Ham RADIO News

Newsletter of the Amateur Radio Society of India (Indian Affiliate of IARU)
JANUARY 2015 Issue

HAPPY NEW YEAR TO ALL..

From THE PRESIDENT, SECRETARY, AND OFFICE BEARERS OF THE A.R.S.I.

President's Message

The ARSI AGM held in Hyderabad during the HAMFEST had a very good attendance, much more than the others held in the past. Perhaps we should make this a practice for the future? Your suggestions are most welcome.

Certificates were distributed to the winners and participants of the several contests ARSI organizes each year to keep our bands active and help our operators hone their operating skills. We will continue to do this in the future also.

The next event, though not a contest, will be the very popular "hill topping" day and announcements will be out on this shortly.

The budget for the ensuing year was also presented and approved at the AGM and we are happy that the finances of your society are in a healthy state.

It will be of interest to our members that IARU is working on obtaining access to a portion of the band in the 5 MHz sector. This will bridge the gap between the 3 Megs and 7 Megs which we now have. It will be especially helpful during emergencies for a seamless transition from one band to another to take advantage of changing band conditions during day and night. The decision will be at the World radio communications Conference in 2015 (WRC15).

ARSI continues its efforts to get our administration to streamline our archaic regulations and approaches have been made to the new government, who have publicly announced that they would like to do away with redundant regulations- it now has to be seen if they will live up to that!

We would again encourage all members to visit our webpage www.arsi.info and give suggestions on what other information can be put in there for helping newcomers and old-timer's alike. HAPPY NEW YEAR TO ALL

73, Gopal Madhavan VU2GMN

From the Editor's desk

The HAMFEST held at Hyderabad was very well attended – 1,200 delegates – it's a record!

Congratulations to OM Vinod VU2VID for being selected as the CONTESTER OF THE YEAR 2014 – his prize includes a Certificate and the latest copy of the ARRL ANTENNA HANDBOOK.

The month of December was dedicated to young hams – YOUNGSTERS ON THE AIR – or just YOTA. It is important that more youngsters are encouraged to take up this unique hobby. We need to arrange talks and demonstrations in schools and colleges to create the awareness.

For this, we do not need any organization or special set-up; any member may personally contact the authorities of a school/college near his/her QTH and offer to provide all the needed information and a demonstration. This is what we used to do in the early days of Ham Radio. Of course, help is always available from fellow hams!

Elsewhere in the issue you will find information on how VU2EXP of Rajkot and VU2JAU of Gwalior are regularly involved in such ham awareness programmes.

I urge every active amateur to investigate the possibility of taking this unique hobby to youngsters.

Enjoy another issue of HAM RADIO NEWS filled with Tech news, DX news and tit-bits, and local news and activity – but I would appreciate it if members forward more news and articles for publication!

HAPPY NEW YEAR TO ALL

73

Ganesh VU2TS

HAMFEST 2014 November 8th and 9th..

AMSAT INDIA team was provided a slot for two hours on the first day of the event to talk about topics related to Amateur radio satellites. The inauguration of the event was quick and we moved to the seminar hall which was allocated to us for the presentations, the seminar hall was well organized and consisted of dual screen projection and a good audio system.

The first presentation was covered by Nitin VU3TYG and Mani VU2WMY who provided an update about AMSAT INDIA and activities & an update on the end of mission of VO-52. An appeal was made for people to come forward and join the organization to help with the objectives of the organization.

The Second presentation was done by Ravi VU2RVJ who spoke about "Working with LEO satellites" and covered topics related to LEO orbits, Antennas, Doppler Shift and basic setup required for such operation. Guru, VU2GUR also spoke about Doppler shift and demonstrated this with the help of Mani VU2WMY by playing and varying the volume of an SSTV audio file and simulating the progress of a satellite pass.

The third presentation was by Nitin, VU3TYG who presented about "Telemetry Decoding from Amateur Radio Satellites" and covered topics as introduction to Telemetry and Tele-command, why satellites have telemetry and what does the data mean, how to get started with a basic setup, examples on how to decode and educational outreach opportunities.

The last presentation was by Nitin VU3TYG & Ganesan VU3GEK who provided an description of the new Multi-Mode payload designed at AMSAT INDIA. Ganesan explained the various stages of this payload using the block diagram and how this can be customized as per mission requirements.

The entire session was lively with good interaction between the presenters and the audience and we received a pat on our back from some of the audience for our efforts. We are looking forward to appoint regional volunteers across India who can help us with our programmes. We would like to thank HAMFEST India 2014 organizers for providing us an opportunity for the technical session. Some photographs of the event can be found in the gallery section of this website

The next HAMFEST will be held at Rajkot in 2015 and we will look forward to participate again.

POLLACHI –TAMIL NADU

Meeting on second Sunday 12 Oct 20 14

VU2NJX PATHY, VU2ANT KANAGU, VU2WDP VIJAYAN, VU2CMN MUTHU, VU2DX SAIF VU2OVA MAYIL

GWALIOR – M.P.

A HAM Radio awareness program was conducted at Little Angels High School Gwalior on 24 November 2014. OM Jayant S. Bhide VU2JAU was the speaker who explained the prospects of HAM Radio among the students. This has coincided with the birth anniversary of Sir J.C.Bose

OM Kailash ex VU4KC was also present in the program. Students were curious about the working of HAM Radio. Students asked many questions and answered by OM Jayu VU2JAU.

The session ended for one hour and created special interest in students and teachers.

DISASTER COMMUNICATIONS

A seminar on Disaster communication and HAM Radio was conducted on 12 December 2014 at N.R.I.Group of colleges in Gwalior.

Jayu S. Bhide VU2JAU was the speaker of the day. The topic was discussed in details. Students shown their interest in the subject and at the end asked many questions which were answered satisfactorily. The programme lasted for an hour and a half.

Managing Director of the College Mrs Sing herself was present till the end of the session along with principal and other faculties. OM Kailash Agrawal ex VU4KC along with OM Prakash Bhise were also present and played a supporting role. Over all it was nicely organized program. Jayu VU2JAU thanks all who participated in the event.

PUNE, MAHARASHTRA

Pune Hams enjoyed a very exciting Eyeball Qso meet on Sunday 5th Oct 14 at Hotel Kollage, on Film Institute Road. The majority attendance was by young Hams and SWLs, the budding Hams.

Thanks to OM Rupesh for involving Girish and 3 YL SWLs viz. Pooja, Priyanka & Ashvini from the College of Engg. Pune Club VU2COE

The YL Ham Ashvini VU2LNC joined the meet first time; She is perusing her M.E in Simhagadh College of Engg, Kondhva

Her final year ambitious project is a HF Transceiver

Her account of how she was “bitten by the ham-bug” is very interesting. She is from a village near Satara. She learned about Ham Radio in first year engineering while attending a seminar on disaster management, Pursued her ASOC exam attending classes in Panvel. Every Sunday she used to travel from Satara to Panvel by Bus. Attended such 10 classes and self-study, appeared for exam and got her ticket.

Another SWL Atul, civil engineer, and his daughter Ashvini, first year Engineering student working hard for ASOC exam and shortly taking his exams through COEP Club

The old timers were very excited to meet youngsters and shared their experience.

OM Keki VU2KI (1964 Ham) took them to his memory lane and told interesting stories about WW II AR88, BC 348 Receivers serviced by him at BRD 9 Base Repair depot of Indian Air force at Pune Airport.

VU2UPQ OM Uday shared interesting story about his entry in world of Ham Radio in Pune through COEP club in 2006.

VU2ASH OM Ashok was “man of the match”. Ashok gave a bird’s eye view along with various dimensions of the hobby which called for lively discussions. He shared his thoughts on Home brewing.

Ashok will be shortly conducting small electronics project workshops for beginners. Most of the new comers have procured tools and components.

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OM Chandu is expected to start his Morse Code classes at the QTH of SWL Upelekar on Senapati Bapat Road,..watch for his announcment.

We have planned a 4 days' workshop on 50W SDR Transceiver for Hams and selected SWLs to be held in December. Only 10 participants will be accepted. It will be conducted by Dev - VU2DEV Bangalore and supported by senior Hams from Pune.

The next Eyeball QSO meet will be on Sun 2nd Nov 14 @ Hotel Kollage, Film Institute Road. 10:30AM. we welcome out-station Hams!

73, *Vilas Rabde*
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RAJKOT, GUJARAT

For the past four years, the birth anniversary of the famous scientist **Sir Jagadish Chandra Bose** (1858-1937) is appropriately celebrated by Rajesh VU2EXP by organizing amateur radio awareness programmes and demos in schools/colleges in and around Rajkot. A special event callsign AT1JCB is activated during this period – the last week of November. Here's a message from Rajesh:

Recently on such occasion on 29th Nov I conducted a Ham Radio Introductory program at the prestigious Rajkumar College, Rajkot - Gujarat. 225 students from std. 8 to 12th participated in the program. Ham Presentation was conducted by yours truly, and a brief VHF Demo was carried out by young hams VU3GLY OM Priyesh & SWL Sakshi (waiting for ticket). Session was followed by interesting Q&A.

I also completed the AT1JCB activation on 9th Dec. As planed I worked exclusively on Digital Modes only – all the six modes. It was a fantastic experience to manage & learn every aspect of activation.

There were lot of questions!

Here is a brief summary of AT1JCB Activation.

* Total QSOs made: 534
  (VU 15 + DX 519)
* Unique Call signs worked: 447
* Countries worked: 66
* Bands: 10/15/20/40m
* Modes used: PSK31, PSK63, PSK125, RTTY, JT65, & OLIVIA

*374 QSOs made on 10 meters alone; most popular mode was PSK-31 on which 251 QSOs were logged; JT-35 was next with 137 QSOs logged.

All logs are being uploaded to LOTW & eQSL. Printing of QSL is in progress & soon VU Hams will find their card sent to them direct.

I thank the ham community for extending such wonderful support to me. Also special thanks to VU2DSI & VU2JAU for their co-operation.

Hope to see you on waterfall, next year. 73

Rajesh VU2EXP

GURGAON - HARYANA

DX HAM FOUND IN "LOCK-UP" WITH VU HAMS!

DL7BC (reciprocal VU2HBC), Handle – Hartwig Kaushchat, revisited VU Land during November 2014. Hartwig expressed his wish to operate from the radio shack of local hams. In a wintry evening of November 15, 2014, twenty three Gurgaon Hams greeted DL7BC at a very strange location called LOCKUP, which turned out to be a restaurant with a novel concept of The Cellular Jail of Andaman Islands. The ambience of the LOCKUP, i.e., furniture, sliding metal doors, dress code of restaurant waiters, decoration of .32 caliber revolvers with cartridges, bewildered all. So, was the staff of the LOCKUP at the sight of VHF Hand held transceivers!!

The LOCKUP Hams group comprised (group photograph-Left to Right Standing) – VU2VV, VU2VVH, VU2TIR, VU2RKS, VU2ATN, VU2OEC, VU2VUV, DL7BC (VU2HBC), VU2KIG, VU3WJM, VU2MEI, VU2RQE. DL7BC, VU3WJM, VU2RKS, VU2PIA, VU2VV, VU2TIR, VU2VVH, VU2VUV, VU2MEI, VU2RQE, (sitting – Left to Right) SWL QRPs Tanush and Eshaan, VU2UUU.

VU3WJM (Rahul) and VU2VV (Vedant) shared their experience during the HAMFEST INDIA 2014 at Hyderabad.

Waiter in convict getup!

VU2KIG (Hoshiar Singh) – a Senior Officer from Department of Telecom – shared the knowhow of the latest digital communication technology which are now-a-days used commercially. VU2HBC also shared his Contesting Experience & operating from various Club Stations in Europe. He also mentioned that their licensing allows operating from a certain group of European Countries, just by adding a Suffix.

It was a wonderful get-together, among the group, the new hams, viz., VU2PIA (Anand), VU2VV (Vedant), VU2TIR (Tarun), VU2VVH (Ashvini), VU2MEI (Mayank), VU2RQE enjoyed listening to amateur radio talks.

Tnx: Rajesh VU2OEC

SIR.J.C.BOSE (1858-1937)

Jagadish Chandra Bose was born in India in 1858. He received his education first in India, and in 1880 he went to England to study medicine at the University of London. Within a year he moved to Cambridge to take up a scholarship to study Natural Science at Christ's College Cambridge. In 1884 Bose was awarded a B.A.

Bose then returned to India, taking up a post initially as officiating professor of physics at the Presidency College in Calcutta. There he converted a small 20 sq ft enclosure adjoining a bathroom into his laboratory.

He built his equipment by employing an illiterate tin-smith whom he trained up to do the jobs for him. In this period, he was interested in experimenting with extremely short waves and carried out considerable improvements on Hertz's detector of electric waves.

He developed a compact apparatus for generating electromagnetic waves of wavelengths 25mm to 5 mm and studying their quasi-optical properties, such as refraction, polarization and double refraction. He had thus opened the field of microwave physics and communications.

Over one hundred years ago, J.C. Bose described to the Royal Institution in London his research carried out in Calcutta at millimeter wavelengths. He used waveguides, horn antennas, dielectric lenses, various polarizers and even semiconductors at frequencies as high as 60 GHz; much of his original equipment is still in existence, now at the Bose Institute in Calcutta. Some concepts from his original 1897 papers have been incorporated into a new 1.3-mm multi-beam receiver now in use on the NRAO 12 Meter Telescope.

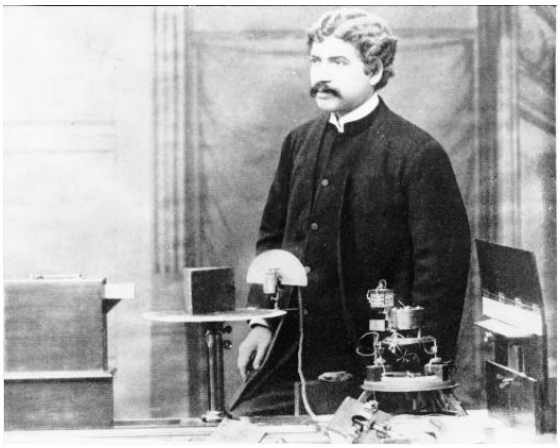
In 1895 Bose gave his first public demonstration of electromagnetic waves, using it to ring a bell remotely and to explode some gunpowder. In 1896 the Daily Chronicle of England reported: *"The Indian inventor -J.C. Bose has transmitted signals to a distance of nearly a mile and herein lies the first and obvious and exceedingly valuable application of this new theoretical marvel."*

These could be demonstrated by his compact apparatus mounted on an ordinary spectrometer table. The originality and simplicity of his apparatus were its remarkable features.

Popov in Russia was doing similar experiments, but had written in December 1895 that he was still entertaining the hope of remote signalling with radio waves.

The first successful wireless signalling experiment by Marconi on Salisbury Plain in England was not until May 1897.

The 1895 public demonstration by Bose in Calcutta predates all these experiments. Invited by Lord Rayleigh, in 1897 Bose reported on his microwave (millimeter-wave) experiments to the Royal Institution and other societies in England



J.C. Bose at the Royal Institution, London, 1897.

He was the first to use a semiconductor junction to detect radio waves, and he has invented various microwave components that are now commonplace.

In his presentation to the Royal Institution in January 1897 Bose speculated on the existence of electromagnetic radiation from the sun, suggesting that either the solar or the terrestrial atmosphere might be responsible for the lack of success so far in detecting such radiation - solar emission was not detected until 1942, and the 1.2 cm atmospheric water vapour absorption line was discovered during experimental radar work in 1944.

He was knighted in 1917 and became a Fellow of the Royal Society (FRS) in 1920.

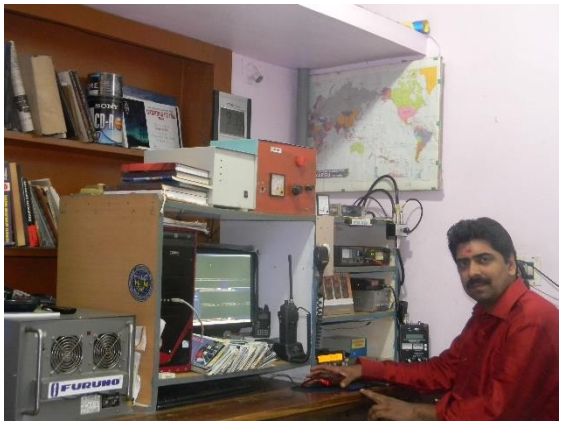
By about the end of the 19th century, the interests of Bose turned away from electromagnetic waves to response phenomena in plants; this included studies of the effects of electromagnetic radiation on plants, a topical field today. He retired from the Presidency College in 1915, but was appointed Professor Emeritus. Two years later the Bose Institute was founded. Bose was elected a Fellow of the Royal Society in 1920. He died in 1937, a week before his 80th birthday; his ashes are in a shrine at the Bose Institute in Calcutta.

[Tnx: Vilas VU2VPR]

ITU & IARU CELEBRATING 150 YEARS OF ADVANCING THE TELECOM-MUNICATION ART

CONTESTER OF THE YEAR

CONGRATULATIONS to Vinod VU2VID on being selected as the Contester of the year 2014!



A temple priest and astrologer by profession, Vinod loves to spend his spare time in his shack, chasing DX. An avid home-brewer, Vinod has built several transceivers and the accessories like SWR meter, Frequency meter, 807 Valve amplifier, antenna tuner, etc. Having confirmed 200 countries, Vinod is applying for his DXCC shortly. He is NC on 3600 KHz whenever condx are good.

METEOROLOGICAL DEPT. TO SHOWCASE HAM RADIO FOR WEST BENGAL FISHERMEN

India Gazette (IANS) *Monday 8th December, 2014*

Benefits of amateur radio (Ham radio) will be showcased for West Bengal's fishermen community in a bid to ensure severe weather warnings reach them timely when they are stationed in deep seas, an official said Monday.

Experts at the regional Meteorological Department will facilitate a demonstration of the technology to the fishermen at a one-day meet in Digha on Dec 12, with the help of Bengal Fisheries Department and West Bengal Amateur Radio Club.

"We are trying to introduce the benefits of Ham radio to the fishermen and the state government officials as an alternative way of communication," Devendra Pradhan, deputy director general of meteorology (eastern region), regional meteorological centre, Kolkata, told IANS.

"If the state government decides to go ahead with it, then Ham Radio could be used to effectively transmit warnings to the fishermen, sailing in the deep sea, about 200 km away from the sea shore," he said.

Ambarish Nag Biswas, a licenced amateur radio operator and founder of the club, and two of his colleagues, will explain the technicalities to the participants to apprise them of how the high frequency (HF) radio waves can be successfully used for direct, long-distance communications in inclement weather.

"We will show them how to use the Ham radio to communicate with the authorities as well as with each other during severe weather conditions and explain the process of procuring licenses," Biswas, whose club is headquartered at Sodepur High School on the outskirts of Kolkata, told IANS.

He was part of the three-member team that helped in communication during the cyclone Hudhud relief operations in Andhra Pradesh.

Biswas said currently the fishermen use very high frequency (VHF) radio waves (ideal for short-distance terrestrial communication) for such transmissions.

"Our agenda will be to persuade the state government officials to switch from the current VHF to HF," he said.

[Ambarish Nag Biswas is VU2JFA-"RAJU" the custodian of VU2MQT - West Bengal ARC]

Editor's note: *I hope this does not mean that the fishing folk use the amateur bands! I have heard that most fishing trawlers use rigs purchased from the open market with tuneable VFOs, and they zero in on ham frequencies on the HF bands. Is it possible to restrict them to the Marine Frequencies on the 150 MHz band? On the high-seas, 50 to 60 kilometers can be easily be covered on the marine frequencies. In which case, some amateurs need to be permitted to use the Marine frequencies for the purpose.*

The HF bands, especially the 40 meter band are already overcrowded therefore it may not be a good idea for the fishermen to use it. It is in the best interest of the fishermen and everyone else that the Marine bands are used.

India's youngest radio Amateur

The Hindustan Times reports on **Saborni Nag Biswas VU3JFE**, she is possibly the youngest radio amateur in India.

The newspaper says: Saborni Nag Biswas, a student of class 7 at St Augustine Day School in Barrackpore, is probably the youngest licensed Ham Radio operator now in the country. She took the exam when she was 12 and got the license a few months ago from the union ministry of communication and information technology's wireless planning & coordination wing.

She said *"I had to wait till I turned 12 years of age as that is the minimum age limit to take the exam. Now I have a license".*

Saborni turned 13 years in April 2014. But if you try to judge her by her age you could be fooled. Because in January 2015 when nearly five lakhs of pilgrims congregate at Ganga Sagar she would be helping senior IPS and IAS officers with her radio communication skills to help manage this huge footfall - one of the largest religious congregations of pilgrims in the-country.

Every year amateur radio operators are invited at Ganga Sagar Mela to establish a communication network. They not only help in tracing missing persons through radio communication but also help in crowd management. Such parallel communication set up becomes more effective whenever there is a natural disaster or human-made disaster.

"I had earlier been to the mela as a tourist a few years back. But this time I am highly excited as I would be able to accompany my father and other ham operators and help in tracing the missing persons at the mela," she said.

CONGRATULATIONS & BEST WISHES

Indonesia's New President & Vice President are both Radio Amateurs

President Joko "Jokowi" Widodo**, YD2JKW**, holds a General class license. Vice President Jusuf Kalla, **YC8HYK,** is an Advanced class licensee.

Elected in July, Jokowi, 53, a former furniture exporter, and Kalla, 72, were inaugurated on October 20 in Jakarta. Indonesia is the world's third-largest democracy, with a population of approximately 250 million.

TX FACTOR

EXPLORING AMATEUR RADIO

TX Factor is a series of HD TV shows dedicated entirely to amateur radio. TX Factor was launched in February 2014 and since then the episodes have been viewed over 90,000 times.

Our presenters explore the history of amateur radio, rigs, antennas, operating modes, propagation, sport radio, training, club news, RSGB news, world news - in fact, anything and everything!

TX Factor is a professionally produced programme presented by radio amateurs for radio amateurs - and here you can watch our latest episodes and find out what the TX Factor has to offer.

http://www.txfilms.co.uk/txfactor/txfactor.shtml

MANY LONG WAVE B.C. STATIONS CLOSING DOWN

GERMANY

The German national public broadcasters Deutschlandfunk and Deutschlandradio Kultur will disappear from longwave at the end of this year. Wasteful channels are going off the air due to cost considerations. The money saved

will be invested in digital terrestrial radio (DAB+). At the end of 2015 the mediumwave transmitters of Deutschlandfunk will also close.

Deutschlandfunk currently still broadcasts through longwave 153 and 207 kHz and seven mediumwave frequencies including 1269 and 549 kHz. Deutschlandradio Kultur broadcasts by means of the longwave frequency 177 kHz. The mediumwave frequency 990 kHz went off last year.

Keeping these transmitters on the air costs Deutschlandfunk and Deutschlandradio Kultur millions of euros a year in electricity costs. All these stations transmit with a fairly high power. The three longwave transmitters are each 500 kW, and the mediumwave transmitters range between 100 and 400 kW.

Meanwhile Deutschlandfunk and Deutschlandradio Kultur can be received on FM and DAB+ in large parts of the country. Further expansion of this network is proceeding rapidly. Earlier this year Deutschlandradio Kultur switched from the obsolete MP2 DAB standard to the modern DAB+, which is also used in the Netherlands.

In 2010 it was agreed that the public broadcasters will only get funding for the rollout of DAB+ if they cut down on other distribution methods. It therefore simply means that the medium- and longwave transmitters must be switched off. Meanwhile, several regional broadcasters have already turned off their AM stations. For example, MDR did so in March 2013.

THE NETHERLANDS

In the Netherlands, the NPO will scrap the broadcast of Radio 5 via medium wave in September 2015. Again listeners are advised to switch to DAB+.

POLAND

At the same time, information appeared in the *"open_dx yahoo mailing list"* that the Polish Radio domestic service is going to switch off its long wave transmitter on 225 kHz by 1st March 2015. The reason, once again, are lack of funds due to government cuts.

SWEDEN

State-owned Swedish broadcasting services provider Teracom said it welcomes the government's report about migration to digital radio. Digital radio coordinator Nina Wormbs presented her report into terrestrial digital broadcasting on 01 December and suggested switching off FM broadcasts in 2022 and expanding digital radio nationwide.

MESSAGE FROM AMSAT INDIA

We are pleased to announce that AMSAT India and Dhruva Space Pvt. Ltd. have signed a Memorandum of Understanding on November 30th 2014 to pursue the development of a follow up mission to HAMSAT launched in 2005 on-board the PSLV-C6. HAMSAT II is envisioned to fill the gap created by the recent end of life of HAMSAT and shall continue servicing the societal needs in disaster management, amateur/emergency radio communications and education. Some of the contemplated payloads for HAMSAT II include U/V Analog FM Transponder; U/V Linear Transponder, 50 kHz; APRS Digipeater; Digitalker

AMSAT INDIA & Dhruva Space team members pose with the MOU document

Dhruva Space is developing the complete satellite bus including all the spacecraft subsystems such as the electrical power system, attitude control system, communication system, structure and on-board computer. AMSAT India shall deliver the payloads for the satellite. The satellite is intended to be flown into a Polar Sun synchronous Low Earth Orbit.

This memorandum of understanding has brought together some of the best minds of AMSAT India and Dhruva Space. They are extremely delighted about the association and expressed their happiness on coming together to pursue their quest for innovation in space.

www.dhruvaspace.com

AMSAT-India launches new Website

The Indian amateur satellite organisation has launched a new website. The site describes two projects which AMSAT-India is currently working on, a 435/145 MHz linear transponder and a 435 MHz CubeSat communication sub system. Some back issues of the AMSAT-India newsletter are available for download.

Web http://amsatindia.org/

Yahoo-Group:
https://groups.yahoo.com/group/amsatindia

INDIAN STUDENTS BUILD SATELLITES

STUDENTS of Indian Universities are making waves in the realm of space technology, Students from various colleges across India have been part of student satellite initiatives, and the Indian Space Research Organisation (ISRO) has so far successfully put four student satellites in orbit, with many more in the pipeline.


THE ANUSAT TEAM

ANUSAT, short for Anna University satellite, which was designed by the students and faculty of Anna University, was the first satellite built by an Indian University under the guidance of ISRO. It was launched in 2009. It was built by the students and faculty of College of Engineering, Guindy, and Madras Institute of Technology, Chromepet, both of which come under Anna University. It demonstrated the technologies related to 'store and forward' operations.

In January 2012, ANUSAT exceeded its mission life of two years during which it successfully relayed its health parameters like solar and battery power status, temperature, on-board magnetic field measurements, angle to sun and its spin rate among others. After having completed 1,000 days in orbit, the mission ended in April 2012.

STUDSAT-1, the country's first pico satellite was launched in 2010. Engineering students from a consortium of seven colleges, four from Bangalore and three from Hyderabad, with Nitte Meenakshi Institute of Technology (NMIT), Bangalore, taking the lead, designed the satellite.


Students demonstrating STUDSAT subsystem

Chetan Dixit, team lead of the project manmanagement group of STUDSAT-1, said that a speech by DVA Raghava Murthy, former Project Director of Small Satellites Projects, ISRO, at the 2007 International Astronautical Congress, Hyderabad, about space research and development, floored the students, and this inspired the student satellite.

"NMIT took the lead and apart from the objective of encouraging research in miniaturised satellites, we intended to capture images of the earth with a resolution of 90 metres," said Chetan, who was an undergraduate Electronics and Communications Engineering student at NMIT during the project. *"For the ground station to be able to receive the images, the satellite should dump the captured images in that part of the earth where we can receive it, which unfortunately did not happen,"* he added.

STUDSAT-1 weighed just around 850g. The team entered the LimcaBook of Records in 2011 for having built the smallest satellite ever made by students.

Work is underway for **STUDSAT-2**, India's first twin satellite mission to demonstrate inter-satellite communications. This mission proposes to send two satellites into space and demonstrate satellite separation mechanism (where both the satellites will branch out), and achieve communication between the two.

Speaking about the advantage Indian students have over other countries, he said that ISRO provides a free launch for student satellites, unlike other space organisations like NASA. *"Here, we are allowed to use their labs and they review our project. It costs*

around ₹25 lakh to launch one kg in space, but ISRO encourages students to pursue space research," he added..

Jugnu, a nano-satellite designed and developed by students of Indian Institute of Technology, Kanpur, was launched in 2011.

Its objective was to image the earth in near infrared region and test image processing algorithms, and evaluate its GPS receiver for its use in satellite navigation. It was also intended to test an indigenously developed Inertial Measurement Unit in space which is used to measure the vibration and angular rate of the satellite. The students also developed the ejection subsystem, for Jugnu which is the interface between the satellite and the rocket.

SRMSAT another nano-satellite developed by the students and faculty of SRM University, Chennai, was put in orbit in 2011 by PSLV C-18 along with Jugnu.

Students working on SRMSAT

PRATHAM, a satellite initiative of IIT Bombay, was started in 2007 and has been pending since. It overshot its schedule in 2012 and missed its launch slot. With a new team, it is set to meet its deadline of March 2015 for handing over its satellite to ISRO on time.

Shantanu Shahane, the present project manager of Pratham said, *"Our objective is to study the total electron count (TEC) in the ionosphere. We believe there is a correlation between the TEC before and after a Tsunami, and estimation of this can help us predict a tsunami. This is one of the theories we will test."* He added that it can help in studying astral and extra-terrestrial phenomena, and the data obtained could be useful in astronomy too.

IIT- Madras is currently working on their Low Earth Orbit nano-satellite **IITMSAT**, and intends to complete the project by 2016.

Suresh Susurla - Project Leader IITMSAT with his team

The satellite's mission is to collect and transmit data about electrons and protons in the Earth's upper-ionosphere in its mission life of one year. It intends to expand on existing data for research on an earthquake prediction model based on ionospheric changes before seismic activity. It is currently designing and building a Space-based Proton and Electron Energy Detector (SPEED) that measures the energy spectrum of protons and electrons. IITMSAT's payload will consist of SPEED.

"Over 1,000 km above the earth lies the Van Allen radiation belts. It has been a point of scientific interest for long. We intend to study these belts. Earlier media reports suggested that we will be able to predict earthquakes. *However, that seems far-fetched. We will be navigating below the belt unlike NASA which intends to pass right through the belt,"* said Prof David Koilpillai, Dean of Planning, IIT-M and project mentor, IITMSAT. The student heads include Akshay Gulati and Suresh Susurla.

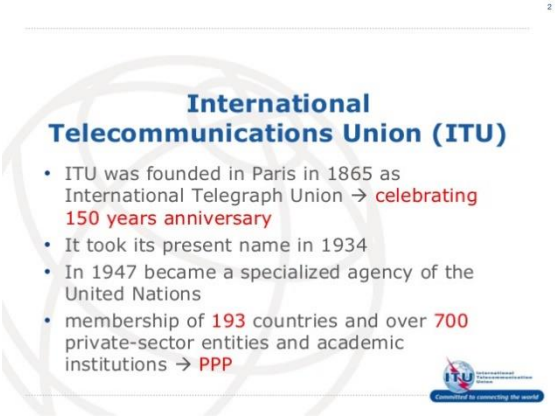
The Van Allen belt, a layer of highly charged particles held in place by the Earth's magnetic field was a cause for concern during the launch of Mangalyaan too. Increased exposure to these belts is hazardous to space missions because of its high thermal radiations.

For students to design a satellite, make it pass the endurance tests and operate it in orbit for six months is a huge achievement, and in the long run their findings may contribute to ISRO's spaceflights. VU2TS-Ed/

World Amateur Day 2015

In view of the year 2015 being the 150th anniversary of the International Telecommunication Union, the Administrative Council at its meeting in Albena, Bulgaria in September 2014 adopted the following theme:

ITU & IARU CELEBRATING 150 YEARS OF ADVANCING THE TELECOMMUNICATION ART



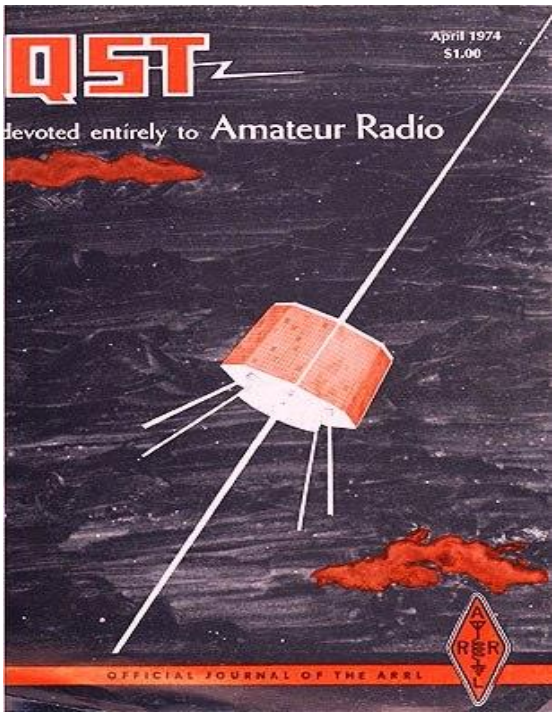
AMSAT OSCAR 7

Saturday, November 15, 2014 marked 40 years since the AMSAT-OSCAR 7 (AO-7) ham radio satellite went into space from Vandenberg Air Force Base in California.

Satellite aficionado Patrick Stoddard WD9EWK/VA7EWK, who secured W7O for the occasion, worked satellite passes during the special event from Arizona, including AO-7 passes. He recruited other operators to participate in the celebration from other locations and on other bands, including HF.

Special Event **W7O** was on the air November 15-24 to commemorate the launch of AO-7, the oldest working Amateur Radio satellite.

Cover page of April 1974 QST:



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AO-7 was the second so-called "Phase 2" Amateur Radio satellite that AMSAT-NA constructed and launched into low-Earth orbit. It remained in operation until a short circuit occurred in a battery in 1981.

More than 20 years later, however, AO-7 unexpectedly returned to life, its 2 meter beacon showing up on 145.9775 MHz. AMSAT describes the Mode A/B bird as "semi-operational" and dependent upon its solar panels for a reliable power source; AO-7 works only as long as its solar panels are illuminated by sunlight.

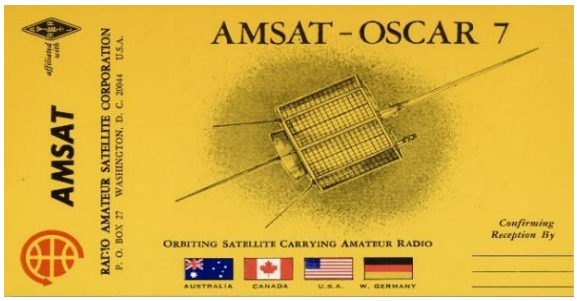
Satellite experts speculate that AO-7's resurrection occurred when the short circuit in the battery opened up for some reason, allowing the solar cells to power the spacecraft. When the satellite goes into

eclipse, it powers down. Since the satellite became undead, terrestrial users have enjoyed numerous contacts via AO-7.

The eclipse period, during which AO-7 falls silent, lasts from mid-spring to mid-summer. According to its operating plan, AO-7 switches to Mode B (70 centimeters up/2 meters down) at 0000 UTC.

AO-7 has beacons on 29.502 MHz (used in conjunction with Mode A) and, nominally, on 145.972 MHz (used in conjunction with Mode B and Mode C - low power Mode B). The 435.100 MHz beacon has an intermittent problem, switching between 400 mW and 10 mW

Contact Stoddard for more information at, patrick@wd9ewk.net .



RADIO IN SPACE: SPINSAT SUCCESSFULLY DEPLOYED FROM ISS

SpinSat was successfully deployed from the International Space Station on the afternoon of Friday, November 28th.

Developed by the Naval Research Laboratory, SpinSat is a 56 cm sphere weighing 57 kg that has 12 Electronically-controlled Solid Propellant thrusters spread in pairs throughout the surface of the satellite. They will be fired in pairs to spin the spacecraft.

SpinSat's primary mission will be to calibrate the Space Surveillance Network and to demonstrate and characterize the on-orbit performance of ESP (Electrically-controlled Solid Propellant) technology in space. Lasers will be fired at SpinSat from the ground. The light reflected back will be measured to determine where in time and space the satellite is passing overhead. SpinSat will also model the density of the atmosphere.

The IARU Satellite Frequency Coordination Panel report that SpinSat carries a 2 watt RF output 9600 bit per second AX.25 packet radio store and forward system on 437.230 MHz.

The Cyclops deployment system was used to release the satellite from the airlock of the Japanese Experiment Module. With just primary batteries for power and only 4.8 grams of fuel the spin-up phase may last between three to six months.

YOTA -YOUNGSTERS ON THE AIR

During the month of December several countries became active with "YOTA" as suffix for call sign. The idea for this was to break the ice for youngsters who are encouraged to take the morse-key/ microphone in the hand. As seen over the years the YOTA-group is growing fast and every year more youngsters are joining in. Let's plan ahead for-December-2015!

Teenager wins Google Science Fair Prize

New Delhi: Meet the new rising star, Arsh Shah Dilbagi, a 16-year-old boy who hails from Panipat and has made his way to win the first prize at the Google Science Fair 2014.

Arsh has developed a device named 'Talk' that allows people to communicate with the help of their breath, which is converted into speech by the device developed by him. Arsh is the only finalist from Asia this year.

The device is certainly a blessing for people with developmental disabilities, like Locked-In Syndrome and ALS, etc to communicate with the help of their breath.

The device functions by using signals from a person's breath via Morse code and then converting it into voice.

He now has $10,000 from Google to further develop the product.

Arsh Shah Dilbagi, a student of DAV International School was quoted as saying to a leading daily: “About 1.4% people in the world, which amounts to a hundred million people, suffer from developmental disabilities”.

“Augmentative and Alternative Communication (AAC) devices available in the market are very expensive, slow, bulky and not generic. I decided to find a better solution - an AAC device which is faster, portable and generic and costs only Rs 5000, making it affordable to the large population,” he added”. The device is very economic and user-friendly.

South African Radio League celebrates 90 years

The South African Radio Relay League was formed in May 1925. The name was later changed to the South African Radio League.

From January until the culminations of the celebration at the annual Convention in Bloemfontein in April, Amateur Radio Today will transmit a weekly highlighting the amazing events of the past 90 years.

In addition, the South African Radio League has been given a special call sign by ICASA to celebrate the anniversary. The call sign is ZS9ØSARL.

December 3 was the International Day of Persons with Disabilities - which was celebrated in several countries by special amateur-radio-call-signs.

The Kuwait Amateur Radio Society (KARS) used a special call sign **9K2WDD** and the Liberia Radio Amateur Association (LRAA) used a special call sign **6Z2RL**. The Egyptian Radio Amateurs Society for Development (ERASD) used a special call sign **SUØERA**. ERASD are planning a workshop with the Egyptian Scouts.

The Asocijacija Radioamatera Bosne I Hercegovine (ARABIH) used a special call sign **E71AVW** and they will be active on 14 MHz SSB The activity was organised by a group of blind members of the Radio Club Tuzla. A special QSL card will be sent to all who established a contact. The Media and many officials from local government attended the event.

The Vereniging voor Experimenteel Radio Onderzoek in Nederland (VERON) used a special call sign **PI4CGR** (Commission Handicapped Amateur radio).

It is hoped that many more radio amateurs will join this event in future.

Rizkallah-Azrak-OD5RI
IARU Region 1 IPHA Coordinator

New Digital Mode App - EXChat

Con Wassilieff - ZL2AFP has developed a sentence-mode radio chat system that works like phone texting!

This is a computer program for Amateur Radio transmission and reception using a computer and radio transceiver. The program equips your computer with a one sentence at a time chat-mode for operation on the HF bands. You use it in the same way as you would Skype™ or cell-phone TXTing. This facilitates rapid-fire QSOs and especially makes nets easier.

As usual, sound card techniques are used to generate transmissions using tones at audio frequency, and to receive and decode the incoming signals, also at audio frequency. An SSB transceiver translates these signals to and from the HF Amateur Bands.

The **EXChat** mode is a development of DominoEX, and is completely compatible with other DominoEX versions. In fact operators without EXChat, but who have another version of DominoEX, can take part in a QSO, if in a slightly clumsy manner. What is different about EXChat is that it operates in Sentence Mode. Read more about EXChat and download it-from :

http://www.qsl.net/zl1bpu/MFSK/EXChat.htm

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.

The South East Asia Net *(SEANET) was established in 1964 on 20m (14.320 MHz plus or minus QRM). The objective of this Net is to promote international understanding and fellowship among hams and to relay emergency, medical, urgent or priority traffic.*

This on-the-air meeting which has taken place without fail daily at 1200 UTC has strengthened unity and co-operation among Hams around the world, especially those within the region. The net also provides Hams a facility for testing their equipment and propagation conditions on the 20m band.

http://www.seanet2015.com/index.html

Lighter, cheaper radio wave circulator developed

Since the advent of wireless technology 60 years ago, magnetic-based circulators have been in principle able to provide two-way communications on the same frequency channel, but they are not widely adopted because of the large size, weight and cost materials.

Researchers at the Cockrell School of Engineering at The University of Texas at Austin have achieved a milestone in modern wireless and cellular telecommunications, creating a radically smaller, more efficient radio wave circulator that could be used in cell phones and other wireless devices, as reported in the latest issue of Nature Physics.

This has the potential to double the useful bandwidth in wireless communications by enabling full-duplex functionality, meaning devices can transmit and receive signals on the same frequency band at the same time.

The prototype circulator is 2 centimeters in size -- more than 75 times smaller than the wavelength of operation.

The circulator may be further scaled down to as small as a few microns, according to the researchers. The design is based on materials widely used in integrated circuits such as gold, copper and silicon, making it easier to integrate in the circuit boards of modern communication devices.

[FYI : A circulator is a passive non-reciprocal three- or four-port device, in which a microwave or radio frequency signal entering any port is transmitted to the next port in rotation]

FROM HOW FAR AWAY HAVE YOU HEARD A RADIO SIGNAL?

On December 8, 2014 Michal Zawada **SQ5KTM** reported – We have made a new record! Now we are listening to ARTSAT2: DESPATCH from deep space distance 2,316,759 km or 7.7 light-seconds-away! (2.7 million kilometers)

Our great crew: SP5ULN [Piotr], SP5MG [Piotr], SQ5RWU [Lukasz], SQ5KTM [Michal], SQ7GMO [Arek], SQ5AAG [Jacek], Sebastian P. and PIAP Team http://www.piap.eu/

On December 7 the same group of radio amateurs received the 437.385 MHz amateur radio signal from the Shin'en2 spacecraft at a distance of 1,51 million kilometers..

TNX : Southgate ARC news

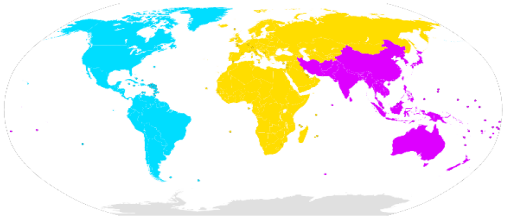
THE POLISH RECORD DIDN'T LAST LONG!

Zdenek Samek OK1DFC and **Rob Hardenberg PE1ITR** reported receiving the amateur radio beacon from the **ARTSAT2: DESPATCH** spacecraft on December 14 at a distance of 4.70 Million Kilometers away.

*FYI: The amateur radio spacecraft ARTSAT2: **DESPATCH JQ1ZNN** and **Shin'en2 JG6YIG** were launched on their journey to deep space on Wednesday, December 3, 2014. The two spacecraft will have an elliptic orbit around the Sun and travel to a deep space orbit between Venus and Mars. The inclination will be almost zero, which means the spacecraft should stay in the Earth's equatorial plane. The distance from the Sun will be between 0.7 and 1.3 AU. An Astronomical Unit (AU) is 1.50 million km.*

ARTSAT-2 is now officially AMSAT-FO-81

IARU Region 3 and APT Agreement



International Amateur Radio Union Region 3 and the **Asia-Pacific Telecommunity** (APT) have signed a Memorandum of Understanding (MoU) to achieve further collaboration.

The agreement which had to pass through various stages of approval has been formalised by IARU Region 3 Chairman Gopal Madhavan VU2GMN, and APT Secretary-General Toshiyuki Yamada.

Gopal VU2GMN explained that while the IARU Region 3 regionally looks after the development and protection of the Amateur Service, the APT based in Bangkok Thailand, sets spectrum allocation, fosters telecommunication services and information infrastructure.

The APT was founded in 1979 out of steps taken by the UN Economic and Social Commission for Asia and the International Telecommunication Union.

It is an inter-government organisation in Asia-Pacific for communication, information and innovation technologies. It has sister organisations, the CEPT in Europe and CITEL for the Americas.

APT has 38 member administrations that develop a regional perspective on World Radio-communication Conference agenda items.

WRC-2015 is to be held in Geneva Switzerland in November 2015 includes the proposal for a secondary allocation to the Amateur Service in the 5 MHz band.

ITU & IARU CELEBRATING 150 YEARS OF ADVANCING THE TELECOM-MUNICATION ART

LoTW Tops 100 Million QSLs!

The ARRL's Logbook of The World - online "card-less" contact-confirmation service this week recorded a new milestone — 100 million QSL records out of some 630 million uploaded contacts. That's an increase of more than 18 million QSL records since the end of last year.

First described conceptually in the October 2001 *QST* "It Seems to Us..." editorial, Logbook of The World launched in September 2003. Since then, it has become an accepted Amateur Radio institution — perhaps not at the same level of traditional QSL cards, but close and gaining. The 100 million contact confirmations, ARRL CEO David Sumner, K1ZZ, pointed out, is the equivalent of 200 million QSL cards.

"If placed end to end, that many QSLs would reach more than 17,000 miles — not quite all the way around the world, but enough to qualify as a 'long-path' QSO," he quipped. ARRL CEO Harold Kramer, WJ1B, pointed out that using LoTW can mean a considerable saving in postage for DXers and others over the expense of exchanging QSL cards.;

LoTW is open to all; ARRL membership is not required in order to use LoTW. Applying for a digital certificate is the first step toward taking advantage of the system. The digital certificate authenticates the user's identity. The digital certificate is free, and LoTW only charges when users apply credits toward an award.

Once they have registered and have a valid certificate, users can digitally sign log uploads via the Internet. If the information in a submitted QSO matches the information submitted to LoTW by the other station, LoTW credits both operators and will display the submitted QSO as confirmed.

A call sign certificate authenticates a specific, registered user as the source of each submitted contact, and other users may not see information submitted by other operators. This combination maintains the integrity of the contact verification process that has long been the hallmark of ARRL awards programs.

QST Celebrates Its Centennial

Although the ARRL celebrated its centennial in 2014, this year is the centennial year for *QST* magazine.

QST is not only the official membership journal of the ARRL, it is also the most widely read Amateur Radio magazine in the world with a monthly circulation of more than 165,000.

The magazine was first published in December 1915, with its first three issues financed by American Radio Relay League founder Hiram Percy Maxim and Secretary Clarence D. Tuska, with an expectation that increased membership would finance its continued existence. In October 1916, the editors announced the formation of QST Publishing Company.

STAR OF INDIA – NS6OI

The oldest active sailing ship in the world, the Barque STAR OF INDIA, using call sign NS6OI Mobile, sails in the San Diego area every November to celebrate her birthday – 151 years last November.

FYI: Star of India was built in 1863 at Ramsey in the Isle of Man as Euterpe, a full-rigged iron windjammer ship. After a full career sailing from Great Britain to India and New Zealand, she became a salmon hauler on the Alaska to California route

RADIO AMATEURS ON BOARD THE ISS

Since Alexander Gerst, KF5ONO, and Reid Wiseman, KF5LKT, returned to Earth on November 10, the ISS was left without any radio amateurs on board.

Now the International Space Station once again has an Amateur Radio licensee on board — European Space Agency Astronaut **Samantha Cristoforetti, IZØUDF** a former Fighter Pilot.

Samantha was part of a three-member ISS crew increment that arrived in a *Soyuz* spacecraft launched from Baikonur Cosmodrome in Kazakhstan Nov.23 and safely docked with the ISS next day.

Cristoforetti is Italy's first female space traveller. With her on the *Soyuz* were Russian Cosmonauts Anton Shkaplerov and NASA Astronaut Terry Virts. All three are part of the Station's Expedition # 42/43 crew.

On December 15, ISS made contact with two Italian schools. Samantha says:

On Monday, December 15, I had my first HAM radio contact with school pupils.

A big hello to the students of the schools "Elena di Savoia" in Bari and "Alessandro Volta" in Bitonto! It was fun talking to you and thanks for the great questions!

Samantha Cristoforetti IZØUDF using the Ericsson 144 MHz handheld radio in the ISS Columbus module

From my side, I only needed to be ready on the proper channel at the proper time: it is very important, because we need direct line-of-sight with the amateur radio station on the ground and the pass is only about ten minutes long. A couple of minutes before the expected acquisition-of-signal time, I started making calls to check if someone was already picking me up.

Eventually I picked up a call from the ground station and sure enough, we started our conversation. I heard them loud and clear, which positively surprised me: somehow I expected signal quality not to be as good. I hope they had the same quality on the other side.

On such contacts, there's no time for small talk and formalities: in less than ten minutes, we had to make sure that the 20 students who were lined up to ask their question got their chance. So here I was, ready to go. And here came the first question – are you ready? Here's it is:

"It is known that people become taller when they are in space. What happens to bio-molecules? Is there any alteration in the tertiary structure of proteins?"

I almost fell off my chair... well, if I had had a chair. (Wonder what a good equivalent of this expression would be in weightlessness... any suggestions?)

Where are the good old question about space food and the space toilet? Jokes apart, I was really impressed with all the questions: they showed a great interest and knowledge in science and technology and gave me great hope for our future generations of scientists and engineers. Keep up the great work, girls and boys.

73,

Samantha Cristoforetti - IZØUDF

Spot the Space Station over your backyard with new NASA service

November 2, 2014 marked 12 years of continuous human habitation of the space station. On the 12th anniversary of crews continuously living and working aboard the International Space Station, NASA announced Friday a new service to help people see the orbiting laboratory when it passes overhead.

'Spot the Station' will send an email or text message to those who sign up for the service a few hours before they will be able to see the space-station.

When the space station is visible -- typically at dawn and dusk -- it is the brightest object in the night sky, other than the moon. On a clear night, the station is visible as a fast moving point of light, similar in size and brightness to the planet Venus. "Spot the Station" users will have the options to receive alerts about morning, evening or both types of sightings.

The International Space Station's trajectory passes over more than 90 percent of Earth's population. The service is designed to only notify users of passes that are high enough in the sky to be easily visible over trees, buildings and other objects on the horizon. NASA's Johnson Space Center calculates the sighting information several times a week for more than 4,600 locations worldwide, all of which are available on "Spot the Station."

To sign up for "Spot the Station," visit: http://spotthestation.nasa.gov

For information about the International Space Station and a full list of sightings, visit: http://www.nasa.gov/station

ISS-Fan-Club
http://www.issfanclub.com/

HAPPY NEW YEAR, HAPPY DXING

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