



## President's message



As mentioned last time, **ARSI** completed the Hill Topping contest a few weeks ago. The participation was much lower than the last time it was done in 2013 and possibly due to some confusion just before the event. ARSI will continue to conduct this event every two years. Certificates for the event held in 2013 and 2015 are now ready and will reach the team leaders shortly.

The ARSI AGM will be held in Bangalore this year and the dates etc. will soon be circulated to all members. This is an election year and members will elect a new set of office bearers. Ideally we would have liked to hold the AGM along with the Hamfest in Rajkot, but the time gap between the closing of accounts and the Hamfest exceeds the permitted time allowed by the Registrar of Societies to hold AGM's.

We look forward to a large number of members attending.

IARU, which ARSI is a part of, is busy preparing for the World Radio Conference to be held later this year. Two very important items are on the agenda which concern amateur radio. IARU is working on obtaining a small segment in the 5 MHz band to fill in the slot between 3 MHz and 7 MHz. This will enable a smooth transition between bands as conditions change. The gap between 3 and 7 MHz is rather large at the moment and being able to use 5 MHz will help bridge this.

Also in process is getting some additional spectrum for satellite communications.

All the very best to all of you - 73

Gopal Madhavan VU2GMN

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## From the Editor's Desk



ITU's 150 years is being celebrated with a bang - and Deepak VU2CDP has sent me a detailed report of AT15ØITU with photos - published in this issue. Congrats to all the participants.

Congrats also to the VU4KV team on winning the Contest Expedition Plaque of CQWW CW 2014 in the multi-op category.

Good to see the increase in all round activity in spite of poor band conditions. More members taking part in contests, putting VU2 on the ham-radio map.

Jayu/VU2JAU swung into action as soon as the news of the quake tragedy in 9N1 land was heard; several ARSI members provided the much needed hardware like antenna, coax, etc. The 9N1 net was active for several days. Compliments to all the members who took part.

Hope you enjoy reading this issue! 73

Ganesh VU2TS

## AT15ØITU Celebrating 150 years of the International Telecommunication Union (ITU)



The year 2015 marks 150 years of the International Telecommunication Union (ITU), a United Nations special agency for information and communication technologies that allocates radio spectrum, satellite orbits, and develops technical standards for networks and communications. Its motto is connecting people worldwide and supporting the fundamental right to communicate. It was founded in 1865 in Paris as the International Telegraph Union and was changed to its current name in 1934. It became a part of the United Nations in 1947 and today enjoys membership of 193 member countries and over 800 private-sector entities and educational institutions.

When ITU announced its 150 year celebrations via its interactive website [www.itu150.org](http://www.itu150.org) the idea of having a national celebration was born. It was still in its infancy when the Irish Radio Transmitters Society (IRTS) announced that a special call "E115ØITU" would be active throughout 2015. It didn't take much longer to decide that a similar call should be made available for ARSI. While WPC was receptive to the idea, there was the usual confusion over minor technicalities of issuing a callsign for a duration longer than 3 months. Thanks to the advisory from Prasad VU2PTT and the personal intervention of Gopal VU2GMN, WPC finally issued "AT15ØITU" in March for ARSI members to use all year long.

There was however some reservation expressed on how to execute the idea as something like this hadn't been tried before. The answer was actually quite easy! Many of you would have worked the W1AW/x stations last year which were marking the centenary of the ARRL. If one looked at how these stations were put on air by local clubs, the answer becomes apparent. There were volunteer stations who took up operating ownership for a given duration and logs were submitted to the area manager. Stations operated as per a pre-published schedule such that there was no confusion whatsoever. It was therefore easily doable here and all it required was a few dedicated volunteers and ensure good coordination between them.

Like any good project which needs a clear goal and good planning to make it successful, AT15ØITU needed to make its 'presence felt' on the bands as it was representative of ITU, IARU and ARSI. This meant stations world-over would need an opportunity to put AT15ØITU in their logs in at least one mode. This in turn meant VU stations who would be operating with this call should have had experience of operating on the HF bands with the ability to put out a good signal, demonstrate good operating practice and be able to provide the logs in soft format. Unfortunately, the number of such VU ops is rather small. While we have had many new VU2/VU3 call signs participating in recent contests, there is still a long way to go. But we are still far better off than we were some 6-7 years ago. May the upward trend continue!

It was decided that AT15ØITU would be operational from 1<sup>st</sup> April onwards and work according to an online roster. A detailed email was put out on the ARSI Yahoo group soliciting volunteers for operating who would be scheduled based on first-come-first-served basis. Needless to say, the interest was quite high. The roster was put online on QRZ.com as well as on the ARSI homepage and it showed the week's operators along with the modes they would be QRV on. The first few days of operation saw big pileups which surprised the ops themselves. To say that they did a good job would be an understatement! AT15ØITU was off to a great start and after 3 weeks of operating, there were over 5,000 qsos in the log. An online log-search was available via the fantastic Clublog service and logs were frequently uploaded to both eQSL.cc and Logbook of the World (LoTW). The popularity of the call hasn't diminished despite the monsoon now in full swing with the resulting curtailment of activities. As on 20<sup>th</sup> June, there are over 12,000 qsos in the

AT15ØITU log with 136 DXCC entities worked and exactly 100 confirmed within LoTW. A snapshot is provided below.

**Your Logbook DXCC Account (AT15ØITU - INDIA)**

Account Status

DXCC Award	New LoTW QSLs	LoTW QSLs in Process	DXCC Credits Awarded	Total (All)	Total (Current)
Mixed	100	0	0	100	100
CW	81	0	0	81	81
Phone	82	0	0	82	82
Digital	62	0	0	62	62
80M	1	0	0	1	1
40M	14	0	0	14	14
30M	28	0	0	28	28
20M	69	0	0	69	69
17M	70	0	0	70	70
15M	76	0	0	76	76
12M	56	0	0	56	56
10M	59	0	0	59	59
2M	1	0	0	1	1
Challenge	373	0	0	—	373

\* = Award has been issued

**And the snapshot from Clublog shows the percentage split of modes where Data includes both PSK and RTTY QSOs.**

Year	Number of DXCCs	Number of QSOs	QSOs as Percent
2015	136	12373	CW 40.75% Phone 38.02% Data 21.23%

With the forced break due to monsoon and the rather patchy band conditions, AT15ØITU is generally staying off air but will be back in September. Thus far, our efforts have been largely concentrated on the higher bands but once low band conditions start improving, you can expect more QSOs from AT15ØITU on 30m and below. Meanwhile, the QSL design and printing process will start in July with the first replies expected to go out in August. There have been well over 1,000 bureau card requests via the Online QSL Request System (OQRS) of Clublog. Requests have also been received from VU stations who worked us on World Amateur Radio Day on 18<sup>th</sup> April when AT15ØITU was QRV across a few cities on VHF. Those of you needing a card are requested to send a Self-Addressed Stamped Envelope (SASE) to VU2CDP via his QRZ.com address.

We hope those of you who worked AT15ØITU would consider taking up the mantle and operating after August. The detailed email

from VU2GMN lists the requirements and if there is any assistance anyone requires, they may reach out to any of the ops who have operated so far or contact VU2CDP directly over email.

At this point, ARSI would like to thank the following members for their time and effort in making AT15ØITU successful:

- Prasad VU2PTT
- Basappa VU2NXM
- Chandra VU2RCT
- Dilip VU2DPI
- Jagdish VU2HOT
- Jayu VU2JAU
- Kiran VU3KPL
- Kumar VU2BGS
- Lucky VU2LBW
- Madhu VU2MUD
- Nandu VU2NKS
- Pai VU2PAI
- Raman VU3DJQ
- Sai VU2SGW
- Saurav VU2NFG
- 

Tnx: Deepak, VU2CDP

*Here are pictures of some of the ops whom you may have only heard but not seen before.*



CW fun! Basappa VU2NXM enjoys himself with a modest station and a wire antenna.





Chandra VU2RCT with his new TS 990 adorning the desk. The secret to his good signal? A good radio, a good antenna and a clean operating desk



Raman VU3DJQ operates various digital modes on low power and is a keen SWL as evident from the various scanners/receivers in his shack.



Kiran VU3KPL has grown leaps and bounds as a DXer in the last couple of years!



Lucky VU2LBW epitomises the saying "A ham can never have too many radios". So, are all those radios connected? You bet! See next.



The KK1L-design antenna switch allows VU2LBW access to six antennas automatically. Only 3 shown connected at the moment – a tribander, a multi-band vertical and an 80m dipole.



Madhu VU2MUD, who has rediscovered fun in the hobby by chasing DX, in his new shack. Madhu has been participating in many contests lately and his scores are improving with every contest. The secret? See next.



A wide-band hex-beam at VU2MUD that sits on a 24ft high tower on the roof. It plays nicely!



Probably a face that needs no introduction! Equally home on the key and on the mic is Pai VU2PAI who has a commanding presence on air.



Sai VU2SGW operating from his drawing-room shack in Thane near Mumbai.



The otherwise camera shy VU2BGS and VU2NKS finally relented and posed for a pic together at a beach in the Andamans! (pic from VU4KV, November 2014)

## VU2GMN at the ITU

Gopal/VU2GMN on his way to Dublin on a personal visit, took time off to visit the ITU at Geneva before moving on to Friedrichshafen in Germany to attend the 40<sup>th</sup> anniversary of HAM RADIO 2015. At the ITU he met officials connected with amateur radio. He took the opportunity to work the station at 4U1ITU, where he was allotted a whole afternoon. Special call 4UØITU was used, commemorating the ITU's 150 years. Here are some pics:



## Radio amateur named for prestigious award

The ARRL reports **Ajay K. Poddar, AC2KG**, of Elmwood, New Jersey, has been selected by the Institute of Electrical and Electronics Engineers (IEEE) as the winner of the 2015 International Frequency Control Symposium W.G.Cady-Award.

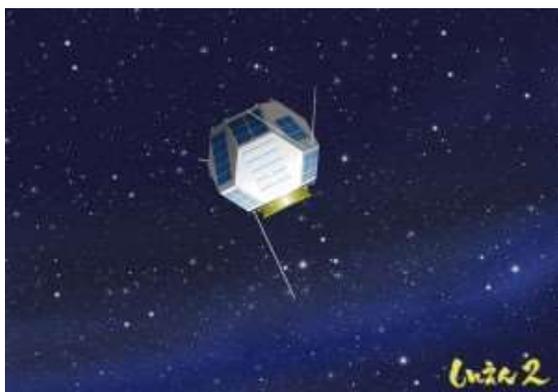
Poddar, a chief scientist at Synergy Microwave Corp and an academic, was cited for “the analysis, design and development of a host of frequency control products exhibiting state-of-the-art performance, including the development of extremely low noise crystal oscillator circuitry.”

The award marks the second honour for Synergy Microwave scientists this year, and the third in 3 years. Synergy Chairman **Ulrich Rohde, N1UL** (ex-KA2WEU), recently was named as the recipient of the IEEE’s I. I. Rabi Award for 2015, and last year he won the C.B. Sawyer Memorial Award.

## INTERPLANETARY AMATEUR SATELLITES

This will be an interesting development. A satellite going into interstellar space with an Amateur Radio transponder on board.

Shin’en 2 is a interplanetary satellite built by students at Kagoshima University in Japan that will carry a 145 to 435 MHz linear transponder (mode J) into a deep space heliocentric orbit.



The 2.85 kg spacecraft, measuring 490 × 490 × 475 mm, features a lightweight thermoplastic CFRP structure. It is powered by solar cells on the polyhedral surface of the satellite body. Shin’en 2 will orbit the Sun in an elliptic orbit between Venus and Mars. Its

inclination will be almost zero, which means Shin’en 2 will stay in the Earth’s equatorial plane. The distance from the Sun will be between 0.7 and 1.3 AU. (AU is the distance between the Earth and the SUN)

## GWALIOR, M.P

### SEMINAR ON DISASTER COMMUNICATIONS

ON 27 March 2015 a seminar on HAM Radio and Disaster Communication was organized at ITM University, Computer Science Department, Gwalior where more than a hundred students witnessed the program along with their Advisor, Head of the department and faculties of the university. OM Jayu VU2JAU was the main speaker who gave a detailed presentation along with few video clippings.



Live demonstration was also given during the program where OM Kamalraj VU3RAE and OM Aditya VU3LKA supported the activity.



Hope this will give some boost to Amateur Radio in the region.

73, de Jayu S. Bhide VU2JAU Gwalior.

## HAM RADIO COMMUNICATION IN HOSHANGABAD

Administration of Hoshangabad asked Gwalior HAMS to provide supporting wireless communication during "Kisan Mela" on 30 May 2015 conducted in Pawar Kheda, 10 kms away from Hoshangabad. It was expected that about more than 1 lac people will be attending the mela.

The time was very short and there were only 3 days left and train registrations to reach to Hoshangabad were not easy. Jayu S. Bhide VU2JAU with Aditya Ashtikar VU3LKA along with 2 SWLs made it possible to provide corner to corner information to the administration.

A control station was set up where Deputy Collector and ADM were keeping an eye on the movements of the people and the facilities provided to them. OM Aditya VU3LKA was covering all the parking systems including helipad area where CM of M.P. was supposed to land. More than 100 busses and other vehicles were parked in about 8 sectors. OM Jayu VU2JAU was looking after the stalls where all the farmers were attending and available facilities from the banks and other agencies. Cool Drinking water was made available to all as the temperature was touching 45 degree.

A drone was also used to cover complete area from the sky. It was a good combination of top view along with HAM Radio communication.

After the event OM Jayu VU2JAU had a meeting with D.M. and explained him the use of HAM Radio in emergencies and Disasters also described him, how HAM Radio was used in recent earthquake. D.M. has agreed to conduct a training and examination on HAM Radio very soon where all the administration staff will be appearing for the test.

73, de Jayu S. Bhide VU2JAU Gwalior



15th to 18th October 2015 at the Lake Palace, Alappuzha, Kerala State, South India. This is the third time that India has the pleasure of hosting the SEANET conventions. It was held in Chennai in 1996 and then in Bangalore in 2005.

## MUMBAI, MAHARASHTRA DISASTER AWARENESS

Disaster Amateur Radio Emergency Services (DARES), is a Mumbai based ARES organization always active during disasters.

On the 19th June 2015 when the city of Mumbai was hit by strong and heavy rains our team was deployed to various vital locations in the city. A few locations to name where the Ham Communications Station were established at - Main Wireless Control Room at Commissioner of Police (Mumbai Police) - The control room of Disaster Management Cell of Maharashtra State, Disaster Control Room of the Municipal Corporation of Greater Mumbai. (MCGM), DARES City Central Control, etc

Fortunately, there was no emergency as such but the stations were established as a part of our SOP (Standard Operating Procedures) to handle any emergency communications if it was required.

Being well aware of the situation Mumbai underwent a decade ago on the 26 July 2005 during the Maharashtra Floods, when all the cell phone networks & land lines had failed, these stations were established to tackle any such situation in anticipation.

Members who were active are OM . Gaurav Thosar, Call : VU3BTZ, Om. Jaiprakash Pillakudy ( VU2 JPN), Om. Yogesh Gulati ( VU2YKG) , Om. Ankur Puranik ( VU2AXN), Om. Zyros Zend ( VU2ZRS), Om. Jatin Shah, ( VU2KWJ), Om, Dharamjeet Sing Khalsa ( VU2KWK), Om. Girish Shukla ( VU2LNZ), Om. Uddhav Chitre ( Vu3WUD) , Om. Bijoy Philip (Vu3DOT).

The situation now is in control as the accumulated rain water has receded and people have started moving on the streets. It is a great example of Mumbai HAMS who have shown their alertness and took all the precautions along with equally supported by Administration to them.

Congratulations to all the HAMS. Such an example should be followed by all the cities and local administration in the country to avoid any possible disaster.

73 de Jayu S. Bhide VU2JAU Gwalior

National Coordinator for Disaster Communication in India (ARSI) Region-3

## GWALIOR A.S.O.C. EXAM RESULTS DISTRIBUTION CEREMONY

Amateur Station Operator Certificate exam was conducted in Gwalior in 2014. The result was received in June 2015.

Total candidates appeared 38  
Total candidates passed 23

The result ceremony was organized in coordination with ITM University. Managing Director of ITM University was impressed with the activities carried on by all Gwalior HAMS and asked to conduct the ceremony program in "Madhu Limaye Hall", ITM University, Turari, Gwalior, on 26 June 2015.

The program was nicely planned by HOD, Electronics Department Dr. Shyam Akashe, who took all the pains to manage it. Vice Chancellor of ITM University Mrs. Kushwah, Dr. R.D.Gupta and Mr. Chaturvedi were present in the program. After welcome speech OM Jayant S. Bhide addressed the audience giving all the advantages of HAM Radio activities. He also requested the management that if this activity is continued in the University then many workshops on different topics can be conducted. Specially mentioned about SDR, Bitex tcvr, Satellite and others including antenna workshop.



All the faculty members who were present impressed with the activities HAMS are doing. VC of ITM University Mrs Kushwah asked the entire HOD to spread the word among students to carry these activities. She was very much interested in the HAM Radio operations. SWL OM Prakash Bhise spread more light on the activities. Dr. R.D.Gupta was also happy to be part of the event and explained the long time association with OM Jayant S. Bhide VU2JAU. Mr Chaturvedi also praised the HAM activities. OM Jayant S. Bhide

presented mementoes to all along with HFI 2013 pin and World Maps .



Following are the candidates passed in ASOC exam:

Kapil Soni - General Grade; Restricted Gr. Abhishek Madan, Ankush Sharma, Apurv Nayan, Aradhana Bhatnagar, Arjun Deodia, Ashish, Ashok Kumar Bhatnagar, Avinash Ashtikar, Deepak Baghel, Devendra Singh, Kailash Chand Agarwal, Kaushlendra Sengar, Mudit Bhasin, Narendra Tuniya, Prem Chand Jain, Sanjeev Kumar, Shiv Kumar, Subodh Tandon, Sumit Agarwal, Sunil Goyal, Tanmay Joshi and Manmohan (Bhopal)

HAMS who were present OM Vivek Joshi VU3JOS, OM Aniket Ashtikar VU2LOL, Aditya Ashtikar VU3LKA and OM Durgesh VU3DUB.

73 de Jayu S. Bhide VU2JAU Gwalior

## PUNE, MAHARASHTRA

Pune Hams - VU2SIJ, VU2WET, VU2VPR, VU2KI & VU2 MSB gather in a monthly meet , to Congratulate special Invitee, VU2DSI, OM Dattaji from Ahmed Nagar yesterday

**We all congratulate OM Dattaji for his initiative, conducting "GOOD EVENING NET" at 1430 UTC (2000 IST to 2100 Hrs ) on 20 Mtrs on 14210Khz. every day.**

The net activity is catching and every day check in's are increasing. Lot of dx stations have also started check in hence Dattaji had to use reduced the power to restrict the net for VU2s.

Dattaji is a very active Ham from Ahmednagar and has lot of plans for various

activities. Shortly he will announce Antenna Workshop for interested Hams in Ahmednagar or Pune

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The Late Gill-VU2PS's grandson who is studying in St Mary school Pune has shown keen interest in Ham Radio along with his dad after demo by W5SPK OM Sean Kelly. They contacted OM Keki VU2KI and have enrolled to attend ASOC classes scheduled in June 15. The family have preserved OM Gills Ham gear and Beam antenna.

OM Gill VU2PS was very active from Koregaon Park area with state of the art Ham Gear and 5 element Beam. I remember one of his activity published in ARSI magazine long back.

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OM ANANTHA KRISHNAN.M from Chennai visited Pune last month and had eyeball QSO with OM Vilas VU2VPR.

We meet every first Sunday of the Month in the morning for Eyeball

With best regards and 73's

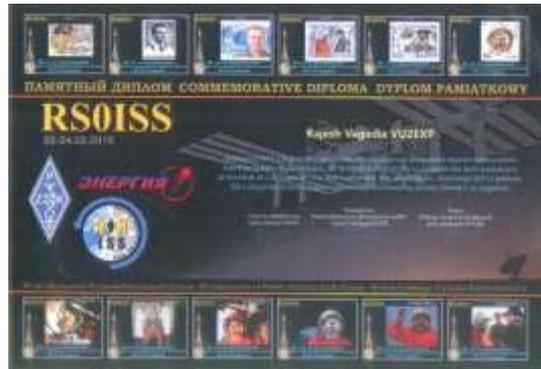
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**RAJKOT, GUJARAT**

You may remember I had published news of Rajesh VU2EXP from Rajkot, Gujarat managing to contact the ISS on SSTV in the April issue; he has just received the QSL cards:



OM Rajesh has other reasons to rejoice. His YL harmonic Sakshi has just received her ticket, the callsign VU3EXP.



Our congratulations to YL Sakshi! She is the fourth member of her family to get an amateur licence. Her father is **Rajesh Vagadia VU2EXP**, her uncle **Prakash Vagadia VU3PLJ** and cousin **Priyesa Vagadia VU3GLY**.

## BENGALURU, KARNATAKA

To commemorate 150th Year of 'International Telecommunication Union' ITU], AMSAT-INDIA conducted a workshop on 'Space Communication-Practical-Insights' at Dayananda Sagar College of Engineering, Bengaluru. On the 16<sup>th</sup> May 2015.

This workshop was made up of lectures and practical demos. The primary objective of the workshop was to acquaint the student fraternity with easy and simple means to get on to Space communication domain, practically. There is a big misconception that Space communication is very complex, challenging and expensive engineering. There is also an impression that the activities like real time tracking of satellites, receiving telemetry, pay-load data, transmitting tele-command signals and usage of transponder with uplink and down link signals are the sole proprietary domain and entity of space agencies only and possibly perceived impossible by others.

This workshop was aimed to disprove the above perceptions and to prove that it is possible and practicable even by an ordinary individual with limited technical knowledge and infrastructure. The workshop modules have been very carefully devised with important basics and fundamentals in a very simple and easy way to follow, thereby to provide the student fraternity fairly a good amount of exposure and insight to practically approach the Space Communication areas. Good care was taken to cover all the important aspects related to Space communication like satellites, applications, types of orbits, necessity of real time tracking, various types of tracking aids, types of pay-loads, receive and transmit requirements and capabilities, various types of antennas, related hardware & accessories, software, wireless regulations, operating skills, etc.

The workshop was well attended - 400 plus students and ~15 Radio Amateurs. The workshop went off well and the topics covered were well received by the participants. I would like to thank the core team from AMSAT INDIA who made this event a grand success.

Mani, VU2WMY, Director, Educational Relations  
 Raghavendra, VU3GTI- Technical Director  
 Somu, VU3HCJ, - Committee Member  
 Soms, VU3JBA - Committee Member  
 Ravindranath - VU2RVJ, - Committee Member  
 Balaji, VU3PZA,- Committee Member  
 Vatsalya- VU3JULY - Member  
 Suby, VU2UV- Committee Member

## South Africa may transmit FULL GALLON from 1 April.

For years HAM's in South-Africa have called for the legal power limit to be raised. The maximum output power was limited to 400 Watt PEP for decades. A workgroup was established to campaign for higher power. After negotiating for a couple of years the South African authorities was satisfied that the call for higher power was well motivated. The updated regulation was published in the South African Government Gazette in this week and the new 1kW output power privilege became effective on 1 April 2015. Some HAM's thought it to be an April fool's joke as the new law became effective, on well, April fool's day, but it was not. The new 1kW privilege was welcomed by the South-African Ham fraternity, especially among low band DX'ers and EME operators. Please point your antennas towards the bottom of Africa, there are eager ZS-HAM's just waiting to do real QRO for the first time ever.

Best 73 from ZS land, ZS6FDX Francois Reyneke

## JAXA/JARL to launch Binary Ham Beacon to outer edge of our Solar-System.

Japan Aerospace Exploration Agency (JAXA) working in association with the Japan Amateur Radio League (JAR), have announced their intention to piggy-back a dual amateur microwave-bands beacon onto the forthcoming JAXA probe mission to the Kuiper Belt.



JAXA-artists' -impression.

The mission which will be launched May 1st next year - 2016, is to include solar-powered

23cm & 9cm beacons which shall operate alternately, to conserve energy and reduce emissions.

Both beacon antennae will be permanently steered by on-board computer towards the Earth, at all times, except on rare occasions.

The Japan Observer Keiper Experimental Spectroscopy mission's primary objective is to investigate & attempt to ascertain at close-quarters the probable origins of our Cometary visitors, that of course originate in the Kuiper Belt, at the far reaches of our Solar-System, sitting at the very edge of Deep-Space.

The May 1st Launch, via accelerated Launcher & dual Ion & Rocket Propulsion will schedule arrival of this unique JAXA/JARL space science & 'ham-radio' cooperative adventure at the Kipper Belt & Ourt Cloud in 2025. So you have plenty of time to build your extra-long yagis and modified TVRO dishes, whilst making provision perhaps, for some rather precise az/el adjustments.

[http://global.jaxa.jp/projects/in\\_progress.html](http://global.jaxa.jp/projects/in_progress.html)

So get building and prepare to tune into some unique Deep Space Microwave Beacon!

*I accept, this will be a great experiment, but I think a better idea would be to put several active repeaters either on the International Space station or mounted on some of the satellites, that are up there on different bands for some exciting ham radio activities..*/Ed

## 60 meters - "The Rock Band"

(Not ROCK as in music!)

5MHz has predictable propagation qualities that combine the best aspects of 40 meters and 80 meters. In areas of the world above 35 degrees of latitude, 60 meters is often the best – or the only - NVIS (Near Vertical Incidence Skywave) band during daylight hours. In more equatorial latitudes, 5MHz provides constant NVIS communications during hours of twilight and darkness. Many non-governmental and governmental HF systems around the world depend upon 5MHz daily. The Band is always open to somewhere.

In 2003, when activity first began in USA on 5MHz, YL Bonnie Crystal KQ6XA was on the air talking with a group of stations in California. That evening, she coined the term **The Rock Band** to refer to the 5MHz ham band. She said "It is as solid as a Rock!, and it is also

channelized, so 60 meters seems fit to be **The Rock Band.**" The term caught on among hams. Now, The Rock Band has become widely used for EMCOMM nets, disaster readiness, and regional QSOs.

Let's hope VUs will get on 60m soon! /Ed

## DEUTSCHE WELLE – CHANNEL 292

When the station **Deutsche Welle** decided to close down one of its 500 Kilowatt shortwave broadcast transmitters ON 6070 KHz near Munich at the end of 2012, a group of radio amateurs applied for and were allocated the then available short wave frequency of 6070 KHz. That came about in 2013.

This group now has an operational 10 Kilowatt station on the frequency, using the driver stages from the old Deutsche Welle transmitter. The rest of the transmitter was built and is run by Rainer Ebeling, DB8QC. The license allows transmission 24 hours a day and 7 days a week, but Channel 292 currently operates mainly on weekends mainly for want of contents, Hi

Initially there will be two programs. One called DARC Radio that will contain DX related items DXpedition News, reports and the like. That will be in German. The other is titled "English Amateur Radio News" which will be broadcasting the GB2RS News from the Radio Society of Great Britain in English along with other ham radio information services.

Rainer Englert, DF2NU, is one of the group running the station and also the president of the Munich South section of the Germany's national amateur radio society D-A-R-C, the Deutscher Amateur Radio Club. He hopes to be able to broadcast more often once sufficient content is available.

However there is one sour note! The hams say that they are already seeing other broadcasters such as Radio China moving onto the frequency in the evenings as those stations perceive 6070 KHz as a frequency free to use .

The stations program schedule is at [tinyurl.com/channel-292-on-air](http://tinyurl.com/channel-292-on-air) and it welcomes reception reports from listeners anywhere in the world. All will be answered with a QSL card sent via via the DARC QSL bureau. For the Amateur Radio

THANKS: *Newsline*, - Bill Pasternak WA6ITF in Los Angeles. AND DF2NU, DD5LP, WIA News.

## World's first fully digital radio transmitter built purely from microprocessor technology



The **Pizzicato** is a breakthrough in wireless technology – radio frequency transmission using only digital technology (Photo credit: Cambridge Consultants)

For the first time in history, a prototype radio has been created that is claimed to be completely digital, generating high-frequency radio waves purely through the use of integrated circuits and a set of patented algorithms without using conventional analog radio circuits in any way whatsoever. This breakthrough technology promises to vastly improve the wireless communications capabilities of everything from 5G mobile technology to the multitude of devices aimed at supporting the Internet of Things (IoT).

The significance of this new technology cannot be overstated: Every aspect of radio frequency generation is said to be created using a string of digital bits, and nothing else. There are no analog circuits, no filters, no chokes, none of the traditional circuitry and components expected in a radio transmitter. Consisting of a mere handful of components, including a couple of integrated circuits, an antenna, and not much else, the transmitter – dubbed Pizzicato – promises to change the face of wireless transmission.

Created by Cambridge Consultants, the initial trials of the Pizzicato have been claimed to show that it has fully met all the expectations of its myriad performance requirements. But more than this, the Pizzicato has brought bulky radio circuits down to microprocessor levels, with the promise of even smaller, more efficient uses of the technology in future.

"Our first trial of the technology has created 14 simultaneous cellular base station signals," said Monty Barlow, director of wireless technology at Cambridge Consultants. "But it is the potential which is so exciting. Like mainstream microprocessing, a Pizzicato-based radio would directly benefit from Moore's Law – shrinking in cost, size and power consumption with each new generation of silicon fabrication."

In recent years, as ever more users move on to mobile broadband and devices bound for the IoT come on line, electronics designers have sought ever greater improvements in the data rates that can be jammed into channels on the wireless spectrum. However, the limits of what can be achieved using analog circuits or even the more advanced analog-digital amalgams used in software-defined radio (SDR) are rapidly approaching their useful limits.

In addition, the limited availability of radio spectrum bands, particularly in the more popular lower frequency ranges (less than 1 GHz), is being exacerbated due to their popularity. That is, with the lower frequencies ability to travel further distances or pass more easily through walls and other solid objects being far greater than that of higher frequencies, they provide more reliable and consistent connections for users, therefore making them much more desirable for wireless equipment manufacturers.

One way to improve efficiencies at these frequencies is the employment of dynamic switching capabilities to sense the radio environment and switch various settings as required, in real time. In other words, by using a type of "cognitive wireless" technique to intelligently control the way that signals are sent and received and, therefore make maximum use of the available spectrum.

According to Cambridge Consultants, this could potentially open up access to a larger proportion of the estimated 90 percent of the lower-frequency spectrum that is largely unused at any one time.

This may be achievable at low frequencies, however higher frequencies of 10 GHz and above increasingly require a range of beam-forming and meshing techniques (such as those used in aircraft data links) along with other methods of signal improvement to help improve their **intrinsic lack of range**. This is where the Pizzicato may prove its mettle, especially over the traditional analog parts of conventional radio technology.

"If we're going to get high-speed broadband to every mobile phone in the world, we'll need lots of tiny, high-performance radios in those phones," said Barlow. "The radios will be squashed together in a way that analog just doesn't tolerate. Whereas a Pizzicato-like digital radio can follow Moore's Law to smaller size and lower power consumption. It could also be programmed to generate almost any combination of signals at any carrier frequencies, nimbly adapting its behavior in a way that is impossible in conventional radios. It is early days for this technology, but we believe radio design has reached a turning point."

No announcement has been made regarding the commercial release of this technology.

The Pizzicato digital radio was recently demonstrated at the [Mobile World Congress](#) in Barcelona.

Source: [gizmag.com](http://gizmag.com) / [Cambridge Consultants](#)

## The History of Coaxial Cable

Early forms of **coaxial cables** – coax for short – have been carrying signals since the time of the telegraph. Initially, coax transmitted short, encoded messages across continents and oceans. Coax cables as we know them were first introduced in the 1930s. They transmitted television pictures and carried telephone signals. For decades, coax served as the de facto standard for TV cable. As time went on, people slowly began to realize the potential of coax cables and devise new ways to use them. In addition to telephone and video signals, coax cables now carry a heavy data load to provide internet service to millions of homes around the world.

The type of **coaxial cable** we are most aware of is the wire that connects our transceiver to our antennas. Coax cables have been around a lot longer than most people think. Read on...

**1880** – English mathematician Oliver Heaviside studied the so-called skin effect in telegraph transmission lines. He concluded that wrapping an insular casing around a transmission line both increases the clarity of the signal and improves the durability of the cable. He patented the first coaxial cable in England later that year.

**1884** – A scant four years later, electrical engineering company Siemens & Halske register a similar patent to Heaviside's in

Germany. This company was widely known in Europe at the time for developing one of the earliest known electrical generators almost two decades before.

The Royal Intuition in London exhibits waveguide transmissions as demonstrated by Oliver Lodge. This technology not only comprises the principal of transmitting information over coaxial wires, but it also lays the groundwork for other types of communications, including radio, radar and satellites.

**1894** – The U.S. Patent office awards renowned inventor Nikola Tesla with the first electrical conductor patent. These three technologies combined were the key components necessary to construct the coaxial cables we use today.

**1931** – Lloyd Espenschied and Herman Affel patent the first recognizable coaxial cable on behalf of AT&T's Bell Telephone Laboratories. This version of coax was the first to feature two transmission wires sharing the same axis, allowing for wider frequency range.

**1936** – The Games of the XI Olympiad in Berlin became the first major event to transmit images via coaxial cable. The closed-circuit transmission ran from the games in Berlin to Leipzig 150 miles away. This event marks the first time large-scale television images were successfully transmitted over an appreciable distance.

Australia lays the world's premier submarine coaxial cable. The 186-mile wire connected the island of Tasmania to the Australian mainland.

The United Kingdom General Post Office installs a coaxial telephone wire connecting the cities of London and Birmingham. This 130-mile telephone system was the first of its kind in the United Kingdom and provided 40 separate telephone channels.

**1941** – A 220-mile long coaxial cable connects the American cities of Minneapolis, Minnesota and Stevens Point, Wisconsin. This marks the first commercial use of coaxial cable in the United States. The cable was capable of providing a single television channel or 480 telephone lines.

**1956** – Transatlantic No. 1 (TAT-1), the first underwater transatlantic telephone cable system, connects the American and European continents. The joint venture between the UK

General Post Office and AT&T had, at its core, a coaxial cable that was more than 1,500 nautical miles long. TAT-1 linked the cities of Oban, Scotland and Clarenville, Newfoundland. The system internally carried 36 phone calls and was in service until 1978.

Large-scale coaxial cables tests were an unmitigated success, both scientifically and commercially. The technology had proved itself both dependable and durable over long distances. As patents expired and other companies ventured into the coaxial market, the cables became refined and miniaturized.

Eventually, the most common coax cable became what we now use to connect our transceivers and made the amateur familiar with RG8, RG58, PL-259, SO-239 et.al. And the folks at home are familiar with the coax cable that connects the TV to the dish antenna. All these wires are the great-great-grandchildren of the technology developed in the 1880s. However, they still occupy an integral part in our technology and our lives.

Source: Internet

## OTH RADAR ON 21 MHZ

The next time you have heavy QRM on 15 meters, like the old "machine gun" caused by the over-the-horizon radar, don't blame the Russians! It's from down-under.

My first thought when I came to know of this was - "et-tu, VK?"

The **Jindalee Operational Radar Network** (JORN) is an over-the-horizon radar (OTHR) network that can monitor air and sea movements across 37,000 sq.km. It has an official range of 3,000 km. It is used in the defence of Australia, and can also monitor maritime operations, wave heights and wind directions.

Three main Radar Stations located in Queensland, Western Australia, and Alice Springs; the high frequency radio transmitter arrays having 28 elements, each driven by a 20-kilowatt power amplifier giving a total power of 560 KILOWATTS. The signal is bounced off the ionosphere. JORN uses radio frequencies between 5 and 30 MHz, which is far lower than most other civilian and military radars. Typically the others operate in the microwave band.

The JORN ionosonde network consists of twelve stations around Australia, and is made up of vertical ionosondes, providing a real

time map of the ionosphere. A new ionospheric map is generated every 225 seconds. In a clockwise direction around Australia.

*[An **ionosonde** broadcasts a sweep of frequencies, usually in the range of 0.1 to 30 MHz towards the sky. As the frequency increases, each wave is refracted less by the ionisation in the layer, and so each penetrates further before it is reflected. As a wave approaches the reflection point, its group velocity approaches zero and this increases the time-of-flight of the signal. Eventually, a frequency is reached that enables the wave to penetrate the layer without being reflected.*

*For ordinary mode waves, this occurs when the transmitted frequency just exceeds the peak plasma frequency of the layer. In the case of the extraordinary wave, the magnetic field has an additional effect, and reflection occurs at a frequency that is higher than the ordinary wave by half the electron gyro frequency.*

*The frequency at which a wave just penetrates a layer of ionisation is known as the critical frequency of that layer. [Ed]*

JORN is so sensitive it is able to track planes as small as a Cessna-172 taking off and landing in East Timor 2600 km away, and current research is on to increase the sensitivity by a factor of ten!

You can watch a 3.5 minutes video here:

<https://www.youtube.com/watch?v=LI8zmnls-aM>

## Radio Amateur first to pick up Titanic's distress call

According to The South Wales Argus, radio amateur **Artie Moore**, callsign **MNX** was the first to receive the ill-fated Titanic's distress call.

Artie Moore was at his home at Gelligroes Mill in Pontllanfraith monitoring the bands when he picked up the SOS signal sent from the Titanic as she started sinking on April 15, 1912. He received a faint Morse code transmission which said "Require immediate assistance. Come at once we have struck an iceberg. Sinking, we are putting the women off in-the-boats."

He raced to the local police station to inform officers of the terrible news, but nobody believed him at that time! *(Remember, TITANIC was touted as unsinkable!)*

## RADIO AMATEUR INVENTS SENSOR HAT

In this video, radio amateur Shiloh, K6RBT, demonstrates her prize-winning invention, a hat with sensors to help blind people avoid obstacles. Watch Shiloh, K6RBT and other young inventors:

[https://www.youtube.com/watch?v=D0\\_hD1S\\_lrvA](https://www.youtube.com/watch?v=D0_hD1S_lrvA)

**A quote from Nikola Tesla:** "Throughout space there is energy, it is a mere question of time when men will succeed in attaching their machinery to the very wheelwork of Nature....The knowledge that there is throbbing through the Earth, energy available everywhere, would exert a strong stimulus on students, mechanics and inventors of all countries. This would be productive of infinite good. Conditions such as never existed before would be brought about. It would enable Man to dispense with the necessity of mining, pumping, transporting and burning of fuels, and so do away with innumerable causes of waste! New frontiers might be opened, unlimited power for all the world, inexpensive power for the farmer to light and heat his home, to drive his tractor, to harvest his grain, to increase his food output, electric power for millions of homes, so economical that every appliance could be operated electrically. The real beginning of a Golden age of civilization."

OOOOOOOps!

HRN – April 2015 - For the report on "A DO-IT-YOURSELF workshop on SOFTWARE DEFINED RADIO that was held in Chennai on 14th & 15th March 2015" the credit was erroneously given to OM Aravind VU2ABS.

The report was by Ragav VU3VWR

The error is regretted. /Ed

## FM radio switch-off in Norway

Norway is to become the first country in the world to switch off all its FM radio stations in 2017.

The government has announced there are currently 22 national digital radio stations broadcasting and there is space on the digital platform for a further 20.

However, there are only five national outlets broadcasting on FM, it added.

NRK, Norway's public service broadcaster, will switch off its FM service before the commercial sector.

UK analyst James Cridland told the BBC it will be a "nervous time" for the global radio industry when the first FM transmitter is switched off in Norway on January 11 2017.

"I hope Norwegians have done enough to retain radio's audience and make sure that those that haven't made the switch will make that switch," he said.

"I think while with television it is important for you to go out and buy a new set, radio listeners may think they'll just play their CD collection or listen to Spotify instead.

"If it obliterates the radio audience it may mean we are even less keen to turn off FM and AM in the UK [and other countries]."

### Cost savings

The Norwegian Ministry of Culture estimates that digitising national radio output will result in savings of 200 million Norwegian Krone (£17m, \$25m) a year.

"The cost of transmitting national radio channels through the FM network is eight times higher than with the DAB network," it said in a statement.

This is partly because DAB transmitters are more power efficient.

Meanwhile in neighbouring Sweden, national auditor Margareta Aberg has advised the Swedish Ministry of Culture to retain the FM network, reports the website Digital Radio Insider.

The government is expected to make its decision soon.

## DX NEWS

ATLANTA Georgia USA – Seeking reliable backup communication in a crisis, emergency managers are finding new solutions in an old technology: ham radio.

“It’s just another avenue, another opportunity for us to be able to communicate,” said Herb Schraufnagel, public safety captain with Emory University Hospital Midtown.

Emory HealthCare is among a growing number of hospital systems to adopt ham radio. Hospital administrators and government officials took a lesson from Hurricane Katrina, which left some Gulf Coast medical centers isolated from the outside world, as landlines and cell towers failed.

When power, phone and Internet services go down, a battery-powered amateur radio and portable antenna can provide that crucial link to the outside world.

“Ham radio will never die,” said Barry Thomas, Sr., a ham radio enthusiast and employee at Emory University Hospital Midtown.

“The quickest means of communication is Morse Code. It’ll get out when none of this will,” Thomas said, referring to a room filled with computers and smartphones.’

“It is interesting that some of the technology that has been around for 80, 90, 100 years is still relevant,” said John Davis, a ham radio enthusiast.

In addition to major hurricanes, Davis says the terrorist attacks of September 11, 2001 rekindled interest in ham radio as a public safety tool.

The Georgia Emergency Management Agency (GEMA) has set up a permanent ham radio station in its command center.

“We look at ham radio operators just like GEMA staff, just like DOT staff and Georgia State Patrol staff,” said GEMA Director Charlie English. “They are a critical partner with us.”

The number of ham radio licenses is at an all-time high in the U.S. (723,182, as of April, according to the FCCdata compiled by Joe

Speroni of the Amateur Radio Education Web Site, [ah0a.org](http://ah0a.org).

“I really hope that it stays relevant and that we can be a resource to emergency management agencies,” enthusiast Davis said. “Because I think that is where ham radio shines.”

*Fox News producer David Lewkowict contributed to this article.*

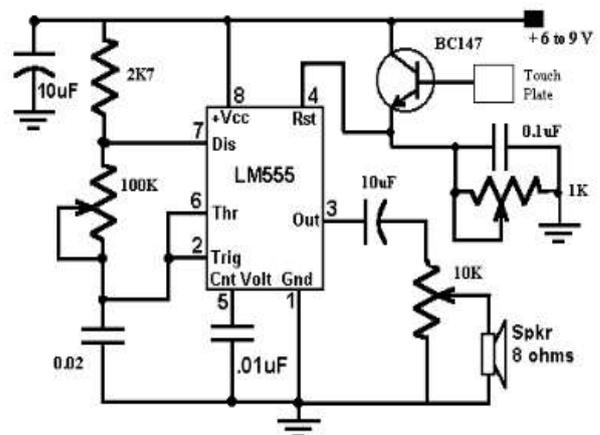
## A SIMPLE “TOUCH” KEY

Imagine tapping the table to generate Morse Code!

This simple code practice oscillator is for those who want to practice CW in a different way without the standard Morse Key. It can also be used as a touch operated door bell, Hi

The popular timer IC555 is wired as astable multivibrator. The frequency (tone) can be changed by varying the 100K variable resistor between pin 7 and 6 of the timer. The volume can be changed by varying the 10K variable resistor and the sensitivity of touch by adjusting the 1K-Ohm preset at pin 4 of the 555.

The touch plate is connected to the base of transistor BC147B. In this circuit, the length of wire between base of the transistor and the touch plate is not critical. Typical is a 9 cm wire and a 3 x 6 cm 3mm thick aluminum plate. The addition of a relay or additional circuitry could key-your-transceiver.



(Thanks: SARC communicator, April 2015)

## PLASMONICS PROMISES FASTER COMMUNICATIONS

### A brief intro

PLASMONICS is a new technology. At present, communication systems are based on electronics or photonics. The need to transport huge amounts of data at high speeds is ever on the increase, as also miniaturisation. Researchers have pioneered a new technology known as PLASMONICS. The frequency used is about equal to that of light, with the ability to interface with similar sized electronic components. Thus, PLASMONICS acts as a bridge between photonics and electronics, for faster and more efficient communications.

The name PLASMONICS is derived from "plasmons" - the quanta associated with collective excitation of free electrons in metals. Plasmons are density waves of electrons, created when light hits the surface of a metal under precise circumstances. These density waves are generated at optical frequencies and are very small and rapid. They can theoretically encode a lot of information, more than what's possible for conventional electronics. Plasmonics is thought to embody the strongest points of both optical and electronic data transfer, allowing the fast transmission of information over very small wires.

Optical data transfer, as in fiber optics, allows high bandwidth but requires bulky "wires" — really tubes with reflective interiors. Electronic data transfer operates at frequencies inferior to fiber optics, but only requires tiny wires. Plasmonics, sometimes called "light on a wire," would allow the transmission of data at optical frequencies along the surface of a tiny metal wire, despite the fact that the data travels in the form of electron density distributions rather than photons.

The main limitation to this technology today is that plasmons tend to dissipate after only a few millimeters, making them too short-lived to serve as a basis for computer chips, which are a few centimeters across. For sending data over longer distances, the technology would need even more improvement. The key is using a material with a low refractive index, ideally a negative index, such that the incoming electromagnetic energy is reflected parallel to the surface of the material and transmitted along its length as far as possible. No natural material with a negative refractive index exists, so nanostructured materials are being used to fabricate effective plasmonic

devices. For this reason, plasmonics is frequently associated with nanotechnology.

## MacLoggerDX Version 5.62 released

Dog Park Software is pleased to announce that version 5.62 of **MacLoggerDX** has been released.

It supports close to a hundred radios, automatically tuning to the spots you are interested in and optionally swinging your beam around.

Alerting you to rare contacts or Band Openings and looking up, displaying on 2D, 3D and Satellite Maps and logging your contacts to a super-fast sql database.

MacLoggerDX can also email you when the Bands are open or that rare DX is spotted.

Awards Tracking, Band Activity, Schedules, Memories, QSL Generation, ADIF import, export, eQSL, LoTW Confirmations and much more.

This is a free update for all Version 5 customers and can be downloaded from:

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

## 'Backyard Satellites' to fill gap in Australian space exploration

Australia is a nation without a dedicated space agency, and Mr McAndrew is one of a growing number of Australians turning to homemade space exploration to fill the gap. He has designed the satellite "PocketQube" - a Rubik's cube-sized box with antennas, solar panels and electronics, the works.

It is made from mostly off-the-shelf items, including aluminium from the local hardware shop, a tape measure and electronics bought over the internet. Mr McAndrew believes it is the first of its kind in Australia. He has been working on the project for two years.

Commercial satellites weigh hundreds or even thousands of kilograms and cost millions of dollars to launch. In comparison, nano-satellites can be made for as little as \$1,000 and weigh between one and 10 kilograms. Mr McAndrew's creation is even smaller, weighing

less than 200 grams It takes a lot of planning and a very expensive taxi ride on a much larger space craft. "The actual launch cost for a pocket cube is around \$30,000," Mr McAndrew said.

SPACE is getting crowded alright. About 80 nano-satellites were launched in 2013, while 132 went up in 2014. It is estimated a further 500 will be in orbit by the end of this year.

For Mr McAndrew, the backyard inventor, there are still a few barriers to overcome. He must first test his satellite before obtaining a launch certificate from the Australian Government, which costs \$10,000.

The fee is reduced to just \$100 for educational and scientific institutions. Mr McAndrew wants the Commonwealth to ease those financial requirements in recognition of the industry's potential.

He is still hopeful of securing a place for his satellite on board an Italian spacecraft set to launch late next year.

[Tnx: Southgate ARC bulletin]

## NEW LOOK RADIOS?

The Austrian national radio society says amateur radios should not look like in the seventies, but should include modern technology and graphical user interfaces and colour touch screen to avoid multi-functional buttons

The Österreichischer Versuchssenderverband (ÖVSV) used the Friedrichshafen Ham Radio event to put forward this vision to representatives of the major ham radio manufacturers.

They believe a New Generation Radio has to have an open firmware enabling software developers to create new applications for innovative experiments in the Amateur Radio Service.

*Do members have anything to say about this initiative? Feedback welcome; will be published in the next issue OCTOBER 2015 /Ed*

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