



WATTS 2019-10

Year 89 + 10m

Monthly Newsletter of the Pretoria Amateur Radio Club
Maandelikse Nuusbrieff van die Pretoria Amateur Radio Klub

✉ PARC, PO Box 73696, Lynnwood Ridge 0040, RSA
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Bulletins : 145.725 MHz : Sundays from 08h45 / Sondag vanaf 08h45
Relays: 1.840, 3.700, 7.066, 10.135, 14.235, 51.400, 438.825, 1297 MHz
and Echolink. Activated frequencies are announced prior to bulletins
Swoptshop : 2m and 7.066 MHz live on-air after bulletins
Bulletin repeats on Mondays / herhalings op Maandae : 2m 19h45



Die Algemene Jaarvergadering van die Pretoria Amateur Radio Klub het plaasgevind op die 21^{ste} September by die Pretoria Ou Motorklub. Na afloop van die vergadering het ons die gebruikelike bring-en braai geniet. Van links na regs: Hans Kappetijn ZS6KR (Erelid), Charles Mills ZS6CJM, Fritz Sutherland ZS6SF, Johan de Bruyn ZS6JHB, Joey Reid, Andre Coetzee ZS6GCA and Graham Reid ZS6GJR. Meer oor die AJV op bladsye 5-8.

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Club Meetings / Klub Vergaderings

Club Committee Meeting :

The next Meeting for the 2020/21 PARC Committee will be held on the 13th of November. Venue to be announced.

Birthdays and Anniversaries / Verjaarsdae en Huweliks Herdenkings

Member's Birthdays October 2019 / Lede Verjaarsdae Oktober 2019

01 Evan Seligmann ZS6ELI
02 Hans-Peter Knoepfler ZS6AJS
02 Andre van Tonder ZS6BRC (Erelid)
09 Edmar Willers ZS6UT
10 Roy Alexander ZS6MI

16 Fintan Wilson ZS6FIN
25 Gawie Marais ZS6GJM
30 Andre Coetzee ZS6GCA
31 Pieter Myburgh ZS6PAM

Spouse's October 2019 / Gades Oktober 2019

12 Juanita, gade van Ryan Gibson ZS6GGR
14 Wilma, gade van Nic Louw ZS6NWL
21 Louise, gade van Alméro Du Pisani ZS6LDP
28 Sanette, gade van Des van Schalkwyk ZR6JET
31 Maria, spouse of Jyri Hamalainen ZR5AAE

Anniversaries October 2019 / Herdenkings Oktober 2019

09 Annatjie en Pieter Fourie ZS6CN
13 Wilma en Nic Louw ZS6NWL
15 Annelize en De Jager Burger ZS6ZO

Member's Birthdays November 2019 / Lede Verjaarsdae November 2019

06 Sollie Conradie ZS6SV
12 Fritz Sutherland ZS6SF
16 Vlasta Jancuskova ZS6-2501

16 Gideon van der Merwe ZS6GJV
19 Joe Katzman ZS6TB
25 Tony Crowder ZS6CRO

Spouse's November 2019 / Gades November 2019

11 Peggy, spouse of Edmar Willers ZS6UT
27 Aida, gade van Hugo Pretorius ZS6HP
30 Corrie, gade van Johan de Bruyn ZS6JHB

Anniversaries / Herdenkings November 2019

14 Sylvia en Tjerk Lammers ZS6P (Erelid)
26 Marike ZS6MRX en Andre ZS6ARX Roux
29 Moira en Hendrik Ferreira ZS6BUH

Lief en Leed / Joys and Sorrows

Pine Pienaar ZS6GST is onlangs vir noodbehandeling gehospitaliseer. Tydens die behandeling het sy lange platgeval en hy moes terapie ondergaan om weer te kan loop. Pretoria Amateur Radio Klub wens Pine alle voorspoed toe vir 'v volkome en spoedige herstel.



Corrie en Johan de Bruyn het op die 20^{ste} September in die huwelik getree. Na afloop van die PARK AJV die volgende dag het hulle heerlik saam met die Klublede gekuier by die bring-en-braai. PARK wens vir Corrie en Johan alles van die beste en wonderlike jare toe met hul huwelik.

PARC Membership Fees / PARK Ledegelde

For the 2019-2020 year, there will be no increases in Club Membership fees. Club Fees therefore remain at R160 for Ordinary Members, and R60 for Pensioners and Spouse. Vir die 2019-2020 jaar sal daar geen toenames in die Klub Lidmaatskap gelde wees nie. Dus bly die gelde op R160 vir Gewone Lede, en R60 vir Pensionarisse en Gade.

PARC SUBS : PARK LEDEGELD : FROM / VANAF : 30-06-2018

Bank	First National Bank	Ordinary Members / Gewone Lede : R160 Spouses / Pensioners : R60	Your call sign must appear as statement text!
Branch Code	25 20 45		
Account No	546 000 426 73		
Please remit your subs in time to our Treasurer, or pay per transfer into the PARC account Betaal asb. u ledegelde betyds aan ons Tesourier, of betaal per oorpasing in die PARC rekening			

Please Note : If your Club fees are not paid up to date, birthday details cannot be displayed in Watts

PARC Bulletin Roster / PARK Bulletin Rooster

PARC Bulletins are presented on Sunday mornings at approximately 08h45, after the SARL Bulletins in English and Afrikaans, from 08h15. The Bulletin Presenters for the following two months are presented below. Please do contact the applicable presenter beforehand if you wish to make a contribution to the Bulletin. PARC Bulletins are broadcast on the 2-meter repeater on 145.725 MHz, and 70 cm on 438.025 MHz. Relays are done on 7.060 MHz by Hans Kappetijn ZS6KR and on Echolink by Johan Lehman ZS6JPL. A re-broadcast of the Bulletin is done the following Monday evening at 19h45 by Hans ZS6KR.

PARK Bulletins word op Sondag oggende aangebied om 08h45, na die SARL Bulletins in Engels en Afrikaans, vanaf 08h15. The Bulletin aanbieders vir die volgende twee maande word onder aangedui. Kontak gerus die toepaslike Bulletin leser indien u 'n bydrae tot die Bulletin wil maak. PARK Bulletins word uitgesaai op die 2-meter herhaler op 145.725 MHz, en 70cm op 438.205 MHz. Herleidings word gedoen op 7.060 MHz deur Hans Kappetijn ZS6KR, en op Echolink deur Johan Lehman ZS6JPL. 'n Heruitsending van die Bulletin geskied die opvolgende Maandag aand om 19h45 en word behartig deur Hans ZS6KR.

PARC Bulletin Presenters : October 2019 - January 2020

Date	Presenter	Date	Presenter
20 October 2019	Alméro Du Pisani ZS6LDP	08 December 2019	Louis de Wet ZS6SK
27 October 2019	Johan de Bruyn ZS6JHB	15 December 2019	Albert Schreuder ZS6SE
03 November 2019	Louis de Wet ZS6SK	22 December 2019	Etienne Naude ZS6EFN
10 November 2019	Albert Schreuder ZS6SE	29 December 2019	Alméro Du Pisani ZS6LDP
17 November 2019	Etienne Naude ZS6EFN	05 January 2020	Johan de Bruyn ZS6JHB
24 November 2019	Alméro Du Pisani ZS6LDP	12 January 2019	Louis de Wet ZS6SK
01 December 2019	Johan de Bruyn ZS6JHB	19 January 2019	Albert Schreuder ZS6SE

PARC Fleamarket Dates 2019 / PARK Snuffelmark Datums 2019

The last PARC Flea Market for 2019 will be on:

The laaste PARK Snuffelmark vir 2019 sal wees op:

2 November

(From 10h00 / Vanaf 10h00)

To book a table, please do contact: / Om 'n tafel te bespreek, kontak gerus:

Alméro Du Pisani ZS6LDP at 083-938-8955 or almero.dupisani@up.ac.za

Diary of Contests & Events / Dagboek van Kompetisies en Gebeure

Contests and Events - October 2019 / Kompetisies en Gebeure - Oktober 2019 (UTC Times)	
01	10-10 International 10-10 Day Sprint: 00h01Z - 23h59Z
03	SARL 80m QSO Party: 17h00Z - 20h00Z
05 - 06	Oceania DX Contest, Phone: 08h00Z - 08h00Z
12 - 13	Oceania DX Contest, CW: 08h00Z - 08h00Z
18 - 19	Jamboree on the Air - YOTA
19	October Radio Amateur Examination (Saturday: 10h00 - 13h00)
19 - 20	10-10 International Fall Contest, CW: 00h01Z - 23h59Z
19 - 20	Worked All Germany Contest: 15h00Z - 14h59Z
26 - 27	CQ Worldwide DX Contest, SSB: 00h00Z - 24h00Z
Contests and Events - November 2019 / Kompetisies en Gebeure - November 2019 (UTC Times)	
02	Pretoria Amateur Radio Club: Fleamarket: From 10h00 at POMC
02 - 03	Ukrainian DX Contest: 12h00Z - 12h00Z
09	Antique Wireless Association AGM: 09h00 - 11h00 (see below)
09 - 10	WAE DX Contest, RTTY: 00h00Z - 23h59Z
09 - 10	10-10 International Fall Contest, Digital: 00h01Z - 23h59Z
09 - 10	SARL VHF/UHF Analogue Contest: 10h00Z - 10h00Z
16 - 17	SARL Field Day Contest: 10h00Z - 10h00Z
16	RSGB 1.8MHz Contest: 19h00Z - 23h00Z
16 - 18	ARRL Sweepstakes Contest, SSB: 21h00Z - 03h00Z
23- 24	CQ Worldwide DX Contest, CW: 00h00Z - 24h00Z
30 - 01 Dec	Russian World Wide Multimode Contest: 12h00Z - 11h59Z
The Pretoria Amateur Radio Club does not accept responsibility for the accuracy of contest details listed above. For verification and more information, please visit the SARL website, www.sarl.org.za , as well as the WA7BNM international contest calendar at the following website: http://hornucopia.com	

AWASA Annual General Meeting



Notice is hereby given of the Antique Wireless Association of Southern Africa Annual General Meeting to be held on Saturday 09 November 2019 commencing at 09:00 at the premises of the SAIEE in Observatory Johannesburg.

All members are invited to attend and join in.

Voting for the next Vice President, President in waiting, will be called for as well as posts for members of the committee as per our Constitution of 2014 (revised).

There will be tables available for a swap and sell and there will be a braai/eyeball QSO afterwards.

Anyone needing to order braai packs please let me know and we will organize them. There will of course be extras available, but if you want to make sure you get one, please pre-order from Andy ZS6ADY.

Should you not be able to attend but would like to put forward any nominations or suggestions for the next year, please email your suggestions to any member of the present committee.

If you are not sure where the SAIEE is, please visit our website and check out the Museum news for direction. Please visit www.awsa.org.za for more information.

PARC Committee Members: 2019/2020 PARK Komiteede: 2019/2020

The following PARC Members were elected at the AGM to serve the following term:
Die volgende PARK Lede is by die afgelope AJV verkies om die volgende termyn te dien:

		
Louis de Wet ZS6SK Chairman, Watts, SARL & ICASA Liaison	Graham Reid ZS6GJR Vice-Chairman ; Treasurer ; Website, SARL & ICASA Liaison	Johan de Bruyn ZS6JHB Membership, Repeaters & Rallies, Social
		
Irene Myburgh ZS6IEA Club Secretary, Social	Albert Schreuder ZS6SE Contests, Social & Finances: Taxation Affairs	

PARC Committee Members : 2019 – 2020 / PARK Komiteede : 2019 - 2020

Name & Callsign	Portfolio/s	Email Address	Tel No	Mobile No
Louis de Wet ZS6SK	Chairman, Watts, SARL, ICASA	louis.zs6sk@gmail.com	012-349-1044	072-140-9893
Graham Reid ZS6GJR	Vice Chairman, Treasurer, Website	greid@wol.co.za	012-667-2720	083-701-0511
Johan de Bruyn ZS6JHB	Rallies, Repeaters & Membership	zs6jhb@gmail.com	012-803-9418	079-333-4107
Irene Myburgh ZS6IEA	Club Secretary & Social	irene@srsa.gov.za	012-304-5109	082-462-6001
Albert Schreuder ZS6SE	Contests, Social & Taxation	albert.schreuder.za@gmail.com	012-361-6133	082-562-3825

PARC Co-opted Members : 2019 – 2020 / PARK Ge-koopteerde Lede : 2019 - 2020

Name & Callsign	Portfolio/s	Email Address	Tel No	Mobile No
Alméró Du Pisani ZS6LDP	Flea-markets, SARL Bulletins	almero.dupisani@up.ac.za	012-420-3779	083-938-8955
Tony Crowder ZS6CRO	Auditor	tcrowder@telkomsa.net	011-672-3311	
Pierre Holtzhausen ZS6PJH	Contests	zs6pjh@gmail.com		082-575-5799
Pieter Myburgh ZS6PAM	Repeaters	wooden@mweb.co.za		076-140-7562
Hans Kappetijn ZS6KR (Hon.)	SARL Bulletins, Swop Shop	ORVservices@gmail.com	012-333-2612	072-204-3991
John Minter ZS6LED	RAE Training, Technical	john.minter.za@gmail.com	012-349-0019	083-291-5422

Pretoria Amateur Radio Club: Annual General Meeting Pretoria Amateur Radio Klub: Algemene Jaarvergadering

The Pretoria Amateur Radio Club held its Annual General Meeting on the 21st of September at the Pretoria Old Motor Club. Due to the world cup rugby match between South Africa and New Zealand at the same time, the attendance was not as expected. However still, a quorum was reached, and the meeting could continue as planned. The AGM was opened, and everyone present welcomed by the then Chairman, Louis de Wet ZS6SK. The minutes of the previous AGM, prepared by Irene Myburgh ZS6EIA was read by Louis. Graham Reid ZS6GJR, Club Treasurer, reported that the Club finances was in a healthy state. Tony Crowder ZS6CRO was again appointed as the Auditor of PARC. This was followed by the Chairman's Report, presented by Louis de Wet ZS6SK, who thanked everyone for their contributions and efforts during the year, and elaborated on the future of PARC, with its 90th year celebrations laying ahead. The full report will be published in the January 2020 edition of Watts.



Johan de Bruyn ZS6JHB and Graham Reid ZS6GJR



Louis de Wet ZS6SK



Franco Visser, Joey Reid and Corrie de Bruyn



Louis de Wet ZS6SK and Hans Kappetijn ZS6KR

After the election of the new Committee for 2020 (see p 5) and General Matters, awards were presented to Club Members who made individual contributions to the Pretoria Amateur Radio Club: The following awards were made:

ZSL Trophy to most promising non-licensed members: Joey Reid, Corrie de Bruyn and Franco Visser.

SARL Piet Roos Trophy for Watts contributions: Louis de Wet ZS6SK, Hans Kappetijn ZS6KR (Honorary Member) and Vincent Harrison ZS6BTY.

PARC Hamspirit Trophy for Ham Spirit: Johan de Bruyn ZS6JHB, Fritz Sutherland ZS6SF, Andre Coetzee ZS6GCA and Theo Bresler ZS6TVB



Johan de Bruyn ZS6JHB, Andre Coetzee ZS6GCA



Albert Schreuder ZS6SE and Hans Kappetijn ZS6KR

Sunny-Don Practical Assistance Trophy for assisting others: Pierre Holtzhausen ZS6PJH and Pieter Human ZS6PA.

Hansie Meyer Trophy for contest participation: Hans Kappetijn ZS6KR, Theo Bresler ZS6TVB, Pierre Holtzhausen ZS6PJH and Albert Schreuder ZS6SE. Recognition is also given to the following Amateurs who have participated in contests: Jaco Cronje ZR6CMG, Pieter Human ZS6PA, Zack Pienaar ZR6ZAK, Gerrie Leonard ZS6GTK, Pierre Duminy ZS6FPS, JJ Snyders ZS6JSJ, Danie Terblanche ZR6AGB, Vincent Harrison ZS6BTY and Paul Greeff ZS6IO./ more awards on following page:



Johan ZS6JHB en Corrie de Bruyn



Franco, Joey, Corrie, Johan e Graham ZS6GJR



Hans Kappetijn ZS6KR en Albert Schreuder ZS6SE



Alméro Du Pisani ZS6LDP

Flea Market Coordination: Alméro Du Pisani ZS6LDP

Flea Market Assistance: Kenny ZS6KMM and Paddy Martin, Whitey ZS6JJJ and Erna Joubert, Sarel ZS6EK and Karin Stapelberg, Johan ZS6JHB and Corrie de Bruyn, Franco Visser and Louis de Wet ZS6SK.

Roy Alexander VHF Constructor's Trophy: Pine Pienaar ZS6OB

Roy Alexander Rally Trophy: Johan de Bruyn ZS6JHB

PARC and SARL Bulletin Readers and Relays: Hans Kappetijn ZS6KR, Alméro Du Pisani ZS6LDP, Johan de Bruyn ZS6JHB, Irene Myburgh ZS6IEA, Etienne Naude ZS6EFN ad Louis de Wet ZS6SK.

Radio Amateur Examination Training: John Minter ZS6LED.

Merit Awards for Rally Assistance: Menno Havelaar ZS6AGC, Sandy Havelaar ZS6ICE, Tony Crowder ZS6CRO, John Ogden ZR6JAO, Chris Barnard ZS6CMB, JB de Beer ZR6YV (Honorary Member), Graham ZS6GJR ad Joey Reid, Johan ZS6JHB and Corrie de Bruyn, Willie ZR6WGR and Sarina Greyling, Pieter ZS6CN and Annatjie Fourie, Pieter Myburgh ZS6PAM, Irene Myburgh ZS6IEA, Willem ZS6JNB and Sharon Weideman, Dawid Janse van Rensburg ZS6VS, Ronel Janse van Rensburg ZS6SBV, Willie and Annalie van Niekerk, and Franco Visser.



(Links) Corrie de Bruyn en Joey Reid ontspan by die braaivleisvuur na afloop van die AJV
(Regs) Wenner van bottels wyn na afloop van die toekennings: Alméro Du Pisani, Charles Mills ZS6CJM, Corrie de Bruyn, Fritz Sutherland ZS6SF en Albert Schreuder ZS6SE

Die toekennings is afgesluit met 'n trekking en vyf van ons lede het elkeen 'n bottel rooiwyn gewen.

Ons gasspreker was ongelukkig nie beskikbaar nie, en Louis de Wet ZS6SK het ingestaan met 'n aanbieding getiteld "Poisons and Venoms" met 'n interessante oorsig oor die wêreld van gifstowwe in die natuur, asook gifmoorde en toksiese verbindings wat ons in ons lewe in aanraking mee kom. Die verrigtinge is afgesluit met 'n bring-en-braai. PARC bedank graag vir Joey Reid en Corrie de Bruyn vir die reelings met die eetgerei en slaai. Graag bedank ons vir Graham ZS6GJR en Joey Reid vir hul werk met die trofees en toekennings. Ons opregte waardering aan u almal vir u harde werk en toewyding.

Hiermee bedank die Pretoria Amateur Radio Klub almal wat die AJV bygewoon het van harte vir hul tyd wat hul opgeoffer het. Ons opregte waardering.

Theo Bresler ZS6TVB does it again... and Again!!

In the November 2018 and April 2019 issues of Watts, we reported on the achievements of Theo Bresler ZS6TVB for the CQWPX contests. In the 2018 contest, Theo achieved No 5 in the World, No 2 in Africa and No 1 in South Africa with a total score of 512 848. Looking at the certificate below in: "South African Record" and "Zone 38 Record", it shows that Theo has broken the previous records for South Africa and Zone 38. Earlier this year, Theo has taken it up a large notch by achieving No 2 in the World, No 1 in Africa, and No 1 in South Africa!

Theo has indeed reached the top of contesting achievement, and Pretoria Amateur Radio Club again sincerely wishes him congratulations on his magnificent achievements in Ham Radio contests and thanks him for his contributions towards Amateur Radio and the Pretoria Amateur Radio Club.



Theo Bresler ZS6TVB busy with contests, and the awards he received in 2018 (top) and 2019 (below)



TRACN4 Nasionale Tydren



Die TRACN4 Nasionale Tydren het op 27 - 28 September by die Willem Prinsloo Museum naby Rayton en Bronkhorstspuit omgewing plaasgevind. Soos altyd, was die twee dae gevul met baie aksie en nog meer stof, veral in hierdie droë toestande wat ons tans beleef. Dit het niemand van stryk gebring nie, en die lede van Pretoria Amateur Radio Klub het by uitstek hul gewaardeerde diens gedoen. Graag wil PARK die volgende lede en beamptes bedank vir hul harde werk en bydraes tydens die tydren: Johan de Bruyn ZS6JHB, Graham Reid ZS6GJR, Menno Havelaar ZS6AGC, Sandy Havelaar ZS6ICE, Chris Barnard ZS6MCB, Tony Crowder ZS6CRO, JB de Beer ZR6YV, Irene Myburgh ZS6IEA, Pieter Myburgh ZS6PAM, Willie Greyling ZR6WGR, Willie en Annatjie van Niekerk, en Louis de Wet ZS6SK.

Na afloop van die prysuitdeling is die renjaers, beamptes en radio amateurs getraakteer met 'n heerlike skaapbraai en nagereg.



By die deelnemende spanne se werksareas waar daar hard gewerk word om die motors in top toestand te kry vir die trajekte



Aankoms by die einde van Trajek 9



Joey en Graham Reid ZS6GJR by beheer



Willie Greyling ZR6WGR se veldstasie en beroemde mas wat 'n weerlig aanslag oorleef het



Links bo: Johan ZS6JHB se veldstasie
Bo: Gesellig na 'n heerlike dag in die veld: JB de Beer ZR6YV (Erelid), Joey Reid, Graham Reid ZS6GJR, Irene Myburgh ZS6IEA, Johan de Bruyn ZS6JHB en Pieter Myburgh ZS6PAM
Links: Die winners vier met die gebruiklike sjampanje stort

Kompetisie Nuus: Uitspan by Roodeplaat Natuur Reserwaat

Vorbereidings vir toekomstige kompetisies is met erns aangepak tydens 'n onlangse naweek waar lede van die Pretoria Amateur Radioklub by die Roodeplaat Natuur Reserwaat uitgespan en hul toerusting getoets het.

Gerrie Leonard ZS6GTK het aan Watts 'n reeks fotos gestuur waarvoor ons hom graag bedank. Saam met Gerrie het JJ Snyders ZS6JSJ, Zack Pienaar ZR6ZAK, Ben Greyling ZS6YVC en Weon van der Vyfer ZS6LKF verskeie toetse en kontakte gemaak ter voorbereiding vir kompetisies in 2019, en wat volgende jaar voorlê.

Albert Schreuder ZS6SE, wat tydens die afgelope Komitee Vergadering verkies is as lid getaak met kompetisies, asook Pierre Holtzhausen ZS6PJH wat gekoopteer is, sal namens PARK leiding neem met die koördinerings van klub kompetisie aktiwiteite. Ons nooi graag ons lede om deel te neem aan die aktiwiteite wat beloop om baie genotvol te wees hierdie komende jaar.

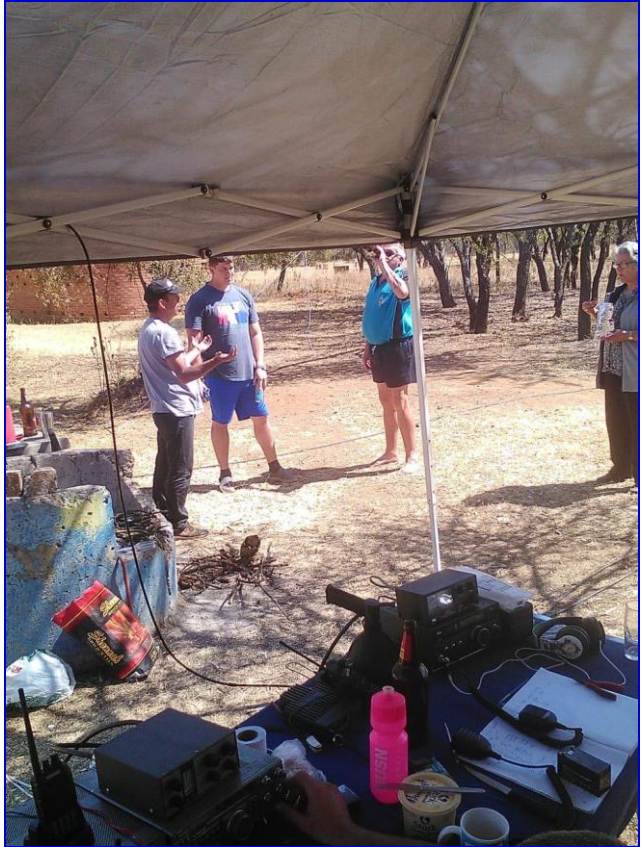
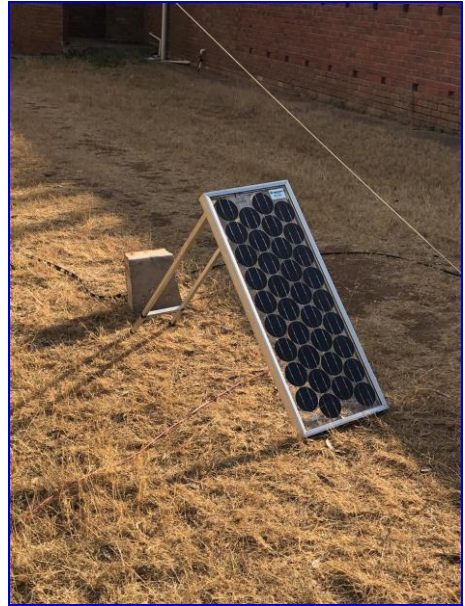


Zack Pienaar ZR6ZAK



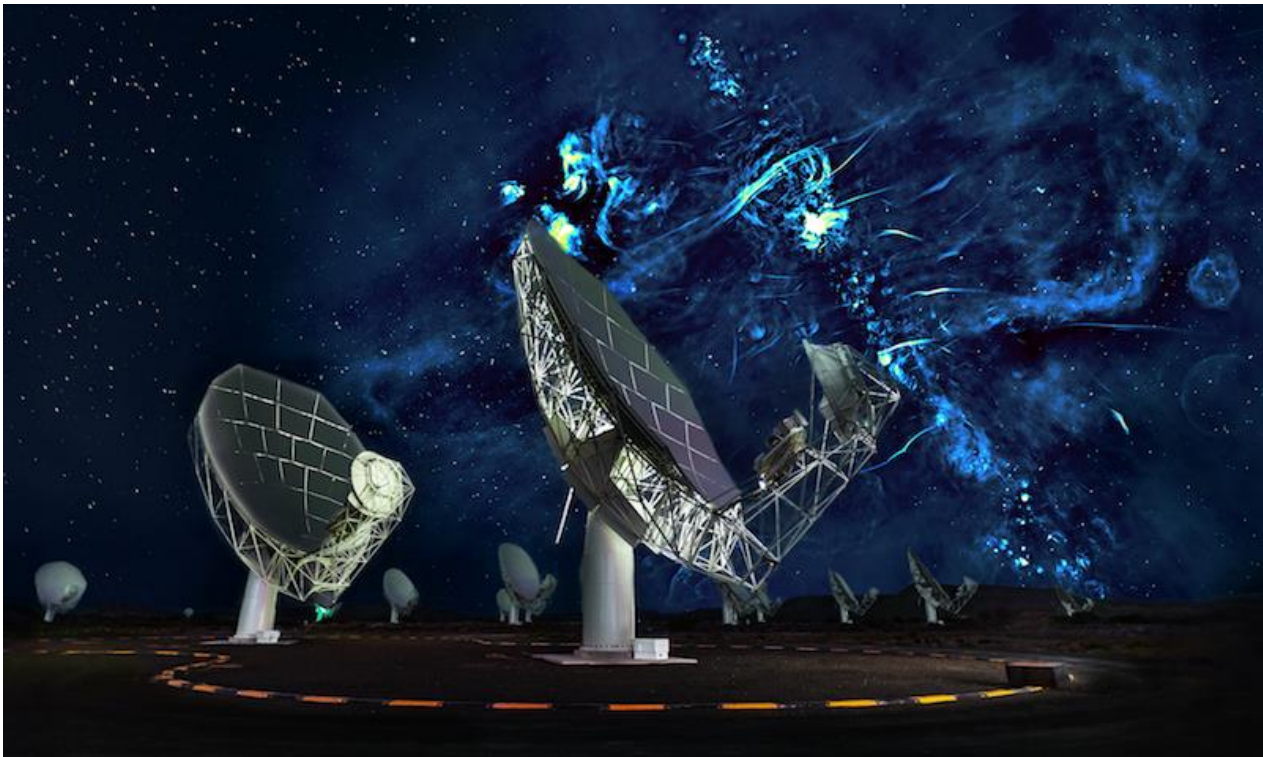
JJ Snyders ZS6JSJ





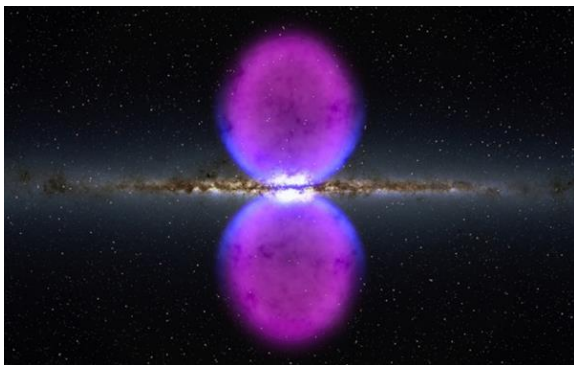
Meerkat Telescope discovers “Radio Bubbles”

Using the MeerKAT radio telescope, an international team of astronomers has discovered enormous balloon-like structures that stretch hundreds of light-years above and below the centre of our galaxy^[1]. According to Ian Heywood of the University of Oxford, who is the leader of an international team, the centre of our galaxy is a relatively calm region when compared to other galaxies with very active central black holes^[2]. However, the black hole in the centre of the Milky Way can occasionally become active, as it flares up when it devours massive clumps of matter (dust) and gas. In an article published in the Nature magazine entitled “*Inflation of 430-parsec bipolar radio bubbles in the Galactic Centre by an energetic event*”, Heywood and 99 other international authors^[2] described mapping out broad regions in the centre of the galaxy at wavelengths of 23 centimeters (1 284 MHz central frequency).



A composite image of radio emissions from the centre of the Milky Way and a section of the MeerKAT radio telescope array in the foreground^[2-4]. Photo credits: SARAQ, Oxford University and NRAO.

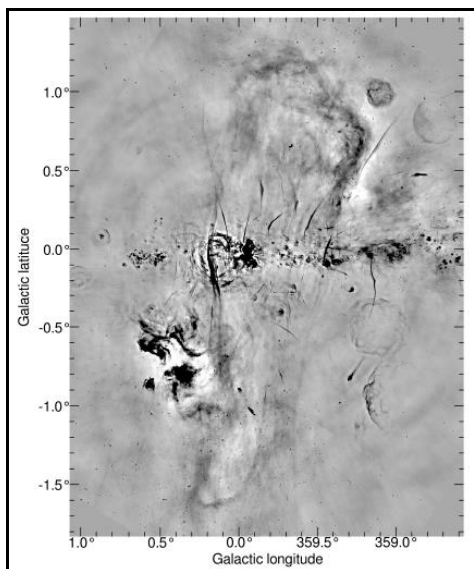
The observations at this wavelength revealed high energy generated in a process known as synchrotron radiation, where free-floating electrons are accelerated as they interact with powerful magnetic fields. Subsequently a characteristic radio signal is produced that can be used as an indicator of energetic regions in space.



Other hourglass like structures know as Fermi Bubbles, might be related to the structures discovered by MeerKAT. According to Dr. Fernando Camilo, chief scientist of SARAQ, Fermi Bubbles as much (50 times) larger than the MeerKAT radio bubbles (75 000 light years compared to 1400 lightyears), and much more energetic. The energy from the MeerKAT bubbles are less than 1% compared to the Fermi Bubbles. However, both are huge bi-polar structures, symmetric about the galactic centre, and near the central supermassive black hole.

The first hints of Fermi bubbles were first observed in X-rays (blue sections) by ROSAT (Röntgensattelit) in the 1990's, a joint German, US and British X-Ray observatory. The Fermi Gamma-ray Space Telescope launched in 2008 confirmed the outlines of two vast bubbles extending for tens of thousands of light-years on either side of the core of our galaxy (magenta section). Image by NASA Goddard Space Flight Center.

Examination of the nearly identical extent and morphology of the twin bubbles indicate that these features were formed by a violent eruption which punched over a short period of time through the interstellar medium in opposite directions^[1]. According to William Cotton of the US National Radio Astronomy Observatory, and co-author on the paper^[2], observations indicate a staggeringly powerful event which occurred 2-3 million years ago very near the central black hole of our galaxy. The eruption was probably triggered by vast amounts of interstellar matter and gas falling in on the black hole, resulting in inflated bubbles in the hot, ionized gas near the galactic centre, energizing it and generating radio waves which were detected on earth. The very long narrow radio filaments are found nowhere else, and their origin has been a mystery the past 35 years. The discoveries by MeerKAT suggest that the close association of the filaments with the bubbles implies that the energetic event that created the radio bubbles is also responsible for accelerating the electrons required to produce the radio emissions from the magnetized filaments^[1,2].



Top: Radio telescope images of complex radio images from the galactic centre, showing the bubbles as faint vertical structures which extend above and below the plane of the galaxy. Previously discovered radio filaments appear as bright, thin vertical lines^[1-4].

Left: Figure from Heywood *et al.* (2019)^[2] indicating radio emission “bubbles” from the Galactic Centre. An inverted greyscale radio image of the Galactic centre region at 1 284 MHz shows a bounded pair of synchrotron-emitting edge brightened radio bubbles. The morphology and symmetry about the Galactic Centre strongly suggest creation by a high energy event in the vicinity of Sgr A* (Sagittarius A). The bubbles have extended to a total axis length of 430 parsec, which significantly dwarfs any other coherent radio structure visible in this image^[2].

^[1]DE BOER, K. 2019. South Africa’s MeerKAT discovers giant radio bubbles at centre of Milky Way. South African Radio Astronomy Observatory. Article available at: <https://www.ska.ac.za/south-africas-meerkat-discovers-giant-radio-bubbles-at-centre-of-milky-way/>

^[2]HEYWOOD, I. *et al.* (+99 other authors)*. 2019. Inflation of 430-parsec bipolar radio bubbles in the galactic centre by an energetic event. *Nature*. Vol. 573, September 2019. Article available at: <https://nature.com/articles/s41586-019-1532-5>

^[3]CONOVER, E. 2019. Giant radio bubbles spew from near the Milky Way’s central black hole. Article available at: <https://www.sciencenews.org/article/radio-wave-bubbles-milky-way-black-hole>

^[4]CASTELVECCHI, D. 2019. Giant Bubbles spotted around the Milky Way’s Black Hole. Article available at: <https://www.scientificamerican.com/article/giant-bubbles-spotted-around-the-milky-ways-black-hole/>

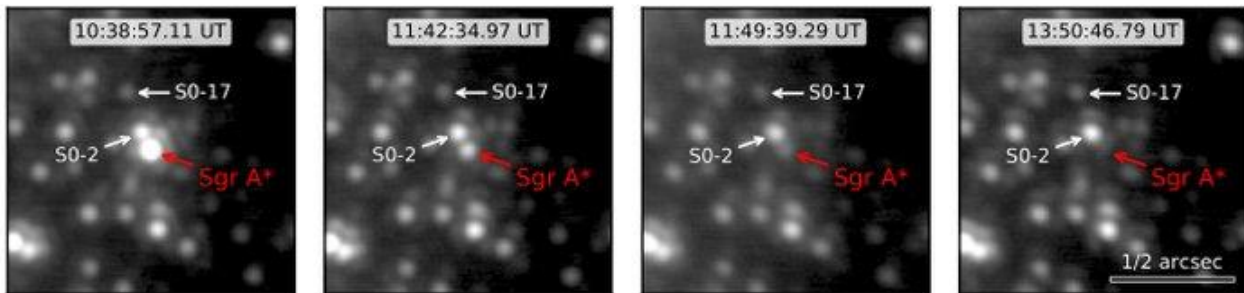
*United Kingdom, USA, South Africa (96 authors), Sweden and France.

Sagittarius A* emitting a mysterious light pulse

Sagittarius A* (Sgr A*), a bright and very compact astronomical radio source at the centre of our Milky Way is likely to be the location of a supermassive black hole. Sgr A* is regarded as relatively quiet, with no active nucleus, spewing light and heat into the space around it most of the time. It's activity is regarded as low key, with minimal fluctuations in its brightness^[1]. On the 20th of May 2019, Tuan Do, a UCLA astronomer at the Keck Telescope was watching the centre of the Milky Way, observing a passive flickering object which in the space of two hours increased in brightness with 75-fold. Initially it was thought that the object was a nearby star SO-2^[2]. Currently, astronomers are speculation on the cause of the light pulse. In increase in the amount of gas falling into the black hole may be one reason, but the presence of a mysterious cloud of gas and dust known as G2 may be an alternative possibility^[2].



Left: Artists impression of our Milky Way Galaxy ; Right: Sgr A* and two light echoes from a recent explosion (circled)



A Series of time-lapse photographs show a close approach by star SO-2 which has a 16-year elliptical orbit around Sgr A*. Last year it made it's closest approach, coming within 17 light-hours of Sgr A* of the black hole. It is suggested that when SO-2 passed close to Sgr A*, it changed the way gas flows into the black hole, resulting in more gas falling into it, making Sgr A* more variable.

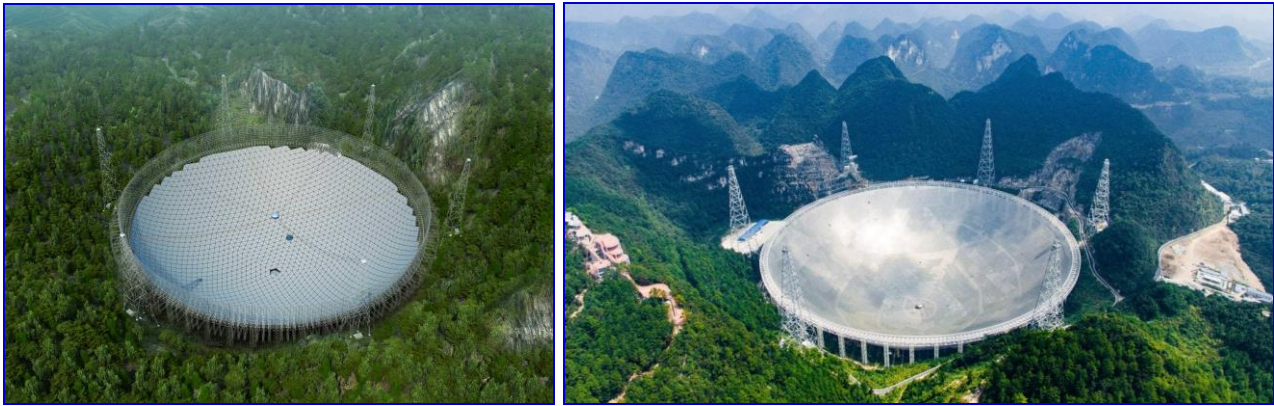
^[1]STARR, M. 2019. Our Galaxy's supermassive black hole has emitted a mysteriously bright flare. Available at: <https://www.sciencealert.com/our-galaxy-s-supermassive-black-hole-just-mysteriously-got-really-really-bright>

^[2]Dailygalaxy.com. 2019. Milky Way Alert - Sagittarius A* our galaxy's black hole suddenly flashing 75-times brighter. Available at: <https://dailygalaxy.com/2019/08/milky-way-alert-sagittarius-a-our-galaxys-black-hole-suddenly-flashing-75-brighter/>

^[3]BARTELS, M. 2019. Something weird is happening to the black hole at the centre of the Milky Way. Available at: <https://www.space.com/milky-way-supermassive-black-hole-weird-flare.html>

Chinese radio telescope detects strange

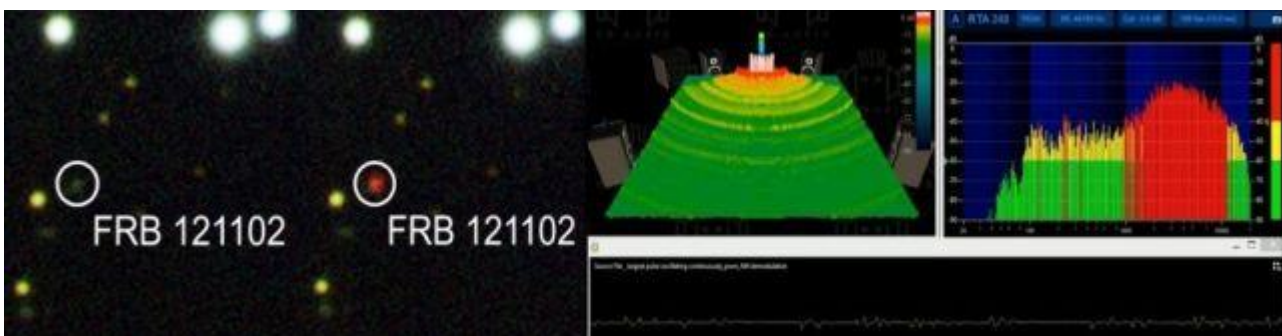
In an article entitled “China denies alien search with world’s largest radio telescope”^[1], China’s National Astronomical Observatories (NAOC) denied that the 500-meter Aperture Spherical Telescope (FAST) will begin searching for alien life in 2019. However, Wu Xiangping, director-general of the Chinese Astronomical Society indicated that they can receive weaker and more distant radio messages, and that it will help them to search for intelligent life outside of the galaxy and explore the origins of the universe^[1].



The Chinese Five-hundred meter Aperture Spherical Telescope (FAST)

It is however reported that China has already used the telescope to detect a notoriously strange signal beaming through space. Signals from unknown sources, known as Fast Radio Bursts (FRB’s) are often singular flashes, but a number of them have been observed to repeat at random intervals.

First observed in 2012 by the Arecibo Observatory in Puerto Rico, and recorded repeatedly, FRB 121102 was observed by FAST on 30 August 2019, recording dozens of pulses on that day, and more than 20 on the 3rd of September. It is estimated that this signal has travelled around 3 billion light-years across the universe to reach us. Using a 19-beam receiver covering the 1.05 - 1.45 GHz frequency range, FAST has a high degree of sensitivity, making it suitable to keep an eye on FRB 121102 and other FRB sources^[2-3].



The UFO Sightings Hotspot website provides and analysis of the FRB 121102 signal, and suggests the possibility of an alien digital signal^[3]. Processed signals converted into audible sound can be found on the You-tube website at <https://www.youtube.com/watch?v=uDTXtXARxfA>

^[1]Dailygalaxy.com. 2019. China denies alien search with world’s largest radio telescope. Available at: <https://dailygalaxy.com/2018/12/china-denies-alien-search-with-worlds-largest-radio-telescope/>

^[2]Wehner, M. 2019. China’s colossal radio telescope just heard a bizarre signal in space. Available at: <https://bgr.com/2019/09/10/fast-radio-burst-china-telescope-frb-121102/>

^[3]Nield, D. 2019. Giant radio telescope in China just detected repeating signals from across space. Available from: <https://www.sciencealert.com/that-giant-radio-telescope-in-china-has-now-detected-a-repeating-frb>

^[4]Ufosightingshotspot.com. 2019. The FRB 121102 millimeter radio pulse and listen to alien communication. Available at: <http://ufosightingshotspot.blogspot.com/2019/09/the-frb-121102-millimeter-pulse-radio.html>

Kungwini Welfare Organization: Nickel Christmas Market



The Kungwini Welfare Organization who provides residential care service to 140 adult disabled persons. Protective Workshops are available where the adult disabled persons are empowered to develop skills. Vocational therapy is available for frail residents who due to their disability cannot participate in the protective workshop. Recreational programs include socialization and religious programs while professional services include social work services and medical care.



The Nickel Christmas Market is our biggest annual fundraising and job creation project for the Kungwini Welfare Organization, providing KWO's Residents working in the Protective Workshop a chance to showcase the beautiful products that they make during the year. On this platform, we also provide other exhibitors the opportunity to sell their handiwork.

This year we celebrate our 19th Nickel Christmas Market hosting various exhibitions from toys to exclusive home décor products. The 2019 market will take place from 20 November to 01 December 2019, and is open from 09h00 to 18h00. There will be 190+ exhibitors, and the Tea Garden will provide light meals for everybody and Carvery on Sundays. We have a full liquor license with stalls offering Craft Beer and Gin to Wine. Entry is free with free and safe parking. The venue is child-friendly.

Pretoria Amateur Radio Club will put up a temporary radio setup transmitting on the 145.725 MHz Pretoria Repeater on the 27th of November from 10h00 to 12h00. Andre Coetzee ZS6GCA, Gerrie Leonard ZS6GTK and Louis de Wet ZS6SK will demonstrate Amateur Radio to the visitors. Please do call in and have a chat with us.

Long Term HF Propagation for October 2019: Courtesy Vincent Harrison ZS6BTY

The graph below shows the predicted F-layer Maximum Usable Frequency (MUF) for propagation from Pretoria^[1] using monthly sunspot numbers from SILSO^[2].

Local Propagation (up to 500 km): The F or F2 critical frequency (f_oF_2) is the MUF for short range, near vertical incidence sky-wave (NVIS) propagation.

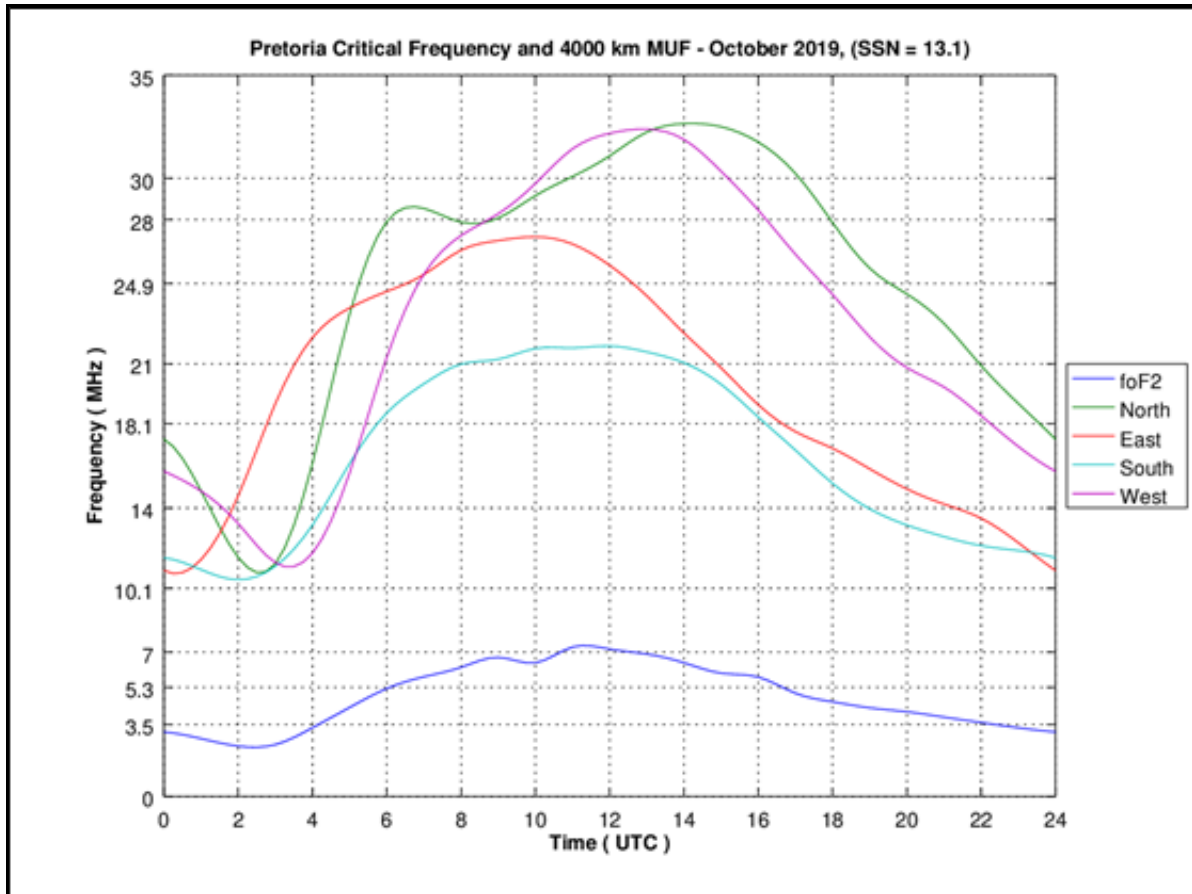
Long Distance Propagation: The MUF for a first hop of 4000 km in the cardinal directions is labeled North, East, South and West. They indicate the direction that propagation may be expected.

Worldwide Propagation Maps: <http://www.parc.org.za/index.php?page=propagation>

"Prediction is difficult, especially when dealing with the future". . . Danish Proverb. 73 Vincent, ZS6BTY

^[1]FTZMUF2: A simple method of estimating the ionospheric parameters of f_oF_2 and M(3000) with the aid of a home computer - Thomas Damboldt and Peter Süßmann, Deutsche Bundespost, December 1988.

^[2] Silso 12-month forecasts of the monthly sunspot number (<http://sidc.oma.be/silso/FORECASTS/prediML.txt>)



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