



President's message



On 22nd July 2018, we will be conducting the AGM of ARSI at Bengaluru and we trust we can meet many of our members there.

Very few of our members responded, initially to join the "members only" e-group that was started so that AGM notices could go by e-mail and avoid the complaints of postal delays or non-delivery, and eventually e-voting, could be arranged.

So this time e-mail is being used for those who accepted receipt by e-mail, and postal delivery to the others.

This is very inefficient and cumbersome and hopefully by next year we should have at least 90% of our membership enrolled in the new "members only" e-group.

So if you have not already done so PLEASE do send a mail to < secretary.arsi@gmail.com > from your preferred e-mail address, and quote your call sign and membership number, so our records may be updated.

It is emphasized once again that unless you enrol, you will not get important mailers like AGM notices and nomination / ballot papers as ARSI will soon stop sending such notices by

ordinary post as it has been found that many are not delivered and ARSI has been unnecessarily blamed for not sending them.

There have been many changes with personnel at WPC and our efforts to streamline matters have been badly affected. We are now experiencing some severe delays even in routine matters, which were very quickly dealt with earlier. Hopefully this will change and we can continue to work on removing age-old regulations.

At the end of this year, the HFI 2018 will take place in Bengaluru, and we are all looking forward to a great eye-ball and many interesting programs.

73, Gopal Madhavan VU2GMN

From the Editor's Desk



I am happy that some tech articles are showing up in the HRN – thanks to Kiran VU2XE. I hope other members will take the cue and come up with articles on experiments, award-hunting, contesting, home-brewing or just about anything that interests an amateur. The various clubs around the country can help too, by

contributing information on their meetings, demos if any held in the quarter, the activities of their respective clubs, and so on. Let's make the HRN all the more interesting!

Contest activity is picking up – I am sure it will not be far in the future when VU contesters are known worldwide and achieve top scores in the leading/popular world-wide contests.

The QSL buro has moved to Bengaluru – members please note the new address, details elsewhere in this issue... I am planning to print one QSL in each issue of the HRN – so members are invited to forward an image of their QSL cards (.jpg) for including in the HRN. Those of you that are active on the bands but not printed your cards – please do get them printed – and start sending out those much wanted QSL cards.

73, Ganesh VU2TS



50th Anniversary of IARU Region 3

14th April is a red letter day for radio amateurs in Asia and Pacific being the date on which IARU Region 3 was established in 1968

From a small beginning at a conference in Sydney Australia on 12th through 14th April 1968, the IARU Region 3 is now a very well developed organisation representing and safeguarding the interests of radio amateurs in the region.

In Sydney in 1968 the participants were of the opinion that the organisation should achieve two objectives:

a) **Ultimate Aim** – To establish and maintain continual liaison between Region 3 countries with a view to presenting a united front at future ITU conferences and to maintain a program of assistance to developing countries.

b) **Immediate Aim** – At Sydney in 1968, to establish an administrative and organizational framework to enable the achievement of the ultimate aim, following perhaps the pattern of Region 1 and Region 2.

The participants were representatives of Australia (WIA), Japan (JARL), New Zealand (NZART), Philippines (PARA) and the President of IARU (W0DX). Support for the meeting and apologies from Ceylon, India, South Korea, Laos, Thailand, United Kingdom and Hong Kong. W0DX was appointed to preside.

At Conferences in Tokyo in 1971 and Hong Kong in 1975, the further working details were formulated keeping in mind:

1. Region 3 is very wide spread extending half way round the world and having areas in the tropics and both temperature zones.

2. Region 3 contains half the world's population, but has the lowest resources per capita in its overall economy.

3. To do what should be done for amateur radio in Region 3 was a mammoth task, to which those present could well contribute, but for which they could not assume full responsibility.

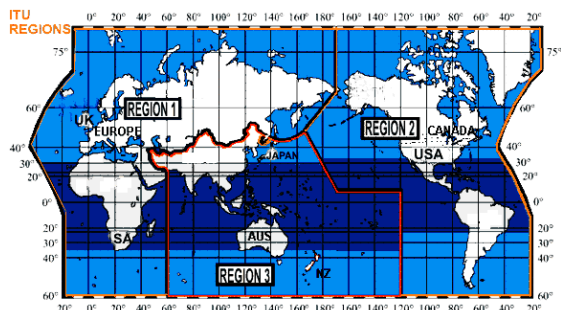
4. Recognising the important voting strength of Region 3 governments in ITU conferences a most important objective was to influence them towards favourable amateur radio policies, even in advance of practical progress in the respective countries.

5. A regional organization could promote periodic meetings of Region 3 society representatives, to advance IARU objectives, such meetings fulfilling a need not otherwise provided for in the overall IARU set-up.

Triennial conferences have been held since then at regular 3 – yearly intervals to decide on the directors for the next triennium, to review work done and decide on policies and priorities for the future.

IARU Region 3 plans to promote the operation of Special Call Sign stations by the Member Societies and to issue the 50th Anniversary Award to those who make QSOs with these Special Call Sign stations. More details are to be announced.

IARU Region 3 has, since its formation, provided substantial support for the societies and their members spread out all over Asia and Pacific.



WORLD HAM RADIO DAY CELEBRATIONS

Pune Hams celebrated **World Ham Radio day** on 18th April 2018 at **Muktangan Science center & Innovation Hub's Ham Radio club**. More than 25 sharp students, of 7th to 10th standard in the age group of 12 to 15 years, participated along with 10 Hams in two hours of eventful activity.



OM Parshuram VU3YWB & OM Vasant VU3YWW all the way from Ahmednagar joined celebrations.

The meeting started with presentation by VU2VPR OM Vilas. He covered basics of Ham Radio and purpose of celebrating World Ham Radio day. The students were taught 7 alphabets in Morse Code. It created real excitement. It was truly interactive session with students.



OM Milind VU2MSB shared his experience stating Joy in Ham Radio. He also explained about QSL Cards. Milind motivated many students to talk back on questions raised for better understanding of the subject.

OM Shripad VU3YBU explained about his Web Radio "**Radio Shripad**" and demonstrated its working. Students excited and downloaded the App from Google store.

SWL Sanjay Chandekar, in charge of Radio FTII 90.4 Mhz explained about Community Radio and its role in spreading Ham Radio across community. He recorded entire program for proposed broadcasting.

The **man of the event** was OM Atul VU3OPY who demonstrated recorded SSTV pictures successfully. It was to mark 40th Anniversary of "Interkosmos Programme", international space station sent 12 pictures for Radio Amateurs. These pictures were successfully received by OM Atul. It was the most exciting demo.

VU3UJO OM Kousthubh took interview of Ahmednagar Hams which was immediately broadcast-ed around 4:30PM from Radio FTII on 90.4 Mhz.



OM Kousthubh Tamhane VU3UJO demonstrated J Pole and dual beam UHF/VHF Antenna - his recent creation - and explained their working.



The program ended with vote of Thanks by Exploratory staff. Thanks to Exploratory staff for the excellent arrangements.



As part of the International Amateur Radio Day celebration the **PUNE HAMS & AMATEUR RADIO Club** – VU2PHQ and College of Engineering Pune's COEP HAM Club – VU2COE jointly conducted a days Antenna workshop and built VHF Slimjim Antennas at the College of Engineering, Shivajinagar, Pune.



The workshop began with a session on antenna theory. While dwelling on the subject of antennas, VU2ASH – Ashok Joshi in a brief and concise manner also covered the topic of Radio wave propagation, the ionosphere plays in long-distance radio communication. He explained that while building antennas it is important to role He also explained the physics behind the magic and what would be the best frequencies to use during the day or the night. He said that that in sky wave propagation critical frequency and critical angle of radiation are very important and hence it is important to know the critical angle of radiation of the antenna one is using. Here are some photos:



The **Pune Hams** monthly Meeting for the month of June was held on the morning of Sunday 3rd June 2018 at the Chavan Nagar Police Headquarters, Pune.

The meeting started with a visit to the local Police Wireless museum where old HF as well as VHF & UHF Radio sets used by Police Wireless were displayed.

Along with Pune Hams, Police Wireless Technical staff also participated in an antenna Workshop.

Mr Mukund Bhople – antenna expert - from Mihir Enterprises, Pune conducted the Antenna Workshop providing 'hands on' experience for the participants.





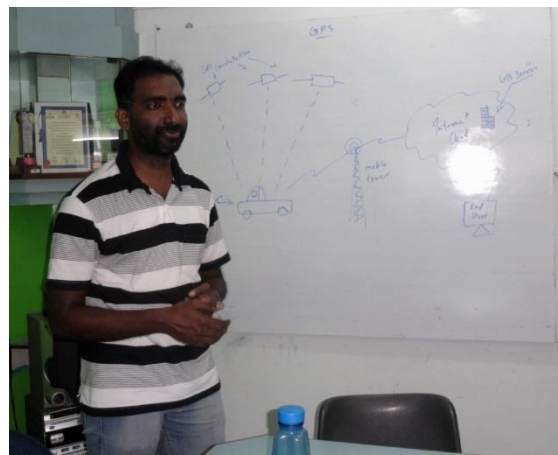
1. Know better about antenna design and calculations.
2. Difference between Analogue and Digital communication. (Case Study+ Hands on)
3. Introduction about GPS & GIS. (Case Study+ Hands on)
4. How coordinates are so important for RF communication
5. How to simulate it. (Case Study+ Hands on)
6. Know RF coverage before Field work & after Field work. .(Case Study + Hands on)
7. Questions and answers

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Pune Ham friends Eyeball QSO was on July 1st, and attended by 14 Hams and SWLs.

The meeting started with presentation by visiting Ham from Bangalore VU3UFG OM Ullas who works for a Bangalore based Thinture *Technologies* - manufacturing GPS for Vehicle tracking. He explained in detail how the system meet AIS 140 standard and its working with 2 Mtr accuracy.. It was very interesting session.

Later Mr Mukund Bhole presented a practical session on GPS & Satellites. He explained the basics of Navigation like (A) Visual (B) Celestial (C) Radio and how the first two are not reliable due to fog, cloud etc.



The Hams were split into two groups. The two GPS Units were led by YL Ketkl VU3OQA and Milind VU2MSB for marking various spots around meeting Hall. All the locations were tracked on Laptop using Garmin software. It was a very thrilling experience for Pune Hams.



Thanks to my friend Rotarian Pradeep Wagh for providing his office premises for the meeting.

Vilas Rabde VU2VPR

Adviser, IL & FS CapSwap 9822502078

VU2NB – Mata Sharan – 89 Years Old – Oldest VU Ham – Still Active

Evening of Friday, the 09th March 2018, eyeball with VU2NB, Mata Sharan, a veteran ham born in June 1929, licensed in 1965, turned out to be a holistic experience for us - VU2ATN – Atanu Dasgupta and VU2OEC – Rajesh Chandwani. 73 years ago, in the year 1945, VU2NB served in Bharat Heavy Electricals Limited (BHEL) got bitten by the ham-bug. He struggled to hunt for the tuition of Morse code and waited long 20 years to finally meet two Indian Railway's wireless operators at the Bhopal Railway Station. Nothing could stop Mata Sharan to make his dream come true.

It was strenuous effort to ride a bicycle in the evening to the Bhopal Railway Station – 12 Kms away from the location of BHEL, just to learn the Morse code. Waited patiently for 2 hours for 30 minutes of Morse code lessons. And finally, in the year 1965.

He then assembled a 10 watt tube radio to work stations all the way to Bombay. His life was full of events. During the night of December 3, 1984, poisonous gas that leaked from the factory of Union Carbide in Madhya Pradesh capital Bhopal killed thousands of people directly. The incident is now known as the Bhopal disaster or Bhopal gas tragedy. Mata Sharan got the news on radio in New Delhi and decided to head to Bhopal, when everybody was running away from Bhopal. After the most uncomfortable jam packed train journey, he reached Bhopal after the two days of the disaster. VU2NB and his fellow hams readily offered their radio services to the then local government administration. Within no time, VHF link was setup for five locations, where the relief work was going on.

The main command centre was at the residence of Mata Sharan, which became temporary home for many for the next 17 days. What a selfless service to mankind! Kudos to the XYL of VU2NB who gave all support to the team based at the command centre. As the

VHF links served the local administration, VU2NB also set up HF link with Bombay and several other locations across India. Many QSPs with respect to knowhow of missing persons relayed after physically verifying in Bhopal.



VU2NB, VU2ATN, and VU2OEC

After the long innings at BHEL, radio life and service to mankind, VU2NB did not stop. Now, at the age of 89 years, Mata Sharan enjoys teaching students at Blind Relief Association in New Delhi.

Wonderful eyeball with VU2NB, Mata Sharan blended with stories of life lived at the fullest, passion for the amateur radio and his plunge to serve for the fellow countrymen during the moment of disaster, paints a big picture on our mind, heart and great respect as he walks to be nonagenarian.

Editor's note: *Rajesh! Did you say oldest? Please note, Mata Sharan may come in at third place only – we have Rag/VU2WP at 94 and Daya/VU2CT at 92 years, going strong. HI*

ARSI Yearly award nominations are now open

As most of you know ARSI had introduced awards for VU contesters and home brewers few years ago. This year, we have updated our website to provide guidelines for these awards. Very importantly we have brought in nomination procedures for some of these prestigious awards. It is our intent and hope that hams themselves come forward and help us to recognize VU achievers in the field.

We invite all of you to go through following website sections and send nominations for these awards:

(1) **VU2VWN Homebrewer of the Year 2017** - <http://arsi.info/awards-vu2vwn-homebrewer/>

(2). **Contester of the year 2017**
<http://arsi.info/contester-of-the-year/>

(3). **Young Contester of the year 2017**
<http://arsi.info/young-contester/>

The nominations will be received till mid-July. Nominations in the form of a simple description of the nominee, his/her achievement and statistics can be sent with details to ARSI email address < [contests\[at\]arsi.info](mailto:contests[at]arsi.info) >

73 - de VU2XE Kiran
Contests and Awards Manager

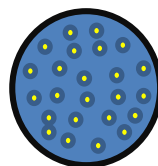


How deep is the skin?!

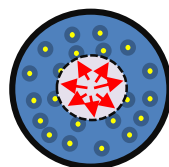
Don't worry, we are talking only about transmission lines at radio frequencies here HII.

Recently, I was going back to basics and reading about phenomenon called Skin Effect. In general, we have perception that thicker the conductor better is the current flow. In most cases this is true as we deal with DC or AC at ~50Hz for home appliances where the current density is much distributed throughout the mass of the conducting medium. So, higher the thickness better current carrying capacity of the

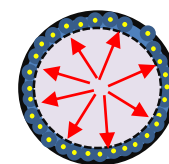
conductor without posing much resistance. Now comes our AC, here as frequency increases the current starts to concentrate towards outer edge of the conductor. In VHF and above range almost all the current density is on the surface of the conductor itself. This tendency is called as Skin Effect. The following diagrams illustrate this phenomenon:



In DC, the electron density is spread much across the conductor



At lower AC frequencies, electrons start moving away from the center of the core



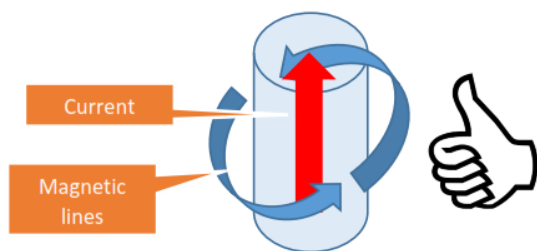
At higher AC frequencies, you can see that electrons are almost near the surface "Skin"

This effect is popularly known as **Skin Effect**. Skin effect is also the reason why at very high frequencies engineers take special care for surface conductivity of the material much more than inner core itself. For example, many of the Coaxial transmission lines such as LMR400 has copper clad Aluminium core. Here what matters is diameter (resulting in total surface area) of the core, the quality of the copper coating on the skin and the dielectric between the core and shield. The same skin effect is also the reason why RF signals get confined within the coax shield. And you know what happens when the signal leaks into outer surface of the shield (RFI, SWR in the shack etc). We can discuss that topic of unbalanced transmission line and choking requirements in some future articles.

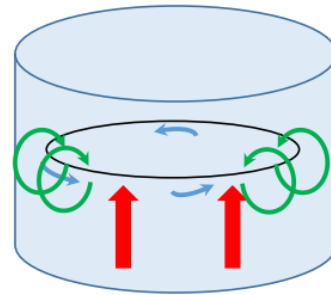
Now let us get bit deeper to understand why this happens. I encourage tech hearted readers to check Wikipedia notes on the topic as well. We first dissect this subject using basics of

electromagnetic theory. One basic rule is called “right hand thumb” rule. Imagine making a thumbs-up gesture with right hand. Now if your thumb is pointed upwards, consider that as the direction of the current. Notice your fingers which are turning inwards towards you right? That is the direction in which magnetic lines are going to form.

Let us scale this a bit with a picture. First let us not complicate what happens within the conductor, let us only see the picture from outside.



Here we see that when current is moving in one direction, magnetic lines are around the conductor. Now in case of AC, the current flow moves back and forth reversing direction at the rate of frequency. Another phenomenon kicks in which is called induced current (Eddy current). This is similar to having dynamo where because of the movement of magnetic force, current flows in the conductor. But in our case movement is caused by primary current's magnetic force itself. Following diagram depicts this better with Red arrows showing main current path (static snap shot of current to show happening better than showing arrow both ways ☺) , blue lines showing magnetic lines and green lines indicate induced current lines. These induced currents oppose main current path more and more as we go inside the core. This opposition forces current to flow outwards taking lesser resistance path. As the frequency increases, greater magnetic change density is formed and thus more induced opposite currents pushing the current to the edge!



The popular Amateur Bands are on the HF and VHF bands. When you are on bands such as 10mtr, or VHF and above, put special attention on the Coax shield quality and core surface. If you check serious VHF DXers, most of them use hardlines for no other reason!. On the lower bands such as 160, 80 and 40mtrs, currents pass through the depth of the core more than the surface. Here paying special attention to the conducting material thickness can play significant role in station signal performance.

There are good online conductor thickness calculators from where one can see the skin depth and come to some conclusions on antenna wires etc. This also is one specialist area for RF PCB track designers where they have to carefully balance between thickness and width for given power level and frequency range.

Well, I thought “That’s it” as far as this article was concerned. But wait... some inspiration came from our editor VU2TS Ganesh. He has provided some interesting information/links to web articles and suggested that I expand this article a bit more. I went through some of them and added a few more lines here HI!

Till now, we saw the Skin Effect on the “Things”. What about our own human Skin?!. Many of you might have seen pictures of Plasma Globe and its interesting colourful lights. These are also effects of skin, but more to do with electron charges than magnetic fields only. Very nicely illustrated comic by Stanford and NASA on this subject can be found at following link https://s3.amazonaws.com/cdn.teachersource.com/downloads/lesson_pdf/Plasma-lobes.pdf



There are some more experiments in the field which also take advantage of Human Skin level conduction

(CAUTION: DO NOT TRY THESE EXPERIMENTS AT HOME WITHOUT UNDERSTANDING THE RISKS. SOME OF THESE INCLUDE LETHAL VOLTAGE LEVELS)

There are lot of scientific work around charge particles, Plasma, Ionosphere which are connected to the phenomenon one way or other. While writing this article, I was referred to works of KL7AJ (Eric P Nicolos). He has written nice articles in many Radio Magazines (eHam, QST, QEX etc). He was also featured in QSOToday Podcast hosted by Eirc Guth (4Z1UG)-at

<https://www.qsotoday.com/podcasts/kl7aj>.

Hope you will enjoy reading/listening such information content as well.

I would like to end this article with a memory lane wind-back from VU2TS:

"I remember how VU2AK 'Chief' (Les King, SK) got a shock when he was trying to adjust something on his home brew linear amp with the power on and tuned on 20 meters. WHAM! and Chief was flat on the floor as if he got pushed by someone. When he stood up he noticed that one leg of his trousers was slit - with the edges burnt - right from top to bottom and he had slight burn marks on his leg. Skin effect saved him! "Thought I was a goner" is what he seems to have remarked when he managed to stand up again" Hi

Hopefully, this article has given some basic understanding on Skin effect, some of its practical implications and probably helped you to recollect some interesting memory lane stories. I am one of you hams who love to listen, learn, share and play amateur radio. Any feedback/corrections to the articles or suggestions on topics of interest are most welcome.

73 de Kiran VU3XE vu2xe.kiran@gmail.com

The ARSI QSL Bureau has moved

The ARSI QSL bureau, which is being managed by VU2PAI, in Mangaluru is officially being transferred with immediate effect to Bengaluru. **The new QSL manager is Lakshman BIjanki, VU2LBW.**

The official address of the bureau will be:

**India QSL Bureau
c/o Linux Learning Centre Private Limited
635, 6th Main Road,
Next to Bank of India
Hanumanthnagar,
Bengaluru 560 019.**

Ramesh Kumar, VU2LU Has very graciously agreed to let us use his official address for the same. He has also confirmed to us that we can continue to use the address for receipts of QSL cards, even after his term in the GC ends.

There will be some changes in the operation of the bureau:

- Payments for the QSL services will be received into the official bank account of ARSI
- Cash for QSL services will no longer be accepted

- Statistics of the volume of cards handled by the bureau will be updated on our website and by e-mail to our members periodically.

Remember: The final courtesy of a QSO is the QSL card...

ARSI's BIG CQ AWARD

ARSI has initiated "The Big CQ" award for the VU *"movers and shakers"* in the internationally popular CQWW contest. The main objective is to promote more VU hams in contesting and raising the bar of competition.

In the 2017 SSB contest, Siddhu scored a whopping 3,09,312 points out of 596 QSOs.

ARSI congratulates Siddhu VU3NXI for becoming winner of the first "The BigCQ" Award. An uniquely designed winning plaque will be handed over to VU3NXI shortly.



Why do we chase awards?

- Sense of accomplishment
- Hones our operating skills
- We like to collect things
- We're competitive (what's your DXCC total?)
- We need wall coverings
- It's downright fun!!!

Awards and Contesting corner

We just had a most active first half of 2018 for ARSI events with National Field Day and followed by CQVU 40mtr SSB Contest. ARSI official member group on groups.io has been used effectively to communicate with members for transparently. It has introduced a new dimension to interactively gather feedbacks to fine tune events as required.

Throughout the events communications were given via ARSI groups.io discussion forum and then via general discussion forums of India. Lot of members who never had logged into contest logging software such as N1MM logger were provided reference of excellent guide material produced by previous contest manager VU2CDP. As contest manager, I had also produced a field day specific YouTube video which hopefully inspired many new comers into such events.

We declared new award this year for breaking CQWW VU contest records with a high scale of measurements. We hope to raise the bars for competitive hams in VU with this award. For the first time testers with "Rookie" category of CQWW, we have relaxed minimum score rules. For this award, we look at record published by CQWW on their webpage for the year and then apply minimum score criteria. We are excited that the first ever "The BigCQ" award goes to VU3NXI for making big scores (309,312) in CQWW SSB 2017 Low Power assisted category. This demonstrates what can be achieved in VU with as little as 50Watts in SSB contest. Congrats to VU3NXI – you have just raised low power contesting bar for in VU!

More information on this award is at following ARSI web page: <http://arsi.info/the-bigcq-award-for-cqww-contest/>



ARSI is participating in IARU HF Championship contest on July 14th -15th with AT1HQ as callsign. This year we sent out selection process via groups.io survey and collected details from interested members. Then based on the qualification criteria team was shortlisted for HQ stations.

As of this article writing day, our application is with WPC for special call sign. Following is the team for AT1HQ team: VU2CDP, VU2MUD, VU2CPL, VU2RCT, VU2IBI, VU2YVK, VU2PTT and VU2XE. Preparations are underway to optimize individual strengths for this 24 Hr contest. If you are not part of this HQ team, you can still participate in this contest with your home call sign. Also, I am sure it will be an interesting contest this year as more than 60 worldwide teams are contesting as part of WRTC 2018(World Radiosport Team Championship) – Germany during the same IARU HF championship.



IARU Region 3 - 50th year celebrations:

IARU Region 3 is celebrating 50th year this year. As a member society of IARU, ARSI is also planning for participating in this celebration with special call sign of **AT50IARU**. More details on the event can be found at IARU Region 3 awards website: <http://awards-iaru-r3.org/>.

Finally, as we grow VU participation on contesting, we are contemplating on E-certificate distribution to avoid cost of printing certificates and delays/damages in postal process etc. I will be announcing these new updates during any upcoming events.

Contesting is a journey for every competitive ham. For some hams it is obsession and for some it is not of any taste. As we march on this contesting awareness journey, many from governing council of ARSI and my VU contester friends help in many of the tasks to be planned well ahead. Numerous hours are spent in ideating, formulating and communicating contests and events, Ultimately to make contesting fun for all!. I thank all of them for continued support.

73s and see you on the air!

DE VU2XE Kiran
Awards and Contest Manager ARSI

Meet the Chairman of the FCC

Some of you may not know – the Chairman of the FCC is Ajit Pai. Here's a tweet of him meeting KN4CTF and appreciating hams:

@AjitPaiFCC

Great meeting amateur radio operator
@knoxcounty in #SanJuan!



Thanks for the work you and so many other ham radio folks have done helping people in #PuertoRico post-#HurricaneMaria and for letting me officially sign your license! Our best wishes to Ajit

HF Terrain Analysis! How it matters for competitive stations.

Couple of years ago my Bangalore QTH neighbourhood started changing rapidly. Once used to be a 5 Acre coconut grove just 100 Feet north of my QTH was grounded over a week's time. It was a demolition monster drive similar to the one in the movie 'Avataar'. Along with hundreds of eagles and other birds who lost their home that day, I almost lost hope on my peak radio DXing days! After hearing that it is mega project with 360 apartments spread

over 5 blocks of 18 floors each, my backbone felt like just out of frozen ice! .

Then came a ray of hope. One of my senior ham friend helped me a bit by providing what was unknown to me then called HFTA. That analysis stated that, I will lose most of my radio take off angles towards the direction of this building complex which is from 320° to around 30°. It happens to be prime area for contesting and DXing over the poles for VU hams. Tower on top of my 140 feet high apartment terrace to overcome this obstruction was the immediate remedy, but it was ruled out for the risk. The new complex came up almost to a completion last year end during CQWW CW and as I write this in May 2018, It is fully at its target height with

Obviously, all things are not lost as radio signals bounce from many unknown objects and give some fun time as well. Fortunately as DX chaser my most wanted DX entities are now are towards South East and South West. I could compete for rare ones activated from 30° to 320° for sure. If there is VU rag chew on 40mtr or 20mtr, I don't have much issue as they are high angle (typically above 20°) communication. But for the contesting, it is a whole different story.

Recently, I purchased ARRL's Antenna handbook. The CD which came with it contained HFTA software written by N6BV. I got hooked to it once I learnt how to use it. It opened up new paradigm for me on HF ray propagation and study the effect of stacking, antenna height with respect to immediate terrain. In combination with K6TU's excellent terrain data service.

The basic steps for HFTA are simple:

- a) Register at K6TU.net
- b) Get your QTH's latitude/longitude values
- c) Create a new HF Terrain profile request (free service) for the lat/long of your QTH
- d) It takes few minutes time for the K6TU server to send you a terrain zip file by email
- e) Download the zip file and extract to a local folder on your computer

f) Open HFTA software and use the terrain input file for the azimuth angle of interest (K6TU terrain zip contains 360 files in one degree azimuth angle increments).

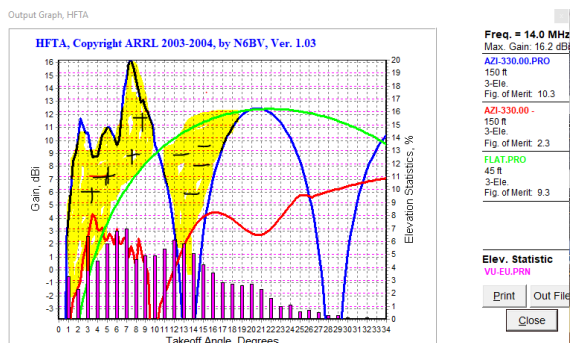
g) HFTA allows single or stack antenna combinations and upto 4 row profiles at times.

h) Set soil properties from dropdown values

That's-it!.

The CQWPX CW 2018 was my first contest after the high rise building got completed. This contest was to test all my understanding to practice and voila! – the analysis actually matched what I was observing. Signals were way down than it used to be. Partially, overall HF weather also had a play for sure.

Following are the HFTA output graphs of these changed conditions. My terrace is at 140 ft level and around 150 ft from me is the 180 ft tall new building. For the 20Mtr band:



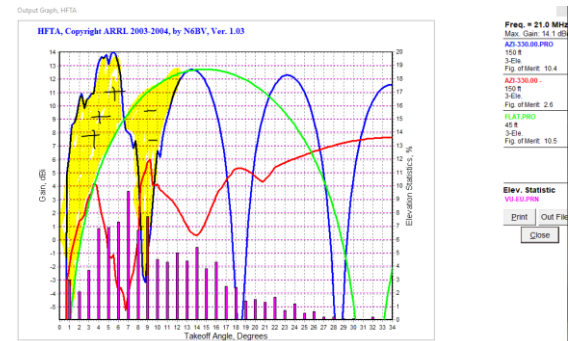
I plotted the graph with antenna at popular 50ft level on flat reference ground(Green), 150ft level without the high rise (Blue) at 330° and current condition with High rise (Red). Purple bars show percentage times signal arrival/take off, based on statistics to Europe.

We can see at 150ft level, there are deep nulls with signals below reference level. But then, there is surge in gain at low angles. This surge is due to ground gain (sum of reflection and diffraction) towards the direction of interest. No wonder why I used to catch K3LR, W3LPL and other long haul DX before many could hear them in the contest.

However, the situation completely different now. Graph red line barely rises above reference and gain is nowhere near compared to peak gain of 16dbi at 7° I had earlier (down by 15 dBi i.e 2.5 SUnits or more). We can also see that between 3° and 13°, statistically ~5%

of times signal arrival/takes off to EU (i.e most majority signals appear in this window only). So, chances that I work those station with good quality signals are lean now.

Following is a similar graph for 15Mtr band.



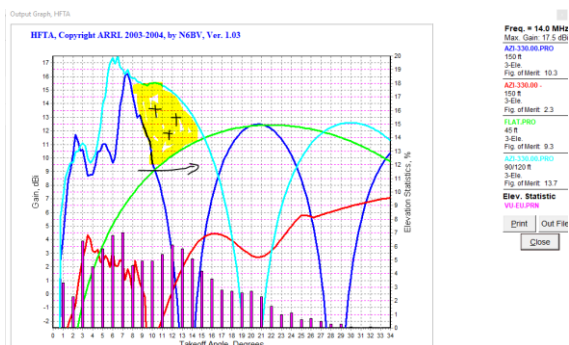
This reflects in my recent contest scores. I used to have restricted grade call VU3KPL earlier and best score was in 2015 CQWW CW with nearly a million points. I could achieve such score with 2 element Hex and 50Watts and that too with partial time on the air.

End of 2017, during the same contest, I could only manage 600K points. Now I have 400W power amplifier and Spiderbeam. i.e. incrementally 9dB (due to use of Amplifier) + 1.5 dBi (average Spiderbeam incremental gain compared to Hexbeam) = 10.5 dB more gain than restricted grade entry.

This gain in forward direction is mostly negated by the high rise on transmit. On the receive side, it is 1.5 dBi incremental gain, which will be of no use as building is blocking most of the low incoming signals. In total effect at DX end, I may be sounding similar to my earlier restricted grade signal, but if they respond and signal rays arrive at those angles, I will never hear them. In other words, with 20mtr noise floor at 3 to 4 on S meter, earlier I used to copy S5 and above easily. Some weak signals at S3 to S5 used to make to my log. However, now new situation completely washes out any signal arriving in the vicinity with S5 level (as it gets to my receiver to below noise level S5 – 2.5S units =2.5 S Units).

Lastly, 150 ft height was not the best height for all cases either. One can see deep nulls at some elevation angles with good percentage of signal arrivals. Most of the contesters have mono band stacks just to overcome those deep nulls. Following is stack of two number of 3 element yagis at 90 and 120 feet. Stacking moves the nulls to right making space for

desired angles and increases the gain on the lower angles.



To conclude, today there is ample amount of resources available for hams. Software such as HFTA provides invaluable guidance in opening up new ways to learn about antenna and wave propagation.

Good DXing!

VU2XE Kiran
Awards and Contests Manager ARSI

Excellent source of information on HFTA is available at following link:

<http://www.arrl.org/files/file/Product%20Notes/A%20ntenna%20Book/hfta.pdf>



OPERATING TECHNIQUES

(Continued from HRN April 2018 issue)

Picking up from where we left off last time, the focus remains on improving rates but not at the cost of accuracy. One often comes across instances where the op is obsessed with running through the pile quickly and does not wait to confirm the call of the station worked. This is one way to fill up the log with a high number of “uniques”. The downside of this approach is it increases the workload of the QSL manager who has the thankless job of responding to log-check requests!

7. Accuracy

So how do we increase accuracy?

The most accurate operators are often the most active operators. They have worked and logged almost every active station on air over a certain period such that when they are DX, they can instantly recognise the stations calling them. For example, if I were to hear a partial call like “2PAY”, I would go back with “OK2PAY 5NN” knowing with confidence that while running EU, Lada OK2PAY is often among the first ones to get through. He is always QRV everywhere! For the relatively inexperienced op, it will take a few attempts to get the full call out from the noise of callers slowing down the qso rate ...and increasing the frustration of the crowd.

Contesting is another way of becoming a good operator. Being active regularly in contests, studying previous performances and setting increasingly high operating goals is a good way to improving one's skill. Some of the big contests even publish a Log-Check Report which can be a good source of information for areas of improvement.

The other easier way is of course by relying on the computer. Every logging program (and by these I mean contest logging programs, not general purpose ones like HRD) has an in-built tool called the ‘Super Check Partial’. This is a database of all active callsigns recorded, usually over a 10 year period, and is updated frequently. The SCP window in a contest logging software allows the op to gauge who might be calling him by throwing up probable calls when a partial callsign string is entered in the callsign window. So, if you hear only “NKS” in the pileup, the SCP will give you options like VU2NKS, DL1NKS or even N3KS to figure out who it might actually be. You can either wait for the caller to call again or depending on which direction you are beaming/ geographical area you are running, you can assume who it might be. Mind you, all three are active callsigns and therefore narrow down your options. If you send “DL1NKS 599” and the reply is “5NN TU” your guess is correct. But if you hear the caller send “VU2NKS” you know you have propagation to

VU as well while you are busy running EU from somewhere in the Atlantic Ocean :)

The SCP is a tool in the small arsenal of the DX op to improve his logging and keep the rate up. The SCP is not a crutch and over-reliance on it can actually be counter productive. 'Use your ears first, SCP next' is a good rule to follow.

8. QTH selection

A critical and oft less known aspect of any operation is QTH selection. The success or failure of an operation depends a lot on the QTH where the operation will take place. Google Earth is a great tool that has made selecting QTHs easier. By looking at terrain profiles, one not only gets to know which areas of the world might be easily worked but also which would be at a disadvantage.

If choosing to operate from an island or water-fronts, it is recommended that antennas are placed favouring the geography to be worked. This means verticals at the water's edge to achieve gain via salt-water reflection and low angle take-offs favouring the geography to be worked. If antennas are placed in-land, ensure that beams are raised sufficiently high to improve take-off. Typically, for 20m a small 2 element beam will have to be no less than 25 ft. above surrounding ground. If mounted on a roof, this translates to 25ft above the roof.

9. Equipment choices

While an individual may be limited by the equipment at his disposal, it is likely that the op may find himself as part of a larger team where some of the equipment available for use may be completely unfamiliar. From different brands and models of radios to various kinds of interfaces and even software, the operator may be overwhelmed. It is important that as part of larger operator groups, every individual is familiarised with the equipment that will be used, updated on how to use the gear correctly and safely, and a comfort level established that aids QSO making rather than hinder it.

The choice of coax is also crucial. A high-gain antenna placed very far away (100 ft or more) from the shack and connected via RG-58 is a poor combination. The antenna gain would be negated by the high signal loss of the coax. Always bear in mind the antenna placements and the distance from the shack before

deciding on the choice of the coax. Let not the coax determine beforehand where the antennas shall be placed as typically happens in field days!

Another trap that is easy to fall into is overly depending on an amplifier. If you have well-sited antennas mated with good quality low-loss coax, even 100w is adequate. The idea is to make every dB count. Therefore, before setting out on that much awaited trip, do a quick check. Is the QTH ideal for radio? What is the possibility of man-made noise interfering with the operation? Do we enough db to be heard without an amp? Is the extra weight worth if the extra power is going to be radiated into poorly tuned antennas or lossy cables?

Be aware about the performance limitations of your equipment before setting expectations. This assuming your skills are up to scratch to be able to handle the expectations of your audience. Else be prepared for some not-so-nice feedback!

10. Team – vs - solo

Going solo or being part of a larger group is an entirely individual choice. Both approaches can be fun and require planning. With groups there is the additional human factor which comes into play to which there is no straightforward answer. Not only it is important to plan to the minutest detail when it comes to multi-operator, multi-station setups, it is more essential to choose the right mix of individuals. While operating or technical skill may be a strong factor for selecting an individual, temperament and people skills play an even bigger role when putting together a group. It helps when the group is resonant on the same wavelength mentally!

A final word

While the tone of the article may seem cautious, it is not the intent to deter anyone from enjoying radio from the outdoors. Instead, I would encourage everyone to operate from outside their homes and the article intends to give a few pointers to avoid the frustration of not being able to get on air or achieving the stated purpose even after being QRV. A lot still depends on propagation and even the most well-equipped field operations may not deliver expected results if the propagation gods don't cooperate. The objective is to have control over factors that can be controlled.

73,

Deepak VU2CDP

Do Amateurs Retire?

Recently OM Arasu VU2UR posted a mail stating that he was retiring from Ham Radio. But what he stated made all of us feel sad. I quote:

"My amateur radio hobby is coming to an end in 2018. My very educated children are forcing me to dispose all my QSL CARDS and other items, so that they breathe easier after I am declared a SK."

This is very sad indeed. There are hundreds of amateurs who are not active any more due to various reasons but we do not feel sad about it. But if someone is compelled to give up the hobby – *especially by his harmonics*, it is very sad, indeed. In my own case I am not as active as I was up until 2015 – but retire? No sir!. So when I heard about Arasu, I thought I must write about it - *and I have his permission to do so.*

I met Arasu for the first time in 1970 or so on 20 meter CW - and when he came to know that I was from Bangalore - he requested me to switch to AM - but I had only a home brew CW transmitter - but he switched to AM and spoke to me in Kannada. Not many hams in Karnataka those days - so I could see that Arasu was excited to contact someone from his native state. Arasu was stationed in Lucknow.

Our hobbies tell quite a lot about ourselves; like how we present ourselves to the world. A hobby is a field in which we may be able to achieve mastery that is sometimes denied to us in our professional lives. Ham radio is all about self-discipline. The man on the street just does not know about self-discipline.

For example, years ago when I used to talk about amateur radio to Rotarians and College students, the common question at the end of the talk used to be "can you jam the police and other communications?" "Can hams pass on

messages to enemy countries?" - and so on. I remember, not one person asked me something constructive like - "can we become masters in electronics!" or something like that. Anyway, my stock answer to such questions was "Well, you surely have a knife at home; pray, tell me how many people have you murdered?" Or "you agree, you can carry a match box and can set fire to the petrol pump next time you are in the vicinity" and so on, usually to an audience roaring with laughter. Yes, its all about self discipline.

Have you noticed? Hobbies are *designed* to be unproductive. HI And I guess that's what makes it interesting for us. It is an 'equalizer'. All are equal. People ask me "You look at the planets through your telescope, what do you get from all that?" or, "alright, you can speak to people all over the world - what do you get out of it?". So you see, from the point of view of the man on the street, if anything is unproductive, it is a waste of time and effort! Little do they know that hobbies produce knowledge.

More than 80% of the inventions in the field of communications are credited to hams. Why, for that matter, the total development of the automobile is on account of the feedback provided by the guys who drove the cars in races and rallyes - even though these were just their hobbies. It is the same with photography, aviation, and so on. It is education that one can never hope to get in a university. That way, ham radio is certainly a unique hobby.

**NO HOUR OF LIFE
IS
WASTED
WHEN I'TS SPENT
ON THE
HAM RADIO**

Whilst on the subject, I need to look at the flip side too. There are people who take up certain hobbies very seriously - with the result, the family is ignored. This is what happens when a hobby becomes an obsession and compulsive - demanding more finances and more time than a hobbyist can afford. Clearly, this cannot happen in Amateur Radio. The reason is simple. In most other hobbies you are alone and you meet the others once in a while, like in meetings or conferences where you can exchange information. But Amateur Radio is a hobby where you meet the others every day - and it is not restricted to your home town. The popular saying is, "the world is in your pocket". Most of us can say 'hello' 'thanks' and 'goodbye' in at least ten DX languages.

Therefore it needs to be clearly a 'hobby' and nothing else. As the amateur's code says, there is no pecuniary interest.

So you see, once a person retires from his profession - whatever it may be - if he could spend a few hours talking to people in different corners of the world, learning something new every day, keeping himself/herself up-to-date in the field of communications, some space-science, satellites and so on, there is nothing more interesting than this. And don't forget the ability to assist in case of an emergency!

All I am saying is, it is OK if Arasu does not get on the air any more - but let him not 'retire' from the hobby!! According to me, a ham never 'dies'. He just fades away in deep QSB - no more signals. A silent key. That's all

ABC News reports Amateur Radio is helping lifelong hobbyists stay mentally fit in old age <http://www.abc.net.au/news/2018-06-27/ham-radio-helping-older-hobbyists-stay-mentally-fit/9908468>

Pursue a hobby – live longer!

Ganesh VU2TS

Snippets:

***John Brier KG4AKV's** YouTube channel has videos aimed at beginners to amateur radio space communications

<https://www.youtube.com/SpaceComms1/videos>

-O-O-O-O-

***The new, version 6.19 of MacLoggerDX** has been released.

<http://dogparksoftware.com/MacLoggerDX.html>

-O-O-O-O-

***BARC Bengaluru** has obtained a special call **VU18FIFA** to commemorate the World Cup Football matches being played in Russia. Several members are taking turns putting this call on the air on all bands/modes



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