

## Communication during Ninth Expedition

S. VISHWANATHAN

Indian. Navy

### Introduction

An effective communication link between the Wintering Station and the mainland is of prime necessity for survival and keeping the morale of members high.

The major task of communication team in the IX Expedition was to ensure shifting of communication equipments lying in DG and maintaining links between Maitri and the outside world through HF, Satellite communication etc.

The communication equipments were dismantled and shifted to Maitri from Dakshin Gangotri during Feb. 1990. Many other spares were brought by surface convoys, leaving back some equipment at DG in C&N Hangar. The frames of 5KW Tx's were abandoned at the main DG itself but the units were transported to Maitri.

### Long Range Communication

The HF communication with Comcen, Delhi commenced with the departure of the ship on 03 Mar. '90. Most of the official messages and reports were routed through HF to cut down on the Telex traffic. The communication throughout the winter was successful with good signal strength, except during the days of magnetic storms and ionospheric disturbances when poor strength or nil contact was experienced.

During the days of heavy blizzard, the antenna connections were snapped, which in turn disrupted the communication for one or two days. In the month of July due to high wind speed the antenna connection broke and could be rectified only after the winds were calm. During this gap there was no communication for a few days. Thereafter, robust silver brazing was done, which withstood wind speed upto 85 kts and gave good service.

The two 5KW Tx sets provided most successful service throughout the expedition period. Two other 5 KW Tx's were available with us, which were dismantled from DG. The RS 512 Rx and HS412 Rx performed excellently. Besides, we had three RS 512 as spare.

PWSL 1 KW, fitted in radio office, performed satisfactorily. This was being used to communicate with *MVThuleland* on CW soon after its crossing the equator and on RT after it reached 30 degree south latitude.

Total number of words transmitted over HF were nearly 1 lakh till September 1990. Incoming messages were received by RATT mode during the days of good signal strength.

Attempts to transmit messages by RATT were not successful due to damage to SMPS, transistors and PA tubes because of power fluctuations.

### Communication with Convoys

Two convoy vehicles were fitted with BEL 100 W Tx/Rx. Effective communication could be had throughout the period of convoys. There were a total of nine convoys, seven to DG and two to Wohlthat mountains. Each convoy, excepting the reconnaissance convoy to Wohlthat in April 1990 was away from Maitri for a period of two weeks. The final convoy to Wohlthat camped at mountains for nearly a month. Members of the convoy were trained to operate the sets which were tuned on two different frequencies (6750 and 4460 KHz).

Following equipments were fitted in the convoy vehicles:

- a. BEL 100 W Tx/Rs      In Pisten Bully vehicle
- b. BEL 100 W Tx/Rx      In Sankalp-accommodation container (with convoy)
- c. BEL 100 W Tx/Rx      At DG hangar
- d. BEL 100 W Tx/Rx      At DG hangar
- c. PWSL Walkie-talkie      For communication between convoy vehicles.

One LHP 219 (Rx part only) was installed in the lounge to monitor the progress of convoys and to listen to emergency calls.

### Communication with Neighbouring Stations

There was a regular schedule between the stations mentioned below and Maitri:

- a. Russian station "NOVOLAZAREVSKAYA" (70°46'S, 11°49'E) at 1000 Z every day. During the period, information was exchanged on frequency 123.50 MHz.
- b. German station "GEORG FORSTER" (70°45'S, 11°49'E) every day at 1015 MHz.
- c. Japanese station "SYOWA" (69°00'S, 39°15'E) on 10th of every month at 1000 hrs for mutual discussions and exchange of scientific informations. The communication was on duplex at following frequencies.  
SYOWA on 11532 KHz  
MAITRI on 12528 KHz
- d. All women German station "GEORG VON NEUMAYER" (70°37'S, 08°22'W). Contact was made frequently on predecided dates on frequencies 8265/6750 KHz for exchanging scientific information.

### Communication with Ship and Helicopters

Regular uninterrupted communications were maintained with the ship and helicopters on following frequencies:

- |    |               |   |                  |
|----|---------------|---|------------------|
| a. | MV Thuleland  | - | 6750 KHz         |
| b. | MI-8(IAF)     | - | 127 MHz          |
| c. | Chetak (Navy) | - | 6750 KHz/127 MHz |

Communication was excellent throughout the summer.

#### **Satellite Communication Terminals**

SATCOM terminals as existing in Antarctica, with Indian station, are as follows:

- |    |                  |   |                                 |
|----|------------------|---|---------------------------------|
| a. | Terminal 1640105 | - | At DG hangar                    |
| b. | Terminal 1640106 | - | In summer camp site at Maitri   |
| c. | Terminal 1640132 | - | At Maitri station, Radio Office |

All the three SATCOM terminals were fully operational when handed over to the new Wintering team.

- a. Maitri terminal performed excellently, till September 1990. Thereafter frequent setbacks were experienced due to antenna control unit motor developing defects. The terminal was again made functional with assistance of the new team.
- b. Summer camp terminal had been kept as a standby and functioned successfully. During winter in subzero temperatures, the terminal behaved erratically. The same was rectified in December 1990, and was used for telex and phone during the period when main SATCOM terminal of station was non-operational.
- c. The terminal at DG was tested whenever convoy proceeded to DG. During magnetic storms and poor communication days, the convoy used to send their safety report over the phone.
- d. The fax services were utilised from the summer camp terminal.

#### **Additions/Improvisations**

- a. Public announcement system (PAS), with 4 loudspeakers, was installed in the station at different positions. Three speakers were installed inside the station, while one was placed outside. These proved very helpful during emergencies.
- b. SATCOM telephone has been fitted with an inbuilt microphone, due to which the incoming calls could be heard through PAS speakers and phone calls coming at odd hours could be attended.
- c. Provisions for recording the conversation have also been provided in the Radio Office.
- d. Intercom telephone was fitted in Station Commander's Office, Radio Office, Lounge, Boiler Room, MI Room and EME Workshop.
- e. Following Rx/Tx aerials were also fabricated and erected to achieve satisfactory communication.

- (i) Inverted 'V' aerials, facing southward, for convoys operating south of Maitri (80 NM).
- (ii) Inverted and LPA for communication with convoys at DG,
- (iii) An aerial with mufti strands to receive weather FAX for IMD,
- (iv) A wire aerial near Green House site.

Electronic workshop was commissioned in one of the rooms opposite to Radio Office, and was fitted with alternate low power Tx/Rx. The workshop was used for carrying out repair and maintenance of equipment, weather FAX reception and to store radio publications.

### **Acknowledgement**

Communication team received excellent cooperation from all the wintering members of station. We are grateful to Sh. R. Ravindra, Station Commander for providing better working conditions, accommodation for communication workshop, communication stores etc. in the Maitri station. The author and his Naval team are grateful to D.O.D. and Naval HQ for giving an opportunity to participate in the Antarctic Expedition.