BARG News

Ballarat Amateur Radio Group

Inc. #6953T

October 2022 Monthly Newsletter

Next Meeting

11:00am, Saturday 29th October 2022

At the Airport

All Welcome

Contacting us

You can e-mail the secretary

vk3bml@barg.org.au

We're on the web

www.barg.org.au

https://twitter.com/vk3_barg

https://www.facebook.com/groups/VK3BML/

President's October Report

I am now finally getting time to pen a president's report. What should have been my first report I missed due to AFL Broadcast commitments in September and not even enough time to scratch myself then.

Hamvention preparations have started for the next Hamvention, most of the committee are part of the sub-committee for this. Help is going to be needed on the day and in the lead up to it. If you can help, please let myself or one of the committee members know.

I must thank Mal VK3OAK for his 5 years as president, although he is still in a just as busy position on the committee as Secretary.

Our next meeting is a day meeting on Saturday 29th October at 11 am.

Till Next Month

Ben VK3NRD

Greetings Members of BARG,

Yes, it is so easy to overlook to renew your membership dues.

Yes, I know, it's because it's hard to find the bank Direct Deposit details.

As a reminder, these are on the BARG website on the page https://www.barg.org.au/?page_id=104

But let's make it easier.

Bottom right-hand side of the web page has these details:

Just a reminder to all members that membership fees are now due and are $55.00 for the 2022-2023 year.

Preferred payment method is bank deposit/transfer account details below.

Banking details
BARG General Account.
BSB 633 000
Account Number 142 591 247

Get those membership dues in and make the Treasurer's eyes light up...

All the best

Colin / VK3NCC

Times and dates of nets as per below

Club Nets: VHF NET: Every Tuesday Night at 8 pm on 146.750 MHz - VK3RBA with a 91.5 tone

HF NET: Every Thursday Night at 8 pm on 3.608 MHz - VK3BML

6m NET: Every Tuesday Night at 8:30 pm on 53.650Mhz RX / 52.650Mhz TX - FM with a 91.5 tone - VK3RWU

LINKED REPEATERS: *The VK3RBA-70cm repeater on Mt Buninyong {439.275MHz, -5MHz offset, tone 123 Hz} is part of a network of linked repeaters covering North-Western Victoria.*

For full details of this linked network see https://www.qrz.com/lookup/vk3rba

You can listen to the system live http://vk3rba.dyndns.org:441/

This linked system may be accessed via IRLP node 9503.

ASTOR TECH-TALK

Vol. 2
No. 3

SERVICE, KNOW HOW with KEN BENSON

OFFICIAL MONTHLY NEWSPAPER FROM THE ASTOR news ELECTRONIC INDUSTRIES GROUP OF COMPANIES

Vol 2, No. 7 July, 1965

Contributor, Craig VK3KG, Tom VK3DMK

Craig has loaned me part of a collection of Astor Electronics bulletins that were common in the 1960s and 70s as methods of communicating with their authorised sales and repair shops.

These productions included most of the company's products from TV, Radio, Mattresses, vinyl recordings, Adler Typewriters as well as an Electron Microscope.

When space permits there will be various excerpts from these newsletters.

IT'S THE SEARCHERS

Britain's dynamic pop group The Searchers meet Melbourne radio and show business personalities at a welcoming reception given by Astor's record division.

Pictured (left to right) are Mike Pender (Searchers), Lionel Yorke (3AK), Frank Allen (Searchers), Horrie Dargie (D.Y.T. Services), Geoff Charter (3AK), Jim Wood (3XY), Chris Curtis (Seachers), John McNally (Searchers), and Fred Tolley (3UZ).

The Searchers, Astor recording artists, came to Australia direct from a tour of the Middle East to appear in a most successful series of concerts.

They have built themselves a great following here with several hit records — the current chart rating single being "Take Me for What I'm Worth." A new album of the same title has just been released (PLP-1148).

This is from the Astor news, edition Vol 3 No 2 March 1966. In the "Record Page'

The Searchers had arrived in Australia and every radio and TV station must have been rallying/vying for an interview.

Astor recording division was the distributor of the group's records, so were aiming to get as much publicity as possible.

For those "wise" enough, a few of the local Melbourne radio presenters are also pictured in this news clip.

The "Record Page" contained lists of latest popular releases (It Was A Very Good Year, Frank Sinatra) as well as blues (Ella Fitzgerald), dance (Scottish Dance Party) among others.

Singles (7" 45rpm) $1.00 each.
Albums (12" 33 1/3 rpm) $5.25 each.

The "Scottish Dance Party" album was $2.50.

ASTOR TECH-TALK

Vol. 2
No. 3

SERVICE, KNOW HOW with KEN BENSON

ASTOR

INTRODUCING:—

ASTOR MINI PORTABLE MODEL PB021

"MINI"

The Astor mini portable Model PB021 is the latest true personal portable radio styled and engineered for convenient handling with plenty of power 'punch'.

The receiver is a transistor super heterodyne covering the Australian broadcast frequency band using six silicon planar transistors and three diodes.

A simplified description of the circuit shows that it consists of a ferrite rod antenna which feeds into a self-oscillating mixer stage, followed by two stages of intermediate frequency amplification with an automatic gain control feed back circuit. After demodulation the signal is fed to an audio pre-amplification and driver stage coupled to the complementary symmetry power output stage which drives a 40 ohm loud speaker.

To obtain 'big set' performance great care had to be taken in the layout of components on the circuit board which is only 2¼" wide x 2½" long. At the same time one of the design considerations, with a view to ease of service, required that with the exception of unique components such as IF transformers, transistors and diodes, all components are standard commercial items which exist in a normal workshop.

GENERAL:

Dimensions:	2.7/8" x 1.5/16" x 4.1/8"
Weight:	7 oz. including battery
Battery:	9 volt 216 or equivalent.
Frequency coverage:	525 — 1620 KHz.
Audio output:	100 M.W.

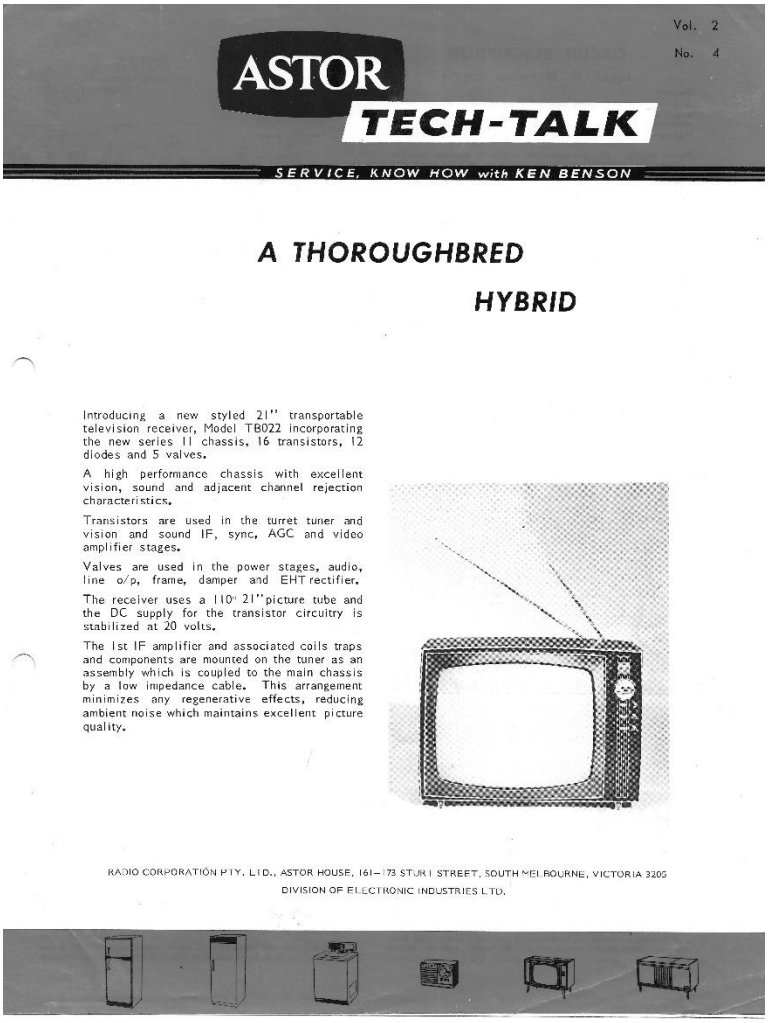
RADIO CORPORATION PTY. LTD., ASTOR HOUSE, 161-173 STURT STREET, SOUTH MELBOURNE, VICTORIA 3205
DIVISION OF ELECTRONIC INDUSTRIES LTD.,

This is the front page of one of the "Tech-Talk" bulletins that were send as updates and repair notes to their agents.
This one celebrates the release of the "Astor Mini" portable radio.
Built around 1969.

- **Number of Transistors** 6
- **Semiconductors**
- **Main principle**
- Superheterodyne (common); ZF/IF 455 kHz
- **Wave bands** Broadcast only (MW).
- **Power type and voltage**
- Dry Batteries / 9 Volt
- **Loudspeaker**
- Permanent Magnet Dynamic (PDyn) Loudspeaker (moving coil)
-

- **Dimensions (WHD)**
- 2.875 x 4.125 x 0 inch / 73 x 105 x 0 mm
- **Notes** Small handheld transistor radio, black & chrome, with carrying case & earphone.
- **Net weight (2.2 lb = 1 kg)** 0 lb 7 oz (0.438 lb) / 0.199 kg

The publication includes schematic diagram, parts list and PCB overlay.
The back page gave a table of "Astor Deflection Yokes and Equivalents" and a small list of "Rola" picture tube equivalents, from 90 degree to 114 degree deflection models.



Vol. 2
No. 4

ASTOR
TECH-TALK
SERVICE, KNOW HOW with KEN BENSON

A THOROUGHBRED
HYBRID

Introducing a new styled 21" transportable television receiver, Model TB022 incorporating the new series 11 chassis, 16 transistors, 12 diodes and 5 valves.

A high performance chassis with excellent vision, sound and adjacent channel rejection characteristics.

Transistors are used in the turret tuner and vision and sound IF, sync, AGC and video amplifier stages.

Valves are used in the power stages, audio, line o/p, frame, damper and EHT rectifier.

The receiver uses a 110° 21" picture tube and the DC supply for the transistor circuitry is stabilized at 20 volts.

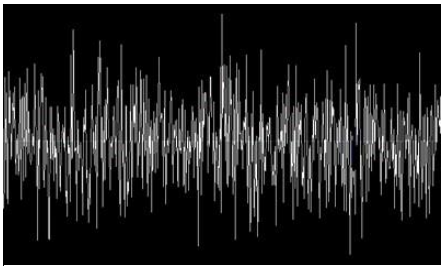
The 1st IF amplifier and associated coils traps and components are mounted on the tuner as an assembly which is coupled to the main chassis by a low impedance cable. This arrangement minimizes any regenerative effects, reducing ambient noise which maintains excellent picture quality.

RADIO CORPORATION PTY. LTD., ASTOR HOUSE, 161–173 STURT STREET, SOUTH MELBOURNE, VICTORIA 3205
DIVISION OF ELECTRONIC INDUSTRIES LTD.

In 1966 the TB022 “Hybrid Transportable”, Series 11 chassis, was released.
Comprising of;
16 transistors
12 diodes
5 valves
The transistors were used in the turret tuner for vison and sound, IF, sync, AGC and video amplification.
The valves provided the power stages.
This bulletin included the schematic diagram with waveforms and basic description of the signal processing done by each stage.
The rear page has some repair advice for the previous Series 10 model.
A table of “ANODEON” equivalent/replaced “Planar Transistors”, diodes and silicon rectifiers was provided for service techs to use.
At this time in electronic history, the number of more and more advanced semiconductors and demise of the lower performance types must have been troublesome to servicing domestic appliances.

THIS SPACE NEEDS FILLING…
If you have photos, projects, shack pictures, latest expedition into a new aspect of Amateur Radio, let us know and contribute to the club members newsletter.

Tom.. VK3DMK.. Newsletter Editor, tomvk3dmk@gmail.com



Have you heard the weird tones on VK3RBA 2m on a Monday night?

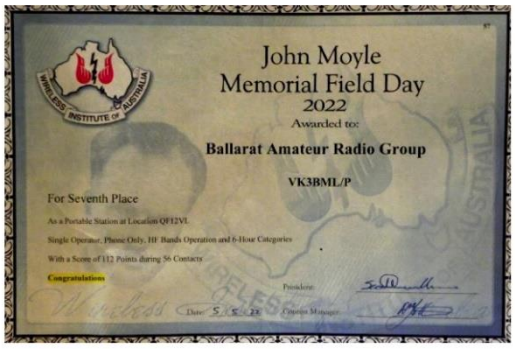
It will be the EasyPAL slow scan enthusiasts sending high quality images over the audio spectrum of 2M FM.

Some great pictures have been sent and received.

If you want to find out about it, join in on Monday nights at about 9:00pm.

DON'T FORGET

11:30am, Saturday 29th October 2022
NEXT GENERAL MEETING



ALSO

10:00AM EVERY THURSDAY MORNING
BARG COFFEE CLUB
ALL WELCOME

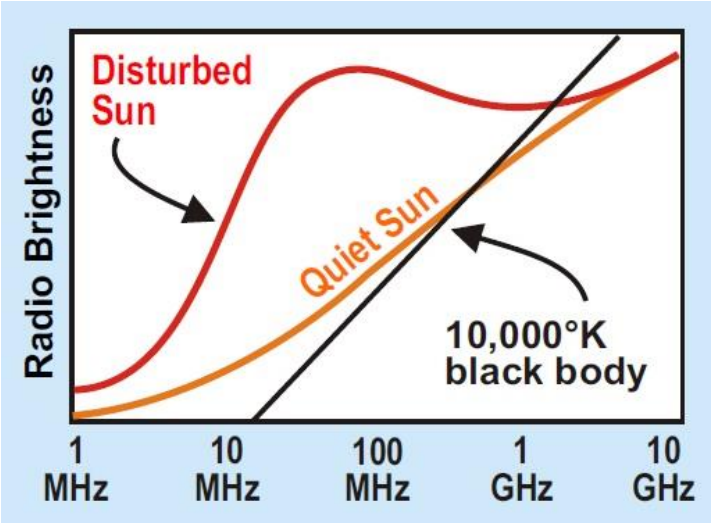
Food Seduction on Doveton
524 Doveton Street North

ALSO

FREQUENT FRIDAY NIGHT
PUB DINNERS
KEEP WATCH ON BARG CHATTER EMAIL FOR NEXT OUTING.

SOLAR CYCLE 25 IS WELL AND TRULY HERE

With cycle 25 influencing amateur radio at the moment. It might be good to see what the major figures that the solar reports throw around and how it effects the amateur radio bands.

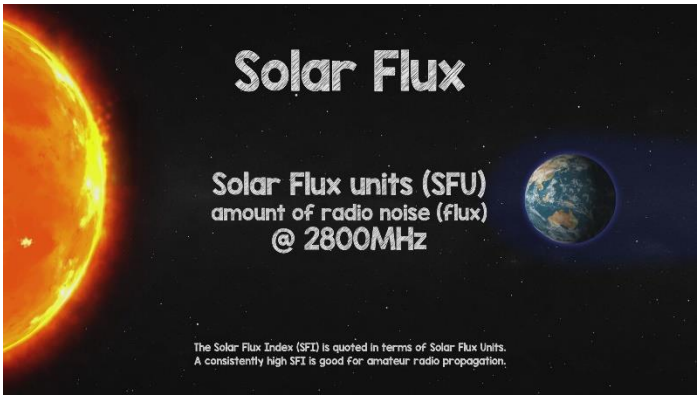


This graph shows the effects of the sun on the radio frequency bands during quiet and disturbed activity.

The 10,000°K line is how the sun would be observed if it was a plain source of radiation.

The Sun's radiation level is called its Solar Flux (SF) and is measured at several observatories and reported daily by the National Oceanographic and Atmospheric Administration (NOAA) at their website: ***http://www.sec.noaa.gov/today.html***.

SOLAR FLUX



Solar Flux is measured in solar flux units (SFU) and is the amount of radio noise or flux that is emitted at a frequency of 2800 MHz.

The solar flux is closely related to the amount of ionization and hence the electron concentration in the F2 region. As a result, it gives a very good indication of conditions for long-distance communication.

During a peak in sunspot cycle the SFU can climb to in excess of 200 and 300 in shorter time periods.

The flux is not the only parameter used in solar observations and reporting.

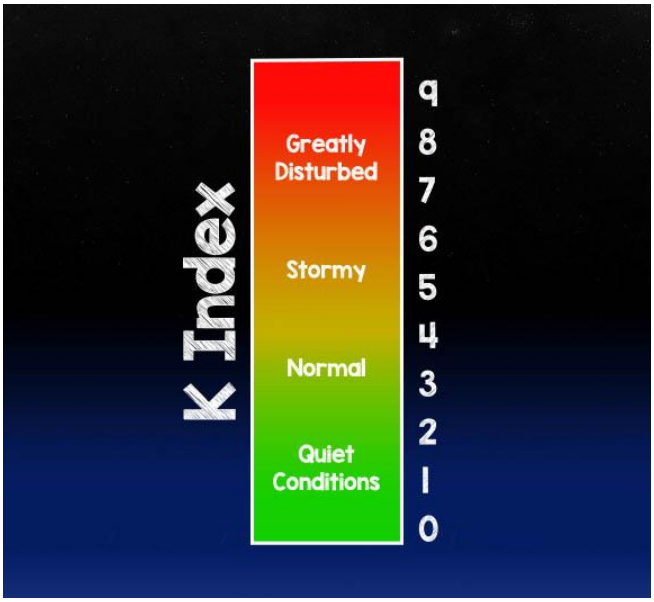
K Index and A Index

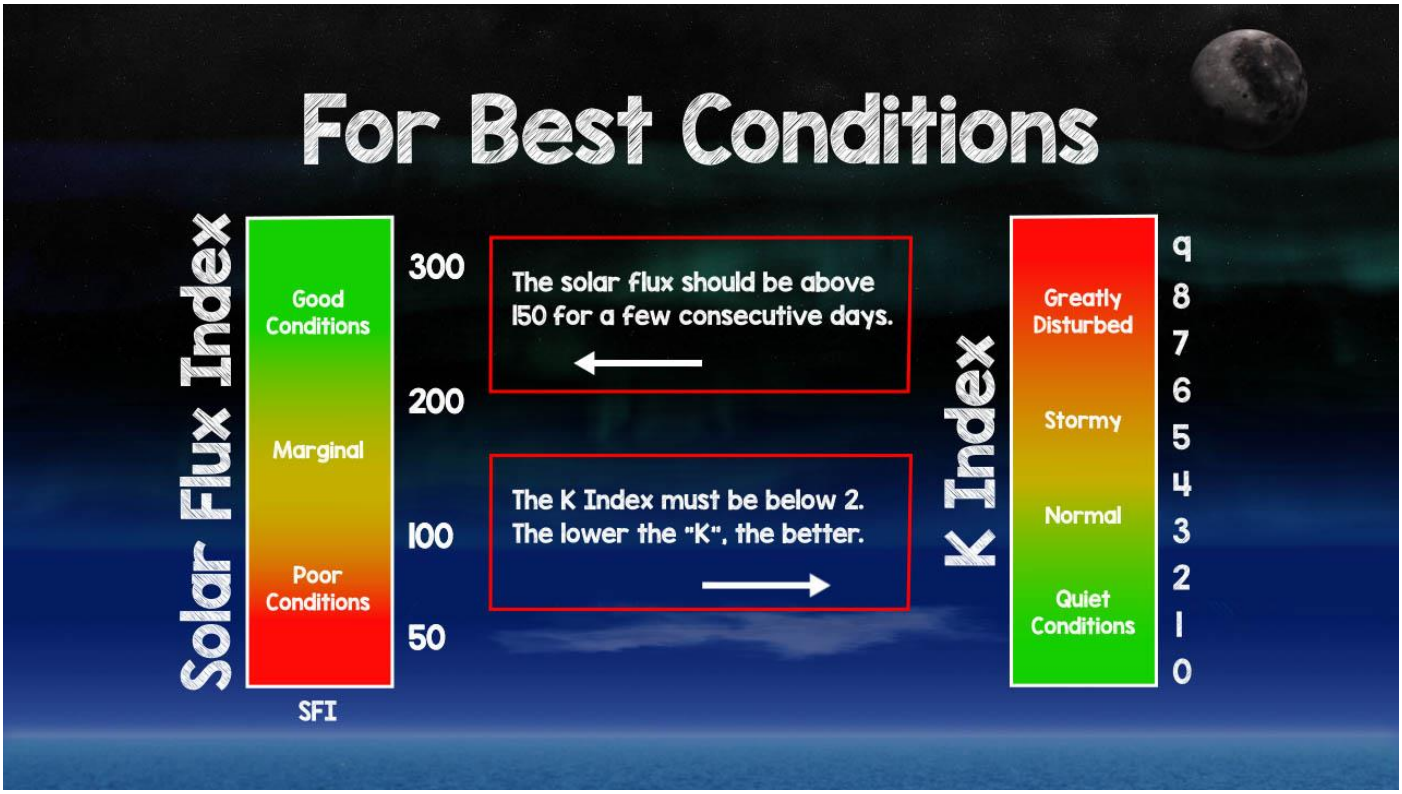
Is reported by NOAA as the ***K-Index*** every 3 hours.

The K-index is a scale from 0– 9 representing quiet to severe conditions. This indicates the variation of the magnetic flux in nanoteslas. This reading is then converted to the K index.

The K-indices are averaged over 24-hours to form the ***A-Index***, representing the overall planetary geomagnetic conditions for the UTC Day. The A-index ranges from 0–20 for quiet conditions, up to 400 for extreme conditions.

Values for the A index range up to 100 during a storm and may rise as far as 400 in a severe geomagnetic storm.





Some valuable bits of information regarding these figures and how they intract across the amateur bands.

1. The ***solar flux***, indicating the level of ionization, affects HF propagation ***above*** about 10 MHz. The solar flux does not affect 40M and below, since the MUF seldom drops below 10 MHz. This is why the lower bands are ***always*** open.

2. The ***K-index***, indicating the geomagnetic condition, indicates HF noise primarily ***below*** about 10 MHz, except in severe cases. During a storm, high noise levels on 40M doesn't mean high noise on 20M.

3. 30M is the ham band caught between the 2 worlds. It can be affected by both solar flux and the K-index. On the other hand, it is more often ***not*** bothered by either. It is a good band throughout the solar cycle.

4. Every solar flare and the resultant storm is different. No two are alike, nor accurately predictable.

5. Never let reports of flares or geomagnetic storms scare you from getting on the air and checking it out.

What is MUF?

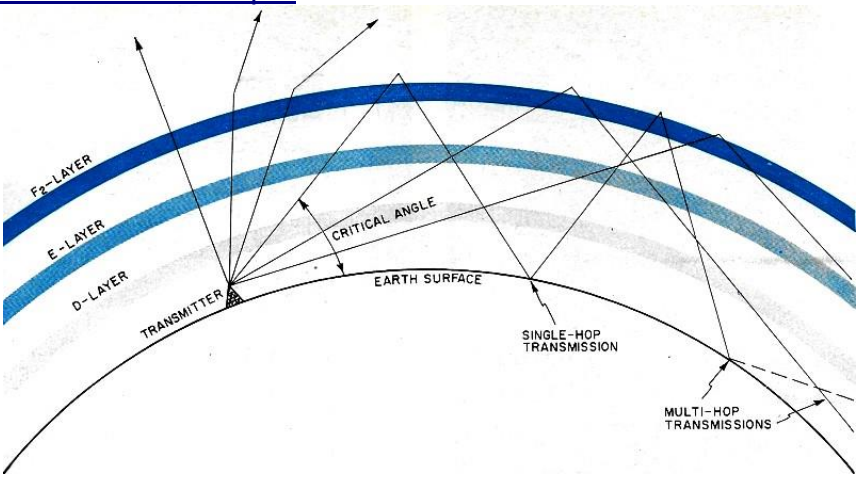
MUF stands for **Maximum Usable Frequency.**

It is used when trying to communicate over long distances and relying on propagation condition, it is the highest radio frequency that can be used for transmission between two points via reflection from the ionosphere (skywave or "skip" propagation) at a specified time, independent of transmitter power.

The ionization of the atmosphere varies with time of day and season as well as with solar conditions, so even from hour to hour there may be changes in MUF.

MUF prediction charts used to be published in AR magazine each month.

Sources;
https://3fs.net.au/making-sense-of-solar-indices/
https://www.scribd.com/document/469475220/FDIM81-pdf
http://www.sec.noaa.gov/today
html http://www.dxlc.com/solar
http://umtof.umd.edu/pm
http://www.spaceweather.com



HAARP

to begin largest set of experiments at its new observatory

Rod Boyce
907-474-7185
Oct. 17, 2022

Bouncing a signal off the moon.
Learning more about a mysterious polar light.
Sending a beam to Jupiter.

Those are just some of the 13 experiments for a packed 10 days of science beginning Wednesday at the High-frequency Active Auroral Research Program. The University of Alaska Fairbanks operates the facility located near Gakona.

The number of experiments is the highest so far under a five-year, $9.3 million grant awarded last year by the National Science Foundation to establish the Sub-Auroral Geophysical Observatory at HAARP. The observatory's purpose is the exploration of Earth's upper atmosphere and Geospace environment.

"The October research campaign is our largest and most diverse to date, with researchers and citizen scientists collaborating from across the globe," said Jessica Matthews, HAARP's program manager.

Photo courtesy of HAARP

The High-frequency Active Auroral Research Program near Gakona, Alaska, includes a phased array of 180 high-frequency crossed-dipole antennas spread across 33 acres and capable of radiating 3.6 megawatts into the upper atmosphere and ionosphere.

The 10 days of operation includes researchers and others from UAF; NASA Jet Propulsion Laboratory in Southern California; Naval Research Laboratory; Cornell University; University of California, Berkeley; Canada Council for the Arts; John Hopkins Applied Physics Laboratory; Virginia Tech; Los Alamos National Lab; and Aerospace Corp.

Among the experiments is the Moon Bounce, a joint operation of the JPL, Owens Valley Radio Observatory in California, and the University of New Mexico Long Wavelength Array.

The purpose is to test the coordination of the three facilities for the eventual study of near-Earth asteroids, especially those that can be a hazard to Earth. Knowing an asteroid's composition can influence the type of defence to be used.

The experiment consists of transmitting a signal from HAARP to the moon and receiving the reflected signal at the California and New Mexico sites.

University of California, Berkeley, scientists will try to learn what causes the unusual polar light known as a strong thermal emission velocity enhancement, or STEVE. This light, which is mostly a white or mauve colour, appears at lower latitudes than the aurora. Most scientists studying the aurora believe a STEVE occurs from a mechanism different from what creates the aurora.

The Jupiter experiment, run by Johns Hopkins Applied Physics Laboratory, aims to prove a method of observing planetary ionospheres by using Earth-based radio transmitters.

Scientists have little information about the ionospheres of planets other than Earth but believe them to be rich with information. On Earth, the ionosphere is a place within the upper atmosphere, extending to the interface with space, that is filled with particles that become electrically charged from interaction with the sun's energy.

The experiment will send a beam to Jupiter and bounce it off the giant planet's ionosphere with the hope that it will be received at the New Mexico site.

Jupiter is currently about 372 million miles from Earth.

The experiment will stretch the transmitting ability of HAARP, which can produce up to 3.6 megawatts of power, to the fullest. It will also test the receiving ability of the New Mexico site, which consists of 512 antennas.

The Air Force originally developed and owned HAARP but transferred the research instruments to UAF in August 2015. UAF operates the site under an agreement with the Air Force.

Poker Flat Research Range, located at Mile 30 Steese Highway, will be involved in three of the experiments. The UAF Geophysical Institute owns Poker Flat and operates it under a contract with NASA's Wallops Flight Facility, which is part of the Goddard Space Flight Centre.

https://uaf.edu/news/haarp-to%20begin-largest-set-of-experiments-at-its-new-observatory.php

https://www.ktoo.org/2022/10/20/in-busy-month-haarp-will-do-everything-from-making-video-art-to-bouncing-a-signal-off-the-moon/

Spring VHF-UHF Field Day 2022

0100 UTC Saturday 26 through 0059 UTC Sunday 27 November
(0400 / 0359 in VK6).

Contest Scoring

VHF-UHF Field Days employ distance-based scoring, using your **6-character** Maidenhead locator (the Sub-Square).

Full details of the scoring system are set out in the Rules.

Further Information on Maidenhead Locators

Each four-digit Maidenhead locator (Square) identifies an area which covers one degree of latitude and two degrees of longitude. Detailed explanation of the Maidenhead locator system can be found in the Download section below. Also available is a computer program that can convert latitude and longitude into grid locators, and vice versa.

To find the six digit Maidenhead locator for any location, click this Link.

Submitting Your Log

Logs should be accompanied by a cover sheet, as described in the rules. A sample scoring sheet is available for download at the bottom of this page.

Only electronic logs in ASCII (.txt) format are accepted now, unless some disability necessitates a paper log, which must be submitted as set out in the Rules. Upload your log files to the Field Day web site via this Link

Contest Results

The aim is to have results finalised approximately four weeks after the Field Day, with the results posted here, publicised via the usual WIA channels and then published subsequently in Amateur Radio magazine.

Contest Award

Each top-scoring station in every Section–Sub-section will receive a colour certificate in .PDF format, sent to the contact email address on their log cover sheet.

Top-scoring Foundation stations will also receive a colour certificate.

Logging Software

Any logging software can be used so long as the necessary information is included in the log. Please refer to the rules for details about this.
A suitable logging program is VK Contest Log, developed by Mike VK3AVV. It is available for download on the author's web site by clicking on this Link.

SILICON CHIP OCTOBER 2022 Review

P16 DISPLAY TECHNIQUES Part 2. Detailing LCD screens and their various types and Quantum Dots, OLEDs, Electroluminescent and Digital Light Processing along with E-Paper.

P28 0-30V 0-2A Bench Power Supply Part 1. A fully adjustable linear supply with current limit. It uses the tried an true LM317 regulator but with some more sophisticated control circuitry. Includes a thermal switch mounted to the heatsink to prevent thermal overload.

P41 Circuit Notebook. ST7920 LCD driver for PIC32MZ projects, Simple EEPROM programmer/Wireless Digital FX Pedal Control, Galvanic Skin Response unit for stress management.

P44 New PIC and AVR Chips form Microchip. Microchip has released a new range of PIC as well as AVR chips to the electronics community, with some being able to easily port code from one version to the later upgrade of ICs.The AVR controllers being backed up with new core files for the Arduino platform.

P50 PIC and AVR breakout boards. Design of simple breakout PCBs to plug into protoboards and the like.

P54 Using the SC June 2022 High-power Buck/Boost Led Driver as a charger or Voltage converter. Make this unit a versatile device to supply LED arrays to providing 24 to 12V or 12 to 24V power supply conversion and charging batteries.

P70 Automatic Level Crossing and Semaphore Control. Includes a “chuffer”, “whistle” sound effect and logic control of the trackside equipment.

P78 Serviceman’s Log. Replacing batteries in cat play toys that are not supposed to be replaced. The Odyssey of the repair of a Simpson washing machine. Outdoor PIR sensor and troubleshooting a cordless motor mower, (yes its that time of the year, the battle with growing grass!!)

P85 A Q and A with Mouser Electronics Senior President of global service. Asking about the global semiconductor supply, decisions about choice of inventory to keep in stock, the presence of “counterfeit” components and detecting them before they get to sale.

P86 WiFi Controlled Programmable DC Load Part 2. Continues with PCB assembly, code uploading and test/setup procedures. Also a suggested cabinet to house the project.

P100 Vintage Radio. STC model 510 Portable Superhet, 1939. An explanation of the working of the circuit and its place in the radio mobilizing the valve radio broadcast devices. The aerial was a loop around a channel groove in the hinged back panel of the wooden case, so the radio could be positioned for optimal reception.

Its that time of year again….