



WATTS 2018-04

Year 88 + 04m

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

✉ PARC, PO Box 73696, Lynnwood Ridge 0040, RSA

🌐 <http://www.parc.org.za> zs6pta@zs6pta.org.za



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

Swoopshop : 2m and 7.066 MHz live on-air after bulletins

Bulletin repeats on Mondays / herhalings op Maandae : 2m 19h45

Op my Golflengte



**Die program vir die Radio Amateur op Pretoria FM
met Gashere Martin Jansen, Etienne Naude ZS6EFN en Louis de Wet ZS6SK
104.2 FM of DSTV Kanaal 887 op Woensdae aande vanaf 22h30**

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Club Meetings / Klub

Club Social Meeting :

The next Club Meeting will be on Saturday, the 14th of April during the SARL AGM. Time to be announced

Club Committee Meeting :

The next Committee Meeting will be on Wednesday, the 4th of April from 19h00 at SAM

Member's Birthdays April 2018 / Lede Verjaarsdae - April 2018

10 Nic Louw ZS6NWL
19 Etienne Naude ZS6EFN

24 Jaco Steyn ZSL6119
29 Jyri Hamalainen ZR5AAE

Spouse's Birthdays April / Gade Verjaardae - April

10 Joey, sw of Graham Reid ZS6GJR
15 Joanne, sw of Evan Seligmann ZS6ELI
22 Marita, gade van Roy Alexander ZS6MI
27 Ronel, gade van Emil Bohme ZS6EGB
29 Heather, sw of Vincent Harrison ZS6BTY

Anniversaries April / Herdenkings - April

06 Lyn en Andre van Tonder ZS6BRC (Hon. Mem.)
10 Joanne and Evan Seligmann ZS6ELI
30 Joey and Graham Reid ZS6GJR

Member's Birthdays May 2018 / Lede Verjaarsdae - Mei 2018

03 Andries Schoombee ZS6SCH
06 Christopher Coetzee ZU6CC
17 Vincent Harrison ZS6BTY
25 Tjerk Lammers ZS6P (Erelid)
31 Gawie Basson ZS6GJJ
31 George Ellis ZS6GWE

06 Lourens Erasmus ZS6KRT
14 Johan Momberg ZS6BPP
21 Lukas Dorfling ZS6LMD
31 David Botha ZS6O
31 Dave Williams ZS6JW

Joys and Sorrows / Lief en Leed

Mervyn Schmidt ZS6MES het onlangs 'n knie vervanging operasie ondergaan. Alle voorspoed en spoedige herstel word aan Mervyn gewens.

Anniversaries May / Herdenkings - Mei

01 Ria and Peter Smith-Curren ZS6PJ

PARC Bulletins / PARK Bulletins

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 wat behartig word deur Hans ZS6KR.

PARC Bulletin Presenters : April - May 2018			
Date	Presenter	Date	Presenter
01 April 2018	Etienne Naude ZS6EFN	06 May 2018	Alméro DuPisani ZS6LDP
08 April 2018	Alméro DuPisani ZS6LDP	13 May 2018	Johan de Bruyn ZS6JHB
15 April 2018	Johan de Bruyn ZS6JHB	20 May 2018	Louis de Wet ZS6SK
22 April 2018	Louis de Wet ZS6SK	27 May 2018	Etienne Naude ZS6EFN
29 April 2018	Etienne Naude ZS6EFN	03 June 2018	Alméro DuPisani ZS6LDP

Please do contact Etienne Naude ZS6EFN for more information or any Bulletin arrangements

PARC SUBS : PARK LEDEGELD : FROM / VANAF : 30-06-2017			
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 ledegedelde betyds aan ons Tesourier, of betaal per oorplasing in die PARC rekening			
Please Note : If your Club fees are not paid up to date, birthday details cannot be displayed in Watts			

PARC Committee Members Contact Details / Komiteelede Kontakbesonderhede : 2017 - 2018

<u>Elected Members</u>	<u>Name</u>	<u>Callsign</u>	<u>Email Adress</u>	<u>Tel No</u>	<u>Mobile No</u>
Chairman, Web co-ordination	Graham Reid	ZS6GJR	greid@wol.co.za	012-667-2720	083-701-0511
Vice Chairman, Treasurer & Rallies	Johan de Bruyn	ZS6JHB	zs6jhb@gmail.com	012-803-9418	079-333-4107
RAE Training, Bulletins & SARA Liaison	Etienne Naude	ZS6EFN	etienne@afgrid.com	012-661-6745	082-553-0542
Club Secretary	Irene Myburgh	ZS6IEA	irene@srsa.gov.za	012-304-5109	082-462-6001
Social & Contests	Whitey Joubert	ZS6JJJ	zs6jjj@gmail.com	012-993-2267	072-120-4516
Watts Newsletter & RAE Assistance	Louis de Wet	ZS6SK	louis.zs6sk@gmail.com	012-349-1044	072-140-9893
Youth Development & Competitions	Nic Louw	ZS6NWL	nic.louw@telkomsa.net		083-596-1026
RAE Training & Technical	John Minter	ZS6LED	john.minter.za@gmail.com	012-349-0019	083-291-5422
<u>Co-Opted Members</u>	<u>Name</u>	<u>Callsign</u>	<u>Email Adress</u>	<u>Tel No</u>	<u>Mobile No</u>
Fleamarkets	Alméro DuPisani	ZS6LDP	almero.dupisani@up.ac.za	012-420-3779	083-938-8955
Auditor	Tony Crowder	ZS6CRO	tcrowder@telkomsa.net	011-672-3311	

Contests and Diary of Events - April 2018 / Kompetisies en Dagboek van Gebeure - April 2018 (UTC Times)

05	SARL 80m QSO Party : 17h00 - 20h00
07 - 08	SP DX Contest : 15h00 - 15h00
07 - 08	SARL UHF/VHF Digital Competition
13 - 15	SARL National Convention, AGM and Awards Dinner : Farm Inn, Pretoria
14	Mega Flea-market at the SARL National Convention : 09h00 - 16h00 : Hosted by PARC
14 - 15	JIDX CW Contest : 07h00 - 13h00
15	Hungarian Straight Key Contest : 15h00 - 17h00
18	World Amateur Radio Day
20 - 21	Holyland DX Contest : 21h00 - 21h00
21 - 22	YU DX Contest : 21h00 - 17h00
22	Closing date for May RAE registration
28 - 29	10-10 International Spring Contest, Digital : 00h01 - 23h59
28 - 29	SP DX RTTY Contest : 12h00 - 12h00
28 - 29	Helvetia Contest : 13h00 - 12h59
Contests and Diary of Events - May 2018 / Kompetisies en Dagboek van Gebeure - Mei 2018 (UTC Times)	
05 - 06	Antique Wireless Association Valve QSO Party
05 - 06	10-10 International Spring Contest, CW : 00h01 - 23h59
05 - 06	ARI International DX Contest : 12h00 - 11h59
12 - 13	VOLTA WW RTTY Contest : 12h00 - 12h00
19	May Radio Amateur Examination : 10h00 - 13h00
19	AMSAT SA Space Symposium
19 - 20	His Majesty King of Spain Contest, CW : 12h00 - 12h00
26 - 27	Pretoria ARC Rally communications at the Secunda SCC
26 - 27	CQ WW WPX Contest, CW : 00h00 - 24h00
More information can be obtained from the SARL website, as well as the WA7BNM contest calendar at the following website: http://hornucopia.com	

Notice of the SARL 2018 AGM and National Convention

The Pretoria Amateur Radio Club will be presenting the 2018 SARL National Convention at the Farm Inn Country Lodge (www.farminn.co.za/) at Silver Lakes in Pretoria East over the weekend of 13 to 15 April. The Farm Inn provides various luxury accommodations for those who would like to stay over on Friday and/or Saturday evening. The accommodation rates for their economy rooms are Single Rooms at R650 per person per night and if you are sharing at R550.00 per person per night. On Saturday afternoon between the flea market and other activities, you can enjoy a game drive at R150 per person. All delegates who would like to stay over must arrange and book accommodation in advance. To book your accommodation online go to www.farminn.co.za or contact Farm Inn reservations on 012 809 0266 or 0277.

The SARL AGM will start at 09:00 on Saturday morning 14 April with the SARL Awards Dinner that evening. Registration forms for the National Convention will be published on the SARL web site soon. The Pretoria ARC will be hosting a mega flea market, amateur radio displays and information kiosks on Saturday 14 April. The flea market is open to all radio amateurs who would like to sell their excess amateur goods, we also would like to call on all companies and businesses who would like to make use of this opportunity to display and sell their products and/or services. To date AMSATSA, SDR, BACAR, RaDAR and the AWA will have information kiosks. The flea market and other activities will start as soon as the Annual General Meeting has been concluded.

Tables for the flea market and information kiosks will be made available on the day, take the opportunity now and book your table early to prevent disappointment. Bookings for tables will close on Tuesday 10 April 2018. The information kiosks are aimed at giving organizations the opportunity to promote amateur radio activities and services such as SOTA, satellites, beacons, etc. We would like to call on all businesses and amateur radio organizations like clubs and related institutions to step forward and book your kiosk for the day. More information on the day's program and the names of organizations who will participate in the day's activities will be communicated to all during the weekly SARL news bulletins.

For more information, please contact Almero Du Pisani, ZS6LDP, at almero.dupisani@up.ac.za or call him on 083 938 8955 or you can contact Etienne Naude, ZS6EFN, at etienne@afrigrid.com or call him on 082 553 0542.

Kennisgewing van die SARL 2018 AJV en Nasionale Konvensie

Die Pretoria Amateurradioklub bied die naweek van 13 tot 15 April 2018 die Suid-Afrikaanse Radioliga (SARL) se Nasionale Konvensie aan by die Farm Inn Country Lodge (www.farminn.co.za/) te Silver Lakes, Pretoria Oos. Die Farm Inn bied 'n verskeidenheid luukse akkommodasie vir diegene wat graag Vrydag en/of Saterdag wil oorbly. Die akkommodasie tariewe vir ekonomie kamers is soos volg: enkelkamers teen R650 per persoon per nag, of R550 per persoon per nag as jy 'n kamer wil deel. Tydens Saterdagmiddag, tussen die vlooiemark en ander aktiwiteite kan jy 'n wildrit teen R150 per persoon geniet. Alle afgevaardigdes wat graag wil oornag, moet vooraf akkommodasie bespreek. Om aanlyn te bespreek, besoek www.farminn.co.za of kontak Farm Inn besprekings by 012 809 0266 of -0277.

Die SARL AJV begin Saterdagoggend om 9h00, met die SARL toekennings-dinee wat vanaf 19h00 plaasvind. Registrasievorms vir die Nasionale Konvensie sal binnekort op die SARL-webwerf gepubliseer word. Die Pretoria Amateurradioklub reël op Saterdag 14 April 'n mega-snuffelmark, amateur-radio uitstallings en inligting kiosks. Die vlooiemark is oop vir alle radio amateurs wat hul oortollige amateur goedere wil verkoop. Ons wil ook graag alle maatskappye en firmas vra om van hierdie geleentheid gebruik te maak om hul produkte en/of dienste aan te bied en te verkoop. Tot op datum sal AMSAT SA, SDR, BACAR, RaDAR en AWASA inligtingskiosks hê. Die vlooiemark en ander aktiwiteite sal 'n aanvang neem sodra die Algemene Jaarvergadering afgehandel is.

Vir meer inligting aangaande die algemene reelings van die SARL Konvensie kan Etienne Naude by etienne@afrigrid.com of 082 553 0542 gekontak word, terwyl Almero Du Pisani gekontak kan word vir reelings van die mega-snuffelmark by almero.dupisani@up.ac.za of 083 938 8955.

PARC Mega Flea Market at the SARL AGM Venue

The Pretoria Amateur Radio Club will be hosting the AGM of the South African Radio League on the 13-15th of April at the Farm Inn, Pretoria.

During the Saturday of the AGM, tables will be available in the Pavillion Lapa for anyone who wishes to exhibit their products or equipment, or to clear out their shacks of excess components or radio equipment.

Electrical outlets will be available close to each table.

John Minter ZS6LED and Louis de Wet ZS6SK will be available at the back entrance of the Lapa to assist you in transferring your goods and exhibits to your table/s. Trolleys will be available for bulky items.

Refreshments can be purchased from the outdoor restaurant next door from the Pavillion Lapa. Outdoor seating is available.

The following rates per table apply: Radio Hams : R50-00 ;
Ham Radio related Exhibitors : R75-00 ; Other Exhibitors : R150

For more information please listen to the Sunday Bulletins, or contact Alméro Du Pisani ZS6LDP at 083-938-8955 or almero.dupisani@up.ac.za Almero can be contacted to book a table

PARK Mega Vlooiemark te SARL AJV

Die Pretoria Amateur Radio Klub is die gasheer van die Suid Afrikaanse Radioliga se AJV op die 13-15^{de} April by die Farm Inn, Pretoria.

Gedurende die Saterdag van die AJV, sal tafels beskikbaar wees in die Pavillion Lapa vir enigiemand wat hul produkte of toerusting wil tentoonstel, of hul werkskamers wil skoonmaak van oortollige komponente or radio toerusting.

Elektriese toevoerpunte sal beskikbaar wees naby aan elke tafel.

John Minter ZS6LED en Louis de Wet ZS6SK sal beskikbaar wees by die agterste ingang van die Lapa om u by te staan om u items en toerusting by u tafel/s te kry. Trollies sal beskikbaar wees vir groot en swaar items.

Verversings kan verkry word vanaf die opeelug restaurant langs die Pavillion Lapa. Opeelug sitplek is ook beskikbaar.

Die volgende tariewe is van toepassing: Radio Amateurs : R50-00 ;
Radio Amateur verwante Uitstallers : R75-00 ; Ander Uitstallers : R150

Vir meer inligting luister na ons Sondag Bulletins, of kontak vir Alméro Du Pisani ZS6LDP by 083-938-8955 of almero.dupisani@up.ac.za Almero kan gekontak word om 'n tafel te bespreek.

2018 Tydren Kalender / 2018 Rally Calendar

Met die 2018 tydren seisoen wat voorlê, kan ons weer uitsien na 'n besige program met baie radio-aktiwiteit tussen die aksie, stof en geraas! Die Tydren Kalender is voorsien deur Johan de Bruyn, wat tydren aktiwiteite koordineer. Indien u belangstel om deel te wees van tydren radio-diens, kontak gerus vir Johan by 079-333-4107 of zs6jhb@gmail.com. Die datums van die Nasionale- en Streekstydrerne word onder aangedui.

With the 2018 rally season approaching, we can again look forward to a busy program loaded with radio-activity in-between the action, dust and noise! The Rally Calendar was provided by Johan de Bruyn, who is the coordinator of rally activities. If you are interested in becoming part of rally radio-service, feel free to contact to contact Johan at 079-333-4107 or zs6jhb@gmail.com. The dates of the National- and Regional rallies are presented below.

2018 SOUTH AFRICAN NATIONAL RALLY CHAMPIONSHIP

Date	Round	Name	Area
09-10 March	Round 1	Trade Brand Natal Rally	Ballito, KZN
20-21 April*	Round 2*	York Rally*	Sabie, Mpumulanga
25-26 May	Round 3	TBA	Delmas, Mpumulanga OR Carnival City, Gauteng
06-07 July	Round 4	Algoa Rally	Port Elizabeth, Eastern Cape
17-18 August	Round 5	Electrothread Rally	Bronkhorstspuit, Gauteng
28-29 Sep	Round 6	Lake Umuzi Rally	Secunda, Mpumulanga
26-27 Oct	Round 7	TBA	Sabie, Mpumulanga OR Tzaneen, Limpopo

* Part of the FIA African Rally Championship

2018 NORTHERN REGIONS CHAMPIONSHIP

Date	Round	Name	Area
21-Apr	Round 1	York Rally	Sabie, Mpumulanga
26-May	Round 2	TBA	Delmas, Mpumulanga OR Carnival City, Gauteng
18-Aug	Round 3	Electrothread Rally	Bronkhorstspuit, Gauteng
29-Sep	Round 4	Lake Umuzi Rally	Secunda, Mpumulanga
27-Oct	Round 5	TBA	Sabie, Mpumulanga OR Tzaneen, Limpopo
TBA	Round 6	TBA	TBA



Op my Golflengte : deur Etienne Naude ZS6EFN

Op 'n reënerige middag in Februarie, sit ek en Louis de Wet ZS6SK in 'n bekende restaurant in die ooste van Pretoria en koffie drink. Terwyl ons sit en gesels merk ek 'n bekende radio omroeper, Martin Jansen, op en gaan vra hom om by my en Louis te kom sit. Martin stem toe in en ons begin sommer met die intrapslag lekker gesels asof ons mekaar al jare lank ken. Om met iemand soos Martin Jansen te praat en sy agtergrond en lewe as radio omroeper te kon deel was baie interessant. Deur die loop van ons gesprek vertel ek en Louis hom meer oor ons doen en late, en onder andere dat ons ook radio amateurs is wat sy aandag onmiddellik prikkel. Martin vra toe meer uit oor die stokperdjie en in amper dieselfde asem noem Martin dat hy opsoek is na 'n program insetsel vir sy laataand program op Pretoria FM. Hy bied toe ook aan dat hy graag die wêreld van amateur radio en die van die radio amateur op sy program wil uitsaai en of ons twee dalk sou belangstel.

Sonder om te wik of weeg sien ek en Louis 'n geleentheid raak waar ons die amateur radio stokperdjie aan Pretoria FM luisteraars kan bekend stel. Martin het sommer toe ook daar aan tafel oor 'n koppie die naam van die program genoem, "Op my golflengte" en so is die program van stapel gestuur. Die hoof doel van die program, Op my golflengte, is om die wêreld van amateur radio en die van die radio amateur aan die luisteraars bekend te stel. En so hoop ons dat ons luisteraars geïnteresseerd kan maak om hierdie wonderlike stokperdjie op te neem en deel van die amateur radio wêreld te word.

Oor die volgende 30 of so weke gaan daar heelwat program insetsels wees wat handel oor amper elke aspek van die amateur radio wêreld. Ons gaan gesprekke voer met interessante radio amateurs wat die luisteraars gaan inligting oor die wye spektrum van bedrywighede binne die amateur radio spektrum. Ons begin binnekort met 'n reeks programme oor die geskiedenis van amateur radio. Dan is daar insetsels oor morse kode, jeug ontwikkeling, Hamnet, die rol van ons dames as radio amateurs gedurende vroue maand, dan het ons ook gesprekke met bekende radio amateurs oor hulle doen en late en hoe hulle die stokperdjie beoefen, en nog baie meer.

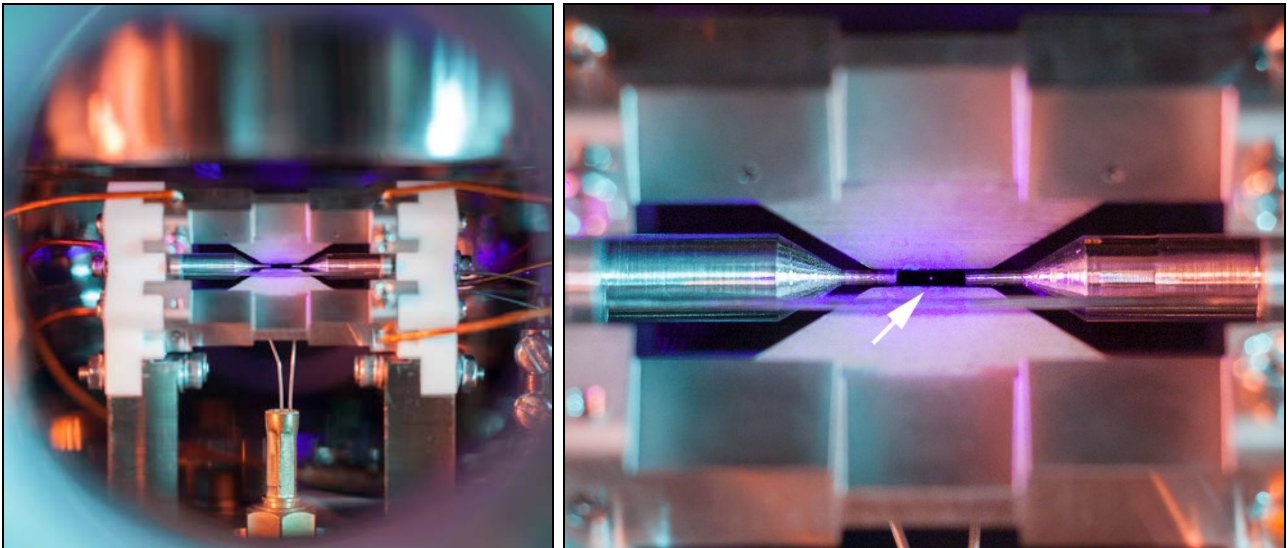
Sou enige van ons klubdele belangstel om 'n bydrae te maak en of selfs deel te neem in 'n opname of lewendige uitsendings tydens ons weeklikse uitsendings moet die gene myself of Louis kontak, julle bydraes en betrokkenheid sal baie waardeer word. Die tabel hieronder bied 'n kort oorsig oor van die programme wat ons beoog om uit te saai.

Program Reeks	Uitsaai Datum	Program Titel	Program Beskrywing
Program 1	07/03/2018	Die wêreld van die Radio Amateur (Deel 1)	Oorsig oor wat amateur radio is.
Program 2	14/03/2018	Die wêreld van die Radio Amateur - Deel 2 (Hoe word ek 'n Radio Amateur?)	Oorsig oor die kwalifisering en lisensiering van 'n radio amateur. Insluitend sekere radio amateur terme.
Program 3	21/03/2018	Inleiding tot die weeklikse programme "Op My Golflengte"	Oorsig oor die beplande programskedule en die inhoud daarvan
Program 4	28/03/2018	Gesprek met Radio Amateur Deel 1	Gesprek met Bernie v/d Walt ZS4TX
Program 5	4/04/2018	Gesprek met Radio Amateur Deel 2	Gesprek met Bernie v/d Walt ZS4TX
Program 6	01/04/2018	Die geskiedenis van Amateur Radio (deel 1)	Onderhoud met Hans van de Groenendal ZS6AKV
Program 7	18/04/2018	Die geskiedenis van Amateur Radio (deel 2)	Onderhoud met Hans van de Groenendal ZS6AKV
Program 8	125/04/2018	Die geskiedenis van Amateur Radio (deel 3)	Onderhoud met Hans van de Groenendal ZS6AKV
Program 9	2/05/2018	Amateur Radio nasionale en internasionale strukture.	Verduideliking oor die internasionale en nasionale strukture en beheer organisasies waarbinne die radio amateur opereer. (Onderhoud met Hans van de Groenendal).
Program 10	09/05/2018	Die Suid Afrikaanse Radio Liga	Oorsig oor die rol en diens wat die SARL vervul vir en namens die radio amateur. Onderhoud met die President van die SARL, Nico van Rensburg ZS6QL.
Program 11	16/05/2018	Die organisasies binne die Amateur Radio verband	Oorsig oor al die verskillende organisasies binne die Amateur Radio omgewing.
Program 12	23/05/2018	Wêreld Telekommunikasie en Inligting gemeenskap dag	Program handel oor Inligting van die ITU (Internasionale Telekommunikasie Unie)
Program 13	30/05/2018	Literatuur vir die Radio Amateur	Inligting rondom die beskikbare leesstof vir die radio amateur maar ook vir die algemene publiek wat belangstel.
Program 14	6/06/2018	Radio Amateur Klubs	Die rol van radio amateur klubs (Gesprek met die voorsitter van die Magalies klub)

Picture of a single atom wins a science contest

A remarkable photo of a single atom trapped by electric fields has just been awarded the top prize in a well-known science photography competition. The photo is titled “Single Atom in an Ion Trap” and was shot by David Nadlinger of the University of Oxford.

The Engineering and Physical Sciences Research Council (EPSRC) in the UK today announced the winning photos of its national science photography competition. Nadlinger’s grand prize photo shows an atom as a speck of light between two metal electrodes placed about 2mm (0.078in) apart.



The caption reads:

In the center of the picture, a small bright dot is visible - a single positively-charged strontium atom. It is held nearly motionless by electric fields emanating from the metal electrodes surrounding it. [...] When illuminated by a laser of the right blue-violet color, the atom absorbs and re-emits light particles sufficiently quickly for an ordinary camera to capture it in a long exposure photograph.

This picture was taken through a window of the ultra-high vacuum chamber that houses the trap. Laser-cooled atomic ions provide a pristine platform for exploring and harnessing the unique properties of quantum physics. They are used to construct extremely accurate clocks or, as in this research, as building blocks for future quantum computers, which could tackle problems that stymie even today’s largest supercomputers.

“The idea of being able to see a single atom with the naked eye had struck me as a wonderfully direct and visceral bridge between the minuscule quantum world and our macroscopic reality,” Nadlinger tells EPSRC. “A back-of-the-envelope calculation showed the numbers to be on my side, and when I set off to the lab with camera and tripods one quiet Sunday afternoon, I was rewarded with this particular picture of a small, pale blue dot.”

The photo was captured on August 7th, 2017, using a Canon 5D Mark II DSLR, a Canon EF 50mm f/1.8 lens, extension tubes, and two flash units with color gels.

"It's not real Ham Radio!" : by Chris Rolinson G7DDN

A Pioneering Background

I was musing recently on the wonderful history of Amateur Radio, from the early pioneers with spark transmitters and the race to get the first signals across the Atlantic, up to the Microwave enthusiasts who developed the way forward for space communications and satellite technology (and whisper this, mobile phone technology!)

The history of Ham Radio and RF technology is inextricably linked - there was even a time here in the UK where it was believed, anecdotally, that a Ham Radio callsign would help you to get a job with the BBC! However, change came very quickly, relatively speaking, in the early history of radio. From Marconi's experiments to the first Public Broadcast Stations was only 25 or so years. Television was only another 15 years or so behind that, and so on.

Resistance (or not feeling at "Ohm")

Yet the history of Ham Radio is also one of *resistance* to change - not from the pioneers (they were often the instigators of it), but from the "everyday" Hams. Let me see if I can give you some examples, with my tongue planted very firmly in my cheek.

"That's not Real Ham Radio!"

The early Hams used CW pretty much exclusively. So when AM arrived as one of the first of the voice modes, there was a bit of an uproar: *"It's not real Ham Radio! Real Ham Radio involves using a Morse Key! What in world is the hobby coming to, using voice to communicate over the airwaves? It's sacrilege!"* But life went on, AM found acceptance and all was well in Hamland once again.

The transistor technology arrived in the late 1940's and early 1950's, provoking quite a response: *"Hang on! That's not real Ham Radio! Real Ham Radios glow in the dark - we can't be having this miniature technology - they'll never last as long as valves or be as reliable".* But life went on, and solid state devices found acceptance and all was well in Hamland once again.

Then SSB arrived and there was *more* discontent. *"That's not real Ham Radio. Real Ham Radios don't sound like Donald Duck! It's a fad, it will soon fall away once people get fed up of hearing those silly voices".* But life went on, SSB found acceptance and all was well in Hamland once again.

Then FM and repeaters arrived and there was polarisation within the hobby (and it wasn't horizontal or vertical either!) *"That's not real Ham Radio. Real Ham Radio doesn't need to use that thing on top of the hill to help your signal get somewhere! Real Ham Radio is point to point!"*. But life went on, FM & repeaters found acceptance and all was well in Hamland once again.

Then Packet Radio arrived and there was *real* trouble. *"That's not real Ham Radio. Real Ham Radio doesn't need one of those new-fangled computer thingies in order to work. Get your key or your mic out and start working other Hams properly!"* But life went on, Packet Radio found acceptance and all was well in Hamland once again.

Then Digimodes arrived and there was yet more strife. *"That's not real Ham Radio. Real Ham Radio doesn't involve typing messages to other Hams - and those perishing computers again! What on Earth are they doing in the hobby?"* But life went on, Digimodes found acceptance and all was well in Hamland once again.

Then Digital Voice modes arrived and there were some *very* serious disagreements. *"That's not real Ham Radio. Real Ham Radios don't sound like R2D2! Real radios don't use the Internet to help them get round the world, they ABSOLUTELY HAVE to use atmospheric propagation. What is happening to this hobby???"* But life went on, D-STAR and other Digital Voice modes found acceptance and all was well in Hamland once again.

Then we arrive at today and Network Radios come onto the scene and all hell breaks loose! *"That's not real Ham Radio. This is playing at Ham Radio - there's no Amateur RF so it is simply not Ham Radio. What is more, I worked hard for my license, and everyone else should have to too! How dare people enjoy communications in an incorrect manner!"* So will life go on and will all ever be well in Hamland again?

The 21st Century Challenge

This is why the advent of Network Radios represents such a challenge to us as Hams - it is causing us to completely rethink what it means to be a Radio Amateur in 2018 and beyond.

And we will have to start facing up to questions similar to these.

- What exactly defines a Radio Amateur?
- What do we mean by "Amateur RF"?
- Is it RF generated by someone who is an Amateur?
- Or is it RF generated on a particular band allocated to us by the government?
- If so, does it absolutely HAVE to be that?
- Can it be nothing else?
- Does any of this really matter?

What about our bands?

As Hams we are very "attached" to our bands. Whether it be 160m or 2m, we almost have a psychological sense of "ownership" of them. We have "favorite" bands, we have bands we *never* frequent. We even have "our" spot frequencies and some Hams will get somewhat "assertive" if a fellow amateur who is not in their "group" *dares* to use "their" frequency! And yet in the 21st Century, I believe that the whole concept of bands & frequencies is becoming ever more fluid. Why would this be?

An example from Broadcast Radio

Not that long ago, we could tune into broadcast stations on Long Wave (LF), Medium Wave (MF), Short Wave (HF) and FM (VHF Band II). Stations frequently referred to themselves by frequency: "247 meters Radio 1" or "1152 AM" for example. It was seen part of the station's identity - many had the frequency in their station names!

But today, we increasingly hear less of this. When you listen to broadcast stations these days, they seem to be eschewing giving out frequencies, instead they just announce that they are on "FM, DAB and Digital" or something similar to that.

Why? Because radio is something you probably increasingly consume in one of two ways - either digitally (via DAB or Satellite or similar means) or by streaming via the Internet. Frequencies and by extension, bands, are not as relevant as they once were.

Moving Out!

The large broadcasters are also increasingly moving away from "traditional" radio. On Short Wave - only a few countries & various religious groups seem to operate there now. The big guys are moving out of Long and Medium Wave too. If commercial broadcasters are moving away, we need to ask why.

Do Bands matter?

I have a suspicion that this is, in part at least, because bands and frequencies don't matter so much these days. Domestic radio appliances are more about push buttons and screens that get you to your station instantly, rather than tuning dials with frequencies. It's the end product that is important, not necessarily the manner in which it gets to you.

Who tunes a modern broadcast radio in these days with a manual tuning dial? Anyone? It was the main knob on all radios not that many years ago! I can even remember tuning old VHF TV in with a dial in my early days on this planet - that *really* seems odd now!

Going one step further, many broadcast stations are not even using direct RF at all these days! We still refer to them as "radio stations" (or occasionally "Internet radio stations")

Is there any reason to think Ham Radio as a hobby will not invariably move in a similar kind of direction? One of our strengths historically as Hams has been that we are good at embracing new technologies and adapting them for our own uses.

The point I am leading up to is this - I suspect "bands" and "frequencies" are not really as big an issue in the digital age as we might *like* them to be. In essence, bands only exist because of propagation.

Propagation again

160, 40m, 20m, 10m, 2m etc. are all, in reality, "line-of-sight" bands. To over-simplify the subject, it is the ionospheric or tropospheric layers that enhance this line-of-sight propagation and turn it into something else. Each band has differing propagation qualities as a result, giving each band its "character" and for some, the study of propagation in itself is a fascinating part of the hobby.

Man-made propagation is just different

When we think of (and use) the *Internet* as a man-made propagating medium (which is what it is - it propagates signals around the world) then the concept of bands becomes redundant. The Internet is like one, almost infinitely wide, worldwide "band", constantly open S9+40 to all countries 24/7 with few vagaries - and not just for voice, but for vision and other digital modes as well. Put like that, who wouldn't want to use it? Would it actually matter what "band" you were (or were not) on, if there even were one? So the concept of "bands", by which so many of us define our activities, may be crumbling in front of us in this digital age and we may not even realize it yet! That is not to say our bands don't still exist, by the way - clearly they do. It is just that, to many people these days, bands are a foreign concept.

And then what?

As the hobby starts to come to terms with some of the implications of this, other issues then start to arise, such as.

- Do we need an exam any more to get a license?
- Do we even need a license?
- What form or forms should it take, if so?
- Might we see an influx of new people coming into the hobby because the entry to it is more straightforward?
- How would we cope with that?
- Do we even *want* new people coming in, especially if their views differ from ours?
- What will the hobby even look like in 20 years time?
- What happens to our "traditional" bands?

I expect to see a lot of discussion in the future about this - it's actually quite exciting!

Out of the Comfort Zone.

However it will make many of us feel extremely uncomfortable - the ground is shifting beneath our feet and the traditional *raison d'être* of Ham Radio is waiting to be challenged to change and adapt. I don't see this as a bad thing - intelligent honest debate is to be welcomed. The most important thing is to keep our minds and our thinking wide open. We shouldn't reject something just because it is new or because it challenges our preconceived ideas of where radio is going in general. Equally, we shouldn't throw the baby out with the bathwater and reject traditional Ham Radio as it has been for years. The Ionosphere and the Internet are complementary, not in competition.

My own opinion?

If you have read this far and you really want my personal thoughts. Why can we not have the best of both worlds? Surely we can. Network radios (at this stage in their development at least) are not contest radios for example, and the Internet is not yet a contest-friendly mode of propagation. (That might change of course!) so contesting is still best on the traditional Ham bands. I'll see you on 80 meters - 59 001 OM. However, regular reliable high-quality contacts around the world are but one thing Network Radios excel at, so why not just use that when you want to (or when the HF bands are full of noise or are otherwise dead)? I do! I don't see the expansion of choice in the hobby as a bad thing.

Enjoyment is the key

Does the fact that I am transmitting on cellular frequencies at 800MHz, 900MHz, 1800MHz, 2100MHz or on Wi-Fi on 2.4GHz or 5GHz matter? Is there something intrinsically evil about that? Is there more virtue in using 21 MHz or 432MHz, for example? They are just "frequencies" after all. I prefer to see myself following the motto of my local radio club, "Having fun with RF". Whether I choose to use a Network Radio or a Yaecomwood super-duper base station is not as relevant to me. Enjoyment of the hobby is everything, otherwise why have a hobby?

Whichever way this debate goes and whichever direction this great hobby takes, my line would be to keep *all* the richness of *every* aspect of the hobby. In other words, to go back to the title of this piece and change but one word, "*It's ALL 'real' Ham Radio*"

Article by Chris Rolinson G7DDN (March 2018) : Submitted by Johan Lehman ZS6JPL

A recent article on the spaceweather.com website discusses the worsening cosmic ray situation which has been observed by Prof. Nathan Schwadron using the Cosmic Ray Telescope for the Effects of Radiation (CRaTER) which is housed on the Lunar Reconnaissance Orbiter (LRO). In an article entitled “Does the worsening galactic cosmic radiation environment observed by CRaTER preclude future manned deep space exploration?” by Schwadron *et al.* (2014)^[1] the authors state that solar winds from the Sun are currently exhibiting extremely low densities and that the strength of the magnetic field of the Sun are at an extreme low, conditions that have never been observed in the space age^[1]. Abnormal solar activity between solar cycles 23 and 24 has resulted in the longest solar minimum in over 80 years, with a continuation of an unusually small solar maximum of cycle 24 (Figure 1)^[2]. Due to the remarkably weak solar activity, the authors have also observed the highest fluxes of galactic cosmic rays in the space age and relatively small solar energetic particle events.

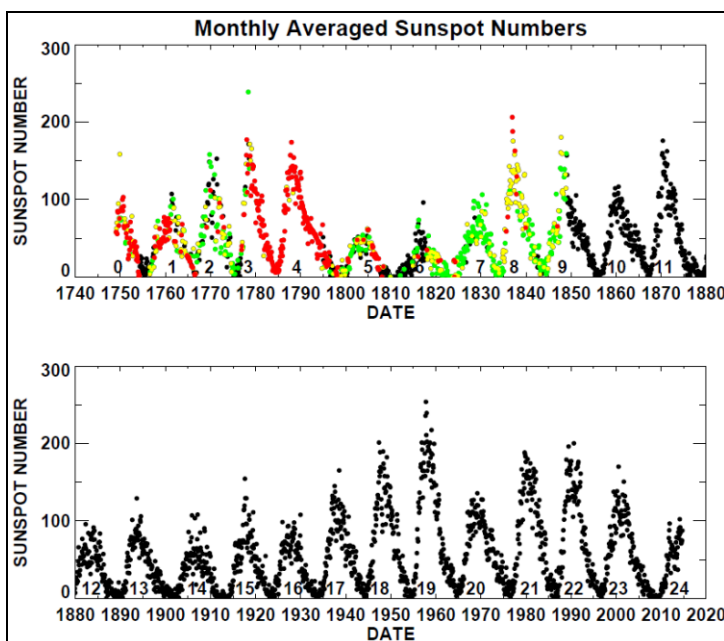
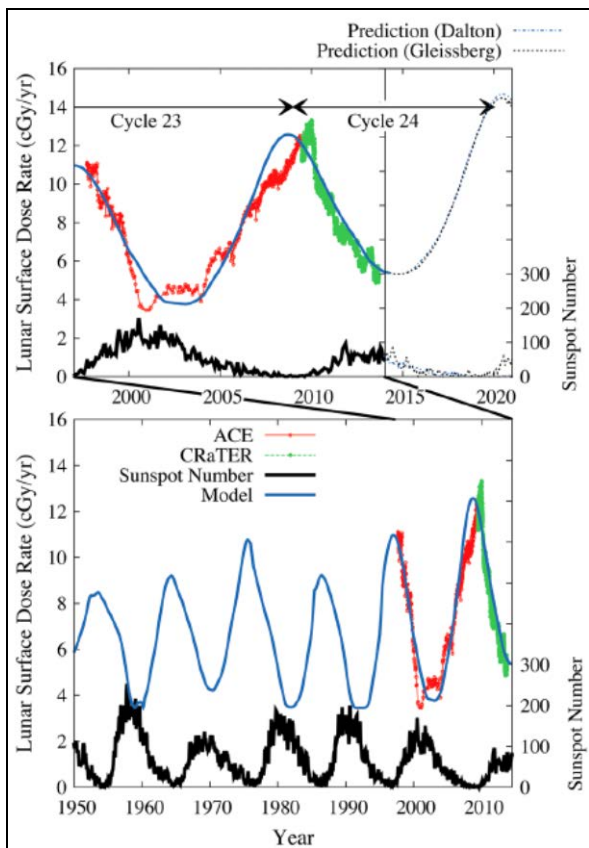
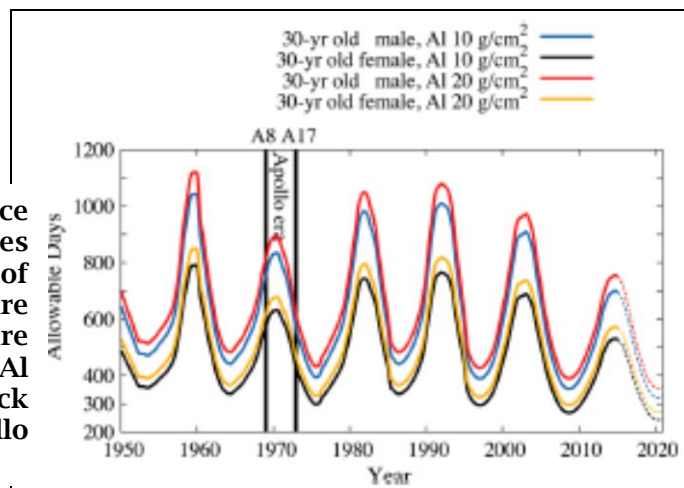


Figure 1: Monthly average values of daily International Sunspot Numbers from 1740 to 2018, showing the solar cycle as it varies in amplitude, shape and length. [Months with observations from every day are shown in black. Months with 1-10 days of observations missing are shown in green. Months with 11-20 days of observation missing are shown in yellow. Months with more than 20 days of observation missing are shown in red]^[2]

Ionizing radiation from Galactic Cosmic Rays (GCRs) and Solar Energetic Particles (SEPs) have a significant effect on long-duration crewed missions in deep space, commercial airline crews, and humans on the surface on the earth to a lesser extent. During prolonged space missions such as on the International Space Station (ISS), crews can potentially face a variety of consequences which may range from acute effects (radiation sickness) to long term (chronic) effects such as cancer induction^[3] and damage to organs such as the heart and brain. Galactic Cosmic Rays originate from a variety of sources outside our solar system. They consist of a mixture of high-energy photons and sub-atomic particles accelerated towards Earth by supernova explosions and other similar violent events in the cosmos^[4]. Although ultraviolet and other rays originating from the sun are known for their potentially dangerous effects on humans, the sun ironically is the first line of defense against GCRs. The magnetic field of the sun, combined with solar wind act as a porous “shield” that fends off cosmic rays attempting to enter our solar system. The shielding action of the sun is at it’s strongest during a Solar Maximum and at it’s weakest during a Solar Minimum, which follows an eleven year rhythm.

Figure 2 shows the number of days a 30-year old male astronaut could spend in space while protected by an aluminum shield with a density of 10 g/cm², without reaching the mandated NASA radiation limits. During the 1990’s an astronaut could spend approximately 1000 days in interplanetary space. In 2014, the amount of days have reduced to only 700.

Figure 2 : Days in interplanetary space before a 30-year old astronaut reaches their career radiation limit for 3% of exposure-induced death (REID). Shown are maximum days before 3% REID limits are reached assuming different amounts of Al shielding (10 g/cm² and 20 g/cm²). Black lines indicate times spanned by the Apollo missions from Apollo 8 to Apollo 17^[1].



Deep solar minima between cycles 23 and 24, as well as the activity in cycle 24 differed significantly from that in cycle 23. During this period, the usually fast solar wind was slightly slower, was significantly less dense and cooler, had lower mass and momentum fluxes, and weaker heliospheric magnetic fields as compared with earlier cycles. During the rise of activity in cycle 24 the mass flux of solar wind remained low and the magnetic flux of the heliosphere remained at significantly lower levels than observed at previous solar maxima in the space age. Cycle 24 is the weakest solar maximum of the space age, which continues the highly anomalous trends observed in the deep cycle 23-24 minimum. Conditions during the cycle 23-24 minimum appear to be similar to conditions at the start of the Dalton Minimum. Taken together, these recent changes suggest that the next solar minimum may continue to show declining sunspot numbers, associated with declining values of magnetic flux and further reductions in solar wind particle flux.^[1]

Figure 3 Evolving and increasingly hazardous radiation levels in space. The sunspot number predictions (black and blue dashed lines) show two cases based on a Gleissberg-like and Dalton-like minimum, the results of which are similar. The dose predictions (solid blue line and upper black and blue dashed lines) are from a sunspot-based model of the heliospheric magnetic field and the correlated variation in modulation of GCRs.^[1]

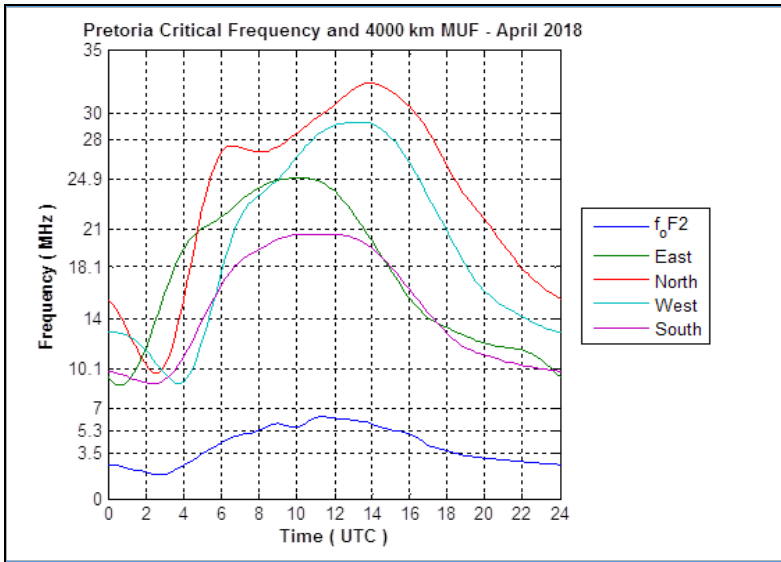
The anomalously weak heliospheric magnetic field and low solar wind flux during the last solar minimum have resulted in GCRs achieving the highest flux levels of the space age, and fluxes continue to be unusually elevated through the cycle 24 maximum. The potential impacts of changes in GCR fluxes and conditions on the Sun on the Earth's atmosphere and climate has to be quantified yet, and remains a unknown. The potential impacts of GCR on dose rates encountered by astronauts are illustrated in Figure 3.

^[1]SCHWADRON, N.A., BLAKE, J.B. et al. 2014. Does the worsening galactic cosmic radiation environment observed by CRaTER preclude future manned deep space exploration? *Space Weather*, 12: 622 - 632.

^[2]HATHAWAY, D.H. 2015. The Solar Cycle. NASA Ames Research Center. Moffett Field, CA. USA.

^[3]NRC. 2008. Managing Space Radiation in the New Era of Space Exploration. Natl. Acad. Press, Washington, D.C.

^[4]What's up in space. 2018. <http://spaceweather.com/archive.php?view=1&day=05&month=03&year=2018>



Long Term HF Propagation for April 2018

DX Operating

The graph shows the 4000 km maximum useable frequency (MUF) to the East, North, West and South from Pretoria for the first hop using the F2 layer.

Local Operating

The F2 critical frequency (foF2) is the maximum F-layer frequency for short range communications.

For worldwide propagation see: <http://www.parc.org.za/index.php?page=propagation>

Courtesy Vincent ZS6BTY

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