HAM NEWS

Special Issue | INDIA'S LEADING JOURNAL ON AMATEUR RADIO | 2003

NIAR Delegation meets the President of India, Bharat Ratna Dr. A.P.J.Abdul Kalam on 26-08-2003 at Rashtrapati Bhavan, New Delhi.

From Left to Right

Mr. S.Ram Mohan, VU2MYH,

Mr. S.B.Ram, VU2LIC,

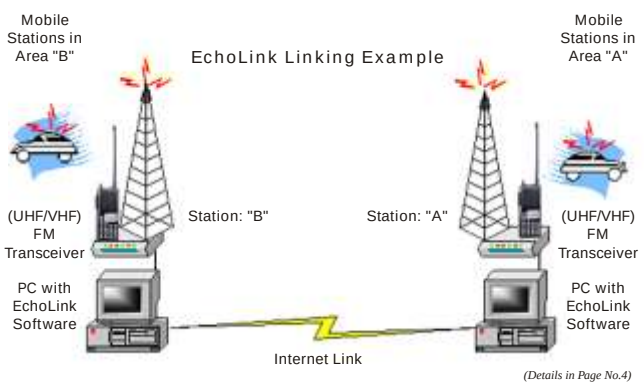
Dr. Shrikant Jichkar, VU2SJA,
Ex - M.P., Chairman, N.I.A.R

His Excellency Dr. A.P.J.Abdul Kalam, receiving NIAR's Proposals from Mr. S.Suri, VU2MY, and Mrs. Bharathi Prasad, VU2RBI,

Mr. P.V.S.N. Sastry, VU2SCO,

Dr. Pankaj Chande, Vice-Chancellor
Kavikulaguru Kalidas Sanskrit University, Nagpur.

"EchoLink" A New Revolution in Amateur Radio



(Details in Page No.4)

"HAMSAT" - First Indian Amateur Radio Satellite
ISRO's Support to HAMS

Right: Mr. S.B. Ram, VU2LIC demonstrating Amateur Radio Digital Commounication to Shri Arun Shourie, Hon'ble Minister of I.T at the Conference on ICT and Developments at Baramati, Maharashtra.

Left: Mr. K.K. Jaswal, IAS Secretary to Govt. of India, D.I.T Inaugurating EchoLink a New Revolution in Amateur Radio at NIAR, Hyderabad on 18.9.2003

Mr. K.K.Jaswal, IAS was able to directly contact Hams in Australia, Kuwait and Canada with a Walkie - Talkie.

Dr.AP.J.Abdul Kalam Says;
"Small aim is a crime; the vision for the nation will create the best of human being" also "thinking is progress. Non-thinking is destruction to the individual, organization and the country"

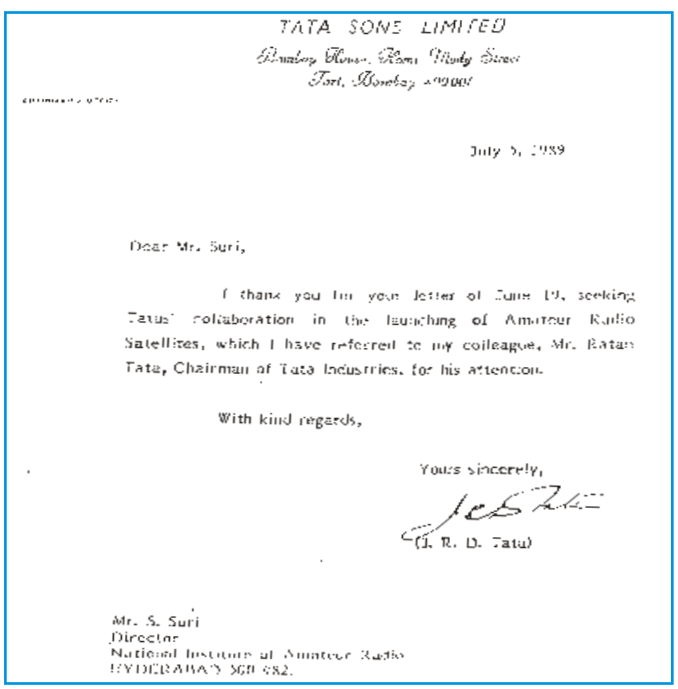
HEARTY CONGRATULATIONS TO ISRO, AMSAT-INDIA & HAMS
'HAMSAT' First Indian Amateur Radio Satellite.

The NIAR Governing Council, Members, and Amateur Radio community would like to congratulate all the Officers of ISRO more particularly Shri G.Madhavan Nair, Chairman, ISRO, Dr.P.S.Goel, Director ISAC, Shri K.Thyagarajan, Program Director, IRS & SSS, Shri. J.P.Gupta, Project Director-HAMSAT, AMSAT-India, NIAR Governing Council Member & Co-ordinator AMSAT India Shri Nagesh Upadhya VU2NUD who is also a Senior Scientist in ISRO, Bangalore Hams and others who are actively associated with 'HAMSAT' the First Indian Amateur Radio Satellite. We also thank Dr.K.Kasturi Rangan, M.P., Former Chairman, ISRO for his initiatives. Serious and sincere effort was made by ISRO to launch the Flight of PSLV on 17th October but it had to be postponed as in "Thermo-vacuum test of HamSat, deviations in the performance of the HAM payload were observed".

Indian Hams specially thank ISRO for taking the initiative to support the Amateur Radio community and bring communication technology to be accessible to the common man and benefit the society with its use in Disaster Management.

NIAR has been corresponding with ISRO on Amateur Radio Satellites since the days Dr.U.R.Rao, Chairman ISRO. We are happy to say ISRO's Chairman & officers have all along been very sympathetic to our cause and very supportive to the idea of putting Indian Amateur Radio Satellite on LEO.

NIAR efforts to support and Indian Amateur Satellite program dates back to late 1980's by actively participating in the AMSAT conferences in UK, Germany and elsewhere. At one stage, NIAR went on to sign an MoU with University of Surrey, UK seeking support for Indian Amateur Radio Satellite program. NIAR made considerable efforts to demystify Space Science & launching Amateur Radio Satellite to bring latest technology tools and expand its practical use and applications among the common people for development of Science and Technology in the country.



TATA SONS LIMITED

Bombay House, Bori Bunder Street
Fort, Bombay 400001

July 5, 1989

Dear Mr. Suri,

I thank you for your letter of June 19, seeking Tatas' collaboration in the launching of Amateur Radio Satellites, which I have referred to my colleague, Mr. Ratan Tata, Chairman of Tata Industries, for his attention.

With kind regards,

Yours sincerely,

(J. R. D. Tata)

Mr. S. Suri
Director
National Institute of Amateur Radio
HYDERABAD 500 482.

As the resources required could not be directly arranged, visionaries like J.R.D.Tata and others were approached for their support. Late Shri. J.R.D Tata had taken personal interest to explore the possibility of launching Indian Amateur Radio Satellite with Tatas participation. This did not materialize during his life time as many loose ends could not be fixed then. Late Shri Rajiv Gandhi, VU2RG took keen interest and supported the Indian Amateur Radio Satellite Programe as he had the practical understanding on the subject as an Amateur Radio Operator. His sudden demise put everything in reviews and delays.

UNIVERSITY OF SURREY

Guildford Surrey GU2 5XH Telephone (0483) 571281 Telex 859551

Department of Electronic and Electrical Engineering
UoSAT Spacecraft Engineering Research Unit

Mr S. Suri VU2MY
Director
National Institute of Amateur Radio
5-8, P.S. Nagar
Off Raj Bhavan Road
Somajiguda
Hyderabad-500 482
India

4th August 1989

Dear Mr Suri,

Further to our discussions at the AMSAT-UK/UoSAT Colloquium, I am pleased to write to you to clarify some of the points that we were discussing.

1) The University of Surrey and Surrey Satellite Technology

The proposal we have sent to you is for a collaboration between the University of Surrey Spacecraft Engineering Research Unit (UoSAT) and NIAR. However, in order expedite the collaboration in the most effective and professional way we have proposed that the University spin-off company, Surrey Satellite Technology (SST), would be the vehicle through which the collaboration would be managed. SST has already had experience in this type of collaboration through the relationship with SUPARCO in Pakistan and can offer the commercial infra-structure required to make the collaboration run more smoothly.

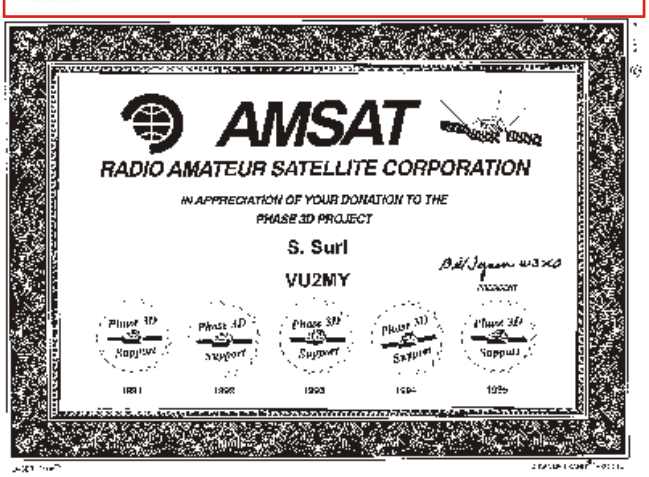
Surrey Satellite Technology will therefore be responsible for the management and commercial aspects of the collaboration where the UoSAT Unit will be responsible for the technical side of the project. The close connection between these two organisations is indicated by the position of Dr. M. Sweeting being the Director of Satellite Engineering within the University and also the Technical Director of Surrey Satellite Technology.

2) Ownership of Spacecraft

We believe there is no reason why a private individual or company should not procure a satellite. We do not know of any government regulations concerning this however you should check that there is nothing specific to India which may influence this.

3) Memorandum of Understanding

The Memorandum of Understanding between UoS-SST-NIAR would typically be a short document (approximately 3-4 pages) which would cover the following areas:



AMSAT

RADIO AMATEUR SATELLITE CORPORATION

IN APPRECIATION OF YOUR DONATION TO THE
PHASE 3D PROJECT

S. Suri
VU2MY

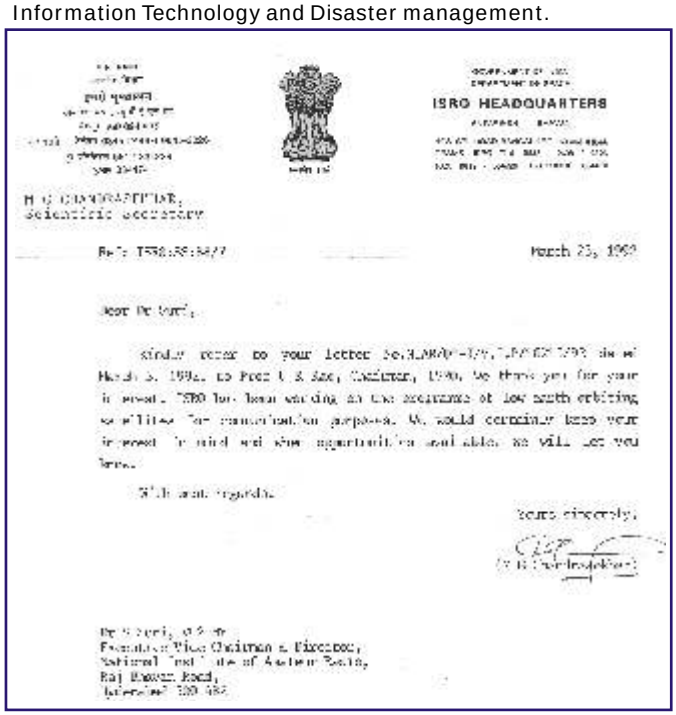
Bill Tynan W3XO
PRESIDENT

Phase 3D Support 1991 | Phase 3D Support 1992 | Phase 3D Support 1993 | Phase 3D Support 1994 | Phase 3D Support 1995

Prime Minister Shri. Vajpayee ji and his office took initiatives after Gujarat Earthquake, following this we pursued vigorously with the Govt. of India at the level of Planning Commission and M.I.T etc.,

By then there were several AMSATs up in space and more in the offing under Phase-III program. Besides, Mr.S.Suri, VU2MY and Mrs. Bharathi VU2RBI, NIAR had in the past sponsored Mr. Nagesh Upadhyaya VU2NUD of ISRO who is also the Co-ordinator of HAMSAT-India, Ms. Bhanumathi VU2BL Senior Manager HAL, 3 senior IAS officers, Dr.N.Tata Rao VU2NTR who was former Chairman APSEB and Mr. G.L. Rao VU2GL current President of The Institution of Engineers (India) to several countries Amateur Radio events where Satellites were discussed. Mr. S. Suri & NIAR had also made contributions to Phase III D Program for 5 years. Hams in India are particularly proud that we are able to contribute to the world Amateur Radio community with our participation with the Satellite operations. On August 26, 2003 when NIAR's Team lead by Mr. Suri met the President of India Dr. A.P.J. Abdul Kalam, they also explained about Amateur Radio Satellites.

A new chapter of Amateur Radio communication in India has been started courtesy ISRO and AMSAT-INDIA, we do hope this will initiate youth and student community to become hams and contribute to People's Participation in Communication and Information Technology and Disaster management.



ISRO HEADQUARTERS

March 25, 1992

Dear Dr Suri,

Kindly refer to your letter dated March 5, 1992 to Prof U R Rao, Chairman, ISRO. We thank you for your interest ISRO has been working on the assistance of low earth orbiting satellites for communication purposes. We would certainly keep your interest in mind and when opportunities available we will let you know.

With best regards,

Yours sincerely,

Dr S Suri, VU2SUR
Executive Vice Chairman & Director,
National Institute of Amateur Radio,
Raj Bhavan Road,
Hyderabad 500 482.

Above: Left to Right Mr.J.P.Gupta Project Director-HAMSAT, Mr.S.B.Ram VU2LIC, Mr.Satyapal VU2FI, Mr.Nagesh Upadhyaya VU2NUD, Co-ordinator AMSAT-INDIA, Mr. William Lijenaar PE1RAH, designer of Dutch transponder for HAMSAT, Mr.S.Suri VU2MY

Right: Mr. William Lijenaar PE1RAH, holding the prototype of this transponder, Mr.S.Suri VU2MY

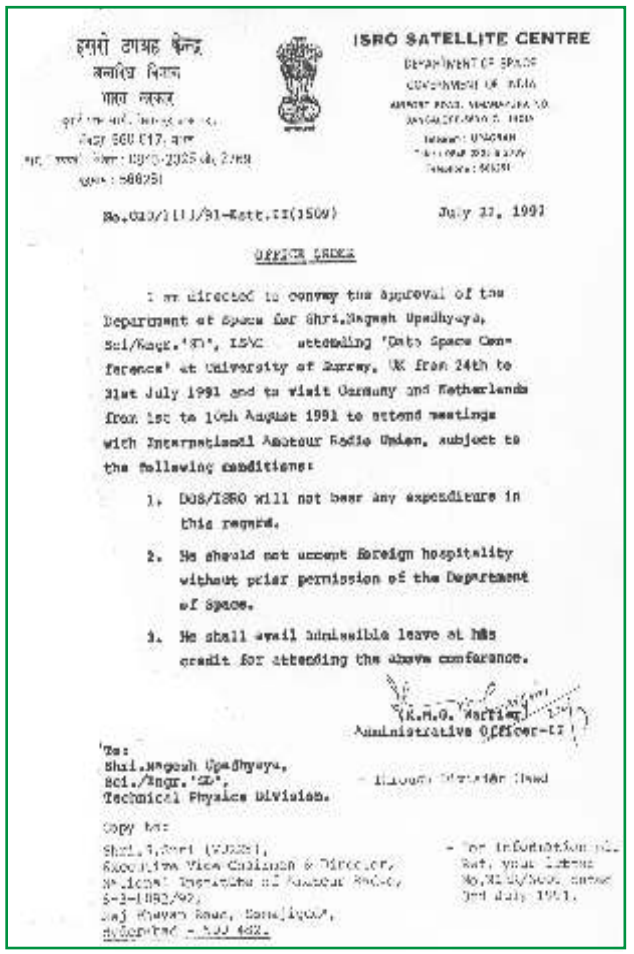
THE HINDU

HamSat won't make it

By Our Staff Reporter

BANGALORE, OCT. 8. A payload dedicated to amateur radio, HamSat, which was to be a co-passenger of a remote sensing satellite on board a PSLV later this month, will not make the trip.

An official release from ISRO said here on Wednesday that the HamSat was to be launched as an auxiliary payload using the launch capacity of PSLV. But, during the "thermo-vacuum test of HamSat, deviations in the performance of the HAM payload were observed. After required corrections, HamSat will be accommodated on one of the subsequent flights of PSLV.



ISRO SATELLITE CENTRE

No.SIC/1111/91-Estt.II(1509) July 22, 1991

OFFICE ORDER

I am directed to convey the approval of the Department of Space for Shri.Nagesh Upadhyaya, Sci/Engr.'SD', ISAC attending 'Data Space Conference' at University of Surrey, UK from 24th to 31st July 1991 and to visit Germany and Netherlands from 1st to 10th August 1991 to attend meetings with International Amateur Radio Union, subject to the following conditions:

1. DOS/ISRO will not bear any expenditure in this regard.
2. He should not accept foreign hospitality without prior permission of the Department of Space.
3. He shall avail admissible leave at his credit for attending the above conference.

(K.M.G. Nair)
Administrative Officer-II

To:
Shri.Nagesh Upadhyaya,
Sci./Engr.'SD',
Technical Physics Division.

Copy to:
Shri.A.Sarma (VU2ASI),
Executive Vice Chairman & Director,
National Institute of Amateur Radio,
6-3-1182/92,
Raj Bhavan Road, Somajiguda,
Hyderabad - 500 482.

- for information pl. Ref. your letter No.NIAR/HAMSAT/91-92 dated 3rd July 1991.

A letter written by Designer of Dutch Transponder for "HAMSAT"

Name: William Lejenaar

Electronical engineer graduated July 1983.
Final graduation project done at Philips RF-labs in Eindhoven with maximum result. My interest in HAM Radio came via my father who is also a HAM (PA3BDL). My main interest is to design microwave circuits for space use. To gain experience I started with a simple mode-A transponder. After many years of looking & working model I had. To make it a real satellite I used AMSAT-DL (Germany) to help me with a launch. They could not help because I am no HAM. One year later, when I presented a new kind of transponder experiment (e.g. in Marburg Germany, I met Mr. Nagesh. He asked me if I could deliver a transponder for HAMSAT. In two weeks I made a prototype and after that also a flight model. All ten transponders I have designed, made and finished myself. The flight-model is tested by ISRO and qualified for use in HAMSAT. With this I gained a lot of experience and my dream came true. I enjoyed designing this transponder and I hope many hams will enjoy using it.

email: pe1rah@hotmail.com
web: www.qsl.net/pe1rah

Echolink a new revolution in Amateur Radio Communication

Convergence of technology has brought several changes to wireless communication scenario in the recent past and Amateur Radio is no exception. Using the Internet Backbone, the EchoLink has brought about a revolution in which Amateur Radio communication can be accessed all over the world using a simple Walkie-Talkie.

Echolink is a software program developed by a US Ham **OM JONATHAN P TAYLOR, K1RFD** Email: k1rfd@k1rfd.com, Node no. 1000, has freely circulated his software which can be downloaded from his website www.Echolink.org. Any individual can use his computer or use a Hand-held to connect to a Link or Repeater station that is providing EchoLink service.

A new dimension to Amateur Radio communication has started, the Voice over IP provides excellent audio quality between the nodes. The nodes are connected to the network of servers which are inter-connected providing uninterrupted service.

The advantage of the connecting to several repeaters in distant places provides an excellent opportunity for Hams to communicate with stations that are difficult to contact on day-to-day basis. However, the excitement of contacting station over HF different than Voice over-IP. The spirit of Amateur Radio lives another generation.

Several local hams can communicate worldwide over VHF using their personal handy or base station without computer or internet. Users don't need any computer or internet. A repeater station in the city may be connected to EchoLink node via the sound card of the computer with internet connection and share the facility with all hams in the city. NIAR is providing an EchoLink Repeater/Link in Hyderabad.

EchoLink® is software that allows licensed Amateur Radio stations to communicate with one another over the Internet, using voice-over-IP (VoIP) technology. The program allows worldwide connections to be made between stations, or from computer to Amateur Radio station, greatly enhancing Amateur Radio's communications capabilities. There are more than 100,000 registered users in 139 countries worldwide!

Since validation of Amateur Radio Licence is established, you can use EchoLink to connect your station (or your computer) over the Internet to other amateurs using the same software, and carry on a voice QSO. This greatly enhances the range and utility of mobile and portable VHF/UHF-FM stations, and also allows computer-equipped hams to access distant repeaters / links directly.

You can access EchoLink either with a radio or a computer. If you are in range of an FM repeater or simplex station equipped with EchoLink, you can use DTMF commands from your radio to access the EchoLink network. If you are a licensed amateur with an Internet-connected PC, you can access EchoLink stations directly from your PC.

First, download the software from this Web site (http://www.echolink.org/register.htm). You will be asked to provide your callsign and e-mail address. Then, install the software on your PC, and be sure you have a good Internet connection (56k modem or better). The first time you use EchoLink, the system will automatically put in a request for your callsign and password to be validated. The request will be reviewed, and once you are validated (which usually takes less than a day), you're ready to go.

Each new user of EchoLink must be validated. Each new request for validation is reviewed individually, and many are followed up with a request for proof of valid license.

A demonstration of Digital Communication Technologies was organised at The National Institute of Amateur Radio (NIAR). Echolink, ISSTV and other Digital Communication modes were among the those Amateur Radio communication technologies that were demonstrated to Mr. Jaswal, Secretary to Govt of India - Department of Information Technology and other officers from Department of Telecommunications, Government of India by Mr. Suri -VU2MY, Founder, Executive Vice-Chairman & Director, NIAR.

Peter-VK8PDG gave detailed account of developments in his country (Australia) over 6 decades through pictorial presentation via ISSTV and voice via Echolink.

Other visitors to participate in the demonstration include Mr.Ashok Kumar, Jt. Wireless Advisor (Govt of India), Mr.S.K. Chauhan, Officer In-Charge, Wireless Monitoring Station, Hyderabad, several Local Ham members in Hyderabad, representatives of Print & Electronic media.

OM.Charajeet Singh-VU2LKB, OM.Suryanarayana-VU2JJS, OM.Satya-VU2SAX, YL Bhanumathi - VU2BL, YL Jaya - VU2JMA, YL Lissy - VU3LMS, OM.Dilbagh Chowhan (Canada) - VU3DBG, OM.Balsun- VU2UYC (Kuwait), OM.Prem (Canada) - VU2XMX, VU2NRO on Keyboard, OM.S.B.Ram -VU2LIC, OM.S.Ram Mohan - VU2MYH, OM.Sarath -VU3RSB, OM.Jose-VU2JOS, OM Sushil - VU2LFA, OM.Chaitanya Kumar-VU3MCK and S.W.L's also participated in the demonstration.

You may contact The National Institute of Amateur Radio and its club station (VU2NRO), Hyderabad -

India via Echolink:-

VU2NRO-L Echolink Node: 132312

VU2NRO-R Echolink Node: 133507

After having been validated, each EchoLink user must provide a password, along with his or her callsign, to log in. Each time a connection is made for a QSO, the EchoLink servers verify both the sender and the receiver before communication can begin.

There are two ways a repeater can be connected to EchoLink.

Remote or Hard-Wired

With the "hard-wired" approach, the PC on which EchoLink runs is co-located with the repeater controller, and interfaced directly to it, with no additional RF hardware. This allows positive carrier and PTT control between the repeater controller and EchoLink, and eliminates extra "hops" in the audio chain. It also eliminates the need to ID a link transmitter. One disadvantage of this technique, however, is that it requires reliable Internet access at the repeater site, which may be in a remote location.

With the "remote-link" approach, an FM transceiver is connected to the EchoLink PC at a convenient location in range of the repeater, and tuned to the frequency pair of the repeater. In this configuration, the transceiver behaves very much like an ordinary local repeater user, transmitting on the repeater's input frequency (on behalf of EchoLink users) and receiving on the repeater's output frequency. Although this allows the EchoLink equipment to be placed in a more convenient location, it presents some challenges with respect to RX control.

With either approach, EchoLink should be configured with a callsign with a -R suffix, to indicate that the node is a gateway to a repeater, rather than a simplex frequency. If a remote link is being used, the software should be configured to identify itself on the air with the host station's callsign, which is not necessarily the same as the EchoLink callsign (or the callsign of the repeater). Since the link itself is not a repeater, a suffix such as /R in the ID is usually not appropriate (for U.S. stations).

System Requirements :-

EchoLink is designed to work on personal computers meeting the following minimum requirements:

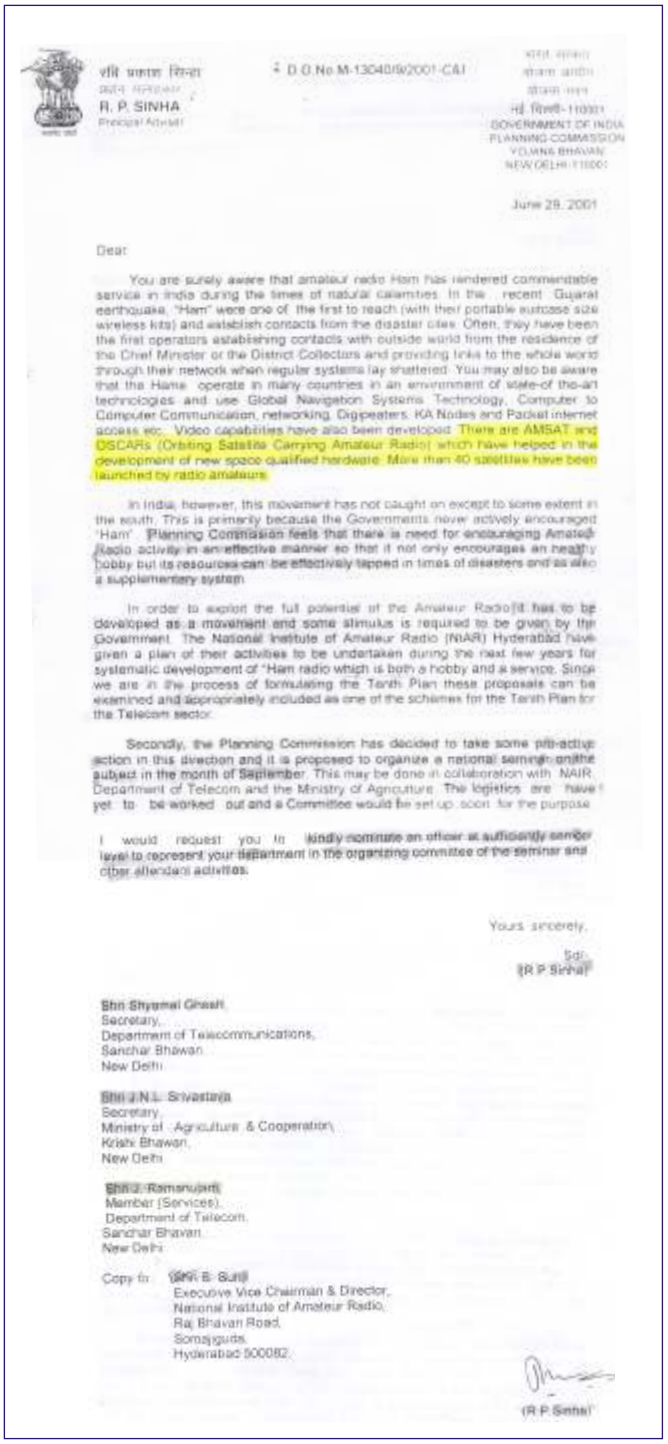
Intel Pentium (or compatible) CPU, 133 MHz or higher. The program has been tested successfully on a 486DX4 at 75 MHz, but a 133-MHz Pentium is recommended as a minimum system.

Any of the following Microsoft Windows versions:

- Windows 95 (Winsock 2 and Internet Explorer 4.0 or above also required)

  Windows 98
- Windows 98, Second Edition
- Windows Me
- Windows NT 4.0 (Workstation or Server), Service Pack 3 or higher
- Windows 2000 (Professional, Server, or Advanced Server)
- Windows XP (All editions)
- Windows Server 2003
- Color display with resolution of 800x600 or higher. The program will work with 640x480 resolution, but with diminished usability.
- 8- or 16-bit sound card or built-in sound hardware, with appropriate Windows drivers. Full-duplex capability is recommended for all modes, and required for Sysop mode.
- Dial-up or dedicated Internet connection, 24 kbps or higher in each direction. 128 kbps upstream (ISDN, cable modem, DSL or better) is recommended for Conferencing capability.
- Approximately 5 MB free disk space.

  Sufficient RAM to meet the minimum operating-system requirements, plus approximately 8 MB (the amount of RAM used by EchoLink).
- Mouse, or other pointing device (recommended).
- Microphone and speakers, for Single-User mode.



R. P. SINHA
Principal Adviser

D.O.No.M-13048/9/2001-CAI

GOVERNMENT OF INDIA
PLANNING COMMISSION
YOJANA BHAVAN
NEW DELHI-110001

June 29, 2001

Dear

You are surely aware that amateur radio Ham has rendered commendable service in India during the times of natural calamities. In the recent Gujarat earthquake, "Ham" were one of the first to reach (with their portable suitcase size wireless kits) and establish contacts from the disaster sites. Often, they have been the first operators establishing contacts with outside world from the residence of the Chief Minister or the District Collectors and providing links to the whole world through their network when regular systems lay shattered. You may also be aware that the Hams operate in many countries in an environment of state-of-the-art technologies and use Global Navigation Systems Technology, Computer to Computer Communication, networking, Digipeaters, KA Nodes and Packet internet access etc. Video capabilities have also been developed. There are AMSAT and OSCARs (Orbiting Satellite Carrying Amateur Radio) which have helped in the development of new space qualified hardware. More than 40 satellites have been launched by radio amateurs.

In India, however, this movement has not caught on except to some extent in the south. This is primarily because the Governments never actively encouraged 'Ham'. Planning Commission feels that there is need for encouraging Amateur Radio activity in an effective manner so that it not only encourages an healthy hobby but its resources can be effectively tapped in times of disasters and as also a supplementary system.

In order to exploit the full potential of the Amateur Radio it has to be developed as a movement and some stimulus is required to be given by the Government. The National Institute of Amateur Radio (NIAR) Hyderabad have given a plan of their activities to be undertaken during the next few years for systematic development of "Ham radio which is both a hobby and a service. Since we are in the process of formulating the Tenth Plan these proposals can be examined and appropriately included as one of the schemes for the Tenth Plan for the Telecom sector.

Secondly, the Planning Commission has decided to take some pro-active action in this direction and it is proposed to organize a national seminar on the subject in the month of September. This may be done in collaboration with NAIR, Department of Telecom and the Ministry of Agriculture. The logistics are have yet to be worked out and a Committee would be set up soon for the purpose.

I would request you to kindly nominate an officer at sufficiently senior level to represent your department in the organizing committee of the seminar and other attendant activities.

Yours sincerely,

Sd/-
(R P Sinha)

Shri Shyamal Ghosh
Secretary,
Department of Telecommunications,
Sanchar Bhawan
New Delhi

Shri J.N.L. Srivastava
Secretary,
Ministry of Agriculture & Cooperation,
Krishi Bhawan,
New Delhi

Shri J. Ramanujam
Member (Services),
Department of Telecom,
Sanchar Bhawan
New Delhi

Copy to: (Shri S. Sunil)
Executive Vice Chairman & Director,
National Institute of Amateur Radio,
Raj Bhavan Road,
Somajiguda,
Hyderabad 500082.

(R P Sinha)

We would like to convey our special thanks to Disaster Preparedness and Emergency Response Association (DERA) our partners in technical collaboration during the Echolink experimental stage. Mr.Jay Wilson, W¯AIR and Prof. Robert Dockery, WD4CNZ of DERA, USA gave us necessary information, details to make the demo & inaugural program on Echolink. It is DERA of USA which has been constantly helping us to upgrade our skills. Also several members of WIA / ARRL / RSGB / JARL / DARC etc., are an inspiration & encouragement to NIAR.

HAMSAT

इसरो ISRO

HAMSAT is ISRO's first theme based Microsatellite meant for providing Satellite based Amateur Radio Services to the National as well as the International Community of Amateur Radio Operators (HAMs).

Scheduled to be launched in mid October 2003 on-board the PSLV-C5 Mission as an Auxiliary Satellite, it will meet the long felt need of the Amateur Radio Operators in the South Asian region who possess the required paraphernalia and operate in the UHF/VHF band based Satellite Radio Communication Channel.

The last Satellite in the LEO providing this type of service ceased operating in mid August 2003 and created a vacuum for the Mode B (UV) services. HAMSAT, once operational by November 2003, will greatly serve this purpose.

The HAMSAT Microsatellite is India's contribution to the international community of Amateur Radio Operators. This effort is also meant to bring ISRO's Satellite Services within the reach of the common man and popularise Space Technology among the masses.

This Satellite will play a valuable role in the national and international scenario by providing a low cost readily accessible reliable means of communication during emergencies and calamities like flood, earthquakes etc., stimulation of technical interest and awareness among the younger generation by providing them with an opportunity to develop their technological projects including offering a platform for testing New Technologies.

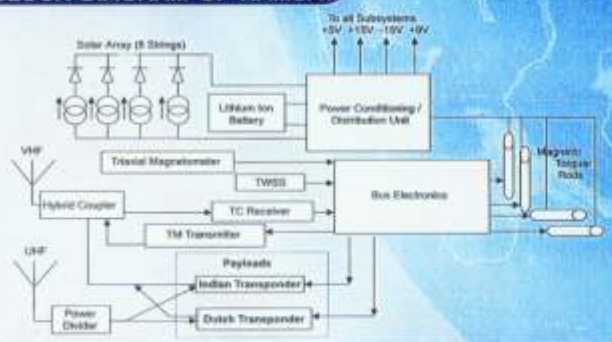
HAMSAT

EXPLODED VIEW

SALIENT FEATURES :

- 630mm x 630mm x 550 mm Cuboid
- Mass – 38 Kg
- Near Circular Polar Low Earth Orbit
- Aluminium Honey Comb Structure
- Passive Thermal Control
- Body mounted Gallium Arsenide Solar Panels
- Lithium Ion COTS Battery
- Bus Electronics: MAR 31750 Processor based, providing Telecommand, Telemetry, ACS & Sensor Electronics functions
- Spin rate: 4 ± 0.5 RPM
- Spin axis orientation: ± 3 Deg
- Stabilisation: Spin stabilisation with on board autonomy for SRC, MBC and Auto SADC
- Sensors: Tri-axial Magnetometer and Twin Slit Sun Sensor
- Actuators: Magnetic Torquers
- Communication: VHF for TM and TC
- Antennae: UHF Turnstile, VHF Turnstile
- Transponders: Mode B (U/V)
- Transponder Uplink: 435.25 MHz
- Transponder Downlink: 145.9 MHz
- Minimal Ground Station support

BLOCK DIAGRAM OF HAMSAT



PAYLOADS :

Communication Payloads for Amateur Radio Services

- One Transponder developed indigenously involving Indian Amateurs with the expertise of ISAC and the experience of AMSAT-INDIA
- A Second Transponder developed by Mr. William Gerard Leijenaar, Dutch Amateur Radio Operator and a Graduate Engineering student at Higher Technical Institute, Venlo, Netherlands
- UHF Uplink, VHF Downlink
- Transmitter Output Power of 1 Watt
- Transponder Bandwidth of 60 KHz
- CW, SSB, FM Modes of Communication

VHF – TTC SYSTEM

A first step towards ground automation by ISTRAC

- A Simple, Agile and Low Cost System that provides to and fro conduit for communication between the ground and HAMSAT
- Programmed tracking of HAMSAT for its life, without any manual intervention (but for updating of orbital elements)
- Two stations established and made operational at Bangalore and Lucknow to provide hot redundancy and space diversity within a very short time span of two months

BATTERY

NEW TECHNOLOGIES :

1. Integrated MAR 31750 Processor based Electronic Bus Management Unit for Attitude Control System, Telemetry, Telecommand, Sensor and Actuator functions
2. COTS Lithium Ion Battery
3. Gallium Arsenide based Solar Panels for a Microsatellite
4. Microstrip VHF 180º Hybrid Coupler
5. Microstrip UHF 4 way Power Divider
6. Negative B dot Law for Attitude Control

Indian Space Reseach Organisation

Amendments suggested by National Institute of Amateur Radio to The Indian Wireless Telegraph (Amateur Service) Rules.

1. Rule 4: In view of the WRC 2003 recommendations, the existing "Restricted Grade II " licences may be automatically changed to "Grade II" licence with full access to HF bands. The Restricted Grade II licences may be abandoned and there may be three types of transmitting licenses viz. Grade II, Grade I, Advanced Grade . (Except removing Morse Code requirements, all other things may remain the same for these examination) (With reference to WPC letter No. L-14011/04/2001-AMTR dated 27 July 2001 the Ministry had agreed in principle to reduce the speed of Grade 1 ASOL examination from 12 wpm to 8 wpm. However it is not yet implemented although over two years have passed).
2. Rule 5. (1)(c)(ii): Grade 1 or Advanced Grade Licence may be issued to those holding First or Second Class Radio Telegraph Operators Certificate or Special Radio Telegraph Operators Certificate . Now they are eligible for only Grade II. All Armed Forces personal and police personal who underwent training in Morse code and Radio Theory may be also exempted from the ASOL test.
3. Rule 6 (b): Club licences may be issued to any licenced ham above 18 years. (Now it is issued only to Grade I or Advanced Grade licences).
4. Rule 8 : Conduct ASOL exams in all parts of India including Andamans, Lakshadeep, Jammu & Kashmir, NE India etc. (Now ASOL exams are not conducted in some areas) National Institute of Amateur Radio (NIAR) may be permitted to conduct ASOL exams. (In USA ARRL is conducting the Amateur exams)
5. Rule 9 :Local Monitoring stations may be authorised to issue Amateur licences.
6. Rule 11, 12, and 14 : The period of validity of licence may be 10 years also. (Now it is for 2 or 5 years only)
7. Rule 14 (1)(b) : For renewal, remove the need for declaring about making 40 contacts per year.
8. Rule 17 : Permit Walkie-talkies to be used as portable. (Present rule does not permit it to be used outside ones own shack) Now we should send original licence for change of address. This clause may be removed as it is found that many a time the licences are being lost due to which Radio Amateurs are put to inconvenience.
9. Rule 18 : Amateur Radio Clubs with callsigns may be permitted to conduct demonstrations on all authorised bands within their own states/ Union Territory without prior permission from WPC. The local monitoring station may be intimated in advance about the demonstration by the officials of the club station.
10. Rule 19(2) (iii) : For Maritime Mobile stations the present rule say to use "MS" suffix along with the callsign. This may be changed to "MM" which is the suffix used internationally.
11. Rule 23 (b) : Now, for operation of club stations by its members, prior permission from Central Government in writing is needed. This clause may be deleted. Any person holding valid Indian Amateur Radio Licence may be permitted to operate the club station. As per present rules the licencee must keep personal surveillance over the operation of club station. This clause may be deleted.
12. Rule 26 : Reciprocal licence should be given at shortest time after getting applications from foreign Radio Amateurs.
13. Appendix I Part II : Remove Morse Code requirement for HF operations as suggested recently by WRC 2003. (It is already implemented by Administrations of UK, Switzerland etc.). See WRC 03 recommendation 25.5 in Annexure 1.
14. Annexure I VI (1) (b) :The present rules say to note in the logbook "a summery of communications exchanged". This clause may be deleted, as it is not practical.
15. Annexure II : Simplify ASOL application forms deleting unwanted questions like type of equipment to be used etc.
16. Annexure V (Rule 13) : The power permitted for various grades may be increased. For Grade II maximum power on HF may be increased to 100 watts (Now it is 50 watts) For Grade 1 maximum power on HF may be increased to 500 watts (Now it is 150 watts) For Advanced Grade maximum power on HF may be increased to 1000 watts on all frequencies (Now it is 150 watts on all HF bands and 400 watts on selected sub bands) See WRC 03 recommendation 25.7 in Annexure 1

    Make permission for the following bands permanent: 3790 to 3800 KHz, 10100 to 10150 KHz, 50.35 & 50.55 MHz. Now permission is renewed every 6 months. Instead of spot frequencies on 50 MHz band, a full band from 50 to 52 MHz may be allotted like done in other countries.
17. Annexure V (Rule 13) Note VI : For Grade II licences delete the clause about getting voice

endorsement for HF after 100 CW contacts. It may be modified as Grade II licences can operate on Voice on HF also immediately after getting the licence.

Other points :

18. Instead of accepting only Demand Drafts from State Bank of India, it may be accepted from any nationalized bank.
19. Speed up results of ASOL exams and issue of licences.
20. Permit DX Peditions to Andamans & Lakshadeep. It is on the top of the most wanted list of worldwide hams.
21. Separate callsign prefixes may be issued for different categories of licence. E.g. VU1 for Grade 1, VU2 for Grade II, VU5 for Club stations, VU6 for Repeaters, VU0 for Advanced Grade etc.). Now it is difficult to identify the category of licence. (Now stations with VU2 prefix can be either be Grade 1 or Advanced Grade, and those with VU3 prefix may be Grade II or Restricted Grade.)
22. WPC is putting details of Commercial licences under process in their Website. Similar information may be made available of Amateur Radio applications also.
23. Lot of interference is noted from Long-Range Cordless Telephones on the Amateur VHF band (144 to 146 MHz) and by other non-Amateur Indian stations on some HF bands especially 40 meters (7.000 to 7.100 Mhz). Suitable measures may be taken to stop that interference.

Annexure 1

Changes and additions made by WRC 2003 to Article 25 Amateur Services

Section I Amateur service

These may be incorporated in
The Indian Wirelss Telegraph
(Amateur Service) Rules.

25.2 2 1) Transmissions between Amateur stations of different countries shall be limited to communications incidental to the purposes of the Amateur Service as defined in 1.56 and to remarks of a personal character. (Article 1.56 says "Amateur Service: A radio communication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest")

25.2 A Transmissions between amateur stations shall not be encoded for the purpose of obscuring their meaning, except for control signals exchanged between earth command stations and the space station in the amateur satellite service

25.3 2) Amateur Stations may be used for transmitting international communications on behalf of third parties only in case of an emergency or disaster relief.

25.5 Administrations shall determine whether or not a person seeking a licence to operate an amateur station shall demonstrate the ability to send and receive texts in Morse code signals. Requirement of Morse code for Amateur Radio examination in India may be abolished.

25.7 The maximum power of amateur stations shall be fixed by the administrations concerned.

25.9 A Administrations are encouraged to take the necessary steps to allow the amateur stations to prepare for and meet communication needs in support of disaster relief.

Section II-Amateur Satellite Service

25.11 Administrations authorising space stations in the amateur satellite service shall ensure that sufficient earth command stations are established before launch to ensure that any harmful interference caused by emissions from a station in the amateur satellite service can be terminated immediately.

The NIAR has been making series of recommendations to the policy makers in the country to bring about suitable changes to the Indian Wireless Telegraph (Amateur Service) Rules that benefit the development of Amateur Radio in the country.

In this regard, NIAR has addressed a letter to Mr. Arun Shourie, Hon'ble Minister of Communication & I.T dated 01-02-2003.

In response to the above letter Mr. Vinod Vaish, Secretary, D.O.T. sent his reply dated 24-04-2003 saying that WPC will consider suggestions / proposals most favorably.

Further, a delegation of Hams from NIAR led by Dr. Shrikant Jichkar personally called on the Mr. P.K. Garg, Wireless Advisor to Government of India on 26-8-2003 and submitted a letter with the above discussed proposals. Mr. Garg also assured to look into them favorably. We do hope some decisions may come soon.

HAMFEST INDIA - 2003, Gandhinagar, Gujarat on 8 & 9 November 2003

From the Desk of Chairman....

Dear Friends,

Seasons Greetings....

Dr. Shrikant Jichkar, VU2SJA
Ex-MP & Chairman, NIAR

Amateur Radio has made enormous contribution to the development of Communication and Information Technology particularly the Wireless Communication over the years. The convergence of technologies like Internet, Satellite and Amateur Radio has brought several innovations that make communication more accessible, affordable and reliable in the future. The NIAR since its inception has been working to benefit the community by passing on these developments and bring about People Participation in Communication and Information Technology and Disaster Management in the country.

The very acceptance of ISRO to support the Amateur Radio community with an exclusive satellite speaks volumes of support by Government of India and ISRO to Ham world. We need to specially thank Dr. U.R.Rao, Dr. K. Kasturirangan, Mr. G. Madhavan Nair, Dr. P.S. Goel, Mr. J.P. Gupta, Mr. Nagesh Upadhyaya, AMSAT-India and Banaglore Hams for their continuous support to the "HAMSAT" project.

It was a dream comes true for all Indian Hams and NIAR when ISRO earlier announced the launch of "HAMSAT"- The First Indian Amateur Radio Satellite at a pre-launch workshop in Bangalore. Tremendous efforts were put by NIAR's founder, Mr.S.Suri over the past two decades and pursuing the launch of and Indian Amateur Radio Satellite with several agencies of Government, Private including Political, Scientific, Bureaucracy and policy makers in India and abroad is a stupendous task.

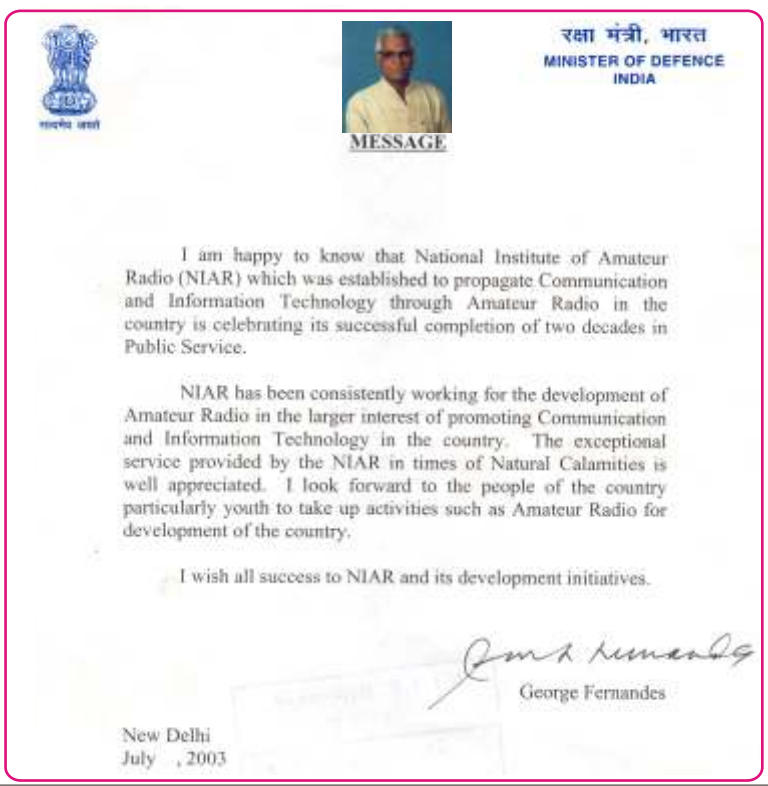
My own initiative to support an Indian Amateur Radio satellite through Indian National Foundation for Amateur Radio and Satellite (INFARS) at Nagpur is to demystify any apprehensions on the knowledge of Space and Satellite sciences to the students/citizens and utilize its resources for development of Science and Technology and Disaster Management in the country.

It was a defining moment for NIAR and Hams that The President of India, Bharat Ratna Dr. A.P.J.Abdul Kalam appreciated the work done by Amateurs for furthering Communication and Information Technology in the country. He spent considerable amount of time with the delegation and learnt about various technologies used by Radio Amateurs. He was also apprised of NIAR's role in sending several IAS officers, Scientists, Technocrats, ISRO officers to AMSAT programs abroad.

We wish, with the concerted effort of all the agencies, the country will progress to become a leader in Communication and Information Technology. We request for your continuous support in the future.

With Regards.

Dr. Shrikant Jichkar VU2SJA
Ex-MP & Chairman, NIAR



रक्षा मंत्री, भारत
MINISTER OF DEFENCE
INDIA

MESSAGE

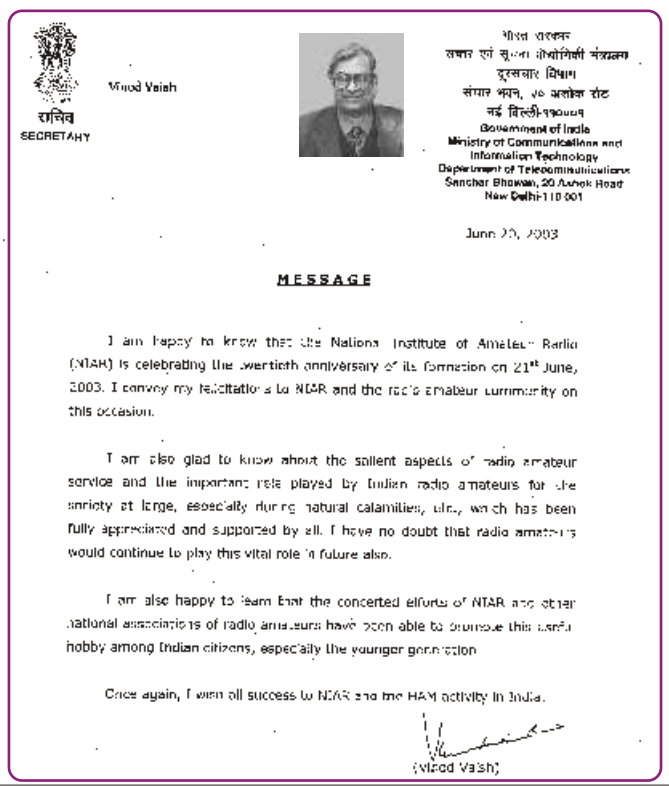
I am happy to know that National Institute of Amateur Radio (NIAR) which was established to propagate Communication and Information Technology through Amateur Radio in the country is celebrating its successful completion of two decades in Public Service.

NIAR has been consistently working for the development of Amateur Radio in the larger interest of promoting Communication and Information Technology in the country. The exceptional service provided by the NIAR in times of Natural Calamities is well appreciated. I look forward to the people of the country particularly youth to take up activities such as Amateur Radio for development of the country.

I wish all success to NIAR and its development initiatives.

George Fernandes

New Delhi
July , 2003



Vinod Vaish
राचिव
SECRETARY

भारत सरकार
संचार एवं सूचना प्रौद्योगिकी मंत्रालय
दूरसंचार विभाग
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Government of India
Ministry of Communications and Information Technology
Department of Telecommunications
Sanchar Bhawan, 20 Ashok Road
New Delhi-110 001

June 20, 2003

MESSAGE

I am happy to know that the National Institute of Amateur Radio (NIAR) is celebrating the twentieth anniversary of its formation on 21st June, 2003. I convey my felicitations to NIAR and the radio amateur community on this occasion.

I am also glad to know about the salient aspects of radio amateur service and the important role played by Indian radio amateurs for the society at large, especially during natural calamities, etc., which has been fully appreciated and supported by all. I have no doubt that radio amateurs would continue to play this vital role in future also.

I am also happy to learn that the concerted efforts of NIAR and other national associations of radio amateurs have been able to promote this useful hobby among Indian citizens, especially the younger generation.

Once again, I wish all success to NIAR and the HAM activity in India.

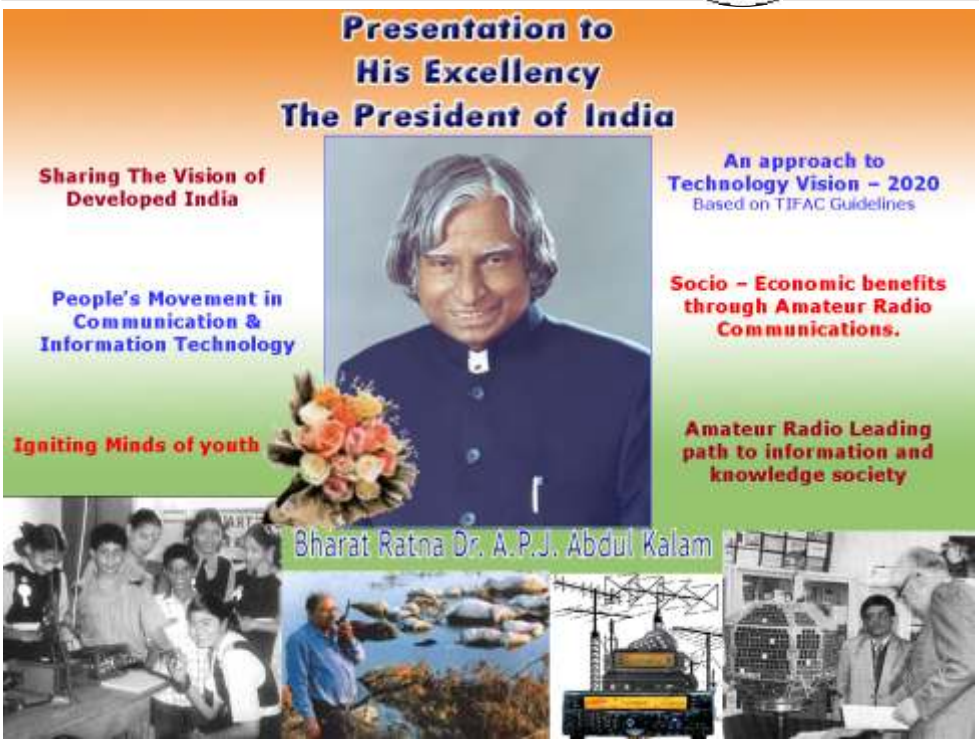
(Vinod Vaish)

ACTIVITIES OF NIAR from 4.12.2002

Date & Month		Activity
1-31	Dec-2002	Special event station for National Games AT¯NG operated from NIAR.
10	Dec-2002	Demo at Govt. Boys High School, YMCA, Secunderabad.
11	Dec-2002	Demo at Govt. High School, Hills Street, Secunderabad.
12	Dec-2002	Demo at Govt. High School, Seethafalmandi, Secunderabad.
6,8,10	Jan-2003	ASOL Exams for UNDP batch in Orissa
6	Jan-2003	Demo at Continuing Nursing Education, 2002-2003 at Military Hospital, Secunderabad
7	Jan-2003	Demo at MCEME Secundrabad, attended by Lt. Gen. R. K. Mehta, AVSM, VSM.
6	Feb-2003	ASOL Exam at National Institute of Amateur Radio. 38 candidates appeared.
10	Feb-2003	Demo at Hyderabad Public School, Hyderabad NIAR staff met Mr. N. Vittal, VU2NVO at Hyderabad.
20	Feb-2003	Demo for Sri Satya Sai Seva Organisation in Veldanda Mandal, Mahabubnagar.
7	Mar-2003	HAM Radio demo at Science Exhibition at Vivekananda Residential School, Karimnagar
10	Mar-2003	Demo for Oxfam in Visakhapatnam
24	Mar-2003	National Seminar on Rural Telephony organised by BSNL & ADYA Society, New Delhi. Presentation by Mr. S. Suri on "Amateur Radio Staying Connected During Disasters".
30	Mar-2003	Members and Staff of NIAR met Mr. A.K.Khan, ACP, Hyderabad & Mayor, National Games Village during the despatch of special QSL cards "AT¯NG" by NIAR.
4	Apr-2003	NIAR Participated at a Workshop on "Creating the Culture of Disaster Preparedness: The Role of Media, Govt. and Civil Society Organisations" at Dr.MCR HRD Institute, Hyderabad.
7	Apr-2003	NIAR Participated in a Meeting of 'Organising Committee' of World Congress on Natutral Disaster Mitigation, held at NewDelhi.
18	Apr-2003	"World Amateur Radio Day" Observed
29,30	Apr-2003	Demo for Ramachandra Mission, Hyderabad.
5	May-2003	Project Presentation and Demo to Secretary MIT and other officials on Digital Connectivity in India through Amateur Radio, Conference Hall, M.I.T at New Delhi.
14	May-2003	NIAR team went for Orissa Cyclone Warning Operation.
18-24	May-2003	HAM Radio presentation at Lal Bahadur Sastry National Administrative Academy, Mussorie.
28	May-2003	HAM Radio Demonstration at Institution of Electronics & Telecommunication Engineers, Hyderabad for Summer School in Electronics for High School students.
30	May-2003	NIAR participates at the Third International Conference on ICTs and Development at VIIT, Baramathi. An Exhibition stall was setup at the conference by NIAR.

Date & Month		Activity
3	June-2003	Discussions with MIT officials in Delhi.
5	June-2003	20,000 QSL Cards posted to foreign bureaus.
10	June-2003	Web site of NIAR re-designed.
21	June-2003	NIAR celebrated it 20 years in public service completed. Attended by PVRK, Prasad, IAS, local hams etc. attended the program (Digital communication through amateur radio shown)
21	June-2003	Governing Council Meeting and Annual General Body meeting were held at NIAR.
	July-2003	Amateur Radio classes started at St. Paul's School (VU2PLH) and Little Flower High School (VU2LFC) both in Hyderabad.
31	July-2003	Demo at Modern College of Physiotherapy. Hyderabad.
26	Aug-2003	NIAR team met President of India at Rastrapati Bhavan (VU2SJA, VU2MY, VU2MYH, VU2LIC, VU2SCO, VU2RBI, Dr. Pankaj Chande)
26	Aug-2003	NIAR team met Wireless Advisor, Mr. P. K. Garg and gave proposals for changes in "The Indian Wireless Telegraph (Amateur Service) Rules."
18	Sep-2003	K.K. Jaswal (Secretary, DIT), Ashok Kumar, Jt. Wireless Advisor and others visited NIAR
22	Sep-2003	Hamsat Workshop at ISRO, Bangalore. VU2MY spoke on "Amateurs and Disaster Management"
25	Sep-2003	Presentation on HAM Radio at India International Centre, New Delhi arranged by Col. B. K. Rai (Retd.), VU2RB.

AT¯AAG- Special Callsign for the 1st Afro-Asian Games being held at Hyderabad during October-November 2003 will be active from NIAR.



NO MORSE

Administrations in several countries are taking liberal view of reducing / removing Morse Code as an essential requirement for qualifying in the Amateur Radio examination for issue of Ham License for HF operation.

U.K. Switzerland, Belgium, Germany, Austria, Norway, New Zealand, Ireland, Singapore and Luxemburg removed the Morse Code.

Thailand, U.S.A. Canada, South Africa, Papua New Guinea approves 5 WPM for full HF access:

Visit www.nocode.org for latest update in this regard.

NIAR FOUNDATION DAY CELEBRATED

Shri P.V.R.K Prasad, IAS, Director General, Dr. MCR HRD Institute releasing the Special Magazine brought out during the Foundation Day programe commemorating Two Decades of NIAR in public service on 21st June 2003.

A Demonstration of Digital Amateur Radio communication using SSTV, RTTY, PSK31 etc was also shown to the participants of the programe.

L to R:- Mr. S.Suri VU2MY, Mr. B.M.Tanna VU2LK, Mr. P.V.R.K.Prasad, IAS, Ms. Bhanumati VU2BL

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