Nov. - Dec 2024

This Newsletter is published by the Port Elizabeth Amateur Radio Society

Editing by Ashley Goosen ZS2AG

QSX-PE - Newsletter for the discerning Radio Ham

Next PEARS Monthly Meeting will be on Tuesday,

21st January 2025 at the Italian Club.

From the Chair

Dear Members,

It is hard to believe the end of the year is approaching and 2024 has flown by. Thank you to those members who could join us for the end of year supper evening, and congratulations to all the winners of the attendance draws and of course to Andrew, ZS2AFB for winning the Yaesu handheld that was raffled. The evening was most enjoyable, and the food was great. Thanks goes to Mike, ZS2MIC for arranging the caterer once again and producing a great meal.

However, the year is not over yet. We still have two events that the club is doing communication for. The Longmore Classic takes place on the 1st of December and 3 checkpoints need to be manned. Thereafter it is the LoFER, which takes place from 20 to 22 December (Friday afternoon to Sunday morning). This event will require sleeping over in the forest. If you are available to assist, please contact Tont, ZR2TX on 082 956 2920.

ZS2DL, has kindly donated a container for our repeater equipment on Lady Slipper. The container will be uplifted and installed at the club's repeater site. This will require quite a few hands to assist, in removing the existing equipment, electrical supply and coax connections. Any help is welcome, you do not need to be a technical genius! Even passing tools around helps a lot. Please watch the various WhatsApp groups for when the call will be made for help.

The new tubular batteries will go into the Longmore next week and will improve the voltage situation as it is a solar site. The old batteries will be moved to the Lady Slipper site. Kareedouw Berg is a work in progress and hopefully the feeders will be installed this week. The antennas are already on the tower.

The PEARS National VHF and UHF contest will take place from 10 to 12 January 2025 and is open to all licensed amateurs in the RSA, including non-members of the SARL, as well as amateurs from the neighboring states. I need not say PEARS is the sponsoring club. Paul, ZS2PS has indicated that some members are keen to go to the top of Oliphant's Kop Pass to the usual spot. Should you wish to join in the fun, please let Paul know. I will hopefully activate from the top of Kareedouw Berg for the day, so we should see some good contacts!

Our first monthly meeting for new year will be on the 21st of January 2025. A reminder that there will be no meeting in December.

On a final note, I would like to wish everyone all the best for the season, safe travels and prosperous new year!

73,
Kevern, ZR2BK

FROM THE EDITOR

Here's hoping you enjoy reading this edition of QSX. If you have an article or two that you would like published in future copies of QSX, please let me have your contribution by email to qsx.zs2ag@gmail.com.
Please do not send me QSX material on WhatsApp as I am inundated with WhatsApp messages and I will miss your material.
Thank you for your continued support of QSX and the articles you have submitted for this issue.
Allow me to take this opportunity to wish each one of you and your families compliments of the season, as well as a Happy New Year.

73,

Ashley ZS2AG

Minutes of PEARS Monthly Meeting

Held at the Italian Club on the 17th September 2024 at 19h30

Welcome:
Chairman Kevern ZR2BK welcomed all present.

Attendance:
Approximately 13 attendees. As per Register**.**

Apologies:
ZS2SG, ZS2PS, ZS2MIC, ZS2DL.

Acceptance of previous meeting's minutes:
Proposed: ZS2AG
Seconded: ZS2RT

Matters arising:
None

Finances:
Mike has reported (in his absence) that all is in order.
Batteries for Longmore were returned and refunded in full. All events have refunded in full too. One more event for the year, that being the LoFER in December.

General:
ZR2BK:
ZS2G has informed us of the Van Stadens Flower Reserve open day, on 28 September (Saturday) and will set up a field station. 07h00 – 14h00.
QSX articles are scarce, please support Ashley. Some had promised articles but haven't provided as yet… you know who you are
Longmore Baviaans UHF Link antenna is dangling on the tower, needs replacement. UHF Link to Slipper also faulty and was removed. Batteries will be sourced and then a work day will be arranged.
Bulletins are on Slipper stand-alone. Attendance is poor, maybe need to send reminders just before time each week. Slipper also has no battery backup, so if power is down, please use 650.
Jamtin cupboard/drawers – please fetch it if anyone wants the drawers, or scrap it. Need the space for a workstation area.
Colin's daughter has taken over the Scout Hall facilities and liaison with PEARS
HF Field day moved to Island Reserve, 6 supporters joined for the day. Propagation

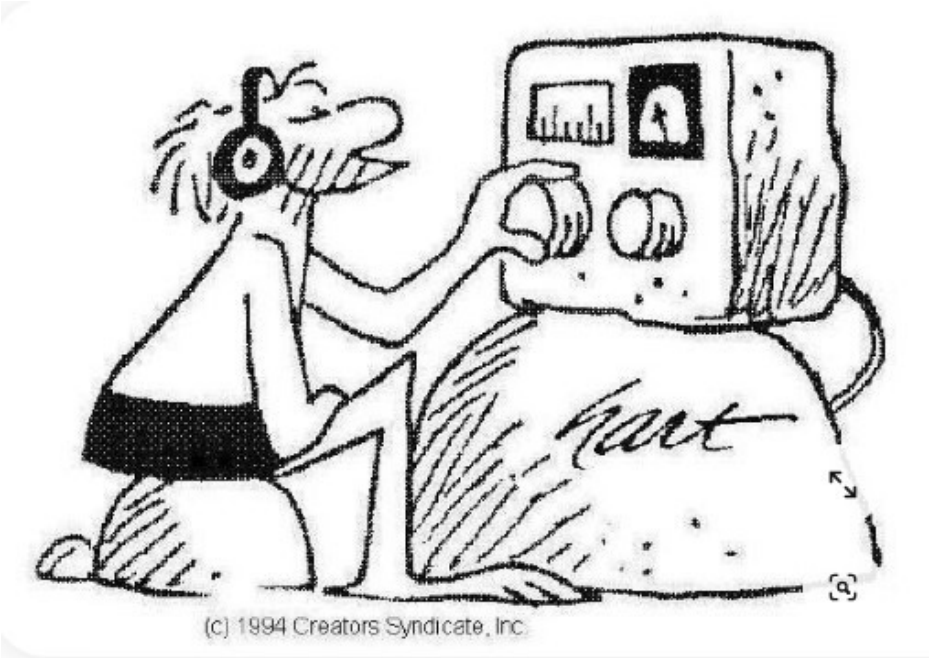
was poor, mostly 20m contacts. 36 contacts, log sent in, using ZS2PE callsign.
Raffle – reminder to get your tickets via the web page and payment via EFT
Year End Function, set for the 15th November, to be confirmed.
SOTA weekend this past weekend, lots of activity.
RAE has seven candidates, registration closes soon. 19 October is the exam
JOTA is 19-20 October
YOTA is the whole of December

Closure:
Meeting ended at 19h52

Next meeting 15th October 2024

Andrew ZS2G demonstrated the use of a radio test set to align and test radio equipment.

CHAIRMAN	SECRETARY
KEVERN BURGER (ZR2BK)	CHRISTOPHER SCARR (ZS2AAW)



CQ CQ CCCCQQQQ CCCCCQQQQQ snorrrrrrrrrrr

The PEARS National VHF/UHF Contest

1. Introduction

1.1. The PEARS National VHF and UHF contest will take place from 10 to 12 January 2025 and is open to all licensed amateurs in the RSA, including non-members of the SARL, as well as amateurs from the neighbouring states.

1.2. The aim of a VHF and UHF contest is to stimulate activity on these bands, make many long-distance contacts possible, establish new records, encourage the improvement of VHF and UHF equipment and advance amateur radio.

1.3. This is a 44-hour dual contest for analogue and digital modes, which is divided into 2 sessions that will spread out activity over the contest period and reflect changes of propagation.

1.4. So, watch out for Tropo Ducting or Meteor Scatter in the early mornings or at night on 50 MHz and 144 MHz, while in the daytime look out for Rover stations, Aircraft scatter and possibly Sporadic-E. This is also a wonderful camping period with lots of fun for Field Stations. Amateurs are requested to participate in both the contests and keep the bands alive

2. Dates and Times

The first 22-hour session of the VHF and UHF contest starts at 16:00 UTC on Friday 10 January and closes at 14:00 UTC on Saturday afternoon 11 January (2nd Friday and Saturday of January). The second 22-hour session commences immediately after 14:00 UTC on Saturday 11 January and ends at 12:00 UTC on Sunday 12 January 2025 (2nd Saturday and Sunday of January).

3. Categories

3.1. Base Station. A base station is the normal home or fixed station. It may be operated by one or more amateurs as long as they use their own call signs.

3.2. Field Station. A Field Station is a temporary station set up in a caravan, tent or motor vehicle and may erect any type of antenna system but must use their own portable power supply. One or more amateurs may operate it, but they must use their own call signs.

3.3. Club Multi-Operator Station. A Club Multi-operator station can only operate under the Club's call sign. It may use many operators, since all five bands can be worked at the same time and beginners should be encouraged to participate. A club multi-operator team may operate either from a base or a Field Station as desired.
3.4. Rover Category. A Rover is a mobile station that operates from a stationary position in any four 4-digit grid squares during a session. Rover activity should be encouraged as they create a lot of extra activity during a VHF contest and should appeal to townhouse amateurs.

3.5. Limited Category. This category is limited to a total of 4 hours per session divided into two 2-hour periods during each session and may be scheduled during any part of a session operating from any fixed grid position as a base or Field Station or from a stationary mobile.

3.6. The 144,400 MHz and 145,500 MHz FM Category. The main objective of this divisional FM category is to encourage the younger generation, novices or even some old-timers, to participate and get the taste of VHF contesting using simplified rules. You may operate with any type of equipment or antennas on 144,350 – 144,400 MHz FM and/or 145,500 – 145,575 MHz FM, fixed or mobile and try and make as many contacts as possible. You only have to exchange signal reports, but could learn about propagation, have fun and compare notes. You can score 10 points for each contact you make in your own division or 20 points from another division. Stations from other categories and divisions may also QSY to these frequencies and give you some points, of course, they will score their normal one point per kilometre, but you must now give them your grid locator too. There are two sessions, so you can work the same station twice and

score extra points or hook up with a station that you missed during the first session.

4. Contest Frequency Channels

50,200 – 50,250 MHz SSB/CW 50,250 – 50,300 MHz Digital 50,350 – 50,400 MHz FM	432,200 – 432,250 MHz SSB/CW 432,250 – 432,300 MHz Digital 432,350 – 432.400 MHz FM
70,100 – 70,150 MHz SSB/CW 70,150 – 70,175 MHz Digital 70,200 – 70,275 MHz FM	1296,200 – 1296,250 MHz SSB/CW 1296,250 – 1296,300 MHz Digital 1296,350 – 1296,400 MHz FM
144,200 – 144,250 MHz SSB/CW 144,250 – 144,300 MHz Digital 144,350 – 144,400 MHz FM 145,500 – 145,575 MHz FM	

4.1. To avoid pileups on the calling frequencies of 50,200 MHz or 144,200 MHz SSB, it is suggested that when activity is high to call on these frequencies but continue the QSO 5 to 15 kHz higher up the band, as done during HF DX contests. So, tune around at times.

4.2. CW stations call CQ 1 kHz above the SSB frequency, (for example 50,201 MHz or 144,201 MHz, to be audible to USB stations too, but you must work CW stations 20 kHz higher in frequency, i.e., 50,220 MHz CW or 144,220 MHz CW).
4.3. Since VHF amateurs are widely spread out across South Africa, it is important to know when and in what direction they are transmitting

5. Contestants

All ZR/ZS/ZU amateurs may participate as well as amateurs from the six neighbouring states i.e., Namibia (V5), Botswana (A2), Zimbabwe (Z2), Mozambique (C9), Lesotho (7P) and ESwatini (3DA) and only contacts with these states will count.

6. Reports and Scoring

6.1. A valid contact consists of an exchange of call signs, signal reports and the locator, such as the 6-digit Maidenhead Locator or co-ordinates. Stations in the five categories (3.1 to 3.5) claim one point per kilometre, but points may only be claimed for one (1) analogue and one (1) digital contact per station on the same band during a session. A Rover station can be worked from four different 4-digit grid squares, each will count as a new contact.

6.2. A multiplier, based on the total number of four-digit grid squares worked on all bands, will multiply the scores achieved on all bands and categories. The motive behind this is to encourage long distance operation and to log as many 4-digit grid squares as possible on all the VHF and UHF bands to boost your score.

6.3. Each QSO claimed for competition credit must comply with the rules found under General Rule “5. Contacts”.

7. Log Sheets

7.1. Separate log sheets are required for analogue and digital. The top of your log sheet must indicate category, full name, call sign, locator and e-mail address.

7.2. The log sheets require only the Date, Time, Frequency, Call Sign of the station worked, Signal Reports received, the Locator of station worked. Please note that Rover stations must add the suffix /R to their call signs (eg ZS6XYZ/R).

7.3. All entries must be submitted to PEARS not later than 21:59 UTC on Friday 17 January 2025 and their decision will be final. Log sheets should be submitted by e-mail to contest@peham.co.za. The names of the winners as well as a complete list of all the scores will be posted on the SARL VHF forum and the PEARS web site early in February 2025.

8. Awards

8.1. PEARS will award certificates to the top three places overall.
8.2. Certificates will also be issued to the winner of the analogue contest and to the winner of the digital contests.

8.3. Certificates will also be issued for the longest distance achieved on each band. A minimum of 400 kilometres is required to qualify for a certificate. 8.4. A certificate will also be issued for the highest scoring Rover entry.

8.5. The 144 MHz and 145 MHz FM category will also feature an overall winner and first and second runner-up.

9. Further Information

For further information please contact the Port Elizabeth Amateur Radio Society by e-mail to contest@peham.co.za

SARL VHF/UHF and Higher Records http://www.sarl.org.za/public/local/VHF_SA_Records.asp 10.

Sponsor Club – Port Elizabeth Amateur Radio Society (PEARS).

DISCLAIMER

Please note:

The Editor, nor any PEARS club member shall be held liable for errors and/or omissions in any article and/or drawing contained in this newsletter. Furthermore, any view expressed is not necessarily that of the Editor, any committee member or other members of the Club. The material contained in this newsletter is not meant to defame, purge, humiliate and/or hurt someone's person or feelings.
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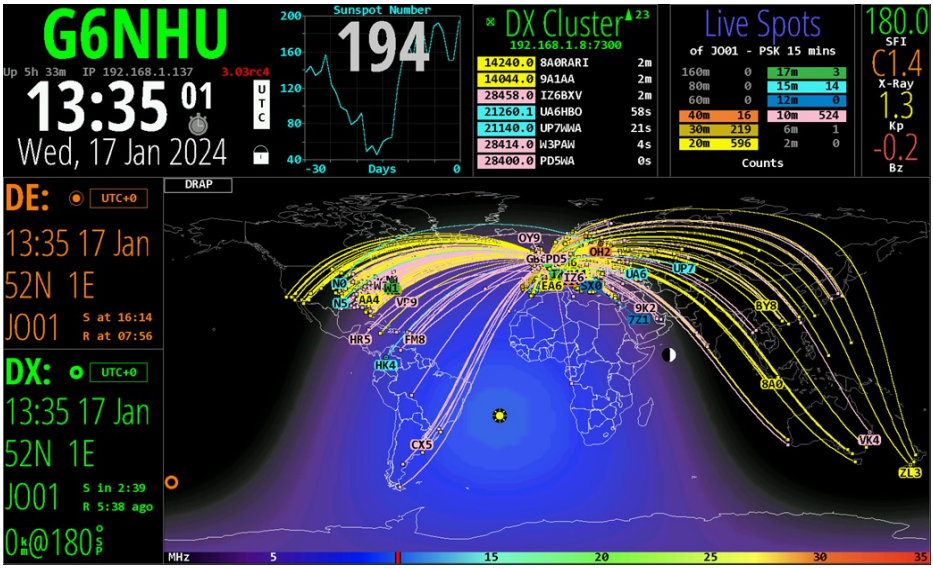
HamClock: The Essential Tool for Radio Amateurs

From Paul ZS2PS



Ham radio operators, known for their dedication to amateur radio communication, constantly seek tools that can enhance their experience and efficiency. One such invaluable tool that has garnered attention in recent years is HamClock. This comprehensive program, originally developed by Kees Talen (K6EF), serves as a dynamic clock designed specifically for amateur radio enthusiasts. With its array of real-time features, HamClock goes beyond just displaying the time—it acts as a central information hub for operators, offering a wide variety of data essential for successful communication.

The Basics of HamClock

At its core, HamClock is an advanced, multi-functional display that provides various types of information needed by ham radio operators. Available for different platforms, including Raspberry Pi, ESP32, Linux, and Windows, the application is versatile and can be run on anything from a dedicated monitor to a small portable screen. Its user-friendly interface and detailed customization options make it an essential addition to any amateur radio station.

Time Management for Worldwide Operations

One of the most fundamental features of HamClock is its time display functionality. It provides both local time and UTC (Coordinated Universal Time), the standard time format used by ham radio operators worldwide to ensure synchronization. This dual-time display helps operators coordinate their ac-

tivities with others around the globe, simplifying the process of logging contacts and scheduling QSOs (conversations). Accurate timing is crucial in radio communications, particularly during contesting or when working with stations in distant time zones.

Real-Time Solar and Space Weather Information

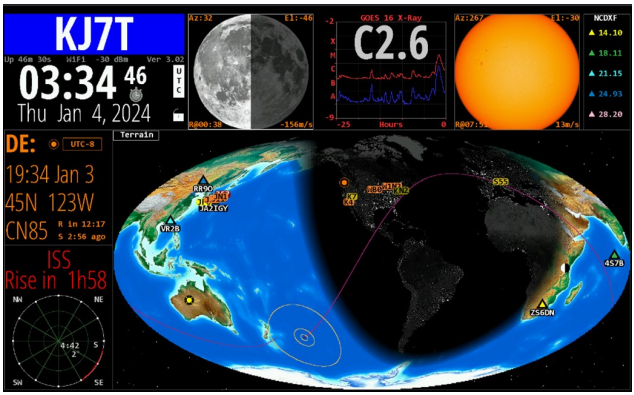
For any amateur radio operator, understanding the current conditions of the ionosphere and space weather is vital. Solar activity, such as sunspots, solar flares, and coronal mass ejections (CMEs), can significantly impact radio signal propagation. HamClock provides real-time data on solar indices like the Solar Flux Index (SFI), the K-index, and the A-index. These indices help operators determine the potential quality of HF (high-frequency) radio wave propagation.

The app displays a detailed overview of space weather, including the current geomagnetic conditions and solar imagery. This real-time information empowers operators to make informed decisions about the optimal frequency bands to use. For example, when the K-index is low, propagation conditions are typically favorable for long-distance communication on HF bands. On the other hand, high K-index values may indicate geomagnetic storms, which can disrupt communication but also open up opportunities for auroral contacts on VHF frequencies.

DX Cluster Integration

HamClock's integration with DX clusters—networks of amateur radio stations sharing real-time reports of on-air activity—makes it a go-to tool for those seeking new contacts and rare DX stations. The program shows current spots (stations being reported as active), helping operators quickly identify and tune into ongoing QSOs. This feature is particularly valuable during DXpeditions or when rare stations are on the air, allowing hams to keep an eye out for opportunities without manually checking cluster websites or additional software.

World Map with Grey Line Display



One of the most visually appealing and functional features of HamClock is its world map with a real-time grey line display. The grey line, which marks the transition between night and day on Earth, is significant in amateur radio because it indicates a time of enhanced propagation

conditions. Signals that travel along this line experience lower attenuation, facilitating contacts over long distances, particularly on low-frequency bands like 160m, 80m, and 40m.

By observing the grey line in real-time, operators can strategically time their transmissions to take advantage of this propagation boost. The HamClock map also shows daylight and nighttime regions, which helps with understanding where in the world certain types of propagation might be more effective at any given moment.

Moon and Satellite Tracking

HamClock extends its functionality to operators who are interested in Earth-Moon-Earth (EME) communication or satellite operations. The tool includes features for moon phase tracking, which is crucial for EME communication since it relies on bouncing radio signals off the lunar surface. Operators can view when the moon is at an optimal position for signal reflection, improving the chances of successful QSOs.

For those who enjoy satellite communications, HamClock provides real-time data on satellite positions. This feature enables hams to track the movement of various amateur radio satellites, predicting when they will pass overhead and be available for contact. This capability is essential for operators who want to experiment with satellite contacts and expand their range beyond traditional HF or VHF/UHF terrestrial communication.

Weather Information for DX Success

HamClock also incorporates local weather information, which can be particularly useful for portable or field operations. Operators engaged in SOTA (Summits on the Air) or POTA (Parks on the Air) expeditions can use HamClock to keep an eye on the weather conditions, ensuring safe and effective communication in the field.

Customization and Community Support

One of the strengths of HamClock is its highly customizable interface. Users can modify the display layout to include only the most relevant information for their operating style. Whether you're focused on DXing, contesting, or casual QSOs, the tool can be tailored to present the data you need at a glance. HamClock supports multiple screens, allowing operators to dedicate different monitors or segments of a single screen to specific information panels like propagation maps, DX clusters, and weather data.

The program also benefits from a supportive community of developers and operators. Regular updates and feature additions help keep HamClock relevant as the needs of the amateur radio world evolve. Online forums, social media groups, and official documentation provide ample resources for new users to get started and for experienced operators to troubleshoot or optimize their setups.

Solar activity and its impact on propagation

In an earlier article we discussed the SFI, A, and K indexes.

Solar activity refers to various phenomena on the surface of the sun. These include sunspots, solar flares, and coronal mass ejections (CMEs). These activities are driven by the sun's magnetic field and can vary significantly over time. There is an approximately 11-year cycle known as the solar cycle where solar activity ranges from high to low also known as solar maximum to solar minimum.

Key components (types) of solar activity

Sunspots: These are spots that are darker and cooler areas on the sun's surface and have intense magnetic activity. The number of sunspots increases during the solar maximum and decreases during the solar minimum.

Solar Flares: Sudden bursts of energy and radiation from the sun's surface, often associated with sunspots. They can release vast amounts of electromagnetic radiation across the spectrum.

Coronal Mass Ejections (CMEs): Massive bursts of solar wind and magnetic fields rising above the solar corona or being released into space.

The impact on radio wave propagation

Solar activity can significantly influence radio wave propagation - especially in the HF bands.

Here's how:

Enhanced Propagation: During periods of high solar activity, there is increased ultraviolet and X-ray radiation that in turn increases the ionization of the Earth's upper atmosphere (ionosphere). This allows better long-distance communication by improving the reflection of HF radio waves.

Disruptions and Blackouts: Solar flares and CMEs can cause sudden ionospheric disturbances, which can lead to radio blackouts (on the sunlit side of the Earth). These disruptions can last for anything from minutes to hours.

Auroras and Propagation: Increased solar activity can also lead to auroras at the poles, which in turn can enhance VHF propagation through auroral reflection – in much the same way as the reflection in the Ionosphere, allowing for some great possibilities.

Monitoring and Adapting Amateur radio operators can monitor solar activity using various tools and indices, such as the Solar Flux Index (SFI), K-index, and A-index. These indices were discussed in an earlier article in this series. By staying informed about current solar conditions, hams can optimize their operating schedules and equipment choices to take advantage of propagation opportunities or to mitigate disruptions.

Until next time, 73

From Dave ZS2DH

PEARS Year End Function Pics

Birthdays and Anniversaries

Birthdays

November 2024

21 Aidan van Loggerenberg ZS2CV
23 Colin Schroder ZR2CRS
25 Michael Steenkamp ZS2MIC

December 2024

01 Ronald Drescher ZR2AD
02 Kevin O'Donoghue ZS2KO
03 Brendan Oelofse ZS2BTO
04 Clive Fife ZS2RT
05 Johan van Vuuren ZS2JV
07 Damien Field ZS2DLF
13 Thian De Jager ZS2Y
13 Rhys Naude ZS2FRN
13 Craig van Loggerenberg ZS2LR
15 Lance Henegan ZS2LB
25 Graham Pearson ZS2GKP

January 2025

10 Tony Allen ZR2TX
15 Ashley Goosen ZS2AG
17 Albie Gibson ZS2AZ
20 Barry Murrell ZS2EZ

Spouse Birthdays

November 2024

20 Monique O'Donoghue Kevin ZS2KO
20 Yvette du Toit Steven Steven
21 Shaunna Laaks Gary ZS2GRL
26 Isolda Hosten ZS2IW Eric ZS2ECH

December 2024

02 Jenny Goosen Ashley ZS2AG
02 Antoinette Liebenberg Danny ZS2E
03 Nadia Herselman Daniel ZS1ND
09 Cheryl Schroder Colin ZR2CRS
23 Noel Hislop Cyril ZS2EJ
24 Colette Rundle ZS2CR Mitch ZS2DK
25 Bettie Greef Isak ZS2ZG

January 2025

08 Juan Ras Hugo ZS2HR
15 Janine Oosthuizen Gavin ZS2GAV

Anniversaries

December 2024

01 Johan Wanda van Vuuren ZS2JV
12 Anmar Johan Swart ZR2AS
12 Johan Anmar Swart ZS2PDS
12 Clive Jane Fife ZS2RT
19 Eric Isolda Hosten ZS2ECH ZS2IW
21 Llise Mark Dodd ZS2LLD
23 Cyril Noel Hislop ZS2EJ
28 Albert Sarita Brand ZS2BA

January 2025

03 Allan Brenda Whitehead ZS2R
06 Daniel Nadia Herselman ZS1ND
09 Lance Lani Henegan ZS2LB

Sunday SARL and Monday Evening PEARS Bulletins

PEARS provides a local reading of the SARL bulletin every Sunday morning at 8:15 in Afrikaans read by Kevern ZR2BK and at 8:30 in English read by Rory ZS2BL, transmitted through the Lady's Slipper Repeater on 145.700MHz.

PEARS Bulletins are transmitted on Monday evenings at 20H00 through the Lady's Slipper repeater 145.700MHz 88.5Hz Narrow, which is coupled to the Longmore Repeater 145.625 MHz 88.5Hz Narrow.

Bulletin Roster		
02-Dec	Rory	ZS2BL
09-Dec	Kevern	ZR2BK
16-Dec	Dave	ZS2DH
23-Dec	Chris	ZS2AAW
30-Dec	Mike	ZS2MIC
06-Jan	Donovan	ZS2DL
13-Jan	Ashley	ZS2AG
20-Jan	Paul	ZS2PS
27-Jan	Vaughan	ZS2VR

http://www.zs2pe.co.za/bulletins.html

Our 2024/2025 PEARS Committee

These committee members can be reached as a group by sending email to committee[at]peham.co.za

PORTFOLIO	NAME	CALLSIGN	EMAIL	CONTACT No
Chairman, Technical support & maintenance	Kevern Burger	ZR2BK	k.burger[at]stfrancislinks.com	083 401 9587
Vice Chairman, SARL liaison, Hammies, Youth, Contest Scoring	Dave Higgs	ZS2DH	om[at]zs2dh.co.za	082 387 5657
Treasurer	Michael Steenkamp	ZS2MIC	zs2mic[at]igen.co.za	082 523 5677
Secretary, Repeaters, QSX emailing, club database	Christopher Scarr	ZS2AAW	christopher[at]peham.co.za	082 925 6367
RAE Training	Donovan van Loggerenberg	ZS2DL	zs2dl[at]hamradio.co.za	082 852 4885
Technical/repeaters, Search and Rescue & Emergency comms	Glen Cummings	ZS2GV	glenvanessa[at]gmail.com	082 411 2743
QSX Editor	Ashley Goosen	ZS2AG	qsx.zs2ag[at]gmail.com	082 372 6696
Public relations, special events displays, Scouts interface, "Jamtin"	Paul Schoeman	ZS2PS	paul.costcutters[at]gmail.com	083 582 9660
RAE Training	Vaughan Rizzo	ZS2VR	vaughan[at]netaddress.co.za	082 882 6555

CO-OPTED POSTS

PORTFOLIO	NAME	CALLSIGN	EMAIL	CONTACT No
Contest Liaison Officer	Theunis Potgieter	ZS2EC	zs2ec01[at]gmail.com	064 901 8079
Events & Rally organising	Tony Allen	ZR2TX	tony.zr2tx[at]gmail.com	082 956 2920
Website renewal and updates	Graham Pearson	ZS2GKP	gpearson@[at]blsmedical.co.za	082 321 4798

(Please note: The "@" sign has been replaced with "[at]" in the above addresses to try to prevent spamming)

PEARS' VHF/UHF, Packet & Other Services

Local Repeaters: These repeaters form a separate sub-net in the PE - Uitenhage - Despatch area.

Town VHF 145.050/650 88.5Hz, Narrow 12.5k	**Longmore** 145.025/625 88.5Hz, Narrow 12.5k	**Uitenhage** 145.075/675 Wide 25k	**Town UHF** 431.050/438.650 Wide 25k	<----- ***IRLP** available on this subnet*
Cockscomb 431.000/438,600 Add 88.5Hz for squ tail	**Viewlands** 431.075/438.675 Add 88.5Hz for squ tail	<----- *These form linking hubs for events, hence no tail*	**DMR** 430.675/438.275 QTH: ZS2VA	**D-Star** 145.175/775 QTH: ZS2N

Cape Linked System Repeaters:

These form the PEARS long-range 2-metre repeater system, in conjunction with the Border, Southern Cape and WCRWG systems. See www.zs2pe.co.za/Repeaters/repeaters.htm for more details.

Lady's Slipper 145,100/700 88.5Hz, Narrow 12.5k	Grahamstown 145,150/750 Wide 25k	Cradock 145,050/650 Wide 25k	Noupoort (link only) 438,750 / 438,675 Wide 25k
Colesberg 431,075/438,675 Wide 25k	Kareedouw 145,125/725	Plett 145,175/775	Brenton 145,075/675

APRS/Packet network:

ZS0NTP Node Lady's Slipper 434,800 1200bd 439.850 9600 bd	**ZS0KDK APRS Digi** Mount Road 434,800 1200bd	**ZS0KDB APRS Digi** Longmore 434,800 1200bd	

VHF Beacon: 50,007 MHz FSK – ZS2X, 25 Watts into 2 element Yagi beaming north.

Banking details *(for subs & donations)*: NEDBANK SAVINGS ACCOUNT No. 221 252 7594, Bank code 121217, A/C name: Port Elizabeth Amateur Radio Society. **Please use call signs as a reference.**