.5Hz sub-audible tone for access. VK2RPM is also available via EchoLink.

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 the club information. The March 2022 web edition of the club's bimonthly newsletter "Oxtales" is now online, and past issues can be viewed on the website as well. You can also find the Club on Facebook; just search for Oxley Region Amateur Radio Club.

*Advised by Henry VK2ZHE  
For the Oxley Region Amateur Radio Club.*

## Central Coast Amateur Radio Club

Mayham is next Sunday!

There's a great range of traders, exhibitors, lectures, car boot sales and examinations for both Australian and US Qualifications. On Saturday there will also be fox hunts and a Meet & Greet.

An MMDVM hotspot will also be on offer as first prize in the fox hunt, which is now open for pre-registration through the Mayham web page. The pedestrian fox hunt will be a four-transmitter event!

Pre-sales at the Rose St gate start at 8am and the gates open at 8:30.

You can find out more about all the activities at Mayham, including raffle prizes, terms and conditions, along with how to pre-pay entry and avoid the queues; on the web at [mayham.org.au](http://mayham.org.au). The club looks forward to seeing you there. For any last-minute updates to events and activities, listen to the special Saturday Evening VK2WI News.

At VK2RAG Somersby, the D-Star, RadNet DMR and 2m EchoLink services are fully functional. Brand Meister DMR and 70cm EchoLink and IRLP are still having problems.

The Somersby WebSDR, [websdr.ccarc.org.au](http://websdr.ccarc.org.au) is currently configured to listen on 6 metres, 2 metres, 70 centimetres and 23 centimetres.

The Club's daily Morning Tea is on at 10am and after VK2WI News on Sunday mornings. The Thursday night net starts at 8pm. Both nets are on the VK2RAG 2m repeater – 146.725 MHz with 91.5Hz tone, and on EchoLink HAM and CCARC conferences.

The fortnightly SSTV net is hosted by Adrian VK2ABS. It's usually 2-3 rounds on the Club's 2 Metre WICEN repeater; 147.125 MHz with 91.5Hz tone. Adrian has had a large amount of support from other members and would love to see you drop in on the next net, Friday the 29<sup>th</sup> of April at 7:30pm.

SSTV and Weekly nets are also video streamed live to the club's Facebook page, and recordings of past nets can be found, in the "Videos" section.

You can find out more about the CCARC on the web at [ccarc.org.au](http://ccarc.org.au); by phone on 02 43402500 or on social media by searching for Central Coast Amateur Radio Club; remember to “like” to follow for updates.

*73 Alan VK2MG*

*Publicity Officer, Central Coast Amateur Radio Club.*

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## Update on US Licence exams at Mayham

Julian VK2YJS has provided more information about Exams for US Amateur licences which will be available at Mayham.

Exam sessions will start at 9:30am, for all licence grades; Technician, with access to all bands from 6 metres up, and limited HF; General, which allows operation on part or all of every HF band; and Extra, which gets all Amateur spectrum.

Each grade requires a separate exam paper, but 1, 2 or 3 papers can be sat for the one fee.

While new licence applications are subject to the new FCC fee structure, An upgrade is a fee exempt "administrative update".

Those under 18 may take advantage of the ARRL "Youth Licensing Grant Program".

For details and bookings email Julian at [vk2yjs@gmail.com](mailto:vk2yjs@gmail.com).

## Illawarra Amateur Radio Society

The next meeting of the Society will be on Tuesday the 10<sup>th</sup> of May.

The general meeting starts at 7:30pm, directly following the Society's Committee Meeting which starts at 6:30pm. Attendees are most welcome to arrive from 6.30 onwards to enjoy a pre-meeting chat and cuppa in the foyer.

Meetings are at the BlueScope Steel Visitors Centre, on the southern side of the Wollongong CBD. After turning off Springhill Road into the BlueScope main entrance road, attendees then turn immediately right before the security gates, following the large signs towards the Visitors Centre.

The May meeting features a presentation by Paul VK0PD/VK2PAD. Paul will be sharing his Antarctic experiences with us, as he managed to squeeze in some amateur radio activities and antenna erections, whilst working at the snow-bound base. It promises to be most entertaining and interesting. Following the presentation there will be the usual tea, coffee, biscuits, and cake.

The Society has two weekly Nets. The Saturday morning net starts at 9:30am, run by Steve VK2BGL. You can join on the 2 metre repeaters, VK2RMP on 6850 or VK2RUW on 6675, or from out of town via EchoLink, VK2BGL-R. The second weekly Net is on 80 metres on Tuesday evenings, except for meeting nights, at 8:30pm; the usual frequency is 3666kHz, plus or minus for other usage.

You can find out more about the Illawarra Amateur Radio Society, including details on Amateur Radio training and examination activities, on the web at [iars.org.au](http://iars.org.au), and the society is also on Facebook. The website again; [iars.org.au](http://iars.org.au).

To conclude, all listeners are invited to attend the next meeting of the Illawarra Amateur Radio Society, at 7.30pm on Tuesday the 10<sup>th</sup> of May, at the BlueScope Steel Visitor Centre in Wollongong.

*Advised by Rob VK2MT  
President of the Illawarra Amateur Radio Society.*

## St George Amateur Radio Society

Earlier this month, the committee of the Society surveyed its members regarding future gatherings. Well over half of those who responded were in favour of returning to in-person gatherings.

At future gatherings, members and visitors will be required to sign in, and for visitors, to provide an email address so that they can be contacted if any person attending the gathering becomes ill. These contact details will only be kept for 28 days and then destroyed.

So, the next gathering will be on Wednesday the 4<sup>th</sup> of May at the usual venue of the first Kyle Bay Scout Hall, Donnelly Park, Kyle Parade Connells Point. This gathering will be a "show and tell" of what people have been getting up over the last 2 years of lock downs. Items don't have to be amateur radio related; they can show the wide variety of interests that our members have away from their radios.

As well as the show and tell, there will be lively chit chat, some disposal items to view and purchase as well as the usual tea, coffee and biscuits.

So come along. Wednesday 4th May, 7:30pm - first Kyle Bay Scout Hall, Donnelly Park, Kyle Parade Connells Point.

Later on in the month, the Don Edwards Memorial slow Morse contest is on over the weekend of the 14<sup>th</sup> and 15<sup>th</sup> of May. There is 3 hours on 80 metres from 6pm to 9pm on Saturday, then another 3 hours on Sunday afternoon from 1pm to 4pm.

From Sunday the 1<sup>st</sup> May, there will be a nightly slow Morse practice session for the two weeks until the contest. The half hour sessions will start at 8pm local time, on or near 3520kHz. All are welcome to join in.

For more information about all the society's coming events, along the contest rules and general information, visit the society's website at [sgars.org](http://sgars.org).

*Peter VK2EMU  
Publicity Officer, St George Amateur Radio Society.*

## Fisher's Ghost Amateur Radio Club

The next meeting of the Club is coming up this Wednesday the 27<sup>th</sup> of April, at McDonald's, Woodbine, commencing at 7:30pm. Visitors wishing to learn more about the hobby of amateur radio are most welcome to attend.

The Club's weekly net, on Thursday evenings, starts at 7:30pm on the Club repeater, VK2RFG. The repeater frequency is 438.650MHz. It has a negative 7MHz input and a 91.5Hz tone is required for FM access. The repeater is also available via EchoLink.

Results for Period 1 of the Ted Powell Memorial DX Challenge are now published on the contest website, [contest.fgarc.org.au](http://contest.fgarc.org.au). Congratulations to the winners and thank you to everyone who participated.

The Club's Facebook page can be found by searching for VK2FG, or to find out more about the Club's activities, visit the website at [fgarc.org.au](http://fgarc.org.au).

*Submitted by Peter VK2PR*

*On behalf of the Fisher's Ghost Amateur Radio Club.*

## Hornsby and Districts Amateur Radio Club

The next meeting is at 8pm this Tuesday the 26<sup>th</sup> of April, at the Mt Colah Community Centre. The centre is near the northern end of Pierre Close, opposite the eastern entrance to Mt Colah Railway station, which provides several public transport options.

Note that Galston Gorge remains closed, with alternative access via Pennant Hills or Berowra Waters.

The next monthly meeting is May 12, and just when you thought voting would be over, the AGM is May 24.

The club's three weekly nets are;

Monday evenings at 8pm on the VK2RNS 2m repeater, 147.25MHz. No tone is needed for access, but 91.5 Hz is sent; Wednesday's 80 metres net is also at 8:00 pm, on 3608.5kHz; and "Morning Tea with HADARC", is on Fridays from 9am on 7106kHz.

The Club's website has up to date details on club activities; it's at [www.hadarc.org.au](http://www.hadarc.org.au). The club has a group on Facebook, which can be found by searching for VK2MA, and on twitter, @VK2MA.

*Submitted by Julian VK2YJS  
HADARC Publicity Officer.*

[Jitsi Meet details:

Phone: 08 7150 1136 and enter 3145759306#

Web: <https://meet.jit.si/HADARC> ]

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## Activities on the air

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

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

**Oxley Region ARC** nets 7:30pm Thursday, 9am Sunday, VK2RPM 146.7Mhz with 91.5Hz tone.

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

**Westlakes** 80 metre nets Monday, Wednesday, and Friday at 9:30am on 3565kHz. 2m nets on 146.775MHz, see website for details.

**Hunter Radio Group** VK2AWX News 7:30pm Monday, on 146.9Mhz and 438.025MHz. Meeting net Wednesday 7:30pm on 146.9.

**Central Coast ARC** Morning tea at 10am daily – after news on Sundays; Thursday nights 8pm; VK2RAG 146.725MHz with 91.5Hz tone and EchoLink. Next SSTV net April 29.

**Amateur Radio Central West Group** lunchtime net 1pm daily; evening net Monday and Friday at 8pm, VK2RCW. HF net 8pm Wednesday 3653kHz.

**Illawarra ARS** Nets Saturday 9:30am on VK2RMP 146.850 and VK2RUW on 146.675; Tuesday 8:30pm, 3666kHz.

**Blue Mountains ARC** Nets on VK2RBM, 147.050MHz with 123Hz tone; Wednesdays from 8pm; Tuesdays from 8pm on 3543kHz.

**Waverley ARS** net 8pm Monday VK2RBV, 438.1125MHz. Activities online and on air; see website.

**Sydney ATV Group** net 7:30pm Monday; call in on repeater 147.325MHz.

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

**St George ARS** net 8pm Thursday, on VK2RLE 146.8MHz.

**HADARC** Monday night 8pm on VK2RNS, 147.25MHz, Wednesday from 8pm on 3608.5kHz, Friday 9am on 7106kHz.