

# AMATEUR RADIO



Vigyan Prasar

## Ham Radio

### Promotional Activities by Vigyan Prasar

<http://www.vigyanprasar.gov.in>

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The governmental agencies  
have their own radio  
communication channels already  
existing

- The Police-
- Armed Forces-
- Para-military Forces
- Fire Department-
- Inland Water Department-
- Meteorology Department-
- Electricity Department-



# Not Uncommon!!

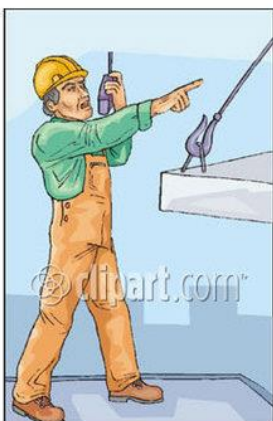
Police/Military/Navy/  
Air force



Two way radio: Listen & Reply



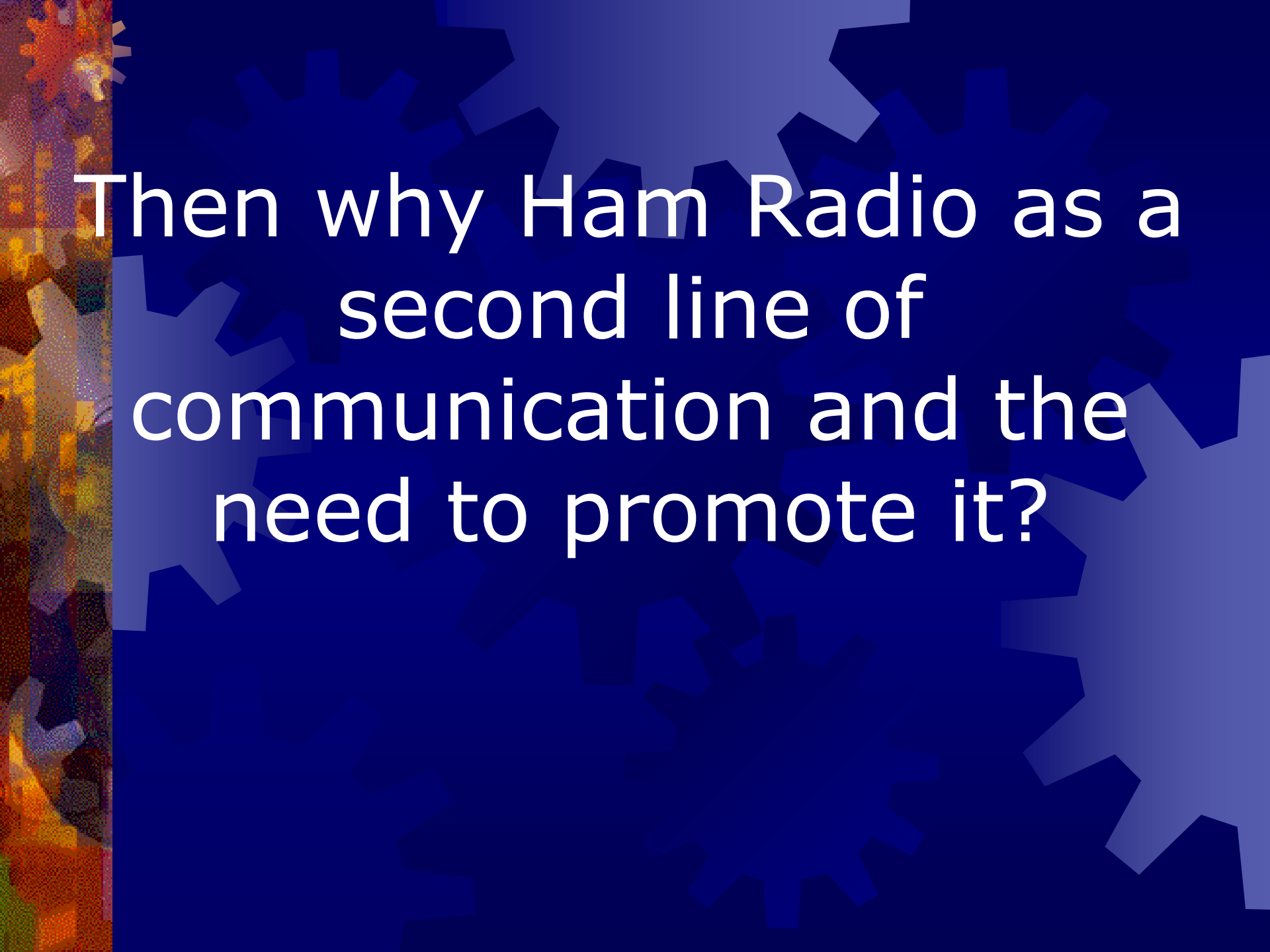
# Police



# Industrial Man



# ADVENTURER

The background features a dark blue field with several light blue gears of various sizes scattered across it. On the left side, there is a vertical strip with a textured, abstract pattern in shades of orange, yellow, and brown, resembling a close-up of a mechanical part or a natural surface.

Then why Ham Radio as a  
second line of  
communication and the  
need to promote it?

# Self Reliance/Capacity Building

- Ham Radio (Amateur Radio) is the only scientific activity in the world which requires a licence from the Telecommunication Authority of a country. It is a Do-It-Yourself activity where radio communication experimenters get an authorization to communicate anywhere in the globe. It is a skill more important than any other sports from national security point of view an to build a technically advanced resilient society; this is the reason NASA (USA) promotes it too.
- It is legitimized by ITU (International Telecommunication Union, Geneva) as socially constructive important technical activity and every member country of ITU on principle needs to promote it
- Without promoting it we cannot expect to have engineers with an entrepreneurial bend of mind and to Made in India (not just Make in India) possible.
- Like any other 'Science', it is also 'Science' and the backbone of communication (including science communication)

# Different from other Science Promotional Activity

- Training (extensive theory & practical training)
- Examination (Radio theory & Practice)
- Licencing
- Setting up of a personal two-way radio communication station (Needs individual expertise. So it is tool to learn new technologies unlike just user of a technology)

Needs to get trained in Radio & Electronics (Both Theory and Practical) as per syllabus devised.

A 100 marks exam (Theory+Practical) is conducted by the Ministry of Communications. License is issued after passing of the examination by the WPC wing (Wireless Planning & Coordination Wing) of Ministry of Communications.

# As per Indian Wireless Telegraph (Amateur Service) Rules, 2009

Amateur service' means a service of self-training, inter-communication and technical investigations Carried on by amateurs that is, by persons duly authorized under these rules interested in radio Techniques solely with a personal aim and without pecuniary interest

# 'Ham' – it is a noun (not an abbreviation)

Many people wrongly write it as 'HAM' (correct is 'ham'). It is an English word which is in use since the beginning of the history of radio and telegraphic communication dating back to nearly 172 year

## halfback → ham

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parents are of different races. **half-crown** (or **half a crown**) a former British coin equal to two shillings and sixpence (12½p). **half-dozen** (or **half a dozen**) a group of six. **half-hearted** without enthusiasm or energy. **half-hour** (or **half an hour**) a period of thirty minutes. **half-life** the time taken for the radioactivity of a substance to fall to half its original value. **half measures** actions or policies that are not forceful or decisive enough. **half nelson** a hold in wrestling in which you pass one arm under your opponent's arm from behind while applying your other hand to their neck. **half-term** Brit. a short holiday halfway through a school term. **half-timbered** having walls with a timber frame and a brick or plaster filling. **half-time** (in sport) a short gap between two halves of a match. **not half 1** not nearly. **2** Brit. informal to an extreme degree.

**halfback** noun a player in a ball game whose position is between the forwards and fullbacks.

**halfpenny** or **ha'penny** /hay-pni/ noun (plural **halfpennies** or **halfpence** /hay-p'nss/) a former British coin equal to half an old penny.

**halfway** adverb & adjective **1** at or to a point equal in distance between two others. **2** to some extent.

**halfwit** noun informal a stupid person. ■ **half-witted** adjective.

**halibut** noun (plural **halibut**) a large flat sea fish used for food.

**halitosis** /hali-toh-sis/ noun bad-smelling breath.

**hall** noun **1** (also **hallway**) a room or space inside a front door, or between a number of rooms. **2** a large room for meetings, concerts, etc. **3** (also **hall of residence**) Brit. a university building in which students live. **4** Brit. a large country house.

**hallelujah** /hal-li-loo-yuh/ or **alleluia** /al-li-loo-yuh/ exclamation God be praised.

**hallmark** noun **1** an official mark stamped on objects made of pure

gold, silver, or platinum. **2** a distinctive feature. • verb stamp an object with a hallmark.

**hallo** ⇒ HELLO.

**hallowed** /hal-lohd/ adjective **1** made holy. **2** very honoured and respected.

**Halloween** or **Hallowe'en** noun the night of 31 October, the evening before All Saints' Day.

**hallucinate** verb (hallucinates, hallucinating, hallucinated) see something which is not actually there. ■ **hallucination** noun **hallucinatory** adjective.

**hallucinogen** /huh-loo-si-nuh-juhn/ noun a drug causing hallucinations. ■ **hallucinogenic** adjective.

**halo** /hay-loh/ noun (plural **haloes** or **halos**) **1** (in a painting) a circle of light surrounding the head of a holy person. **2** a circle of light round the sun or moon.

**halogen** /hal-uh-juhn/ noun any of a group of elements including fluorine, chlorine, bromine, and iodine.

**halt**<sup>1</sup> verb come or bring to a sudden stop. • noun **1** a stopping of movement or activity. **2** Brit. a minor stopping place on a railway line.

**halt**<sup>2</sup> adjective old use lame.

**halter** noun a rope or strap placed around the head of an animal and used to lead it. □ **halter neck** a style of woman's top that is fastened behind the neck, leaving the shoulders, upper back, and arms bare.

**halting** adjective slow and hesitant.

**halve** verb (halves, halving, halved) **1** divide into two halves. **2** reduce or be reduced by half.

**halves** plural of **HALF**.

**halyard** /hal-yerd/ noun a rope used for raising and lowering a sail, yard, or flag on a ship.

**ham**<sup>1</sup> noun **1** meat from the upper part of a pig's leg which is salted and dried or smoked. **2** (hams) the back of the thighs. □ **ham-fisted** clumsy.

**ham**<sup>2</sup> noun **1** an actor who overacts.

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**2** (also **radio ham**) informal an amateur radio operator. • verb (hams, hamming, hammed) informal overact. ■ **hammy** adjective.

**hamburger** noun a small cake of minced beef, fried or grilled and typically served in a bread roll.

**hamlet** noun a small village.

**hammer** noun **1** a tool with a heavy metal head and a wooden handle, for driving in nails. **2** an auctioneer's mallet, tapped to indicate a sale. **3** a part of a mechanism that hits another. **4** a heavy metal ball attached to a wire for throwing in an athletic contest. • verb (hammers, hammering, hammered) **1** hit repeatedly with a hammer. **2** (hammer away) work hard and persistently. **3** (hammer something in or into) make something stick in someone's mind by constantly repeating it. **4** (hammer something out) work out the details of a plan or agreement.

**hammerhead** noun a shark with flattened extensions on either side of the head.

**hammock** noun a wide strip of canvas or rope mesh suspended at both ends, used as a bed.

**hamper**<sup>1</sup> noun a basket used for food and other items needed for a picnic.

**hamper**<sup>2</sup> verb (hampers, hampering, hampered) slow down or prevent the movement or progress of.

**hamster** noun a burrowing rodent with a short tail and large cheek pouches.

✓ no p: hamster, not hamp-.

**hamstring** noun any of five tendons at the back of a person's knee. • verb (hamstrings, hamstringing, past and past participle hamstrung) **1** cripple by cutting the hamstrings. **2** severely restrict.

**hand** noun **1** the end part of the arm beyond the wrist, with four fingers and a thumb. **2** a pointer on a clock or watch indicating the passing of time. **3** (hands) a person's power or control. **4** an active role. **5** help in

## hamburger → handicap

doing something. **6** a person who does physical work. **7** a round of applause. **8** the set of cards dealt to a player in a card game. **9** a unit of measurement of a horse's height, equal to 4 inches (10.16 cm). • verb give or pass something to. □ **at hand** (or on or to hand) near; easy to reach. **from hand to mouth** meeting only your immediate needs. **hand grenade** a grenade that is thrown by hand. **hand in glove** working very closely together. **hand-me-down** a piece of clothing that has been passed on from another person. **hand-pick** choose carefully. **hands-on** involving direct participation in something. **hand-to-hand** (of fighting) involving physical contact. **in hand** in progress. **out of hand 1** not under control. **2** without taking time to think.

**handbag** noun Brit. a small bag used by a woman to carry everyday personal items.

**handball** noun **1** a game in which the ball is hit with the hand in a walled court. **2** Soccer unlawful touching of the ball with the hand or arm.

**handbill** noun a small printed advertisement handed out in the street.

**handbook** noun a book giving basic information or instructions.

**handbrake** noun a brake operated by hand, used to hold an already stationary vehicle.

**handcuff** noun (handcuffs) a pair of lockable linked metal rings for securing a prisoner's wrists. • verb put handcuffs on.

**handful** noun **1** a quantity that fills the hand. **2** a small number or amount. **3** informal a person who is difficult to deal with or control.

**handgun** noun a gun designed for use with one hand.

**handhold** noun something for a hand to grip on.

**handicap** noun **1** a condition that limits a person's ability to function physically, mentally, or socially.



# Vigyan Prasar promotes it

- As an Alternative Mode of Community Communication empowering people in a specific branch of practical science
- To make the people self-reliant in radio communication technology
- To imbibe and interest in the art and science of radio communication technology
- A Do-It-Yourself activity for school children and students of the technical institutes (to complement theory with practical learning)
- to create a pool of emergency radio communication volunteers

# We use Internet extensively to reach out to the target group

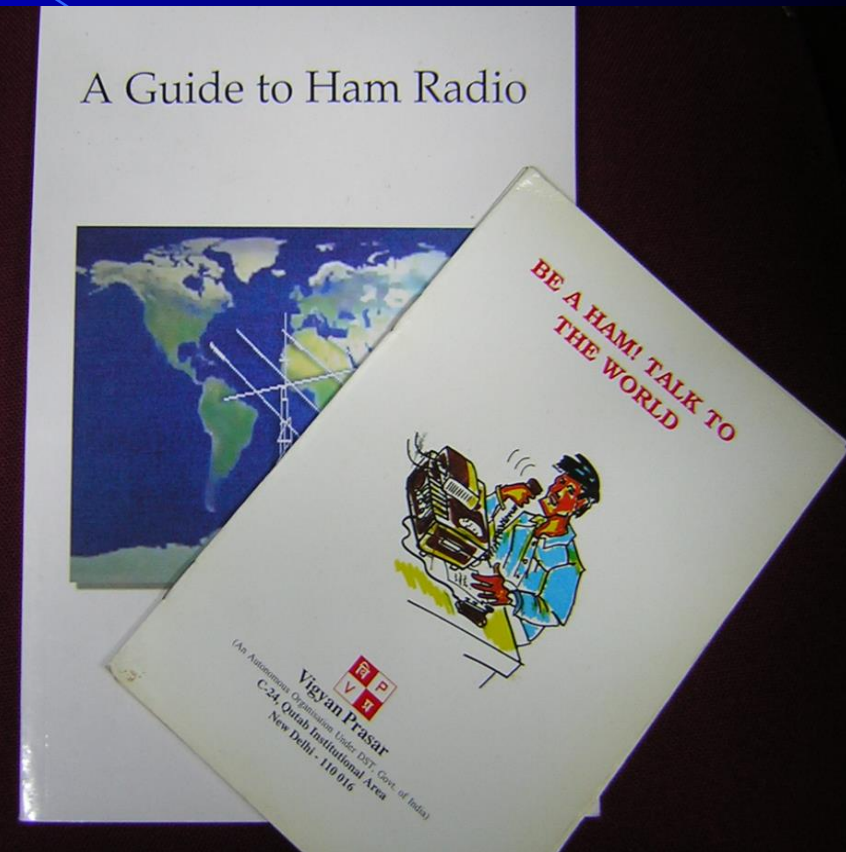
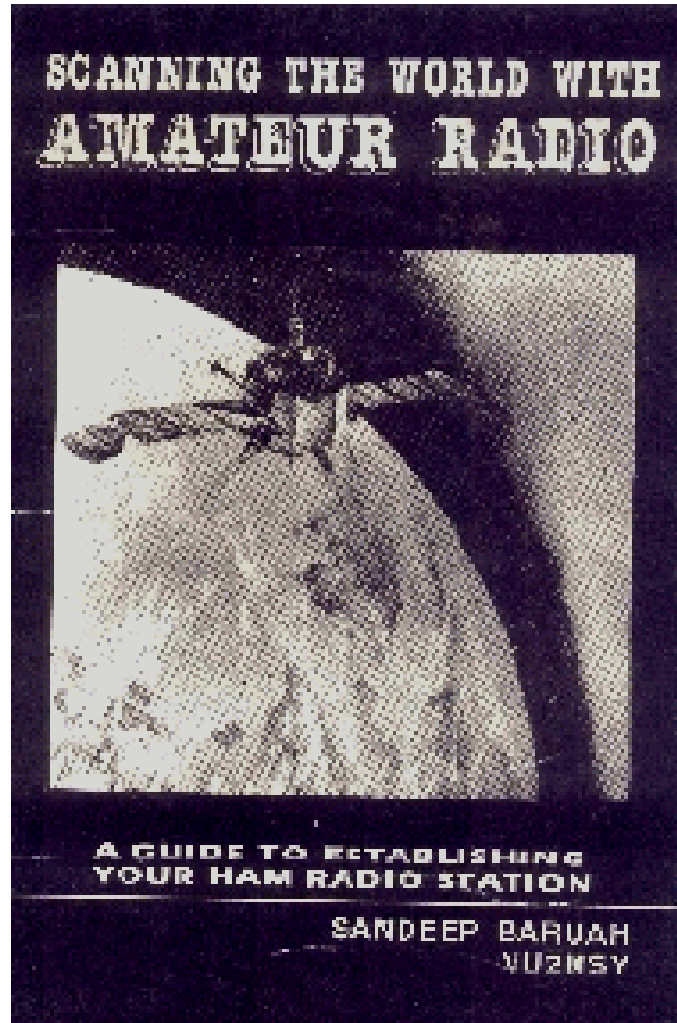
Websites maintained by me with ham radio (Amateur Radio) related learning materials/resources for novices:

1. <https://www.qsl.net/vu2msy>
2. <http://vu2mue.bravesites.com>
3. <http://www.riverdevil.org/APRS/vu2mue>
4. <https://vigyanprasar.gov.in/science-communication-programs/ham-radio/>

Email: [sandeep@vigyanprasar.gov.in](mailto:sandeep@vigyanprasar.gov.in)

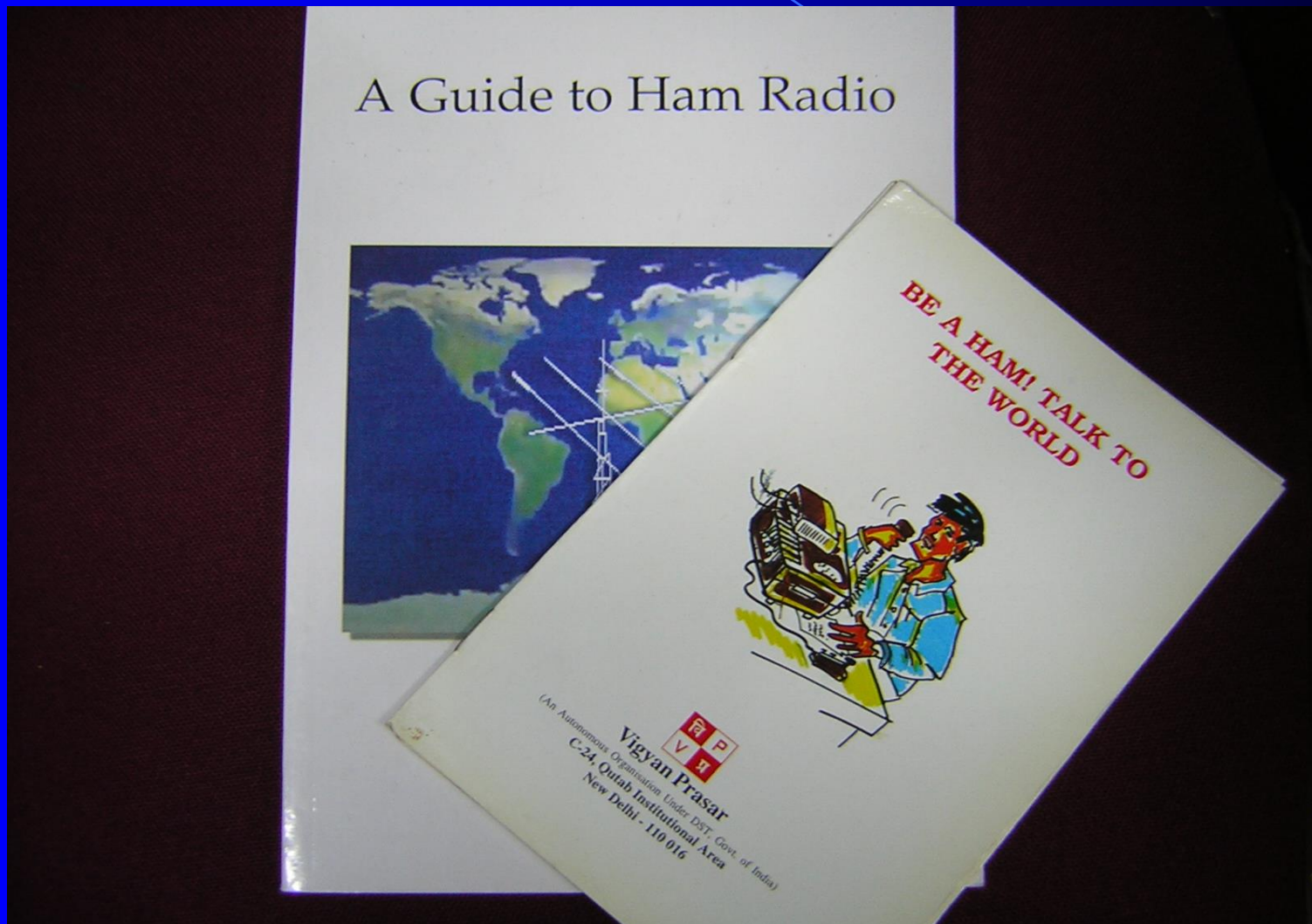
Mobile: 9811686572

# Vigyan Prasar Promotes it through various outreaching activities: PUBLICATIONS/STUDY MATERIAL



# “A Guide to Ham Radio”

Published by Vigyan Prasar in 2000



# Through Internet

Address <http://www.qsl.net/vu2msy/>

Canon Easy-WebPrint - Print High Speed Print Preview Options Duplex View Print List



## Ham Radio for the Wireless Enthusiasts

| Your First Journey | | Ham Population | | Ham Quiz | | Indian Callbook | | Search this site | | Guestbook | | Ham News |  
| Homebrewing downloads | | A Brave Sailor ham | | **APRS [ NEW ]** |

An exclusive site for the ham radio novice  
Homepage of Sandeep Baruah, VU2MUE (Ex-VU2MSY)

**Indian Rules and Regulations**  
Study Material for ASOC Examination  
FAQ on Rules and Regulation  
Homebrewing Zone

**LINKS**  
Support ham radio!  
My ham radio shack!  
ABOUT VU2MUE!

**View the WT Rules Amendment Suggestions**  
Ham Radio Licencing Application Procedures  
**Indian Call-sign Database**  
NEW! - Update facility incorporated  
[Now you can search by 'Name' also!]  
| 2m Hams in Delhi | | Visit the Repeater! |

**RESIST THE INVASION OF HAM BANDS :**  
A message from VU2POP

Clandestine Broadcasts in India!  
**Search my Site!**  
re on ham radio disaster communicatio

**Disaster Communication & Hams**

**CHAT**  
■ Selected Links!  
Importing an Equipment [NEW!]

**WHAT IS HAM RADIO?**  
WHAT DOES THE WORD HAM MEAN?  
WHAT IS A HAM CALLSIGN?  
WHO CAN GO FOR HAM RADIO?  
HOW TO BECOME A HAM?  
UTILITY OF HAM RADIO  
WHAT IS MORSE CODE?  
ORGANISATIONS PROMOTING HAM RADIO  
DEFYING HAM RADIO OPERATORS  
Download a Morse Code Learning Software!  
**[A software by Tony Lacy]**  
LISTEN TO THE MORSE CODE  
(To Download: Right Click > Save Target As..)  
**READ MORE ARTICLES ON HAM RADIO!**  
New: Basic Electronics Course (Study Material)  
LINKS to Other ham radio sites  
Comments on ham radio

**VU2MUE**

1999

# Ham Radio Technology Demonstration Page

## Introducing digital modes of communication

Address  <http://www.vigyanprasar.gov.in/ham/aprs/>

Canon Easy-WebPrint  Print  High Speed Print  Preview  Options  Duplex  View Print List

### Live RF data on an interactive Internet map

[Live RF Feed via VU2NCT on 144.800 MHz]

This page demonstrates the ham radio capability in penetrating the Internet to serve useful purposes. This is a live APRS data feed page.

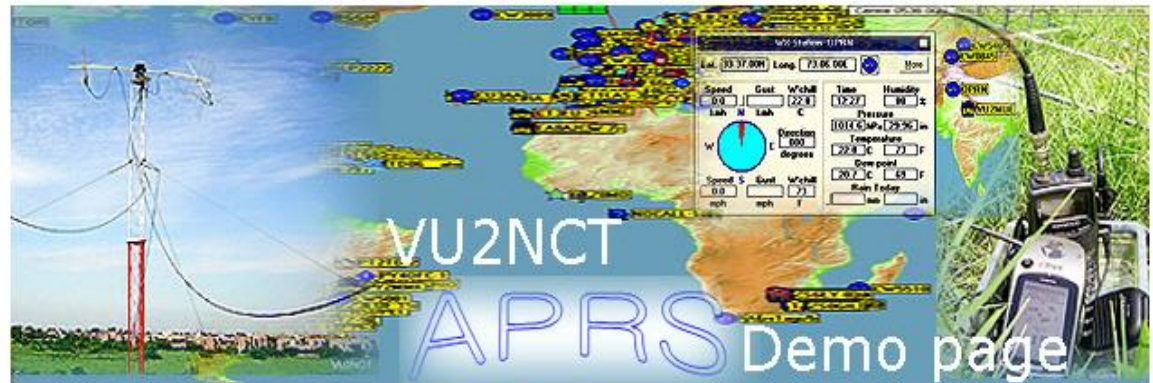
APRS® stands for Automatic Position Reporting System. **But this is not to be mistaken just as a mere automatic vehicle tracking system.** It is real-time two way digital radio communication where many of the vital information are exchanged almost automatically. Non-hams can monitor ham radio APRS digital communication using this page.

To just get a feel of how APRS activity is going on at other parts of the world here are a few links:

| [AE5PL](#) | | [WA4DSY](#) | | [SV1CNS](#) | | [HB9PVI](#) |

### Radio & Beyond!

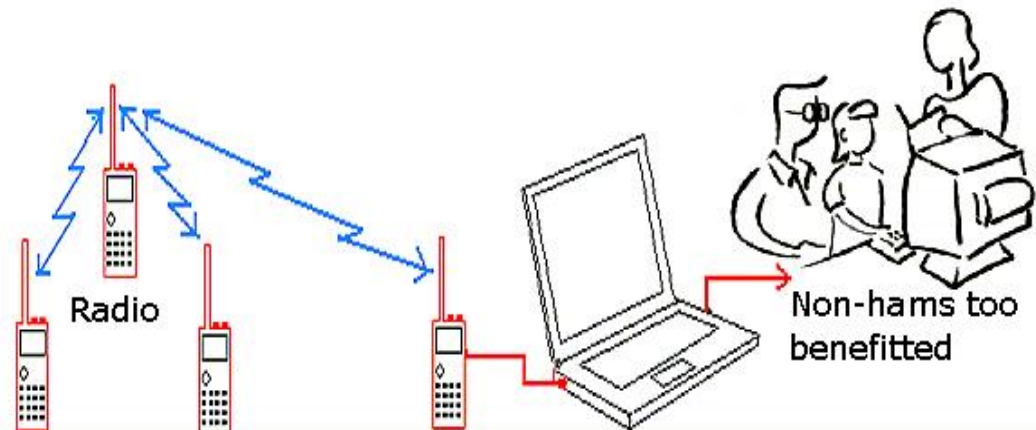
On the New Delhi map displayed below, we can see hams doing APRS® communication [If they wish they may talk or otherwise exchange APRS digital data using their radios]. If they transmit **APRS digital data** on **144.800 MHz** [which is VU2NCT APRS frequency], an APRS ready radio [Kenwood TH D7 AG] hooked to the Internet at



### New Delhi APRS® Demo page

[What is APRS?](#)	[APRS benefits](#)	[Why javAPRS?](#)	[Map use instructions](#)
[Map Commands](#)	[hams get UI-VIEW](#)	[APRS Presentations & Lectures](#)	
[APRS Resource Collection](#)		[Monitor Text Messages](#)	

APRS® is the Registered Trademark of Bob Bruninga WB4APR US Naval Academy



# In 2005 CBSE incorporated ham radio in its frontline curriculum on Disaster Management in Social Science (Class X)

## *Together Towards a Safer India Part III*

### *A Stride Ahead*

*A Textbook on Disaster Management for Class X*



**CENTRAL BOARD OF SECONDARY EDUCATION**

PREET VIHAR, DELHI - 110092

## 4. *Alternative Communication Systems... during disasters*



*In Monsoon-2004, severe flood situations in the States of Assam and Bihar caused major devastation. Many district head quarters got totally cut-off from the State head quarter and neighboring districts due to submerged telephone exchanges or damaged cables and disrupted roads and railways communication. In the worst affected districts the need for relief and rescue operation could not be communicated to the State head quarters. Realizing this, State*

*Government requested National Disaster Management Division of the Government of India to immediately send the emergency coordination kits containing satellite phones to establish communication links among the severely affected districts and state headquarters.*

From the above case study, we see that during any major disaster or emergency situation, the communication links are totally disrupted. Therefore, it is crucially important to have completely functional communication links among Government authorities at various levels to provide adequate assistance to the affected population. This chapter tries to explain various basic telecommunication facilities, need for alternative communication systems during the large-scale natural disaster/emergency situations, and modes of emergency communication systems including satellite based communication systems.

# CBSE incorporated a chapter on Ham Radio in a Class X textbook

<http://www.cbse.nic.in/DM%20ENGLISH.pdf>

communications among the emergency response managers. Such Amateur volunteers provided commendable services during the Orissa super cyclone in 1999 and Gujarat earthquake in 2001.

In efforts to popularize the Amateur Radio in the country and develop a trained force of licensed Amateurs, Department of Information Technology has initiated a nation wide programme to establish Amateur Radio Stations at various places and provide the necessary training for interested Amateur Station Operators.

## SATELLITE BASED COMMUNICATIONS SYSTEMS

Satellite based Communication systems mean communication systems intended for users on the Earth but which have some equipment in space, i.e. a satellite. Different satellites carry out different jobs, such as taking weather pictures or finding accurate positions on earth in terms of latitudes and longitudes. Communications satellites are essentially radio relay stations in space and are sometimes referred to as COMSATS. The other words you may hear are SATCOMS for satellite communications in general and SATPHONE for a satellite phone terminal.

The most important feature of a communications satellite is the transponder - a radio that receives a conversation at one frequency and then amplifies it and re-transmits it back to Earth on another frequency.

### HAM operator helps families connect with tsunami victims

New Delhi, December 28 . The Tribune



An amateur radio enthusiast based in the Capital has succeeded where most government agencies have failed. Sandeep Baruah, a licensed HAM operator who works in a government organisation by day and pursues his hobby from home at night, has managed to establish communication links with Port Blair, the capital of Andaman and Nicobar Islands, and has helped relay messages between the people stranded on the island and their families back home.

A  
photograph  
of Sandeep  
Baruah,  
Vigyan  
Prasar was  
featured  
where the  
role of ham  
radio was  
emphasized



### TOGETHER, TOWARDS, A SAFER INDIA PART-III

A textbook on disaster management for class X

FIRST EDITION 2005

REVISED EDITION 2006

© CBSE, DELHI



# Promotional Activities

Lecture and Demonstration  
programmes in  
schools, colleges, technical  
institutes to create an awareness  
about ham radio  
(outreach programme)



# Media coverage of our Outreaching activities



UCOST-Uttarakhand workshop



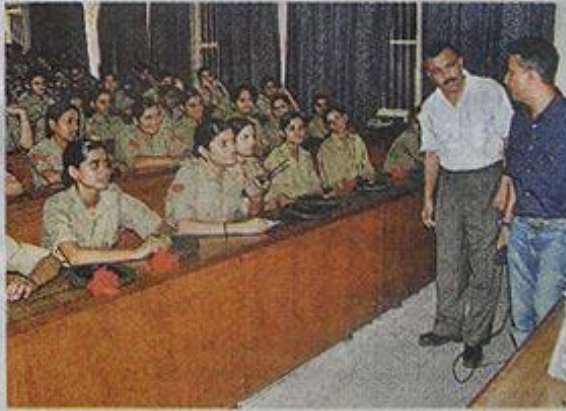
IIT Kanpur workshop

# शिविर में कैडेट्स ने हैम रेडियो के बारे में जाना

भास्कर न्यूज़ | हिसार

हरियाणा कृषि विश्वविद्यालय में चल रहे एनसीसी शिविर में कैडेट्स को गुरुवार को हैम रेडियो का प्रशिक्षण दिया गया। विज्ञान प्रसार केंद्र दिल्ली से आए वरिष्ठ वैज्ञानिक संदीप बरुआ ने सभी कैडेट्स को बताया कि इसके माध्यम से बिना किसी मासिक बिल के फ्री में बात, लाइव चैट, मैसेजों का आदान प्रदान किया जा सकता है।

उन्होंने बताया कि हैम रेडियो की एक मात्र ऐसा संचार का साधन है, जो कि हर परिस्थिति में काम करता है। फिर चाहे वह बाढ़ की त्रासदी हो अथवा सूनामी का सफाया। इससे कोई भी आदमी संचार साधनों से जुड़ा रह सकता है। वैज्ञानिक ने अपने प्रयोगों से भी कैडेट्स को परिचित कराया कि किस तरह से वायरलेस सेट के माध्यम से किसी स्थान विशेष का



हिसार. एचएयू में कैडेट्स को हैम रेडियो के बारे में जानकारी देते प्रशिक्षक।

तापमान जान सकते हैं अथवा वह कितनी दूरी पर किसी एंगल पर है। इतना ही नहीं वायरलेस से सेट कैसे मैसेज भेजा जाए।

किस तरह से आरकूट, याहू के तरीके से लाइव चैट किया जाए। उन्होंने बताया कि यह सब मुफ्त में मिलता है बस इसकी एक ही शर्त है कि इसे उपयोग करने

वालों की संख्या ज्यादा से ज्यादा हो। उन्होंने बताया कि इस समय देश में आबादी अरबों पार कर गई है लेकिन हैम रेडियो का उपयोग 15 हजार से भी कम लोग कर रहे हैं। कई सेलिब्रिटी ने तो हैम रेडियो ले तो लिया है लेकिन इसका उपयोग बहुत कम ही लोग कर रहे हैं।

## कर्मचारियों का प्रदर्शन, ज्ञापन सौंपा



## RCSC lauds Gagarin's pioneering flight and achievements

APR 14, 2016 RIR NATALYA RUDAKOVA



A function was held on April 12 in New Delhi.

RCSC

## CITY BUZZ

# Ham Radio network to be set up in Kaushambi

The Kaushambi Apartments Residents Welfare Association (KARWA), announced a VHF/UHF ham radio repeater network soon to be made functional at Kaushambi under the disaster mitigation plan. An awareness programme and workshop on

ham radio (Amateur Radio) was organised by Kaushambi Apartments' Resident Welfare Association (KARWA) at Nanda Apartments, Ghaziabad on October 11 where children and senior citizens of the area got an opportunity to see the functioning of various ham

radio technologies.

Sandeep Baruah, scientist-D from Vigyan Prasar (Department of Science and Technology, Govt. of India) deliberated a presentation emphasising the need to establish a ham radio and electronics club for the children of the area which will help establishing an alternative radio communication network as a hobby and public service activity.

Various instruments were installed at the roof of the 14th storied Nanda Apartments and its functioning was explained with the help of Vigyan Prasar Repeater Station (VU2DLR) located at South Delhi.

Hams (Amateur Radio Hobbyists) from all over the NCR region participated and assisted the programme by making radio contacts with the temporary ham radio station installed at Nanda apartments. Children were thrilled to exchange pleasantries with senior hams. Francis

During the deliberation, Sandeep Baruah (Scientist-D, Vigyan Prasar, DST) emphasised the formation of the people's own ham radio alternative radio communication network as a 'hobby' and as a 'do-it-your-

their own communication network without depending on other service providers. To establish an effective communication to be functional, it was suggested that several low cost UHF/VHF Ham Cross



Rebello (Ham call VU2XLZ) talked at length to the children via the ham radio setup from his ham radio station located at Green Park. Students were delighted to talk to him via the two-way ham radio communication system. Hams from as far as Gurgaon also came on-the-air to assist the demonstration.

self activity', which would also be useful in the event of any kind of emergency, because when the public telephone network and cellular telephone network break down during large scale disasters, people with ham radio licences and their personal radio communication equipments would be able to maintain

Band Repeater station may be installed on top of all the skyscrapers at Kaushambi. A similar setup was demonstrated to the children. A Ham Radio Club is in the process of formation where hams located near Kaushambi would provide their voluntary support in training the children and other interested people.

Happy Diwali

**श्री Sai Shah**  
FURNITURE & INTERIORS

SPL. IN: WARD ROBES, ALMIRAHS, MODULAR KITCHENS, DOUBLE BEDS, SHOW CASES, T.V. CABINET ETC.

REEMA GOWALLA

WITH sophisticated tablet computers, smartphones and zillions of social networking sites floating around the internet, communicating with friends and dear ones does look simple and convenient, but imagine a day when all of these are snapped off in the blink of an eye by a powerful earthquake. That is when an amateur or ham radio comes in handy.

Primarily a recreational activity, amateur radio enables operators — also known as hams — to pick up airwaves to discover a new voice from an unknown land. But it has the potential to be an immensely useful disaster management tool, especially in times of an earthquake, flood, cyclone and even tsunami.

The concept and importance of ham radio — which involves the use of a combined unit of transmitter and receiver, called transceiver, to facilitate a two-way communication between broadcasters across the world — is yet to grab most people's attention. But this does not discourage the small spirited community of operators who consider it a self-training activity involving technical creativity and experimentation with wireless communication.

**Sandeep Baruah** — principal scientific officer at Vjevan Prasar, department of science and technology — explains, "It's their love for radio science and the thrill of communicating with mostly self-assembled electronic devices that keep ham radio operators pursue their interest."

A portable amateur radio set can be operated using batteries and even solar power. And because only specific individuals attempt to connect with each other through radio waves, it hardly fails unlike most wireline services, phone and internet networks, which often fall victim to jammed bandwidth and overloaded routers during natural calamities.

The hobbyists are referred to as amateurs because their systems are not included in commercial broadcasting or similar two-way radio services often used by the defence forces or firefighters.

An avid ham himself, Baruah first established his station at Assam Agricultural University, Jorhat, in 1989. "It is an interesting method to discover new friends and disseminate knowledge among one another. Hams discuss almost everything under the sun, for which they run 'nets' at scheduled times and previously decided frequencies," he says.

Over decades, these enthusiasts have helped to form new industries by significantly contributing to science, technology, engineering and social services. But the crucial role they play during crises and natural disasters deserves special mention.

The techno-thinkers can quickly set up networks, having spent no disaster relief. The 2004 tsunami cut nearly all communications with the Andaman Islands. Ham operators are not allowed to set up shop there because of security reasons, but a group of enthusiasts on vacation there did manage to get a station up and running. They then transmitted updates about the disaster to authorities in Delhi and other cities.

Baruah himself was in Delhi at the time and among those in touch with this group of hams in the Andamans. He says, "I had received messages from different parts of the country and abroad, which I relayed to those stationed at Port Blair and vice versa."

Hams also supported rescue activities after the 9/11 terror attacks, Gu-

# Hams: Riding the radio waves

## This band of original social networkers continues an old tradition of licensed amateur broadcasting



**HEY HELLO:** Sandeep Baruah demonstrating his amateur radio equipment in front of schoolchildren during a workshop.

jarat earthquake in 2001, North America blackout in 2003, Hurricane Katrina in 2005, Sichuan earthquake in 2008 and more recently the 2010 Haiti earthquake.

### Ham hum

Just a simple wire antenna connected to the transceiver is enough to attract ham radio frequencies. Licence bearers work using frequencies internationally allotted to them. If a particular wave is not already being used by another ham, it can be used to give a call to the operator in question.

However, the calling procedure should adhere to international radio regulations.

One can give a general, or CQ, call to all stations around the world with his or her assigned 'call sign' on air to legally spot a specific operator or station.

With advances in the field of electronics and technology, ham radio has also undergone a lot of changes over the years. Like mobile phone users, ham enthusiasts can now send text messages. Operators can even connect their radios to the web. For example, ham equipment connected to the internet in Guwahati can receive messages from other ham radio users in the city, while their conversation can be routed across the world through a system called Echolink.

Digital ham radio is a smart mode of

telligent enough to understand that the radio is not accurate, and the radio connected to the computer will send back automated re-send request to the sender.

One can also send emails with the help of free software called 'Airmail', which functions more or less like Microsoft Outlook and can be useful at remote areas devoid of internet facilities.

Sharing an instance, Baruah says, "I get messages from a sailor ham friend through such a system. He keeps sending stories while on long-distance voyages. He is supported by Winlink 2000, an all-volunteer project that arranges for sending emails through radio."

And there is more: hams can also receive images from space now. NASA launched a low earth orbit satellite recently enabling hams to lift pictures using a handheld transceiver and a tiny beam antenna called Yagi.

ISRO also launched a microsatellite called HAMSAT in 2005, enabling India to become one of the few countries in the world to launch an amateur radio satellite.

### Highs & lows

The story of ham radio starts at the beginning of the history of radio itself. In 1895 when Guglielmo Marconi, beginner of long-distance radio broadcasts began sending signals over vast lengths, he also became the first amateur radio broadcaster. That same year Nikola Tesla also sent transmissions in the US.

Indian scientist Sir J C Bose's experiments also contributed to the cause. Apart from providing voluntary help during national emergencies, hams are also said to have supported the Indian Independence movement.

Ham radio suffered a slowdown during global conflicts, when authorities suspended issuing licences and even asked operators to dismantle their devices fearing misuse of the technology by spies. However after the end of World War II, their number started growing again.

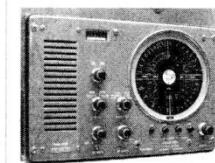
It is said that despite making significant contributions over the years, little has been done to support the enthusiasts or at least raise awareness about ham radio among the public. Getting a licence is an uphill struggle, and so there are just about 15,000 authorised and practicing ham radio users in India, with a mere seven in the Northeast.

Following repeated petitions, the do-it-yourself activity was incorporated in the Central Board of Secondary Education (CBSE) syllabus in 2006, with occasional workshops being conducted on IT campuses and other educational institutions across the nation. Hams feel the scope of amateur radio is unlimited and so introducing the activity to youngsters could boost their mental faculties as well as impart a sense of unity and self-empowerment.

The wireless, planning and coordination wing of WPC, which forms part of the ministry of communications and information technology, is the regulatory authority of amateur radio in India. Together with controlling radio waves, the WPC also assigns call signs and issues licences.

Any citizen above the age of 12, and with basic knowledge in electronics and radio science, is eligible to become an authorised ham operator after he

### Frequency facts



■ In the early days of amateur radio, most professional operators would use the term ham to taunt the hobbyists, leading to the popularity of the synonym later on.

■ Rewarding the contributions of amateur radio, a postage stamp was issued in the US in 1964.

■ Fox hunting is an interesting activity in which hams use direction-finding techniques to locate hidden transmitters.

■ Hamfests and DX-peditions are among the countable events conducted on regular intervals to promote amateur radio in India.

■ A deceased amateur radio operator is generally referred to as a silent key.

or she clears a 100-mark exam, conducted by the WPC at various wireless monitoring stations across the country. There are two such stations in the Northeast too — at Dibrugarh and Shillong — but due to concerns over ham radio turning into a security threat if falling into the wrong hands, the examination has not been conducted in the region over the past few years.

Ritu Mahanta, a guest lecturer at an engineering college near the city, agrees that ham radio is an efficient tool for communicating during emergencies. Unfortunately, his own experience at getting a licence has been unsavoury. He first applied for it in 1990 as a student, but was rejected. Over time, he applied several times, to no avail. He then filed an RTI in 2011. "Today I have the equipment, but can only hear hams communicating. Until I get my own call sign, I cannot transmit."

But enthusiasts here argue that ham radio is a fairly simple set up and any suspicious use can be easily detected with the help of direction finding antennas or the method of triangulation. They feel such irregularities could just be another instance of red-tapism and discrimination.

However it's a different story in most other states outside the region where the density of hams is higher, thanks to special clubs and related activities. Bangalore is also usually called the ham radio capital of India.

The hobbyists think more should be done to promote amateur radio in the region, especially for young citizens, who can serve as a band of communicators when the most active networking tools are knocked out by a natural calamity.

कुछ समय पूर्व प्रतिनियुक्ति पर यहाँ लाने में सफल रहा था। संस्थान के अफसरों का कहना है कि कुछ समय पूर्व ही निगम से कुछ जेई उपलब्ध कराने के लिए शासन से अनुरोध किया गया था। इनके मिल जाने से गर्मियों में बेहतर जलापूर्ति व्यवस्था में मदद मिलेगी।

पास भी ले गए थे। अब इस मुद्दे को लेकर आढ़ती गोलबंद होने की तैयारी में हैं। सरकार से नाराज व्यापारी संगठनों की बैठकों में रणनीति तैयार की जा रही है। ज्यादा गुस्सा अनाज के

नके आदि न करे। शासन के आश्वासन के बाद भी समस्या जस की तस है। आढ़तियों की ओर से प्रदर्शन के साथ ही हड़ताल पर भी विचार किया जा रहा है।

सत्र आरंभ हो इस दौरान सड़क तक है। कांग्रेस ने दौरान धरना-3 दिए हैं। पार्टी सुरेंद्र कुमार के पर हो रहे व्यवस्था की स पर सरकार के महासचिव विन सरकार खामोश विकास कार्य स्कूलों में 10 शिक्षा के लिए उठाएगी। इस प्रदेश महासचिव सदन के बाहर जनमुहों को पूरे डबराल संघर्ष प्रदर्शन करने क ध्यानी के अनुस शुरू करने, सति शासनादेश जारी आंदोलनकारियों आदि को लेकर

गो  
न्यां

(नियोजन) अनुसार वन इंटैक करने इते हुए यह किन, बजट प्रस्तावित रू नहीं हो मीद है कि लिए खासी लजट रिलीज री कार्यवाही

पत्र

विधि ने भी वि के लिए गा है। लेकिन सरकार की है। इन तीनों य का प्रस्ताव स्बध नहीं है। बहुगुणा भी खे गए पत्र में काल प्रस्ताव

युवा महोत्सव के तीसरे दिन पोस्टर प्रतियोगिता

## आपदा प्रबंधन प्रशिक्षण जरूरी

देहरादून। युवा महोत्सव में वैज्ञानिकों ने आपदा प्रबंधन प्रशिक्षण को बेहद जरूरी करार दिया। युवाओं को आपदाओं से बचाव और संचार के लिए हैम-रेडियो जैसे साधनों के प्रयोग के लिए प्रशिक्षित किया।

प्रादेशिक विज्ञान एवं प्रौद्योगिकी युवा महोत्सव के तीसरे दिन आपदा प्रबंधन पर कार्यशाला में युवाओं को प्रशिक्षित किया गया। डीएमएमसी के निदेशक डा. पीयूष रौतेला ने कहा कि आपदाओं को रोकना संभव नहीं है। लेकिन समुचित प्रशिक्षण के जरिए इनके प्रभाव और नुकसान को कम किया जा सकता है। उत्तराखंड के संदर्भ में आपदा प्रबंधन महत्वपूर्ण विषय है। इसी कड़ी में प्रतिभागियों को हैम-रेडियो का प्रशिक्षण दिया गया। विज्ञान प्रसार के वैज्ञानिक संदीप बरुआ ने हैम-तकनीक की बनियादी बातों की जानकारी दी और हैम-रेडियो का प्रदर्शन किया। आपदा के वक्त अन्य संचार माध्यमों के फेल होने पर हैम-रेडियो से ही संदेशों का आदान-प्रदान संभव है। दोपहर बाद के सत्र में मृदा, जल संरक्षण एवं अनुसंधान संस्थान के वैज्ञानिकों डा. केपी त्रिपाठी और डा. ए रायजादा ने वाटर हारवेस्टिंग और वनीकरण में जल-संरक्षण की भूमिका की जानकारी दी। पर्यावरण शिक्षा संस्थान लखनऊ के वैज्ञानिक डा. गंगवार ने पर्यावरण संरक्षण विषय पर छात्रों को संबोधित किया। इस दौरान 'प्रकृति संरक्षण में विज्ञान का योगदान' विषय पर पोस्टर प्रतियोगिता भी आयोजित हुई। प्रतिभागियों ने मालदेवता पहुंचकर वैकल्पिक ऊर्जा के बारे में जानकारी हासिल की। विभिन्न सत्रों में डा. एसएस साहनी, डा. प्रशांत सिंह, डा. विनोद कुमार, डा. केपी सिंह, डा. एमपी सिंह, डा. संजय भूटानी और भवतोष शर्मा आदि प्रमुख रहे।



प्रशिक्षण : आपदा प्रबंधन के बारे में बताते प्रशिक्षक।

सत्र के

देहरादून। बजट इंतजाम किए गए मीटर की परिधि आरंभ हो रहा है। मुकम्मल इंतजाम अतिरिक्त पुलिस डिफेंस कालोनी में

## Ham radio training in Sikkim

**SE Report**

**GANGTOK, March 9:** A six-day certification training-cum-workshop on Ham Radio started today at Sikkim Science Centre, Marchak. The training programme is being organized by Sikkim State Council of Science & Technology with support from Vigyan Prasar, Department of Science & Technology, Government of India.

The Quick Response Team under State Disaster Management department, teachers, media persons, NGOs and volunteers are undergoing the training programme which will cover in-depth Ham Radio studies, informs a press release.

During the workshop, the participants will also get to know the advance applications of Ham Radio such as packet radio and data transfer using PSK31.

The training programme will be followed by an examination to become certified HAM user which will be conducted by Union Ministry of Communication.

The inaugural session was

attended by Science & Technology principal secretary Anil Mainra as the chief guest.

While welcoming the resource persons and participants, Mainra explained the importance of alternative mode of communication during natural disaster and how it can save several lives if there are trained persons in remote areas to communicate with the help of such device.

He suggested all participants to be serious and take interest during the training so that the State's effort does not go waste.

Scientist Sandeep Baruah from Vigyan Prasar and former State Information Technology secretary Rajesh Verma are the resource persons.

During many of the past large scale disasters all over the world, Amateur Radio Service (Ham Radio) has proved its efficacy in quick dissemination of disaster management information like search and rescue, relief work, tracking of missing person, real-time plotting of vehicles and personnel involved in disaster management and transmission of weather telemetry data.

## Gangtok resident s Mansarovar Yatra

**Staff Reporter**

**GANGTOK, May 9:** An assistant engineer working with the State Rural Development department has been selected to undertake the Kailash Mansarovar Yatra through Nathu La route this year.

Toyanath Sharma (47) from Gangtok would visit Kailash Mansarovar through Nathu La in the fifth batch of the annual pilgrimage. His name was selected after the computerised draw of lots conducted by the Union External Affairs (MEA) ministry in New Delhi on May 6.

Sharma said he is happy but not excited. "I am happy that my name has been listed out in the draw but I am not excited as I have to go through medical test," he told SIKKIM EXPRESS.

A total of 2,482 complete applications, comprising 1948 males and 656 females, were registered for the draw this year. Among them, names of 1,430 applicants have been selected to undertake the yatra starting from June 12.

State Tourism department officials said they are however



**Toyanath**

unaware of Sikkimese shortlisted for

In 2011, 100 pilgrims from Sikkim were selected. The following year, the opening of the motorable route through Nathu La in Sikkim. The following a Indian and Chinese pilgrims are in 2014. This Nathu La route.

The Ministry of Tourism yatra during each year through routes - the Uttarakhand Pass in Sikkim open to eligible holding valid who wish to undertake the yatra for religious purposes.



# Ham radio training for Sikkim concludes

SAMIRNUGO

**GANGTOK, May 14:** The weeklong State-level training on ham radio held at science centre at Marchak near Ranipool came to a close today.

The training programme was organized by Sikkim State Council of Science and Technology and supported by Vigyan Prasar, department of Science and Technology, government of India.

The training which started from May 9 had participants from across the districts comprising of Quick Response Team, members of SSDMA, media persons and NGOs members.

Sandeep Baruah, Scientist-E and the main resource person of the training, imparted technical knowledge on ham radio with the skill of theory and practical.

The valedictory function today had the State Science &



Participants using ham radio sets during the training. SE Pic

Technology principal secretary Anil Mainra as the chief guest accompanied by former secretary Rajesh Verma as a guest of honour.

Mainra urged the participants to make ham radio a hobby as it is useful during the time of emergency. He further appealed all the participants to clear its first

hurdle and possess the license after which the department will provide equipments.

The function also had a power point presentation by Verma, who is also a ham radio operator from Sikkim. He encouraged the participants to become ham operators and to help the people in the time of disasters.

Land Revenue joint secretary Ganesh Khanal urged the trainees to be more dedicated and keep the skill in track. He further stated that the department in consultation with the Science & Technology department will soon start the amateur radio (ham radio) in Sikkim for emergency situations like natural disasters.

The trainees will have to appear and qualify a written exam which would make them eligible for a ham license to be issued by the Union Communication & IT ministry.

Amateur radio (ham radio) is a popular hobby and service that brings people, electronics and communication together. People use ham radio to talk across town, around the world, or even into space, all without the internet or cell phones. Ham radio plays a key role in the time of emergency like floods, earthquake, landslides etc when telecommunication network fails to work.



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### हैम रेडियो से बात करें और मदद भी

हैम रेडियो से बात करें और मदद भी

हैम रेडियो से बात करें और मदद भी

### हाई वोल्टेज हावी बना हैम रेडियो

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हाई वोल्टेज हावी बना हैम रेडियो

### उतराखंड में जन्मी है हैम रेडियो का प्रवाह

उतराखंड में जन्मी है हैम रेडियो का प्रवाह

उतराखंड में जन्मी है हैम रेडियो का प्रवाह

### यूकोट की दो दिवसीय कार्यशाला शुरू

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### आपदा प्रबंधन प्रशिक्षण जरूरी

आपदा प्रबंधन प्रशिक्षण जरूरी

आपदा प्रबंधन प्रशिक्षण जरूरी

### VP DREAM 2047

VP DREAM 2047

VP DREAM 2047

### VP News

VP News

VP News

### How ham radio can be useful during natural disasters

How ham radio can be useful during natural disasters

How ham radio can be useful during natural disasters

### Ham Radio network to be set up in Kaushambi

Ham Radio network to be set up in Kaushambi

Ham Radio network to be set up in Kaushambi

### शिविर में कैडेट्स ने हैम रेडियो के बारे में जाना

शिविर में कैडेट्स ने हैम रेडियो के बारे में जाना

शिविर में कैडेट्स ने हैम रेडियो के बारे में जाना

# हैम रेडियो के वैज्ञानिक उपयोग से बचेगी जान

देहरादून। यूकॉस्ट और ईएमआरआई 108 ने साथ मिलकर शनिवार को विज्ञान प्रसार नोएडा की तकनीकी सहायता से हैम रेडियो पर विशिष्ट व्याख्यान और प्रदर्शन कार्यशाला का आयोजन किया। उत्तराखंड के दूरस्थ क्षेत्रों में मोबाइल नेटवर्क के काम न करने पर विकल्प के रूप में हैम रेडियो के उपयोग की जानकारी दी। कहा कि इसके वैज्ञानिक उपयोग से लोगों की जान बचाई जा सकेगी।

कार्यशाला में विज्ञान प्रसार के वरिष्ठ वैज्ञानिक संदीप बरुआ ने कहा कि पूरे उत्तराखंड में 2-3 हैम रिपिटर स्टेशन लगाकर यूकॉस्ट की सहायता से बने 32 हैम रेडियो लाइसेंस होल्डर के नेटवर्क से मोबाइल एंबुलेंस, ईएमआरआई कॉल सेंटरों के संपर्क में रह सकती है। कार्यशाला में यूकॉस्ट के वैज्ञानिक अधिकारी डॉ. डीपी उनियाल, डॉ. बीपी पुरोहित, डॉ. आरएस भारद्वाज, जिला समन्वयक डॉ. प्रशांत सिंह, रवींद्र, भास्कर, निर्मल रावत आदि रहे।

देहरादून, रविवार  
31 मई 2009  
देहरादून संस्करण  
वर्ष 9 अंक 24  
पृष्ठ 12  
आमंत्रण मूल्य 1.00 रु

# शाह टाइम्स

ईएमआरआई व यूकोष्ठ ने किया गोष्ठी का आयोजन

## चिकित्सा सुविधा में हैम रेडियो की उपयोगिता अहम्

विशेष संवाददाता

देहरादून। यूकोष्ठ एवं ईएमआरआई 108 में चिकित्सा सुविधा के क्षेत्र में हैम रेडियो के उपयोग पर समुदाय गोष्ठी का आयोजन कर गहन विचार विमर्श किया।

इस तकनीकी कार्यशाला में प्रमुख वक्ताओं में यूकॉस्ट से निदेशक डॉ. राजेंद्र डोगाल, ईएमआरआई-108 के प्रमुख कार्यकारी अधिकारी अनूप नीटियाल तथा विज्ञान प्रसार के वरिष्ठ वैज्ञानिक संदीप बरुआ ने उत्तराखण्ड के दूरस्थ क्षेत्रों में फोन तथा मोबाइल नेटवर्क के काम नहीं करने का कारण या मरीजों के फोन ग्रान न हो पाने के विकल्प के रूप में हैम रेडियो के उपयोग पर विचार व्यक्त किए तथा चर्चा में भाग लिया। श्री संदीप बरुआ ने समाधान प्रस्तुत करते हुए कहा कि पूरे उत्तराखण्ड में 2-3 हैम रिपिटर स्टेशन लगाकर यूकोष्ठ की सहायता से बने 32 हैम रेडियो लाइसेंस होल्डर के नेटवर्क द्वारा मोबाइल एम्बुलेंस, ईएमआरआई कॉल सेंटरों के संपर्क में रह सकती है। इसकी सहायता से एम्बुलेंस साइट पर एम्बुलेंस भेजने के लिए विभिन्न स्थानों पर हैम रेडियो सपोर्ट सिस्टम का प्रयोग किया जाएगा। इसके अनुप्रयोग का परीक्षण करने के लिए शीघ्र ही ईएमआरआई एक रजिटर गैरिज की अधिक संख्या वाला क्षेत्र देखकर यूकोष्ठ तथा विज्ञान प्रसार की सहायता से हैम रिपिटर स्टेशन (मानव उद्देश) की स्थापना करेगी तथा परीक्षण एम्बुलेंस में हैम रेडियो की सहायता से संचालित एपीआरएस अटोमैटिक पॉजिशनिंग सिस्टम लगाकर सम्पूर्ण नेटवर्क का उपयोग करना जाएगा। यदि यह परीक्षण सफल रहता है तो यह पूरे उत्तराखण्ड में लागू करके दूर-दूरजग के क्षेत्रों के मरीजों के लिए स्वास्थ्य सुविधाएं समग्र पर प्राप्त करने का एक उपयोगी वैज्ञानिक माध्यम सिद्ध होगा।

इस कार्यशाला के उद्घाटन सत्र में अपने संबोधन में डॉ. राजेंद्र डोगाल, निदेशक यूकोष्ठ ने कहा कि अन्य उपयोगी के साथ ही स्वास्थ्य सेवाओं के लिए हैम रेडियो के वैज्ञानिक उपयोग से दुर्घटना में घायलों व वरुत चिकित्सकीय सुविधा की आवश्यकता वाले भ्रमणों में जरूरत मरीजों की जान बचाने में उपयोगी सिद्ध होगा। डॉ. डोगाल ने कहा कि हैम रेडियो का एम्बुलेंस गार्डियों को स्पीड, दिशा, मुख्यालय से दूरी तथा एमएम्बुलेंस भेजने में प्रयोग से आधा तंत्रार के क्षेत्र में शीघ्र ही सफलता हासिल होगी।


ईएमआरआई के मुख्य कार्यकारी अधिकारी अनूप नीटियाल ने इस अवसर पर एक व्याख्यान दिया जिससे उन्होंने 108 एम्बुलेंस सेवा के उत्तराखण्ड में स्थापना से अब तक के विकास व पवित्र्य की योजनाओं के साथ ही विभिन्न विभागों के साथ किए समन्वय के बारे में बताया। उन्होंने अपने अनुभवों के आधार पर उन क्षेत्रों के बारे में बताया जहां के मरीजों की जान मोबाइल नेटवर्क न होने के कारण चिकित्सा सुविधा न पहुंचने की वजह से खोचिय में रहती है। श्री नीटियाल ने कहा कि यूकोष्ठ तथा विज्ञान प्रसार की सहायता से हैम रेडियो सम्पूर्ण स्थानों का माध्यम बने हाकिम मरीज या भण्डल संदेश भेजकर काल सेंटर की सहायता से एम्बुलेंस को बुलाकर चिकित्सकीय मदद व प्राथमिक चिकित्सा प्राप्त कर सकें।

nonwealth ... Tyre Pressure Valve St... My Web Links SAWAYAM ham satelli... Voice of Greater Assa

Sandeep Home

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IPS, IAS officials, NDRF officials, Officials of Director General rank from Doordarshan Dtt #Doord... See More



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# Recent Training at National Institute of Disaster Management (NIDM)

156 likes

विद्या मंदिर इंटर कॉलेज में 23 अगस्त को जुटेंगे कई स्कूलों के बच्चे

# अंतरिक्ष यात्रियों से छात्र करेंगे बात

मेरठ | वरिष्ठ संवाददाता

शास्त्रीनगर स्थित विद्या मंदिर इंटर कॉलेज में 23 अगस्त को कई स्कूलों के छात्र अंतरिक्ष यात्रियों से बात करेंगे। यह कार्यक्रम एआरआईएसएस (अंतरराष्ट्रीय अंतरिक्ष स्टेशन स्थित अमेच्योर रेडियो संगठन), चंद्रशेखर विज्ञान क्लब के सहयोग से होगा। कार्यक्रम में छात्रों को करीब 10 से 12 मिनट अंतरिक्ष यात्रियों से बात करने का मौका मिलेगा। छात्र अंतरिक्ष यात्रियों से वहां कैसे रहते हैं, क्या खाते हैं, कैसे महसूस करते हैं आदि सवाल पूछेंगे। छात्र अंतरिक्ष यात्री रिकी आरनोल्ड से बात करेंगे। कार्यक्रम से पहले से चुने गए स्कूलों और कॉलेजों में जाकर बच्चों को अंतरराष्ट्रीय स्टेशन एआरआईएसएस के प्रति जागरूक किया जाएगा।



## ये हैं चुने गए स्कूल

कैपिटल पब्लिक स्कूल, सरस्वती शिशु मंदिर, हर मिलाप इंटर कॉलेज, अंबेडकर इंटर कॉलेज, केंद्रीय विद्यालय डोगरा लाइन समेत 15 स्कूलों के बच्चे कार्यक्रम में हिस्सा लेंगे। इस बारे में विज्ञान प्रचारक संजय शर्मा ने कहा कि हमारा क्लब बच्चों में विज्ञान के प्रति रुचि के लिए समय-समय पर ग्रामीण, देहात और शहरों में प्रदर्शनी और अन्य कार्यक्रम कराता है।



स्कूलों में विज्ञान के कार्यक्रम के लिए मैं अत्यधिक प्रयास करती हूँ। लगभग डेढ़ साल बाद हमें इस प्रोग्राम की अनुमति मिली है। पश्चिम में शायद यह पहला प्रोग्राम होने जा रहा है। रंजना गौड़,  
प्रधानाचार्य विद्या मंदिर इंटर कॉलेज

हमारी टीम के सदस्य हमें रेडियो के माध्यम से वैज्ञानिकों से बात कराएंगे। इसके लिए अमेच्योर रेडियो सिस्टम से तैयारी की जा रही है।  
संदीप बरवा, सीनियर वैज्ञानिक



कार्यक्रम का काफी समय से था इंतजार

हमारा क्लब बच्चों में विज्ञान के प्रति रुचि के लिए समय-समय पर ग्रामीण, देहात और शहरों में प्रदर्शनी और अन्य कार्यक्रम कराता है। इसके लिए हमारे क्लब को बीनजे अवार्ड से विज्ञान प्रसार ने सम्मानित भी किया है। उक्त कार्यक्रम के लिए हमें काफी समय से इंतजार था। इसके लिए हमने बच्चों को पूर्ण तैयारी करा दी है।

संजय शर्मा, विज्ञान प्रचारक, चंद्रशेखर विज्ञान क्लब



Lal Bahadur Shastri  
National Academy of Administration  
Mussoorie - 248 179 (Uttarakhand) INDIA

Rajesh Arya  
Deputy Director (Sr.)

Dated: 22.04.2010

*Dear Sh. Sandeep Baruah,*

It was indeed a great pleasure having you with us at the Academy to deliver a talk to the Officer Trainees of the Professional Course, Phase-I (2009 batch) of the Indian Administrative Service.

Your talk was extremely well received and the trainees appreciated the issues and points highlighted by you during the session. On behalf of the Lal Bahadur Shastri National Academy of Administration, Mussoorie and the Officer Trainees, I would like to take this opportunity to thank you for having taken time off from your busy schedule to visit the Academy.

I hope you enjoyed visiting the Academy. I wish that your association with the Academy continues in the future as well.

*With warm regards,*

Yours sincerely,

*[Signature]*  
[Rajesh Arya]

Shri Sandeep Baruah  
Scientific Officer  
Vigyan Prasar,  
New Delhi

Appreciation Letter  
from Centre for Disaster  
Management,  
Lal Bahadur Shastri  
National Academy of  
Administration  
(IAS, IPS Training  
Academy where I  
Conducted training for  
IAS probationers

# Lecture and Technical Demonstration Programme at Nalgonda Telangana

## Workshop on Ham Radio Digital Communications at SPAES School, Nalgonda



A Workshop on Ham Radio Digital Communications was conducted at SPAES School, Huzur Nagar, Nalgonda jointly by Vignan Prasar and NIAR on 27 Apr 2013. About 100 students and staff were introduced to various types of Amateur Radio Digital Communications. The [ ] is planning to start an Amateur Radio Club shortly. Mr.Sandeep Baruah, VU2MUE from Vignan Prasar and Mr,Jose Jacob, VU2JOS,

# HAM operator helps families connect with Tsunami victims

**RAMESH RAMACHANDRAN**  
TRIBUNE NEWS SERVICE

**NEW DELHI, DECEMBER 28**  
An amateur radio enthusiast based in the Capital has succeeded where most government agencies have failed. Sandeep Baruah, a licensed HAM operator who works in a government organisation by day and pursues his hobby from home at night, has managed to establish communication links with Port Blair, the capital of Andaman and Nicobar Islands, and has helped relay messages between the people stranded on the island and their families back home.

Sitting at his terminal Tuesday afternoon, Baruah told The Tribune that he has received 10 "calls" over the past 48 hours. "I have received e-mails and SMSes from several places at home and abroad ... Bangalore, Ranchi, Pune and Thailand .... I have relayed all their messages to this team of HAM operators stationed at Port Blair and forwarded the replies from them to the families wherever they are," he said. One such distraught family is from New Delhi.

Dr Karan Singh Chauhan, who teaches in a college here, was holidaying with his two sons and a daughter on the island when the Tsunami hit the shore. It had only been a few days from the time they reached Port Blair. "Fortunately," Dr Chauhan recalled, "There were these people staying on the fifth floor of the hotel where we were put up ... they had this equipment (HAM), so we asked them if they could relay the infor-

mation of our well-being to people back home."

Within hours, Sandeep Baruah was on the telephone informing Dr Chauhan's domestic help of their whereabouts. Dr Chauhan and his family, who returned to the Capital last night, have not spoken with Baruah yet but he is all praise for him and the amateur radio operators on the island for coming to his help in their hour of need. Baruah, meanwhile, has no regrets. He has no time for that for there are other calls to be attended to, he says as a distant station crackles at his terminal.

Like Dr Chauhan, Mrs Cesar Maia from Bangkok, Thailand, has established contact with Baruah. She wants to if her husband is safe and sound on the island. "I have not received any news about her husband but I am trying ... the audio quality today is poor, so I might have to wait longer to hear from my counterparts stationed on the island," says Baruah, who is happy being Good Samaritan for people he has come to know only in the past few days.

Meanwhile, Dr Chauhan is still to recover from his harrowing experience on the island. "Buildings were literally swaying from side to side, the hotel where we were staying was damaged ... there were cracks in the walls, the sea was violent and washed away anything and everything that came in its way ... even the boundary wall of a college nearby was swept away ... all of us spent the first night outside," he recalls before he, his children and one other family flew to Kolkata on way to Delhi.



**Sandeep Baruah, a licensed HAM operator who works in a government organisation by day and pursues his hobby from home at night, has managed to establish communication links with Port Blair.**

## Delhiites chip in with relief

TRIBUNE NEWS SERVICE

**NEW DELHI, DECEMBER 28**  
The leader of Opposition in Delhi Legislative Assembly, Prof. Jagdish Mukhi, has expressed grief over the widespread death and destruction caused by the Tsunami in southern India and many countries in the Indian Ocean.

A meeting of the BJP legislature party was called in this regard and it observed a two-minute silence as a mark of respect to the deceased. The BJP legislators have also

decided to donate their one-month salary for the victims.

Meanwhile, the NDMC Vice Chairperson, Tajdar Babar, has moved a resolution for contributing Rs. one crore as financial assistance from the municipal funds. This is in addition to the token contribution from NDMC employees for the quake victims of Tamil Nadu.

The Municipal Corporation of Delhi has also decided to pay Rs. 4 crore to the Prime Minister's Relief fund. This fund is being raised by way of

contributions from MCD councillors who are contributing their one month's stipend and employees who are contributing one day's salary. The contribution of the latter adds up to Rs 3 crore.

According to the mayor, the MCD has set up collection centres in all 12 zones under the supervision of Deputy Commissioner to collect relief materials. The material collected would be handed over to the Ministry of Home Affairs for transportation to the affected areas.

Vigyan Prasar's  
Contribution  
To Emergency  
Communication  
Media Coverage  
During Tsunami  
operation



# Vigyan Prasar's contribution to emergency communication During Bhuj Earthquake

NEW DELHI SUNDAY FEBRUARY 4 2001

## EARTHQUAKE

Local administration carrying on demolition of damaged buildings in Bhuj. Photo: Manish Gwarp

### From sinking Titanic to quaked Bhuj, ham picks up SOS

Saurabh Shukla  
New Delhi, February 3

THEY MADE news for the first time when they beat everybody by intercepting an SOS from a sinking Titanic in 1911. They were in action during the Morvi floods of 1979, Gulf War, Orissa cyclone, and the Latur and the Uttarkashi earthquakes. They are back again aiding the Gujarat relief effort in whatever manner they can. They are the ham radio operators.

After trying for two days to track his brother in Gandhidham, Jodhpur's VK Banchal despaired. But then somebody

suggested he should try 'ham' radio operation network in Delhi. He did. A few hours later, his telephone rang. "Your brother Sanjay is safe," said the caller.

The same ham network helped Delhi's Dr Sujata get in touch with her husband in Anjar, one of the worst hit areas.

High frequency radio transmitter/receivers are the standard equipment for all hams, who have to pass a stiff international test to get their licence. The word 'ham' is said to have been taken from the first letters of the three pioneers of radio communications: H (from Hertz), A (from Armstrong, inventor of Oscillator circuit), and M (from Marconi).

Functioning out of a tiny shack in Delhi with whatever little manpower they have, these 'hams' have been sending "emergency disaster communication messages" to the Gujarat amateur radio operators' network.

They get back-up support from other individual hams in Delhi, who are keeping track of the government agencies' requirements plus passing on the distress messages.

Says Sandeep Baruah, one of the hams associated with the Delhi station, "We have five base stations operating — in Anjar, Bachau, Bhuj, Gandhidham and one located right inside the Chief

Minister's residence. There are some mobile units too, who quickly relocate themselves to send us the replies to our queries about the situation in remoter parts of the state."

The Delhi hams have been flooded with calls from all parts of India. "Some from Bihar, Bengal, Rajasthan and even from areas in Gujarat," says Baruah. But it's not an easy job tracking people and relaying messages.

Especially for those operating out of remote areas of Gujarat. "There's no power in many areas. Our radio sets can't run for very long on batteries alone," says a Gujarat ham, Dalbir Singh. A big draw

on battery power is adverse weather. "Often messages have to be re-routed through hams in Mumbai or Hyderabad as direct communication is not possible," he explained.

"For most hams, this is purely voluntary work," explains Dr Kamble of the DST, agreeing that there was need for more hams in the country. Barely 2,000 of the 10,000 licencees are active now. A related factor restricting growth of ham-culture in India is government's lack of support, lamented an enthusiast. Reason: Costly equipment — mostly imported (nothing less than Rs 40,000) and no relaxation on customs duties.

### Fresh round of tremors spreads panic among quake survivors

Rathin Das  
Ahmedabad, February 3

A FRESH tremor, measuring 5.0 on the Richter scale, this morning coupled with the doomsday prediction of a local astrologer spread panic among the locals here.

The self-styled astrologer, Ambhal Damodardas Patel, who

mal with a few shopkeepers raising shutters.

Minister of State for Home Haren Pandya urged the panic-stricken people not to succumb to imaginary fears. He announced that 50 teams of engineers and

#### Cases registered

builders and architects would have nothing to do with these teams, the Minister asserted.

Meanwhile, the State Government has decided to build a memorial for the school children who were killed while marching through Anjar on Republic Day. An additional ex-gratia payment of Rs 50,000 would be made to the

### Sharjah trip could still be a reality

EVEN THOUGH Union Sports Minister Uma Bharti did not approve of India participating in the three-nation tournament in Sharjah for the quake victims in Gujarat, sources close to the Ministry of External Affairs and the PMO said the February 8-11 tournament could still be a reality.

The sources said, Minister of External Affairs Jaswant Singh

### No scientific link between corpses, epidemics: WHO

DISMISSING MYTHS in the aftermath of natural disasters, the World Health Organisation (WHO) has said that communicable diseases do not usually occur after earthquakes. However, epidemic risk factors were the rupture of water sanitation, interruption of public health services such as immunisation and lack of control

WHO report, after the Turkey quake, said.

It said the health hazard associated with bodies was negligible and the contamination may occur in very limited cases when the corpses are in contact with the water system and transmit gastro-enteritis.

"A relationship between cadavers and epidemics has never been scientifically demonstrated or reported."

- HD
- AV
- VOIC
- DVI
- LG



हैम रेडियो की मदद  
भी कर सकते हैं Digital Addressable केबल टीवी उपभ

NDTV Coverage of VP's role during Uttarakhand Flood

← Posts



the edge, I and high court down to earth person]. Thanks to **Sumit Sh De, #VU2BCC** who took this shot for me! 73 de **#VU2MUE** On behalf of North Eastern hams I assured that East India Ham Festival would also be organized in future in some exotic beautiful place in the North East! 😊 **Mandarmani** ham event is a grand success. **#hamradio #amateurradio**



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You, Saborni Nag Biswas and 107 others

Write a comment...



# East India Ham Meet, Mandarmani, kolkata

# Ham session: Socialising via airwaves

**RADIO GAGA** Hailed as the first true social networking medium, ham radio continues to thrive even in the age of Twitter, Skype, Facebook and smartphones



● Rahul Kapoor, 60, shows his ham radio set-up at his residence at Surya Mittan in New Delhi. Kapoor was only 19 when he got his ham licence. DANISH YOUSAFI/PTI

## city@weekend

**Manoj Sharma**  
-@city@weekend@hindustantimes.com

**NOVEMBER 28, 5 pm,** and Pradeep Kumar is in the middle of a radio broadcast. He is speaking into a microphone, and the microphone is connected to a computer. The computer is connected to a radio. He is sitting at a desk with a computer monitor and a keyboard. He is wearing a white shirt and a white jacket. He is looking at the camera. He is smiling. He is saying, "This is Victor Uniform 2 Echo X-ray X-ray calling and standing by. Any station on the frequency?" He is looking at the camera. He is smiling. He is saying, "This is Victor Uniform 2 Echo X-ray X-ray calling and standing by. Any station on the frequency?"

Soon, a male voice crackles on the speaker. "This is Victor Uniform 2 Echo X-ray X-ray calling and standing by. Any station on the frequency?" The speaker is connected to a radio. He is smiling. He is saying, "This is Victor Uniform 2 Echo X-ray X-ray calling and standing by. Any station on the frequency?"

Kumar is part of Delhi's small community of amateur radio hams. He continues to do this even in this age of the internet. While it may seem like a hobby, it is a passion. He is smiling. He is saying, "This is Victor Uniform 2 Echo X-ray X-ray calling and standing by. Any station on the frequency?"

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## Inside the hamdom

India has more than 16,000 ham radio operators, and there is a unique world with its own special phrases, QSLs and QSL cards. Here is everything you wanted to know about ham radio

### HAM RADIO

An individual above the age of 17 can become a ham in India after getting the Amateur Station Operator's Certificate Examination (ASOC) organised by the Wireless Planning and Coordination (WPC) Wing of the ministry of communication. The syllabus for general grade licence includes basic electronics, wave and modulation, and Morse Code.

### HOW TO BE A HAM

Any individual above the age of 17 can become a ham in India after getting the Amateur Station Operator's Certificate Examination (ASOC) organised by the Wireless Planning and Coordination (WPC) Wing of the ministry of communication. The syllabus for general grade licence includes basic electronics, wave and modulation, and Morse Code.



● A radio antenna. Rahul Kapoor

### DELHI'S ACTIVE HAM CLUBS

- The All India Radio Society
- National Set System & Antenna Society
- The Bharat Scouts & Guides
- Vigyan Prasar

### ALPHA, BRAVO AND QSL CARDS: DECODING THE HAM JARGON



Hamdom has its own unique terminology, a leftover from the days of Morse Code, which pertains to the following:

- QSO:** Ham shorthand for contact
- QSL:** Confirmation of two-way communication between ham operators, who send QSL cards as mementos confirming the contact.
- OTB:** It refers to 'my home location'
- QZ:** A general call, a way to initiate contact with anyone.
- 73:** A ham operator's way of saying 'best wishes'
- 88:** A ham operator's way of saying 'love and kisses'

**ALPHA, BRAVO, ECHO, CHARLIE, DELTA**  
These are letters in the phonetic alphabet, used for the spelling of call signs and call signs in case of a transmission and reception to ensure the message is received, received and understood

# Hindustan Times, 17th March 2019. The story starts with a Ham and ends with information On Vigyan Prasar's role in Promoting ham radio

**NEW DELHI:** It is 9 pm, and Pradeep Kumar has just started conducting what he calls, the 'Net', after the air-meeting. "CQ, CQ, this is Victor Uniform 2 Echo X-ray X-ray calling and standing by. Any station on the frequency?" he speaks into the mike.

Soon, a male voice crackles on the speaker. "This is Victor Uniform 2 Mike Uniform Echo. I could not copy you properly. Can you please repeat your call sign?"

Kumar presses a button to increase the signalling power of the transmitter, and repeats himself.

"I have no problem in copying you now," says the person on the other side. The two discuss the signal quality, the

personal computers, use digital modes such as PSK31 and PACTOR that enable radio-to-radio emailing, including text and pictures. "But older hams still take pride in using the Morse Code," says Sofi.

**ALTERNATIVE MODE**  
Vigyan Prasar, a Delhi-based autonomous Institute under the Union government's department of science and technology, organises a range of activities to promote ham radio, including technology demonstration and lectures, and offers study material to aspiring hams to prepare for The Amateur Station Operator's Certificate (ASOC) licensing examination conducted by the Department of Telecommunications.

"Ham radio is far from dying; in the past few years, there has been a rise in the number of ham meets, festivals and other such events. We get many requests from all over the country for study material on ham radio. We are trying to promote it as an alternative communication system," says Sandeep Baruah, a scientist and in-charge of the Vigyan Prasar Amateur Radio Club Station in Delhi. "It is a hobby that fosters scientific temperament and empowers you. Disaster communication has been a major contribution of hams."

Gopal Madhavan, president, the Amateur Radio Society of India (ARSI), the oldest non-profit organisation that works to promote ham radio, says that while the

## The First Social Network: Chewing the Rag With India's Ham Radio Operators

Rohan Swamy, 22 July 2014

Share on Facebook

Tweet

Share

Email

Reddit

2 comments



In an office in Qutub Institutional Area, Sandeep Baruah, Scientist-E with the Vigyan Prasar, a part of the Department of Science and Technology, sits down to listen for ham radio operators in a 7,000 mile radius around Delhi. His cabin, a small, cramped place, located in a corner of a second floor office is littered with books and radio equipment, an unfinished directional antenna, and a laptop connected to another receiver.

As his system goes live, little coloured dots on the screen begin appearing all over Europe, Indonesia, Malaysia and Thailand. A few in India and South Africa complete the picture.

# NDTV Gadget News

## On Vigyan Prasar (22 July 2014)

NDTV web link

<https://tinyurl.com/y45ssz7n>

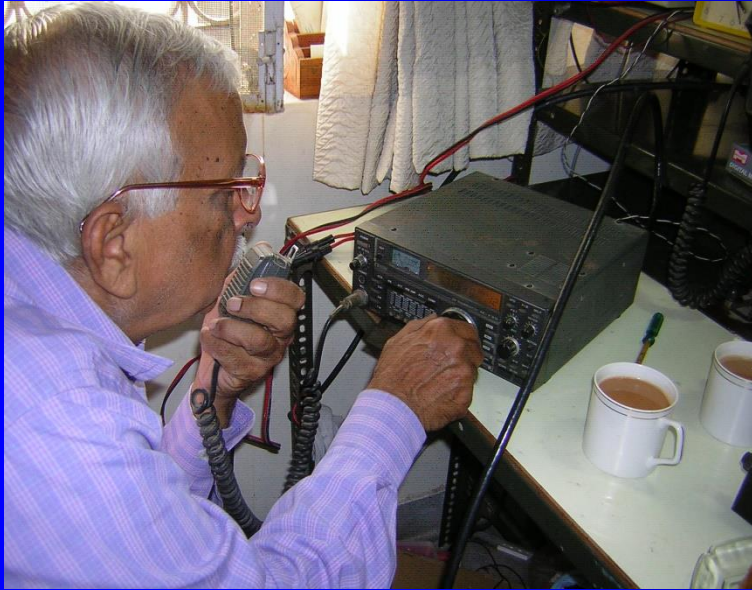
# Outreach Programmes





Imparting hands-on Experience to technical students (BITS Pilani)

Another ham at a distant corner  
of the country talks to the students and  
help me to give a successful demonstration



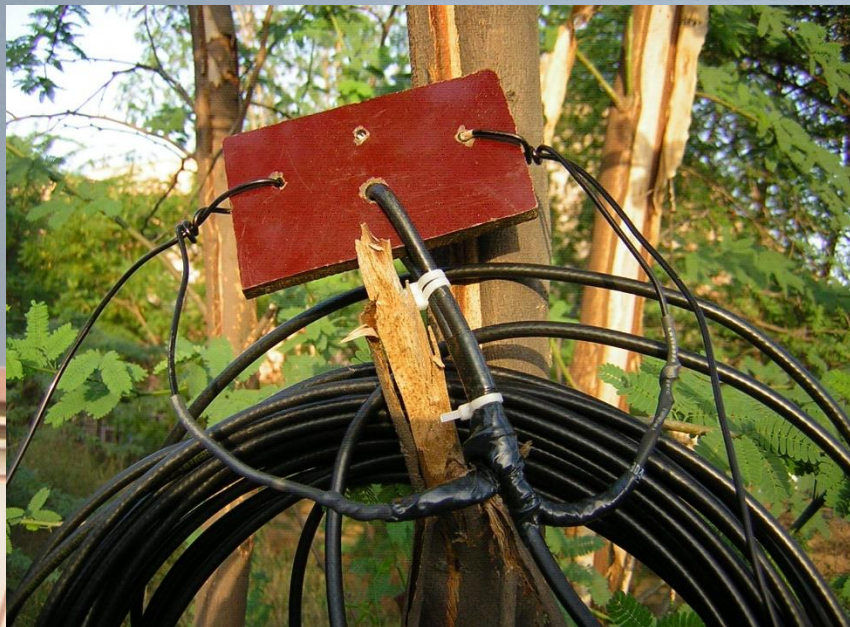
Only retired hams  
can help me



Success of long distance  
communication demo also depends on  
good ionospheric propagation condition



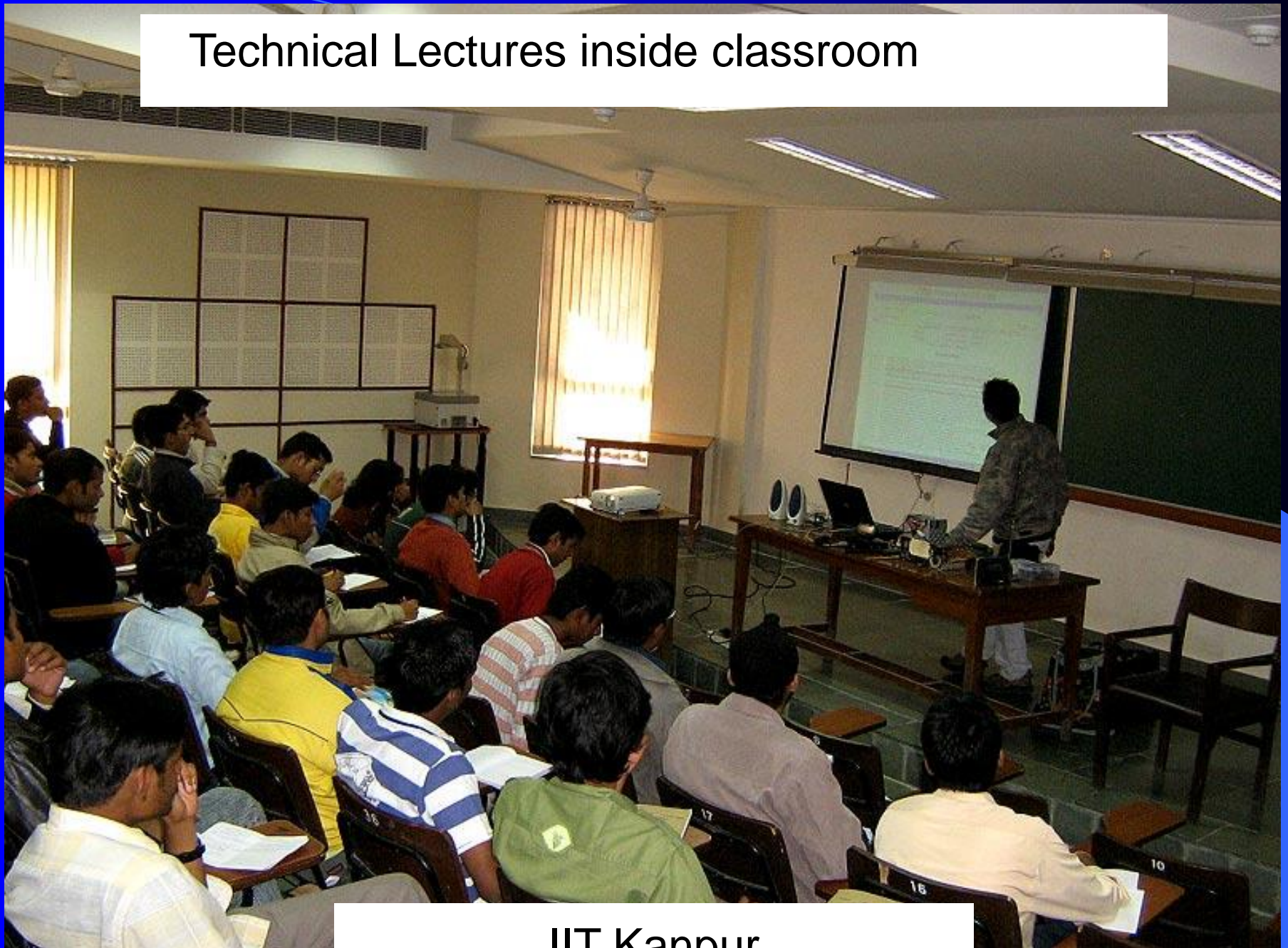
I install homemade dipole antennas  
at the location of the demonstration



Provide resource materials (Morse Code learning cassettes, CD on Ham Radio, Books, Collection of technical know-how on low cost ham radio kit building



# Technical Lectures inside classroom

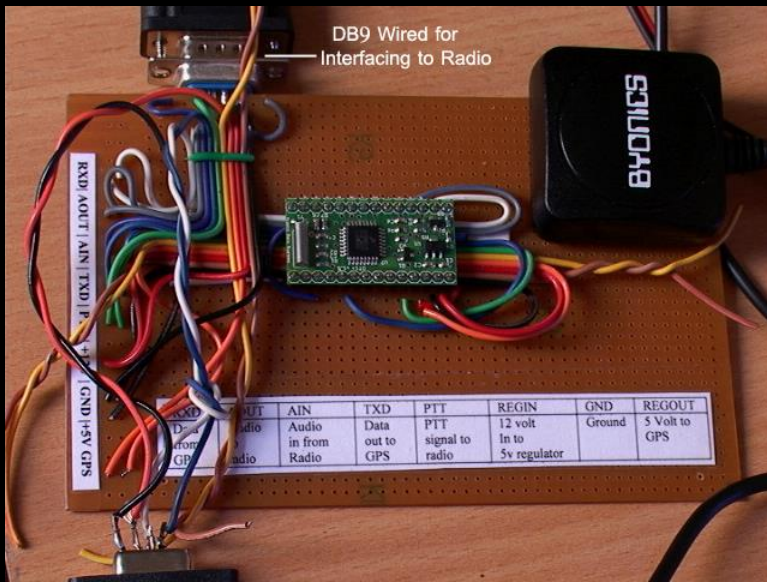
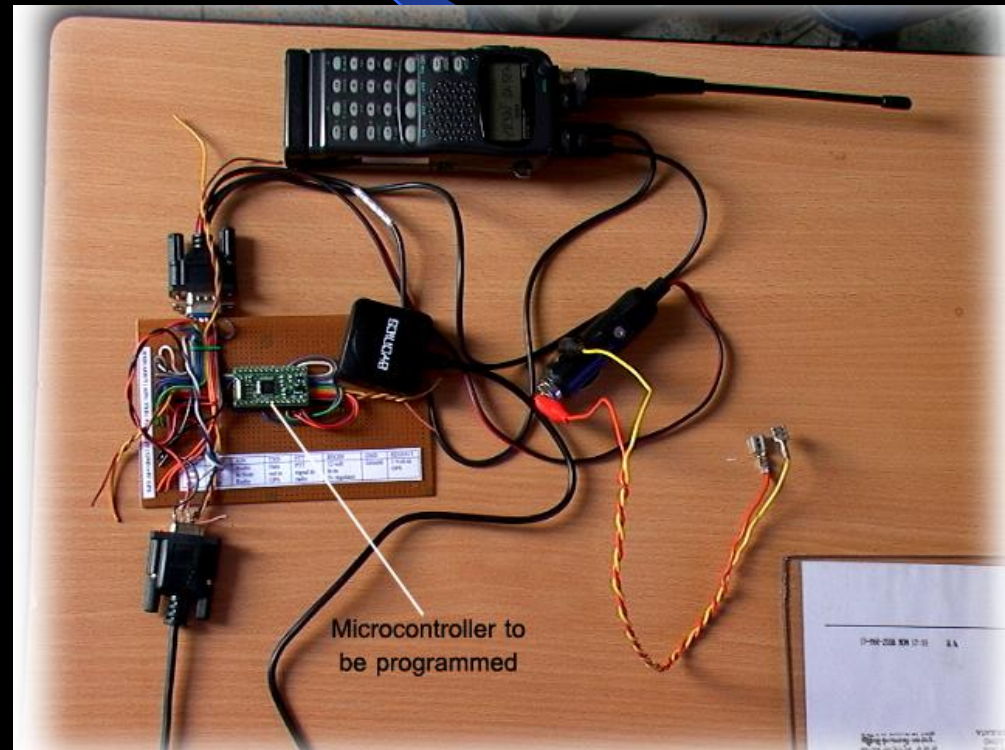
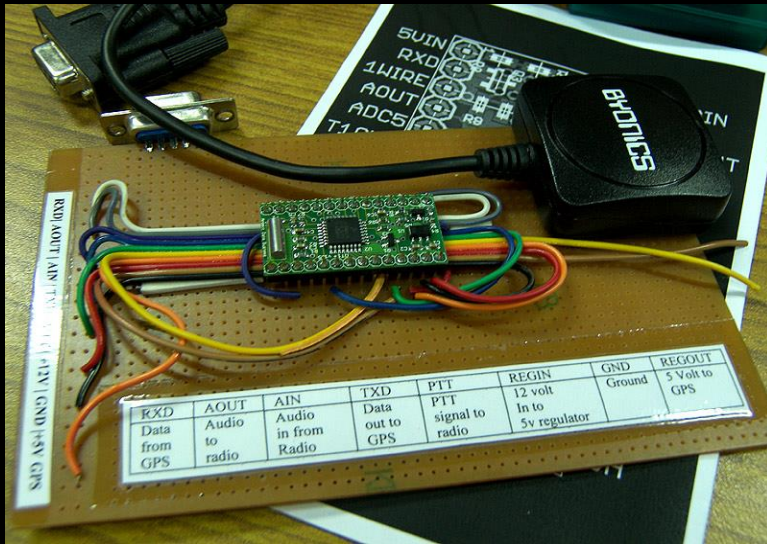


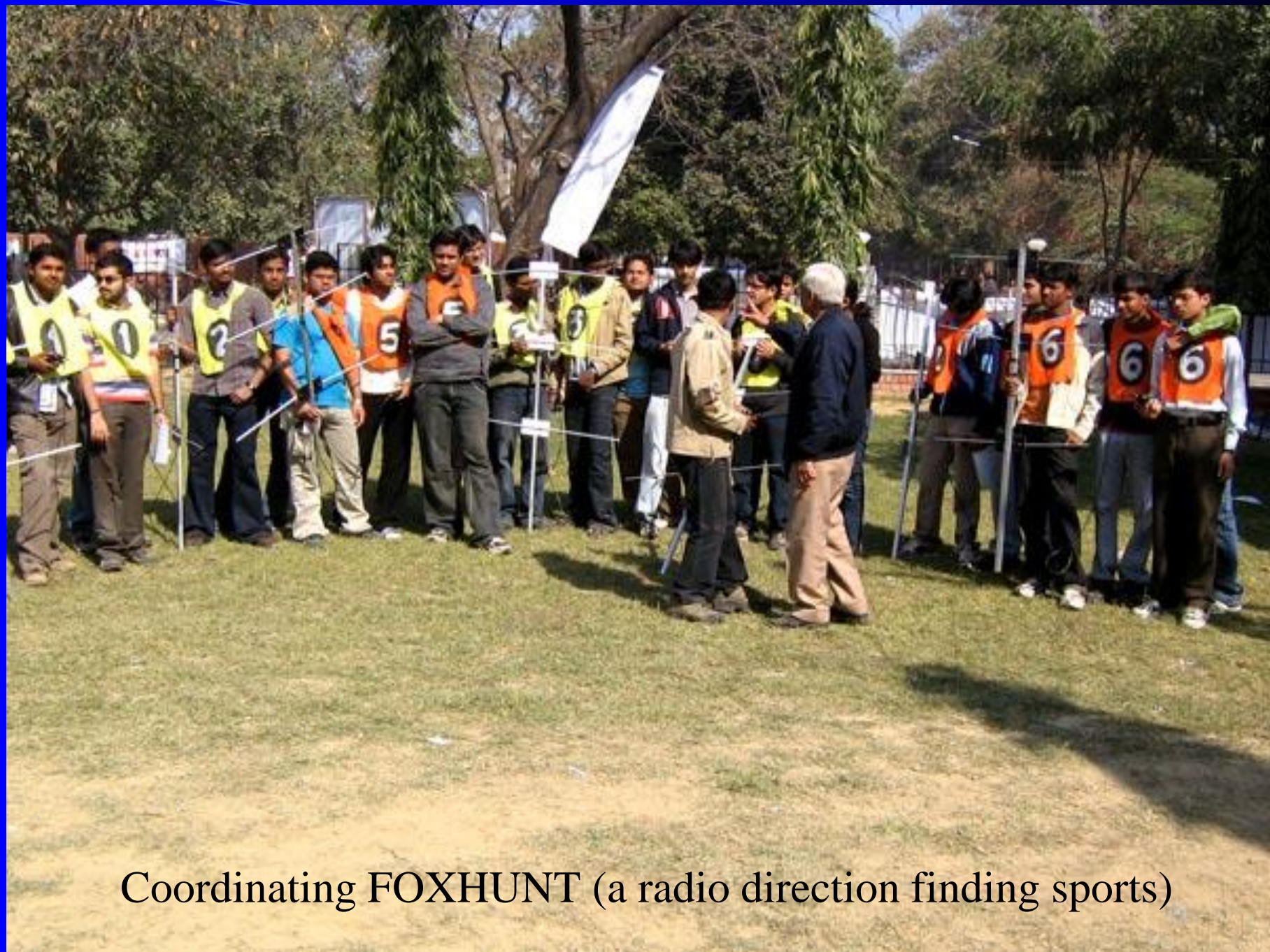
IIT Kanpur



Guiding students to assemble kits

# Presently guiding three students from Manipal University to assemble an APRS tracker Weather Balloon Payload





Coordinating FOXHUNT (a radio direction finding sports)



Lecture/Demo/Training/Awareness Programmes



**Demonstrating ham radio portable operation capability**



# BUDGET REQUIREMENT

## Funding to Promote Ham Radio

### - INFRASTRUCTURE BUILD-UP at 6 states

Assam, Odisha, West Bengal, Sikkim, Uttarakhand  
New Delhi

VigyanPrasarHamNETwork (VPHAMNET)

The State of the Art Centres would work as Resource  
Centre providing Continuous Training

**BUDGET REQUIREMENT (Tentative):**

**Rs. 35,000,000 (35 Lac)**

Regular Technical Workshops in collaboration with  
promoting Bodies ( 1 workshop in each of these states in a  
year total 6 workshop / 20 participant ham without  
equipment would be provided with ham transceiver kits  
which they would build under expert guidance 20 x20,000

**Rs. 40,00000 (40 Lac)**

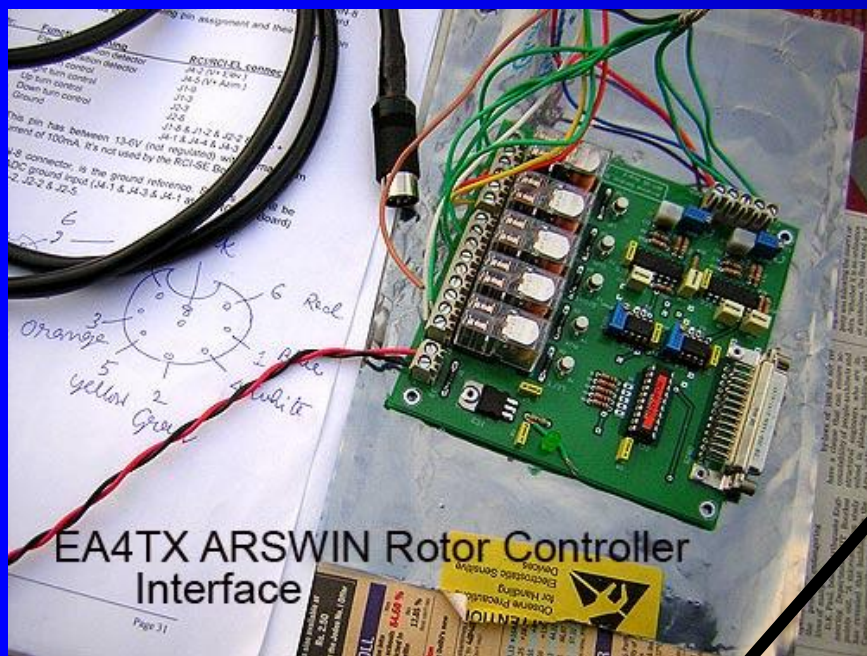


Demo at Shimla

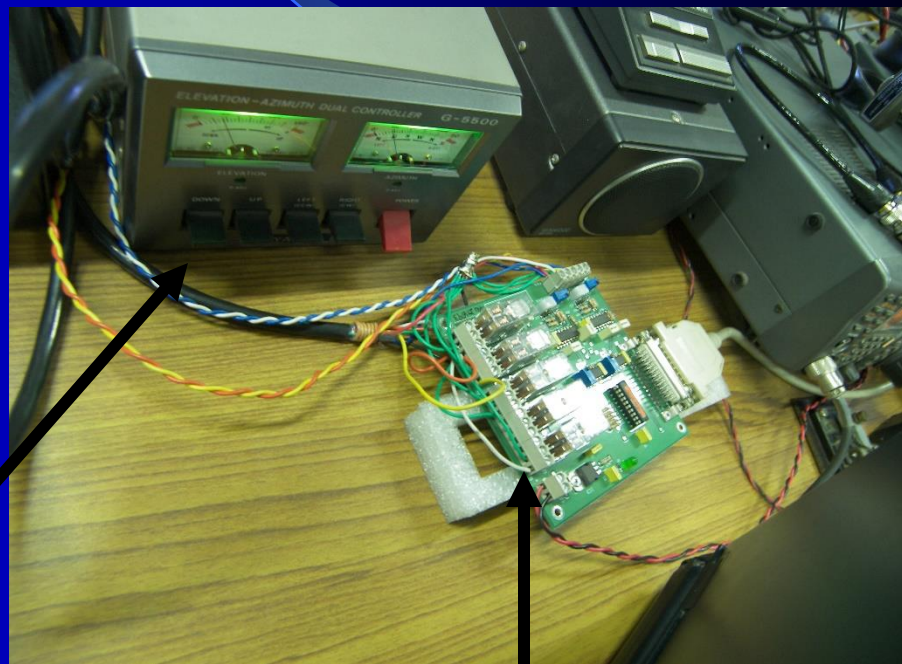
# Upgrading our setup for Satellite and Digital communication



# Azimuth-Elevation control made fully automatic



Manual Rotor Controller



A/D rotor controller  
interfaced to computer

# Automatic Satellite Tracking

The screenshot displays the Orbitron software interface. The main window shows a world map with satellite tracks. A yellow satellite icon is visible in the Indian Ocean. The interface includes a list of satellites on the right, a data panel at the bottom, and a status bar at the bottom.

**Satellite List:**

- KO-25 [-]
- LO-19 [P]
- MO-30 [-]
- MO-46 [-]
- NCUBE-2 [-]
- NIMARS [-]
- NO-44 [P]
- NO-45 [-]
- OD-38 [-]
- OSCAR III [-]
- PEHUENSAT 1 [-]
- PO-28 [-]
- PO-34 [-]
- RAFT (NO 60) [-]
- RS-12 & RS-13 [-]
- RS-15 [P]
- RS-22 [-]
- SO-33 [P]
- SO-35 [-]
- SO-41 [-]
- SO-42 [-]
- SO-50 [-]
- TO-31 [-]
- UD-11 [P]
- UD-14 [-]
- UD-15 [-]
- UD-22 [-]
- UD-35 [-]
- UWE-1 [-]
- VO-52 [P]**
- WO-18 [-]
- XO-53 [-]

**Data Panel:**

VU2NCT: 77.3596° E, 28.6296° N 2007-03-31 13:10:32 [UTC +5:30]

**VO-52 [P]**

Azimuth	Drlink/MHz	Receive/doppler	Drlink mode	Driver
288.8	145.862000	145.859352		WispDDE
Elevation	Uplink/MHz	Transmit/doppler	Uplink mode	Object
4.0	435.220000	435.221935		Satellite

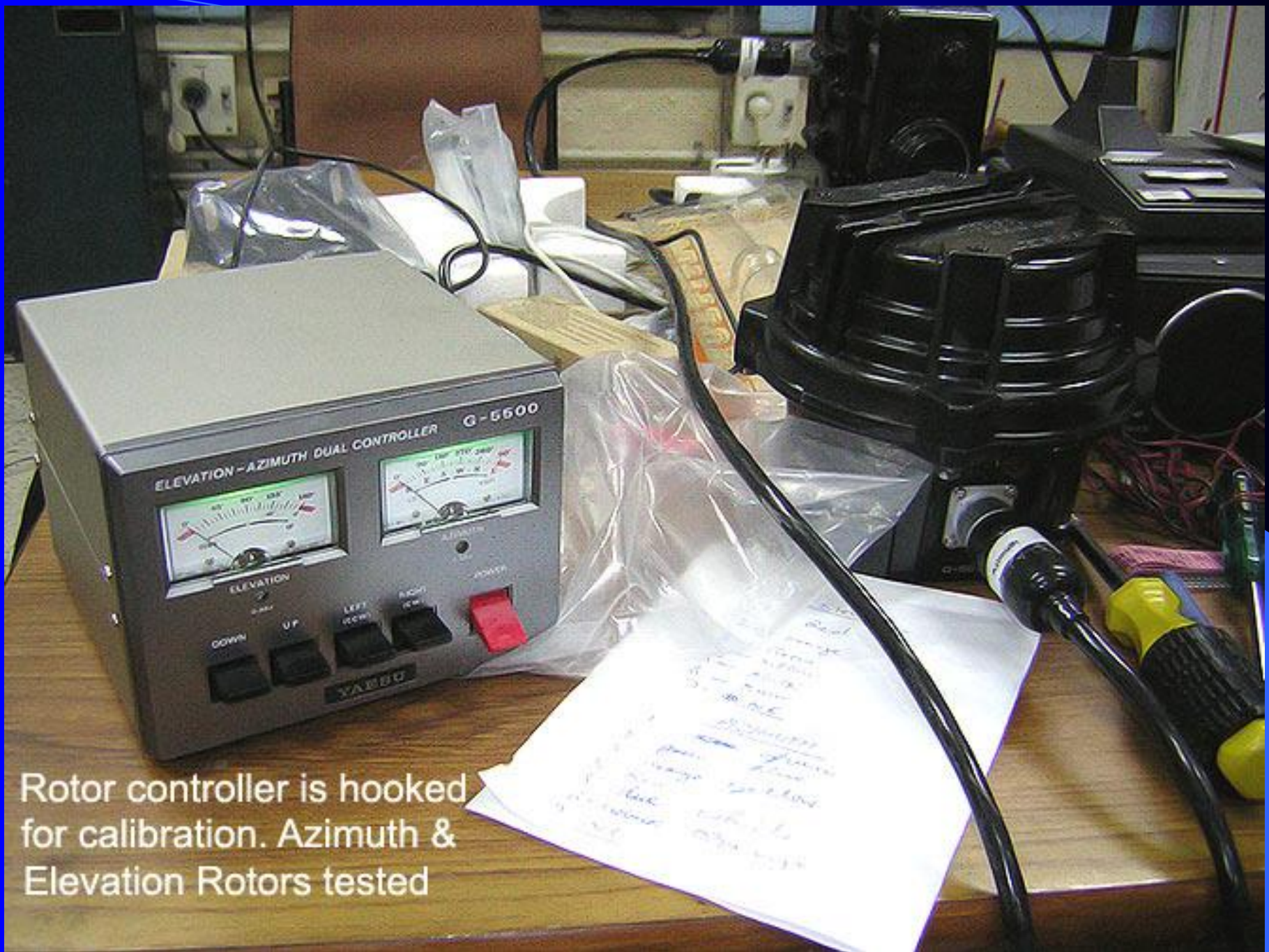
Choose driver and run it

Main Visualization Location Sat/Orbit info Prediction setup Prediction Rotor/Radio About

Orbitron 3.71 - (C) 2001-2005 by Sebastian Stoll

**Orbitron Logo:** A yellow stylized flower logo with the word "Orbitron" in red below it.

**Status Bar:** RT CLOCK LDC  
13:10:35  
2007-03-31



Rotor controller is hooked for calibration. Azimuth & Elevation Rotors tested

# VHF Ham Repeater Station VU2DLR

(for relaying of line-of-sight ham transmissions)



Back Forward Stop Refresh Home Search Favorites History Print

Address [D:\Home\\_Ministry\\_Meeting\vu2msy\index.html](D:\Home_Ministry_Meeting\vu2msy\index.html) Go Links

mywebsearch Search Smiley Central Screensavers Cursor Mania PopSwatter More



# Ham Radio for the Wireless Enthusiasts

| Your First Journey | | Ham Population | | Ham Quiz | | Indian Callbook | | Search this site | | Guestbook | | Ham News |  
| Homebrewing downloads | | A Brave Sailor ham (New) |

An exclusive site for the ham radio novice

## NCSTC & VIGYAN PRASAR Club Station VU2NCT

**Indian Rules and Regulations**

Study Material for ASOC Examination

FAQ on Rules and Regulation

Homebrewing Zone

LINKS

View the WT Rules Amendment Suggestions

Ham Radio Licencing Application Procedures

**Indian Call-sign Database**

NEW! - Update facility incorporated  
[Now you can search by 'Name' also!]

| 2m Hams in Delhi | | Visit the Repeater! |

**RESIST THE INVASION OF HAM BANDS :  
A message from VU2POP**

Clandestine Broadcasts in India!

**Search my Site!**

s repeater is: 21:30 IST to 21:45 IST

Message for this month!

WHAT IS HAM RADIO?

WHAT DOES THE WORD HAM MEAN?

WHAT IS A HAM CALLSIGN?

WHO CAN GO FOR HAM RADIO?

HOW TO BECOME A HAM?

UTILITY OF HAM RADIO

WHAT IS MORSE CODE?

ORGANISATIONS PROMOTING HAM RADIO

Un... File Edit Search Help

VU2NCT

My Computer

An Exclusive Section on Ham Radio in VP website



The screenshot shows a web browser window with the address bar displaying "D:\Home\_Ministry\_Meeting\database\_today\HamSearch.htm". The browser's toolbar includes buttons for Back, Forward, Stop, Refresh, Home, Search, Favorites, History, and Print. Below the address bar, the page content features three logos: a white dove with a green olive branch and the text "अविनाशं NCSTC" below it; a red rectangular box with the text "VU2NCT-Club Station" in yellow; and the logo for "वि P V प्र VIGYAN PRASAR".

The main heading is "Indian Call-sign Database Search Page". Below this, there is a table with five rows, each containing a radio button, a search criterion, and a description:

<input type="radio"/> City or State	List of Ham Radio Operators in a City.
<input checked="" type="radio"/> Call-Sign	Name and Address of a Particular Call-Sign
<input type="radio"/> Club	List of Ham Radio Clubs in a City/State
<input type="radio"/> Pin Code	Search by Pin Code
<input type="radio"/> Name of person	Search by Name/Surname/Name+Surname

Below the table is a search form consisting of a text input field and a "Search" button. Underneath the input field, the text reads: "Enter city/state name, call-sign, PIN code or name of the person (whatever you want to search after clicking the relevant radio button above)".

At the bottom of the page, a white box contains the following text: "If your call-sign is not listed in our database please help us updating it! To add your information to our database PLEASE CLICK HERE!"

An Online searchable Database of hams in India  
Ham Radio Database at

<http://www.vigyanprasar.gov.in/gb/ham/search.aspx>

# Mock drill at Gurgaon (December 1 2006) at the behest of National Disaster Management Authority (NDMA)



## A Better Prepared Amateur Radio Response

Have you been listening to or reading the comments of the homeland security and emergency management leadership? Have you heard their remarks and thought about how they apply to amateur radio? This month we'll take a look at a few of the puzzle pieces and see if we're getting the message.

### Preparation and Preparedness

For decades the Federal Emergency Management Agency has been responsible for preparing and responding to disasters. FEMA has now been integrated into the Department of Homeland Security as the department's Emergency Preparedness and Response Directorate, under the day-to-day direction of Chief Operating Officer Ron Castleman and Undersecretary Mike Brown, who often speaks on the topics of preparation and preparedness.

Over the summer, Secretary of Homeland Security Tom Ridge spoke at a Public Preparedness Symposium. In his speech, he discussed a tabletop exercise in which he and 25 governors participated. According to Ridge, the exercise pointed out that in many cases you do not have all of the information that you would like to have, but you have to do something. You can't wait until you have it all.

Ridge continued, "You can't secure the country from Washington, DC. You need partners all around the country in order to make it safer and more secure... Homeland security must be a priority in every home, every city, every neighborhood across America."

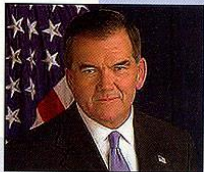
"Our goal is to achieve seamless protection, a nation knit tightly together by shared vigilance, readiness, and communication," said Ridge. "Vigilance, readiness, and communication. And nowhere is this more important than in the area of emergency preparedness."

"No government entity, no organization, no information expert can replace individual responsibility. Citizens must choose to take actions," Ridge continued. "And our job is to make the choice an easy one. The success of our preparedness efforts and ultimately the entire homeland security mission depends on the involvement and work of individual citizens. Because if our communities are to rise to new levels of preparedness and security, each individual American must choose to make emergency planning a priority—a priority in our homes and our places of work and in our schools."

### Disasters Spawn Preparedness

According to Secretary Ridge, "If you ask people in south Florida or the Outer Banks of North Carolina about preparedness, they already know about buying supplies, keeping extra batteries handy, and even having a hurricane evacuation route planned. They get it. They hope they're not

*c/o CQ magazine  
e-mail: wa3pzo@cq-amateur-radio.com*



Homeland Security Secretary Tom Ridge: "We've laid out a public goal, and you've got to help me meet it!" (Department of Homeland Security photo)

going to be hit by a hurricane. Chances are pretty good... they may or may not, but they're not going to wait for chance. They get prepared."

"I'm just amazed," said Ridge, "that more people don't think of it in terms of providing some peace of mind for their own lives and to their own families." He wants to see people "respond when they have to without thinking about it," and says he feels that "there is a willingness on the part of Americans to take on this responsibility."

### Public Goal

Ridge continued, "We've laid out a public goal, and you've got to help me meet it, please... that by the end of this year, we want at least 50 percent of Americans to have accepted their responsibility to be ready. It's a communication plan; some form of training to assist at the time of a disaster, the kit set aside, the readiness kit. We need to get 50 percent by the end of the year, and I think we can get it done."

"The Department of Homeland Security will add strength to the existing Ready Campaign by launching two new endeavors, Ready for Business, Ready for Kids. It will continue to work with the Citizen Corps to encourage participation from families across America, whether by preparing family ready kits and emergency plans or volunteering to aid in disaster planning or engaging in CPR and training exercises to help people in a life threatening situation."

"I've been amazed at the number of people who have come forward to serve on Citizen Corps councils. All walks of life, all backgrounds, all communities. I think we're near 1000 communities that have a Citizen Corps. You meet some fascinating people. One fellow is in charge of the emergency radio network. You've got a bunch of ham radio operators in a tri-state area. He's got them networked together."

### Unification

Before September 11th every state, every city, and even individual response teams had their own pro-

### Training and Response in India

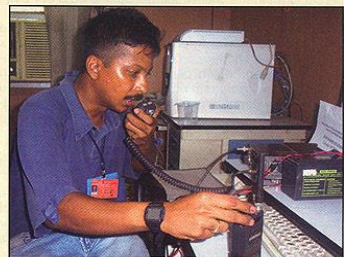
North America is not the only place amateur radio operators are active in emergency communications. Hams in India and other countries actively provide emergency communications support. This past summer, amateur radio operators participated in a simulated earthquake communications drill in the Northeast District of Delhi.

The Delhi Disaster Management Authority notified local hams about the "earthquake." Immediately, three teams of ham radio operators rushed to several critical locations to provide emergency communications. Stations were established at the Office of the Delhi Disaster Management Authority, Police Headquarters, Office of the Deputy Commissioner of Police, and the Divisional Commissioner's office.

According to Sandeep Baruah, VU2MUE, the communications teams brought mobile rigs, antennas, batteries, and solar-panel power backups. A digital communication setup was also established at the Divisional Commissioner's Office. Two-meter links were established on simplex when the local repeater "failed" because of the earthquake. HTs were also used for local communications. Messages were passed from the "disaster site" on behalf of the police and fire departments. Government officials visited the ham stations and felt that amateur radio can play a very important role in disaster communications. The hams were also able to demonstrate the use of Echolink in emergency communications and the potential for retrieving weather information.

In July, five members of the Mumbai Amateur Radio Society (MARS) sprang into action on behalf of the Ministry of Home Affairs and the United Nations Development Program. They were sent to the flood-ravaged areas of Bihar.

Nilesh Rathod, head of the local Amateur Radio Emergency Service, said, "There is a huge crisis in Bihar, but what is startling



Sandeep Baruah, VU2MUE, provides communications during a simulated earthquake exercise. (Photo courtesy of VU2MUE)

is that everyone seems used to the floods and the horrific living conditions."

He said that in the town of Sitamarhi the roads and rails were washed away. The local residents were building bamboo bridges to and charging people to cross them. That is how they recovered the cost of making the bridge and earned a living.

In order to get to his communication assignments, Nilesh would have to jump into a Jeep or risk wading through leech-infested waters.

cedures for emergency incidents. "For the first time," Ridge now says, "the National Response Plan provides a comprehensive roadmap for everyone to follow. As part of this plan, the National Incident Management System was introduced so that those involved in emergency response understand what their role is—and have the tools they need to be effective. It's the nation's first-ever standardized approach to incident management and response and it unifies federal, state, and local lines of government into one coordinated effort. This integrated system makes America safer by establishing a uniform set of processes, protocols, and procedures that all emergency responders—at every level of government—will use to conduct response actions."

### All-Star Playbook

Ridge describes the system as "the playbook for the NFL Pro-Bowl Game." "When you bring together the best players from 26 different teams," he explains, "a plan of 'blue 42, slant right, release' might mean one thing to the quarterback, another thing to the wide receiver, and yet another to the linemen. At the call of 'hike,' chaos might break out on the field. At the very least, the play won't be successful. Now every one shows up on game day with the same playbook. They will have the same preparation, the same goals and expectations, and—most important—they will be speaking the same language. When the quarterback calls a play, everyone will know what they are supposed to do. And in this battle, safety is far better than two points—in fact, it is the only result worth anything at all. Of course, a plan is nothing without the people to execute it, and many of you will play a vital role should we ever have to put our plan into action."

### Ham Radio is Ready

Now let's take a look at some of the ways amateur radio is

[www.cq-amateur-radio.com](http://www.cq-amateur-radio.com)

## TITAN DX MULTI BAND VERTICAL

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Vertical Antenna**

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BAND**

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- 12 M
- 15 M
- 17 M
- 20 M
- 30 M
- 40 M
- AND 10KHZ
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October 2004 • CQ • 65

American amateur radio journal CQ (October 2004) covering a mock drill conducted during a simulated earthquake at the behest of NDMA at North West District of Delhi

# Field days



# Disaster preparedness exercise



# Ham Meets for activity coordination

# Emergency backup communication support



SOS-10 Kanda  
As a Rally Marshal  
HP M1 Challenge 3  
Car Race

# Ham Meets (for activity coordination) & Technical Lectures




# Training Materials

A Guide to Ham Radio



BE A HAM! TALK TO  
THE WORLD



  
**Vigyan Prasar**  
(An Autonomous Organisation Under DST, Govt. of India)  
C-24, Qutab Institutional Area  
New Delhi - 110 016

# State Level Training Programme Uttarakhand 2006







# STATE LEVEL HAM RADIO TRAINING PROGRAMME FOR NSS PROGRAMME OFFICERS AND VOLUNTEERS

*Organised Jointly by :*

Vigyan Prasar, Department of Science & Technology (GOI), Noida (U.P.),  
Uttaranchal State Science & Technology (U-COST), Dehradun (U.A.) and  
National Service Scheme, Government of Uttarakhand, Dehradun (U.A.)

**7<sup>th</sup> June, 2006**

**RAJIV GANDHI**

**DAYA VYALAK**

**DEH**



# STATE LEVEL HAM RADIO TRAINING PROGRAMME FOR NSS PROGRAMME OFFICERS AND VOLUNTEERS

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**RAJIV GANDHI**

**2006**

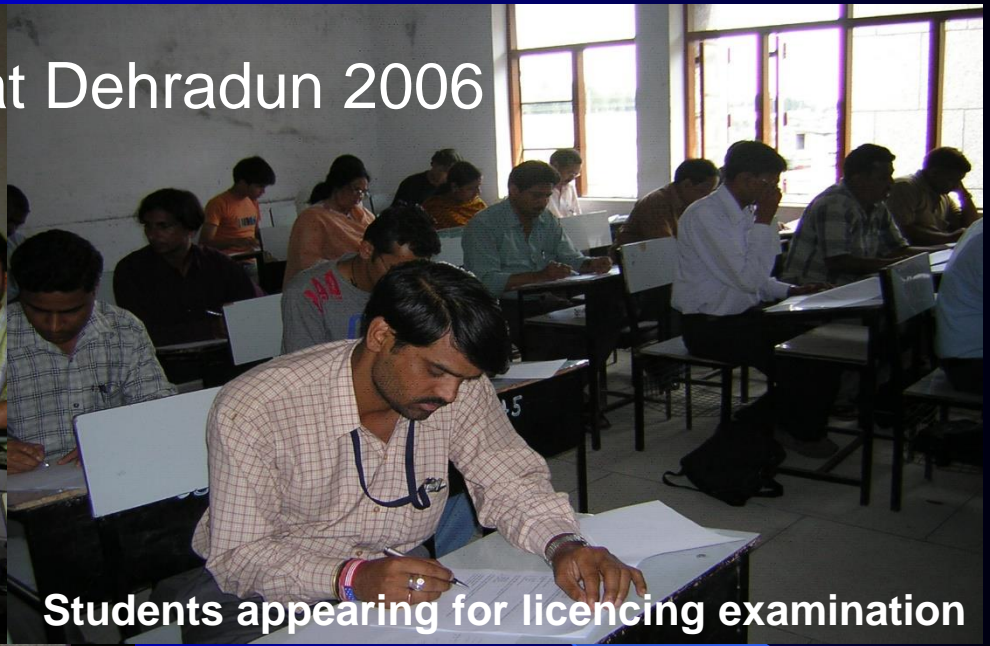
**ALAYA, DEHRADUN**





Examination conducted by Ministry of Communications

# 21 day Ham Radio Training at Dehradun 2006

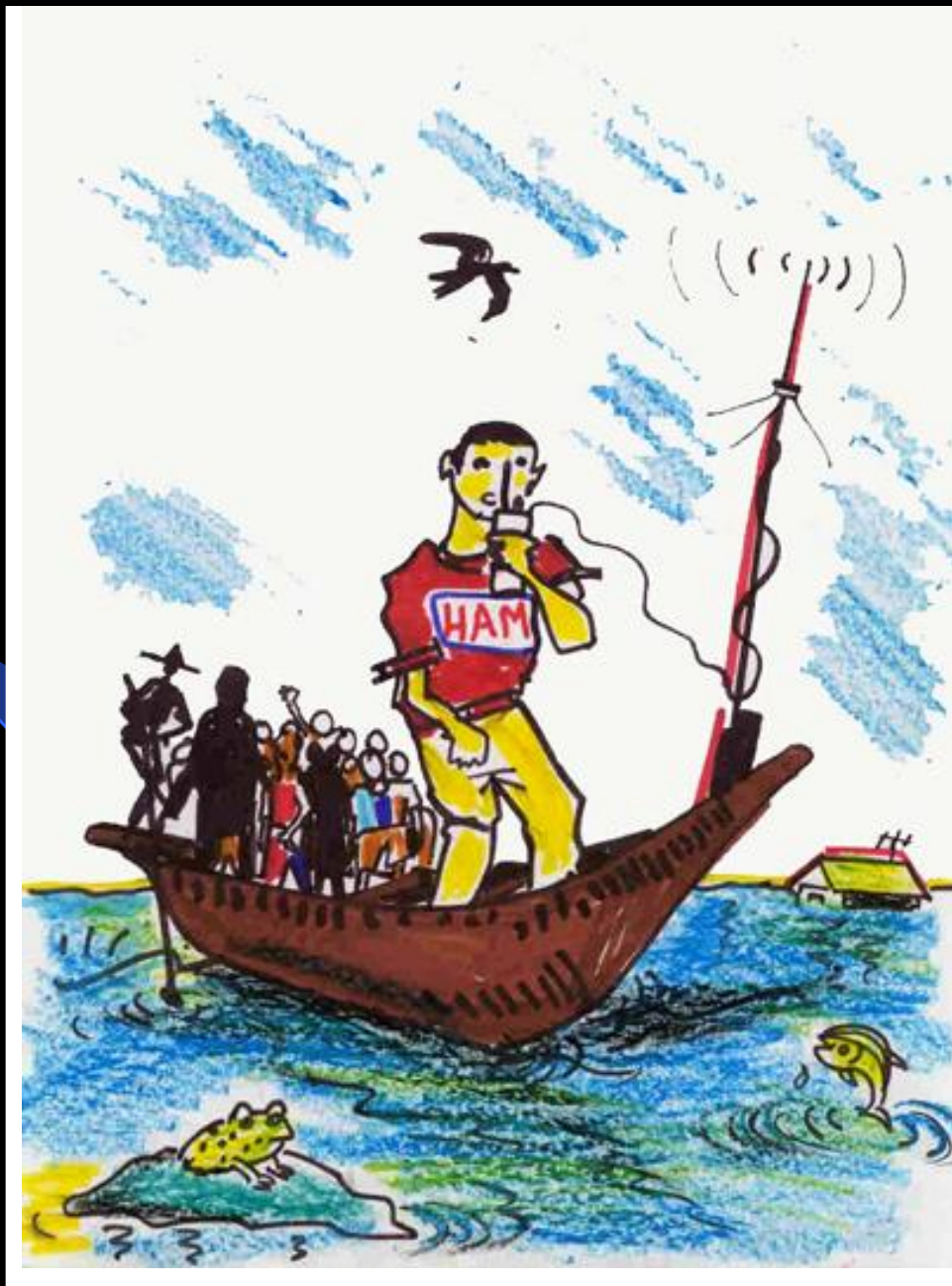


Students appearing for licencing examination



**Ham Radio  
Operators  
provide  
voluntary  
emergency  
communication  
services during  
natural  
calamities when  
the other modes  
of  
communications  
break down**

My Illustration



Fax to: 23073457

URGENT

23017457

विज्ञान प्रसार

(विज्ञान और प्रौद्योगिकी विभाग, भारत सरकार के अंतर्गत स्वायत्त संस्थान)  
सी-24, कुतुब इंस्टीट्यूशनल एरिया, ए.एस.सी.आई. भवन,  
नई दिल्ली 110 016



VIGYAN PRASAR

(An autonomous organisation under the Dept. of  
Science & Technology, Govt. of India)  
C-24, Qutab Institutional Area, ASCI Building,  
New Delhi 110 016

VP/ 905/HAM/CO/2004

DATE: 30.12.2004

MESSAGE RECEIVED BY HAM RADIO VU2HFR (KOLKATA) FROM  
VU4NRO/VU2MYH (CAR NICOBAR) ON 30.12.04 AT 1:15PM ON 14.190 MHz

MESSAGE RECEIVED AT HAM RADIO STATION VU2NCT/VU2MUE (Vigyan Prasar)

MESSAGE TO :

DIRECTOR (EMR), DTCGHS, NEW DELHI FAX : (011)23073467

LL : (011)23017302 / 9313743755

**REPORT OF CENTRAL MEDICAL TEAM DATED 29.12.2004**

The team has started its work in Car Nicobar the worst affected island.

- 1) All 15 villages affected also IAF staff quarters. Of 20,000 population, as estimated 3,000 are dead and an equal number missing.
- 2) Other neighbouring island in Nicobar island of 1383 population 682 are missing.
- 3) Survivors are moved to higher areas in the jungles in the centre of the island. Roads are blocked by fallen trees.
- 4) D.C. coordinating rescue and relief efforts. Local Hospital 120 beds operational. There are no sterile supplies/dressings. O.T., XRAY and autoclave will work once generator requisitioned from Port Blair is received.
- 5) Our team is working fully with 3 specialists from Port Blair. Around 150 cases mostly injuries have been treated. 20 cases referred for management to Port Blair were airlifted by Air Force. 4 patients are dead.

**Disposal of dead :** This was done by burial. They have accepted advise for mass cremation. 530 bodies dispos. Local water sources being identified and chlorination arranged.

- 6) **Medical supplies is relief material from Gujarat collected from A.F. base and brought to hospital.** Additional supplies from Port Blair expected on 30th December. Staff only 5 nurses are working round the clock, additional nursing staff and doctors expected from Port Blair on 30th December. 3 teams including medical were sent out today to establish contact with local villages provide first aid arrange for moving seriously injured to hospital and for disposal of dead bodies.
- 7) Telemedicine conference held with Port Blair authorities and requirement informed. Plan for epidemic preparedness discussed with MS of Hospital. Add survey and fever survey being initiated.
- 8) **Measles vaccine supply awaited for immunizing children in 6 month, 5 year age group.**

29.12.2004

**Coordinator Central Medical Team**

Relayed by: Sandeep Baruah, Senior Scientific Officer, Vigyan Prasar

Handling  
governmental  
relief messages  
during Tsunami

# Technology combined: Quoted by CQ (America)



*Pilot HS1HBJ used his airplane to survey damage in Thailand. (Photo courtesy of Phat, HS1WFK)*

Nicobar Island the next morning on a military aircraft and established communication between Port Blair and Nicobar. Hundreds of messages were passed each day between the mainland and the affected areas. One report said the number of messages reached 30,000. The only link for thousands of Indians and other country people who were worried about their friends and families on the islands was ham radio.

"Our station in the control room became the center of messages between Port Blair and Nicobar Island," said Prasad. "Survivors in Car Nicobar were

hams of the country located on the mainland have helped us in relaying the messages whenever there was skip between our stations in the islands. When telephone lines were restored on Tuesday, the 28th of December, the information received on the radio about the survivors from Car Nicobar, that they were alive, was conveyed to their anxious relatives on the mainland. We also helped about 15 foreign tourists, including several from the U.S., to send news to their families."

VU2JOS, along with other government officials, was sent to Hudbay Island for relief activity. "The common man was totally happy in utilizing our service, and the magnitude of their satisfaction on receiving the information about the welfare of their kith and kin was beyond one's imagination," said Prasad. Tremors continued for the next six days.

As the strong aftershocks continued throughout the night, the station remained on the air passing traffic to the Indian mainland. While some telephone service was restored the next day, the DXpedition operators reported the local authorities were "quite hungry for information on casualties in the region, since they have only a trickle of news from the outside. It seems that amateur radio is showing its value during a severe crisis."

ciated by the "Chief Secretary" of the Andamans.

## Technology Combined

During recent disasters we have seen the growing use of the internet combined with amateur radio. This disaster was no different. Sandeep, VU2MUE, said the "different technologies complemented each other."

A very long relief message for New Delhi was transmitted by Mohan, VU4/VU2MYH, in Car Nicobar on 30 December. VU2MUE could not copy the message because of poor propagation. The message was copied by Horey, VU2HFR, in Calcutta for relay to New Delhi. Instead of relaying the message on the air, VU2HFR in Calcutta typed it on his laptop computer and e-mailed it to Sandeep, VU2MUE, for further relay to the Director of Emergency Medical Relief Control Room in New Delhi. Confirmation that the message had been delivered was relayed back to the disaster area via amateur radio. Dr. Ravindran, Director of Emergency Medical Relief, thanked the ham radio volunteers for their support in handling government relief messages.

Many of the relief messages handled dealt with the daily number of deaths, missing, and injuries that each of us heard on the news. The Andamans

# Certificate of Appreciation for Tsunami Emergency Communication Support

## NATIONAL INSTITUTE OF AMATEUR RADIO



### CERTIFICATE OF APPRECIATION

*This Certificate is awarded to Mr / Ms. Sandeep Baruah, VU2MUE.....in  
recognition of valuable contributions to "Tsunami Emergency Communications /  
Promotion of Amateur Radio" at the International Seminar on Amateur Radio  
Communication in Disaster Management organized by NIAR at Chennai on 18<sup>th</sup>  
April, 2005.*

*[Signature]*  
**N. VITTAL, IAS, VU2NVO**  
CHAIRMAN  
ORGANISING COMMITTEE

*[Signature]*  
**S. SURI, VU2MY**  
CHAIRMAN & DIRECTOR  
N.I.A.R



My Home Station in 1998. Now it is just a little upgraded but not at all up to expectation



## Other science promotional activities

**During the year 2004, successfully supervised and coordinated Vigyan Rail Mobile Science Exhibition across the country:**

- Bareilly (06 Jan-Jan 08, 2004)
- Lucknow (09 Jan-13 Jan, 2004)
- Kanpur (14 Jan-17 Jan, 2004)
- Guwahati (15 Feb-20 Feb 2004)
- Dimapur (21 Feb- 23 Feb 2004)
- Tinsukia (24 Feb- 27 Feb 2004)
- Tirupati (12 Apr- 15 Apr, 2004)
- Chennai (16 Apr- 22 Apr, 2004)
- Mumbai (28 May- 4 June, 2004)
- Pune (05 June- 9 June, 2004)
- Jaipur (08 July-12 July, 2004)
- Gwalior (15 July- 17 July, 2004)



Dimapur, Nagaland  
(February 21-23, 2004)



Mobile Science Exhibition at Dimapur, Nagaland  
February 21-23, 2004



Vigyan Rail Mobile Science Exhibition at Tinsukia, Assam (February 26, 2004)  
-somewhere near far North Eastern border of India

# Vigyan Rail Mobile Science Exhibition



Media Coverage (Lucknow, U.P.)  
January 9-13, 2004

The Mobile Science Exhibition at Lucknow attracted a huge crowd



The District Administrative Head (DM) Dr. Nanith Sehgal in Lucknow  
visiting the Science Exhibition on January 9, 2004



# Participation in Disaster Management 2008 International Exhibition (organized at the behest of National Disaster Management Authority)





VP Ham Stand at Disaster Management 2008 Exhibition



# Future plans

To establish HF Emailing Gateways at every district Headquarters (this network will function independent of Internet with provision to hook to Internet)



To install 400 units in 400 district HQ estimated budget is Rs. 8 crore



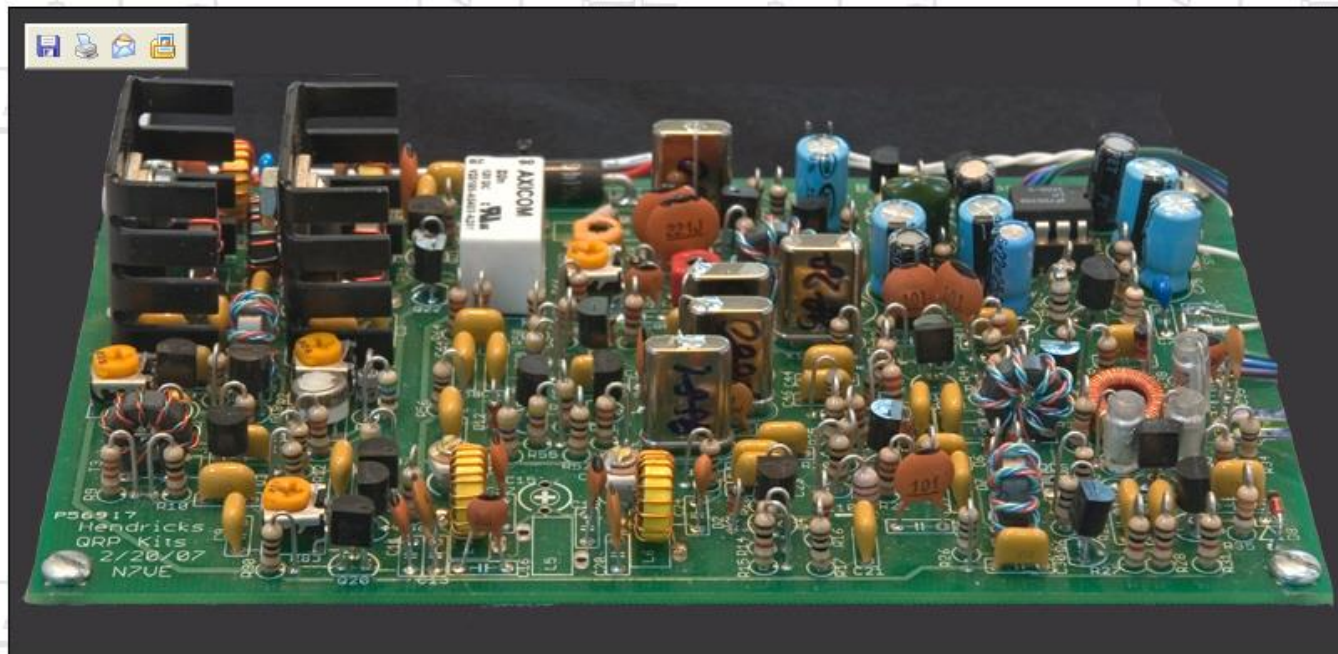
# To replicate low cost ham radio kits with indigenously developed technology

**To come out with an affordable HF ham transceiver.  
Indigenous Technical Know-How already available  
Cost would be kept below Rs.15,000/- or may as**

**Initially 20 pieces would be produced/replicated**

**Estimated budget Rs. 3 Lakh**

BITX is a kit designed by Ashar Farhan  
(a computer engineer, Hyderabad)



### The BitX20A Transceiver

The BitX20A is a SSB board and parts only kit that is based on the BitX20 that was designed by Ashlan Farhan. The original version was built ugly construction, and you had to source all the parts. I discovered the BitX20 site on Yahoo earlier this year, and decided that the BitX20 would be a neat kit for Hendricks QRP Kits. The problem was that it did not have a pcb. A team of Dan Tayloe, Jim Kortge and Arv Evans have worked countless hours making sure that the pcb version was stable and would meet United States F.C.C. Specs. We had to go through several revisions to get it right, and we are happy with the result, even though it took a long time. Some things just take time. The kit includes a commercial quality plated through, silkscreened, solder masked board, and all board mounted parts, plus the polyvaricon tuning capacitor.

An American company is  
replicating it at \$ 90

We have the expertise to replicate low cost ham radio kits



I assembled a much complicated design in 1993

# Bringing out a Publication (book) related to Low-Cost Ham radio kit building

At present different write-ups, technical articles, circuit diagrams etc. related to indigenous low-cost kit building are available to us but if we bring out a compilation of all these, it would be a great boon to the novice as well as the licensed hams. This would be sort of a one stop resource book available in India.

Address [http://www.qsl.net/vu2msy/homebrew/homebrewing\\_zone.htm](http://www.qsl.net/vu2msy/homebrew/homebrewing_zone.htm)

Canon Easy-WebPrint Print High Speed Print Preview Options Duplex View Print List



[www.qsl.net/vu2msy](http://www.qsl.net/vu2msy)

**Homebrewing Zone!**

RESOURCES FOR THE HAM RADIO NOVICE

Hi! This is the area where I have a collection of articles, circuits related to homebrewing. You need to have "Acrobat Reader" to read these articles. To download the file, you may need to 'right click' and then select save target as' option.

**Acknowledgment:**  
OM Sahrudin, VU2SDN & OM Adolf Shepherd, VU2AF (Amateur Radio Society of India) for providing the old issues of "Radio" (Journal of FARSI) and "Ham Radio News (Journal of ARSI). I am also grateful to OM Mani T.K., VU2ITI, who had generously sent me the photocopies of his book "Ham Radio Projects". The compilation of articles/circuits/hints & tips for homebrewers would continue in this section.

WARNING! It is illegal to possess and operate a wireless transmitter without a valid government licence

 **VU2VWN 40m QRP Transmitter** (2,438 kb)

(Courtesy: Easy to Build HAM RADIO PROJECTS VOL 1 by K.R. Vasantha Kumar, VU2VWN. Published by Thushar Baby, Crystal Publications, Cochin 683565)

 **Modification of VU2VWN 40m QRP TX for 20m** (23 kb)

(Courtesy: Easy to Build HAM RADIO PROJECTS VOL 1 by K.R. Vasantha Kumar, VU2VWN. Published by Thushar Baby, Crystal Publications, Cochin 683565)

 **RM-96 Cost effective Transceiver by VU2RM** (2,311 kb)

(Courtesy: <http://www.qsl.net/vu2upx>)

# To Establish a DSTAR Digital Repeater at New Delhi



## With Digital Voice & High Speed Data

### What is D-STAR?

D-STAR is a new ham radio system which offers digital voice and data communication. It connects repeater sites over microwave links and the Internet and forms a wide area ham radio network. The D-STAR system provides a new capability and functionality to the ham radio world and increases the efficiency of emergency communications.

**Cost of two Repeater  
Approx. Rs. 1.5 Lakhs**

### What can the D-STAR system do?

## 128kbps digital data and 4.8kbps digital voice communication

The D-STAR system provides not only digital voice (DV mode) communication but also digital data transmission (DD mode). It can exchange various data files such as graphics, images, etc, at 128kbps.

## voice and data can reach further than ever

Multiple repeater links by radio and the Internet provide long distance communication to virtually anywhere.

## Internet application available

The D-STAR system uses the TCP/IP protocol, so when connected with a PC, web, e-mail and other Internet applications are available.

## Wireless Internet Access

No matter where you travel within the DSTAR network, you can access the web, e-mail, text messages and multimedia messages.

## Independent network

In DD mode, ID-1 can transfer data directly with another ID-1 without the use of a repeater. This is useful for establishing a simple network where a D-STAR repeater does not exist or D-STAR services are not required.

## Increase efficiency of emergency communications

Out in the field, fast emergency information is the key. Send pictures and weather charts to or from a remote location with the ID-1. "A picture is worth a thousand words", and efficient send/receive opens up your repeater for other emergency communications.