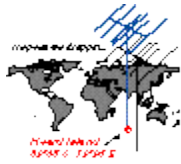# Heard Island Expedition 1997

Planning Document

Originally issued Nov. 1996
Reformatted 4 Jan 2015

Dr. Robert W. Schmieder
Cordell Expeditions
4295 Walnut Blvd.
Walnut Creek, CA 94596

Heard Island Expedition 1997 (Planning Document)

PLANNING DOCUMENT

This document contains developing plans for the 1997 Cordell Expedition to Heard Island. It is meant to be a working document for participants in the project. The information contained in this document should be considered tentative, and may be changed as the project evolves. For the current status of the project, please contact Cordell Expeditions (address below).

THE CZAR SYSTEM

The Heard Island project is probably the most complicated amateur radio expedition ever attempted. The twin requirements of safety and efficiency in a remote and hostile environment combine to produce a challenge even to well-funded governmental organizations and professional field operators. Adding the requirement to do this within the confines of the amateur radio community makes planning not merely a convenience, but an absolute necessity.

The central tool for organizing the 1997 HI project was the establishment of a czar system. A project czar is a person with the responsibility for, *and the power to carry out*, a significant component of the project. Following a period of brainstorming, the expedition leaders established a set of czars for HI97. Nearly all the czars produced planning documents that outlined their area of responsibility and their plan for meeting that responsibility.

The documents accessible through the following links are essentially the czar's plans. They are dynamic documents, and will change during the course of the project. They are made accessible here so that you can share in the planning process. If you wish to contribute suggestions to the czars, or to the expedition leaders, please feel free to contact them. e-mail links are provided with each document.

- THE CAMPSITE
- EQUIPMENT
- COMPUTERS, NETWORKS, AND LOGS
- CLEANLINESS
- FOOD SERVICES
- MEDICAL
- POWER
- ANTENNAS
- RADIO OPERATIONS
- PILOTS
- SCIENCE
- EMERGENCY PLANNING AND RESPONSE

OTHER PLANNING ASPECTS

Other members of the team, not formally designated czars, are developing additional plans for the expedition. The following links provide access to some of these documents and data. Again, these must be considered working docuements subject to continual change.

- THE VOYAGE
- GREAT CIRCLE PATHS
- PROPAGATION CALCULATIONS
- OTHER HEARD ISLAND RESOURCES ON THE NET

LINKS TO THE OTHER DOCUMENTS

These documents provide detailed descriptions of all aspects of the project.

- SCOPING (Overview, background, logistics, financing, etc.)
- PLANNING (Working documents being developed by the team)
- OPERATIONS (To be updated during the expedition)
- POST-EXPEDITION (QSLs, speakers, etc.)
- MISCELLANY (Souvenirs, other)

Return to Heard Island Home Page

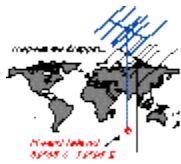This document is posted on the World Wide Web (WWW) at

http://www.cordell.org/HI/planning

All or portions of these documents may be freely copied, but please quote the source.
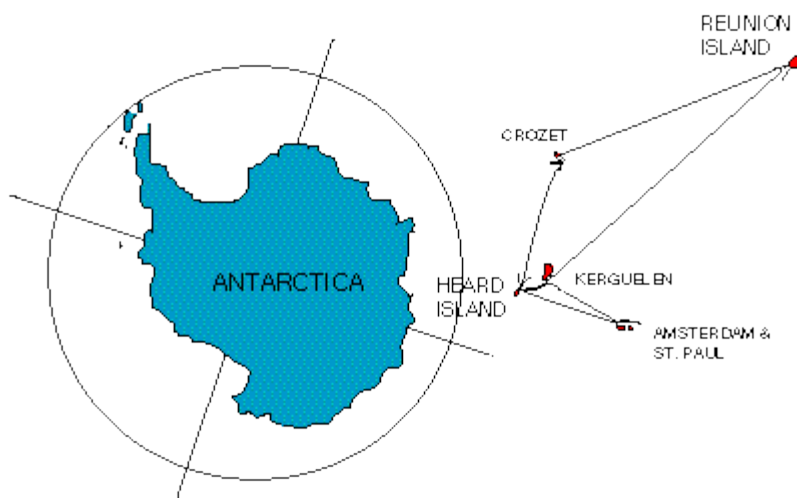
Last update: 3 Oct. 1996 Robert W. Schmieder cordell@ccnet.com

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THE VOYAGE

The HI team will travel first to Reunion Island, off the east coast of Madagascar. There they will board the Marion Dufresne, and make a week-long journey to Crozet Island,

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CROZET ISLAND   KERGUELEN ISLAND
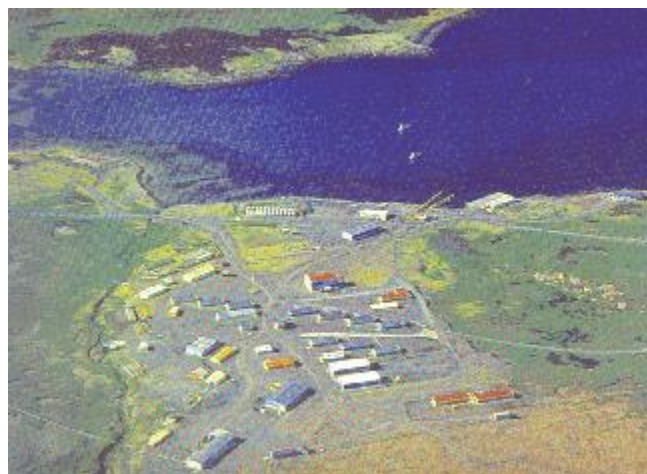
THE CAMPSITE AT ATLAS COVE

Robert Schmieder KK6EK

If you have a JAVA-enabled web browser, you can see our animated simulated campsite: simCampsite.

Source: Australian Antarctic Division

MAIN USE AREA

LAYING OUT THE SITE

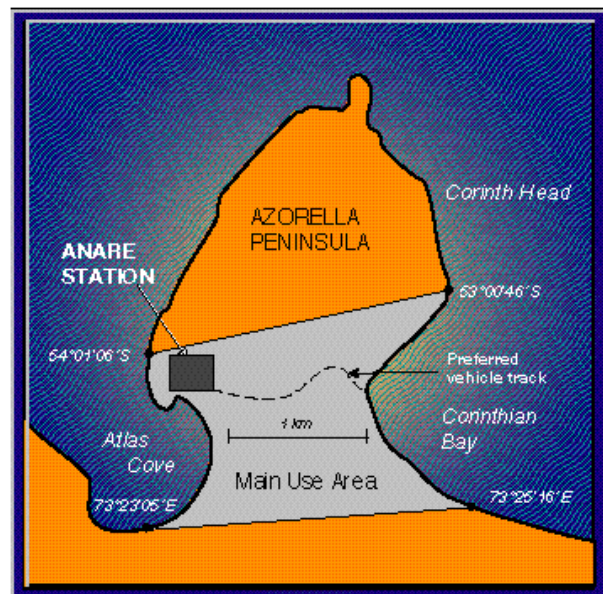This is a draft of the site plan developed by KK6EK and NP4IW. The diagram is to scale. The philosophy of this layout was:

1. Assume that the landing will be at Atlas Cove, and that the main camp should be placed near (but not within) the old ANARE station.

2. Keep the beams in a single line facing roughly north-west. Arrange the vertical arrays for least cross-talk to the beams.

3. Separate the antennas as much as possible.

4. Locate the generators in as few different locations as possible, as far as possible from living and working quarters.

5. Use the preferred vehicle track as a road. Locate all shelters and antennas on that road.

6. Avoid ANARE, areas too far north (rocky), too far south (wet).

THE SITE PLAN

VK0IR
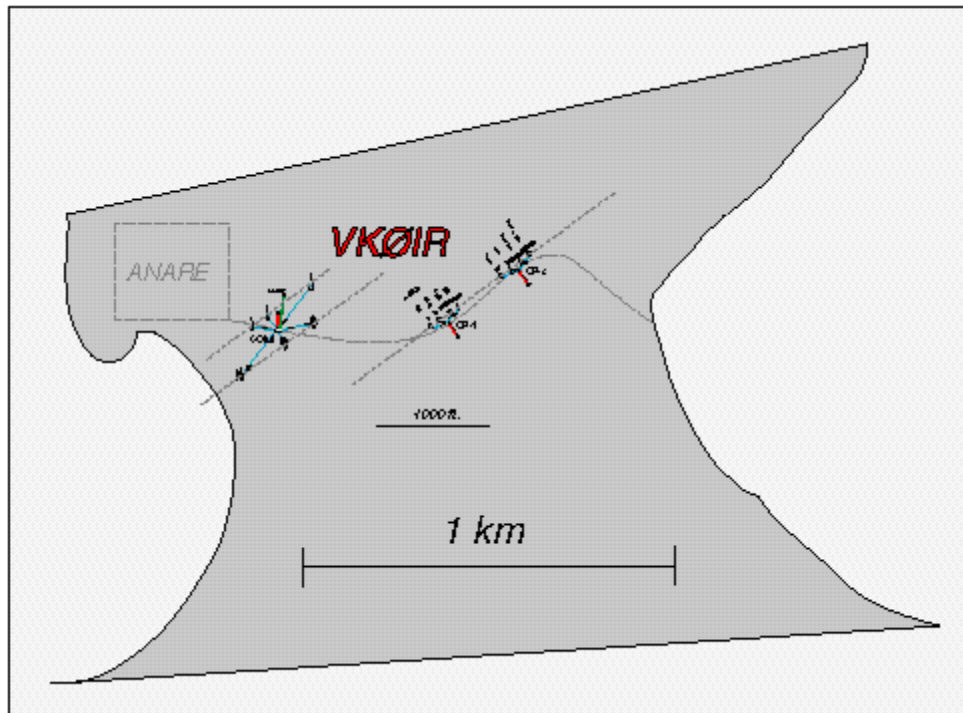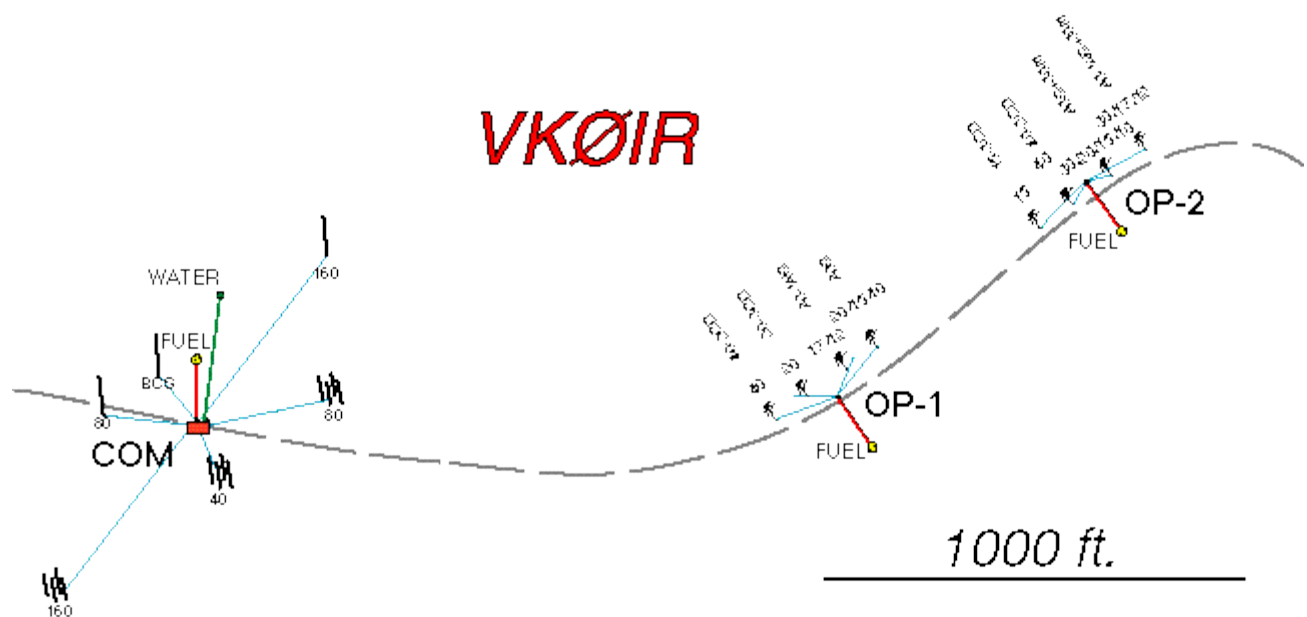
The path to US-W is not good, due to the presence of the mountain Big Ben. The optimum orientation of the antennas is not yet known.

THE COM SITE RADIO FACILITIES

The "Com Site" is part of the central living facility. It contains lowband operating radios, satellite radios, computer data processing, scientific station, data archives, and monitor radio. The generators are located away from the site, for sound reduction. The verticals are all driven from the Com center. Not shown in the diagrams above is the satellite antennas to be provided by PA3AUU.

THE OP SITES RADIO FACILITIES
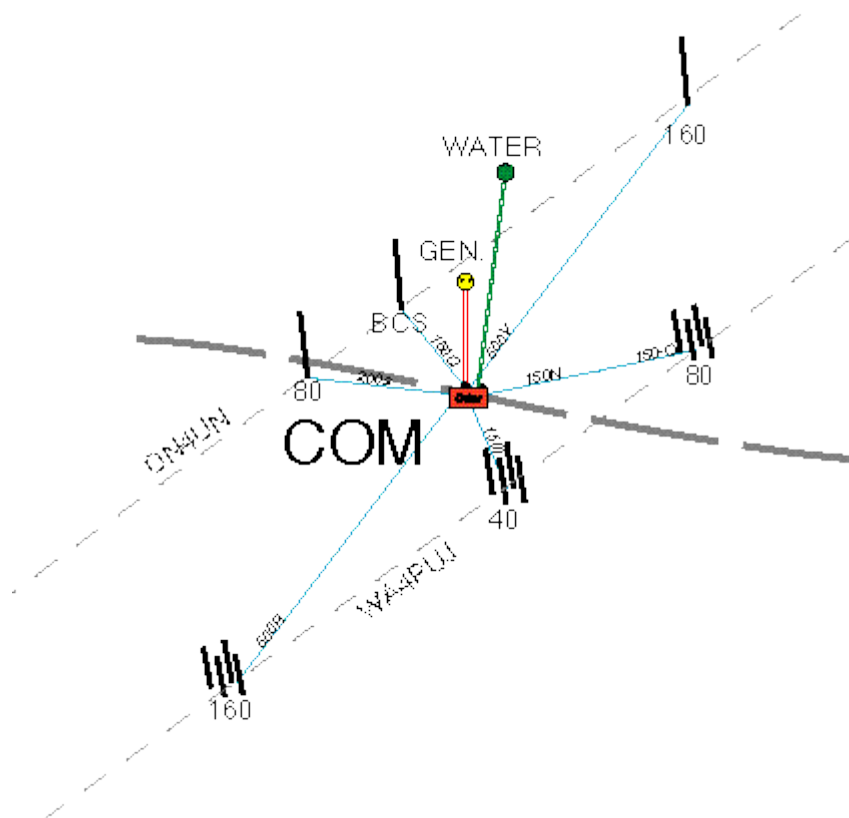
The two "OP Sites" contain the majority of the beams, sligned roughly broadside to Europe. The beams are spaced approximately 100 ft. apart. In the following diagram there is an unresolved conflict between the A3S tribander (attached to the OP-1 tent) and the 15 m monobander (attached to the OP-2 tent). This is not the final inventory of antennas.
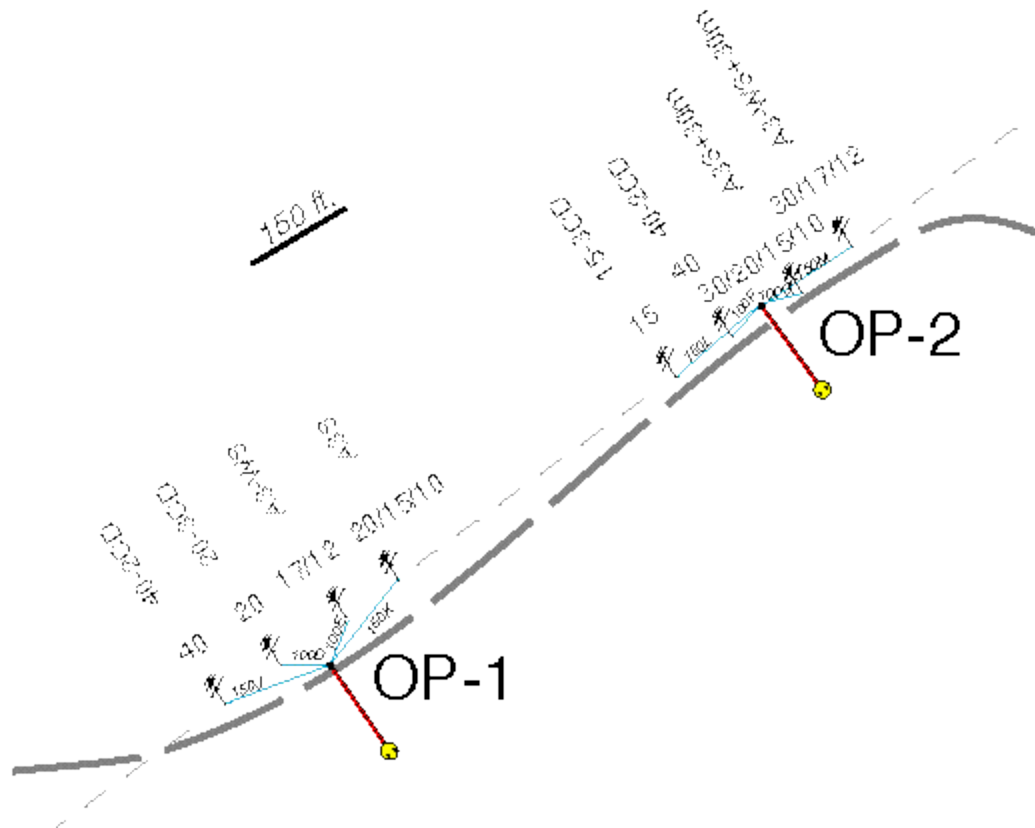
RADIATION PATTERNS AND DIRECTIONS

To Eu

To JA

To US E

To US W
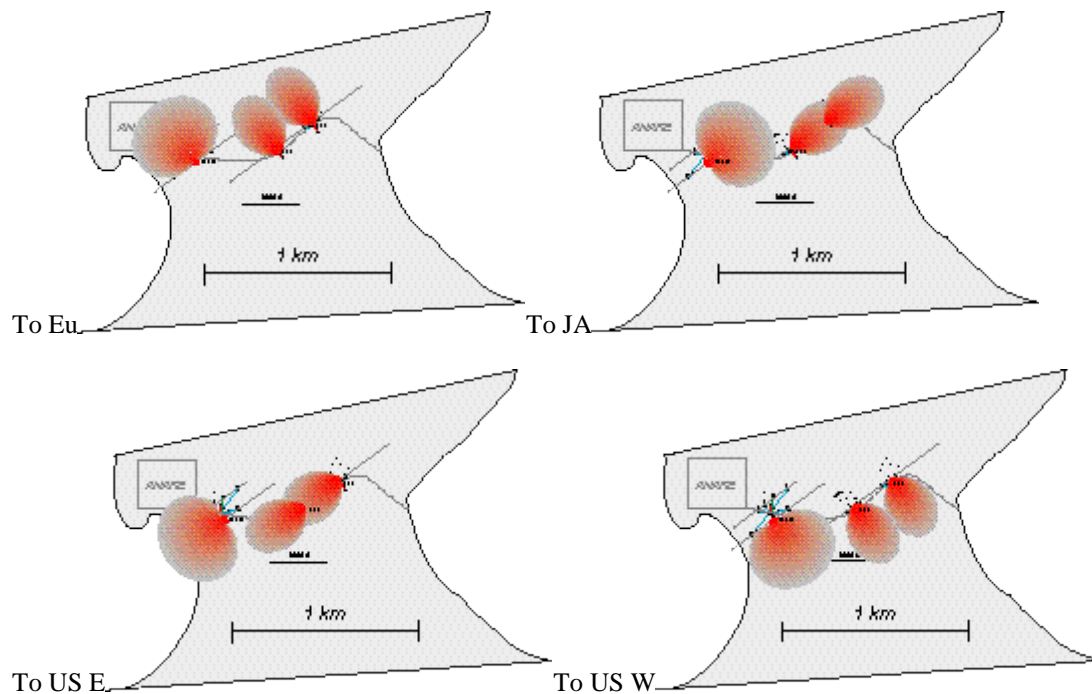
THE MAIN LIVING FACILITIES

The main living facilities consist of four 12x24 ft Weatherhaven shelters arranged in a rectangular grid, supported by generators, water supply, storage, and emergency equipment. The main storage warehouse will be in crates outside. High-use items and food will be stored in the Galley.

Living quarters

Here is an elevation of the camp, seen from the West. The toilet is the blue shell at the right. The center blue shell is the combination drying room/shower.
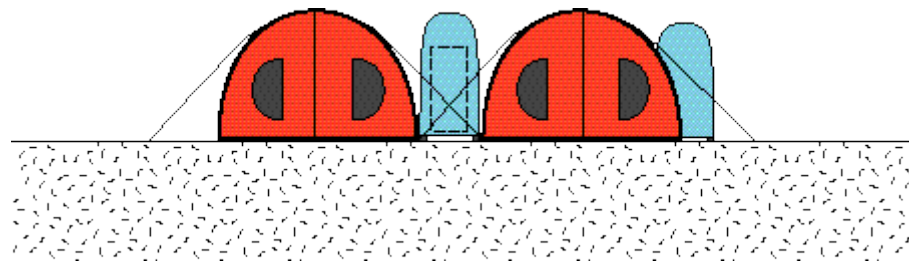
Here is an overhead view of the camp. The shelters are all connected by a wooden walkway (4 ft. wide plywood sheets). It is possible to move between all these shelters without contacting the ground. The walkway can be kept clean by washing. The toilet and drying room/shower are pre-fabricated fiberglass shells of the kind used for toilets at construction sites. The drying room will have a hot air blower and coat hangers. The hot tank is merely a crate, reinforced with steel bands and lined with a tarp, filled with water, and heated. About 1 kW-hr of electric power will heat 1 cu. ft. water 30 deg. C (piping hot). This will be used only if we are able to find a local supply of reasonably clean water, and our power supply is sufficient. The arrangemement of anchors is discussed below.
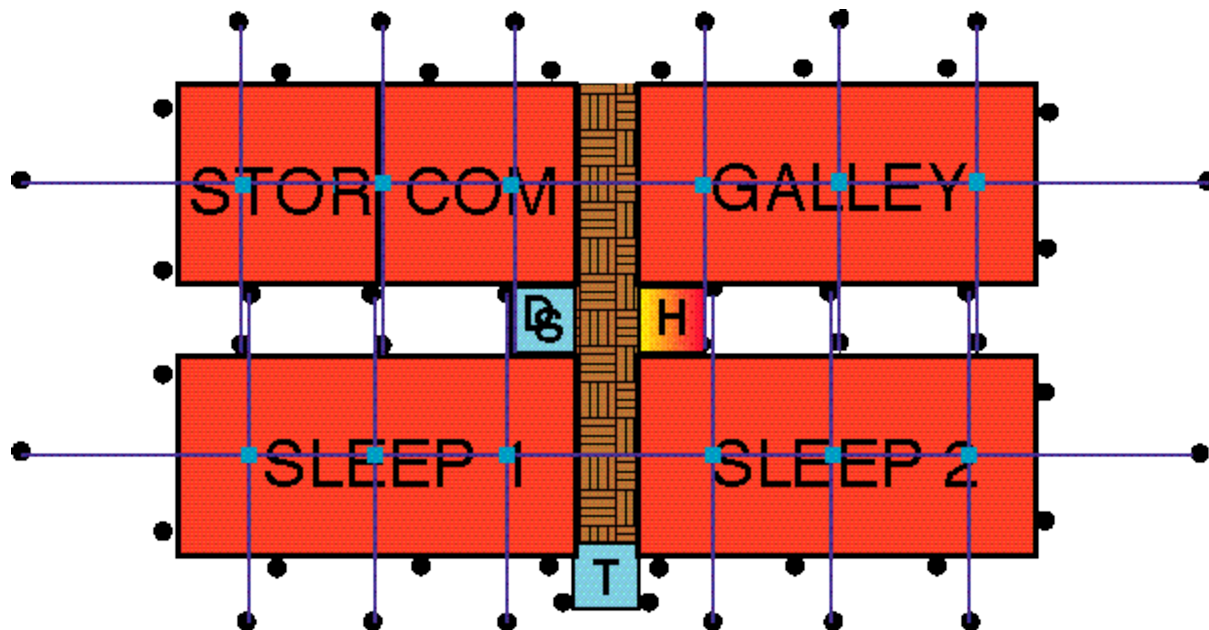
Here is a floorplan of the living facility. The sleeping quarters provide for 10 people in each shelter, each person with his own private locker. No one's head lies closer than 10 ft. from the door. Everyone can reach his locker sitting on his own cot, except the two end persons, whose lockers are near the entrance.
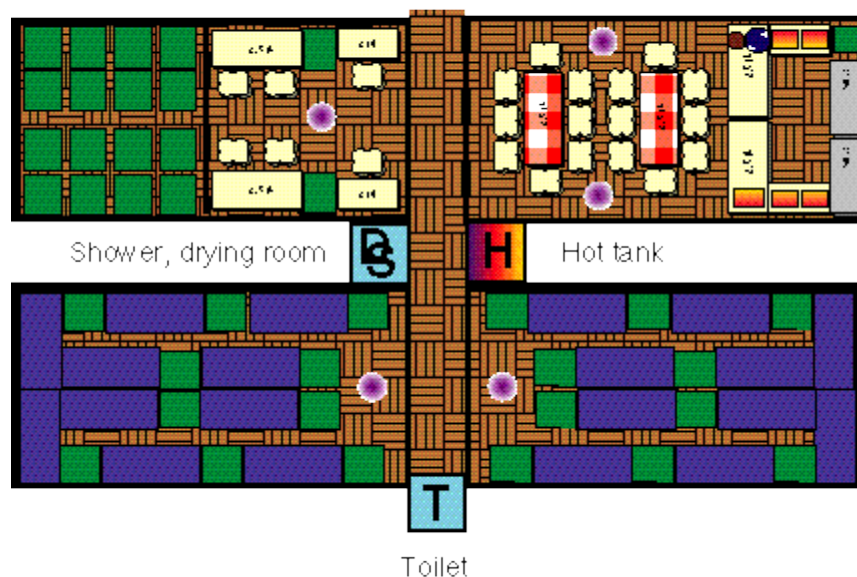
The Galley Shelter
The galley shelter is a multi-purpose 12x24 ft. room for eating, greeting, and meeting. We can seat 16 people around the two tables (somewhat crowded). The galley itself is separated from the living area by tables. Food, snacks, water, and drinks are placed on these tables for the participants.
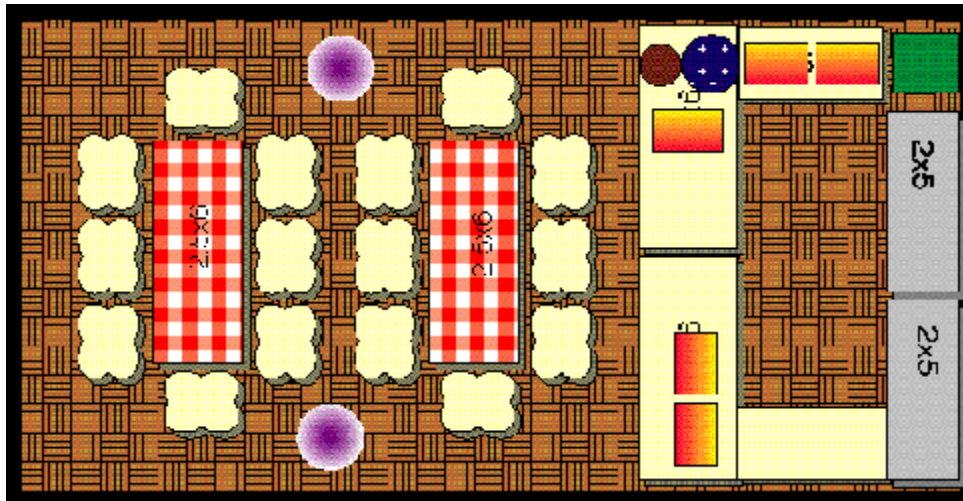
The Operating Shelters

These are 8x8 ft. square. The small size of these shelters forces a simple floorplan. There will be one shelter for CW and one for SSB.
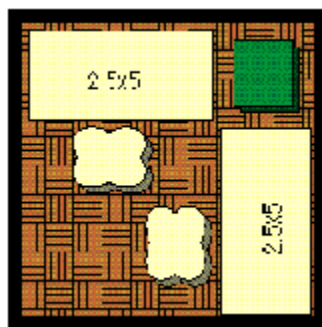
Erecting the shelters

Here is the plan for the foundation. Each 12x24 ft. unit is constructed entirely of 2x4s nailed together. The walkway is 4x8 ft sections bolted together. The shelters and walkway are bolted together. There is insulation between the joists.
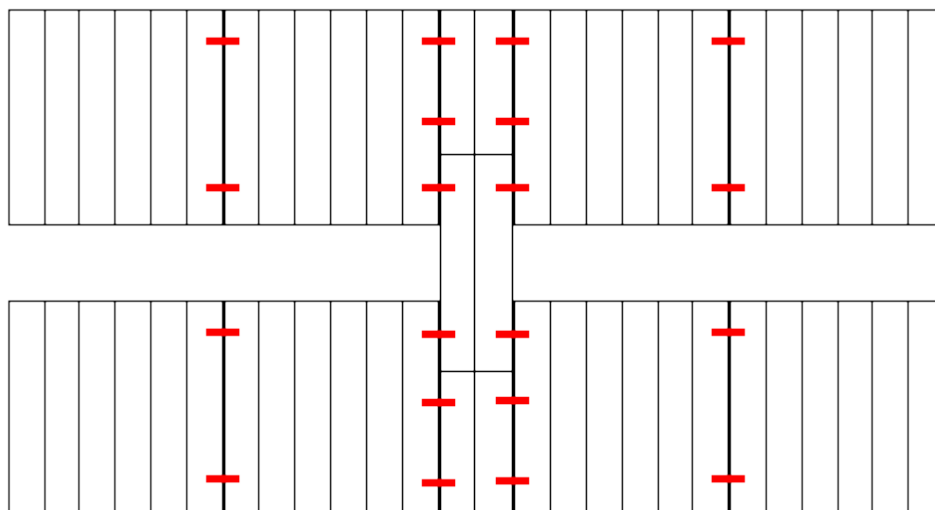
Here is the plan for attaching the plywood sheets to the foundation.
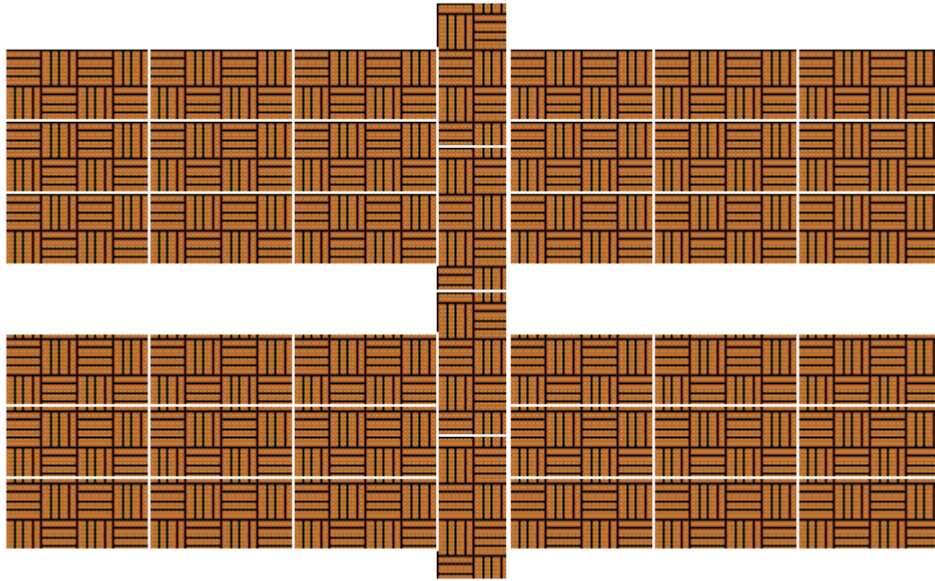
Here is a plan for erecting the 12x12 shelters. The main plan calls for two of these to be combined into a single 12x24 ft shelter, to contain the COM site and the warehouse. It is feasible, however, to erect these shelters free-standing.
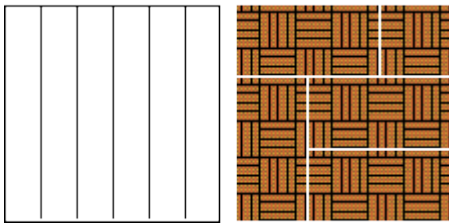
STRENGTH OF THE SHELTERS AND ANCHORS

The wooden foundations of the shelters will be anchored at their edges to bedrock, using rock anchors made by Hilti. These anchors consist of an internally threaded steel shell held in a hole drilled in the rock with epoxy. An eye-bolt is screwed into the shell. The combination is rated at about 2500 lbf.

The shelters are oriented lengthwise to the wind, which is predominantly from the West, with their doors facing inward, toward each other. The shelters normally are held with a set of parallel transverse straps. We have added the longitudinal strap inside each shelter, clamped to the frame. The ends of the straps are tied to the bedrock eye-bolt anchors. This forms a harness that captures the shelters and holds them to the ground.
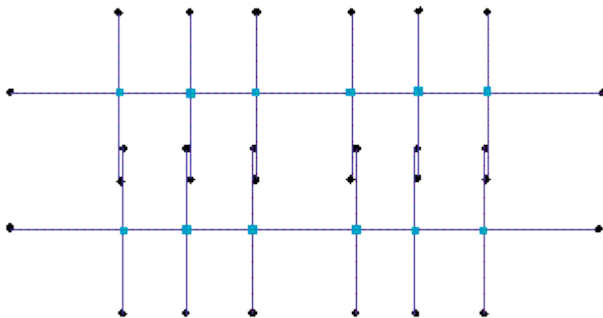
The shelters themselves are capable of withstanding winds of more than 100 mph. We have calculated the pressure due to 100 mph winds on the ends of the shelters as about 30 lbf/sq-ft, or about 3000 lbf total on the end face. The anchors are easily capable of holding such forces.
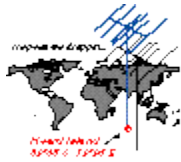
THE SHELTERS

Here is a picture of one of the operating shelters (on Peter I). They are 8x8 ft square. The sleeping shelters are 12x24 ft. square. All shelters have plywood floors on 2x4 frames, and are insulated.

Exploration Products
N. 3005 Industrial Lane
Bldg. S21 S.I.P.
Spokane, WA 99216
1 (800)448-7312
1 (509) 927-8101

EQUIPMENT

Carlos Nascimento NP4IW

This is a very preliminary outline of the plan for acquiring and shipping the gear to Heard Island. This document will be changed often in the next few weeks. Please consult this document often.

Last update: 10 August 1996

Schedule

Sept. 1 - 1st container leaves SF.
Oct. 1 - 2nd container leaves SF.

General plan

The equipment will be sent in two 20-ft. ocean-freight containers. The first will contain most of the equipment assembled by Ralph KØIR for the 1995 expedition. This gear was returned from Australia. The second container will contain additional supplies needed for the enlarged team.

Participants may send any personal or team gear with either container. Please observe the deadlines. They are drop-dead dates. We will need your packages well in advance of the ship dates, in order to get it packed. There will be no other shipments.

Cost for shipping the containers to Reunion is about $5K. We plan to send two containers and return with only one. The rest of the gear will be liquidated on the ship or on Reunion

Facilities

We are working to keep you as comfortable as possible. To that end, we will have the following:

- Hot shower
- Extra blankets and sleeping bags
- Snacks
- Liquor
- Heaters in every tent
- Drying room for your wet clothes

Equipment

The following lists were derived by envisioning the sequence of operations. It therefore contains some redundancies. We are developing a cross-list to eliminate these redundancies, and to identify the equipment already available. We are beginning purchases at this time (Aug. 10).

A) ON BOARD:

1. Access to containers/crates
2. Stationary supplies
3. Video/maps/slide of HI/books
4. AC power transformers/computer protection strips
5. GPS
6. Entertainment

B) LANDING ACTIVITIES:

1. Rubber landing gear/wet suit protection
2. Warm clothing
3. Marine radios (hand held)
4. Hand held (2m) radios
5. Visual Signals (Rescue): smoke /glare device/lights/flags
6. Binoculars
7. Flags to indicate landing places.

C) LIFE SUPPORT (TRANSIENT):

1. "Energy box" containing: Chocolate bars/drinks(can)/Coffee
(thermos)/cereal bars
2. First Aid box kit (it could be an appendix of a maJor one).
3. Generator (1850W) with generator tool kit/oil/starting fluid/Jerry can (with gas)/Extensions cords/multiples
(water proof)
4. 2 Tripods flood lights
5. 2x4 lights (trouble lights/halogen) with stands
6. Drinking Water (bottles)
7. Hand warmers
8. Working Gloves (several types)
9. Tool kits: basic tools, containing tools to open crates
10. 2m hand held radios
11. Expedition Flag ("Take possession of island, [it would be
temporary, we'll return it to the Australians at the end of
expedition])
12. Marine Radios (with 6 hy battery)
13. Sealed-water proof pouch containing documents/maps of
island/camping plan/detail list of crates number and their contents
14. Flashlights
15. Water Pump (manual)

D) SHELTERS/ERECTION:

1. Generators (we need 2 operating with power strips/extension for drilling/lights
2. Electric Drills (2) with assorted bits (heavy duty)
3. 2 x 8ft ladders (wood/aluminum)/self stand
4. Long tape measure
5. Marking flags (12) to indicate location of shelters/generators/crates/etc
6. Tool Box for erection of shelters: 2 shovels/picks/garden
tools/hammers/gloves/
7. Webbing material (rolls?)
8. Double-header nails (4")
9. Screw-eye (assortment of sizes)/shells
10. 1-1/2" nails
11. Ropes (1000 ft/heavy duty); (1000 ft light duty)
12. 12 ropes/25 ft with shackles
13. Socket wrench tool kit (2-3)

E) FOOD PREPARATION/EATING

1. Stoves + fuel
2. 2x electric skillet
3. Microwave
4. Electric tea kettle
5. Utensils
6. Cooking oil/salt/spices
7. Dishes/glasses/coffee mugs
8. Paper towels/towels/soap/detergent/brushes/scrubber
9. Bins (wash dishes)/buckets
10. Can opener
11. Food: fresh/cans/dry/liquor/snacks/drinks

F) SANITATION

1. Portable shower
2. Portable Potty house
3. 4-6 portable potty/plastic bags/chemicals
4. Urine receptacles (inside tents)
5. Towels
6. Liquid detergent (laundry)
7. Hot air blower
8. Clean/disinfectant soap
9. Brushes (for boots)
10. Brooms
11. Mirror
12. Mats for tents
13. Compress air/air pump
14. Goggles (with elastic straps)
15. Toilette paper
16. White buckets

G) EMERGENCY RESPONSE

[To be provided by VK2TQM]

H) POWER & LIGHTS

1. 15 Regular 120V plugs (3 prongs AC)
2. 2,500 ft Romex
3. 220V plugs for generac/coleman generators
4. 4 Outlet boxes, with 4 plugs each)
5. Assortments of extension cords (10/25/50/100 ft)
6. 5 Ground rods/stakes
7. 6 ground clamps
8. Cooper wire (heavy duty)
9. Spare spark plugs for generators
10. 2 gas pumps
11. Hoses/siphons
12. 3 plastic funnels
13. 4 Jerry cans
14. 20 flash lights (one for each member)
15. Transformer (we have them)
16. #18/4 wire, all that we have
17. 18 (20) green army crates
18. Water purifying sprays ((lots)
19. Lanmans pliers/Tools

I) RADIOS

1. Power supplies m(what we have)
2. Marine radios
3. 3 signs with radio call
4. Maps, Team's roster with calls/op. frequencies (KK6EK)
5. Centralized box (manuals)
6. 24 hr. digital clocks
7. Logs (paper) (KK6EK)
8. 50 ball pens
9. Pads
10. Radio Filters
11. Desk Lamps (we have them)
12. 3 small waste baskets with bags
13. 1 big waste basket with bags (galley)
14. 50 Rags
15. 30 Paper towels
16. 6 Position logs (document)/KK6EK
17. 2 8ft ladders
18. Ropes

J) LIVING FACILITIES

1. 10 Tables 2x4 ft
2. 3 Tables 3x6 ft
3. 24 Plastic chairs
4. 2 Propane Heaters
5. 2 Heavy Duty electric heaters with blower
6. 2 Medium duty heaters with blower
7. Fire extinguishers: 1 big size (galley)/1 medium size/5 small
8. Tent rapair kit
9. Cots
10. Dryer house (NAPA)
11. 4 Door mats (heavy duty with "fingers")
12. 6 Broom
13. 6 Dust pans
14. Bottle liquid detergent (kitchen)
15. Ajax Powder
16. 409
17. Brillo pads
18. Large sponges
19. Towels
20. Bars of Soaps
21. Matches
22. Insect repellent
23. Insect killer spray
24. Clorox
25. Pine sol
26. Garbage bags (plastic)
27. Plastic glasses + 1/2 dozen spares
28. Coffee mugs
29. Bowls
30. 2 urinals
31. 2 heavy duty umbrellas
32. Gloves: 8 pairs mule skin/2 super heavy duty/assortments
33. Ice chest (medium size)
34. 12 of 8ftx2x4

35. 36 3ftx2x4
36. 6 3x8 ft 3/4" plywood
37. Electric kettle
38. Electric water heater
39. Propane bottles (verify fittings)
40. Liquors: Whiskey 1 big bottle/4 rums/4 card board wine/Champagne/pisco
Coffee: 6 cans of ground/filters (Mr. Coffee)/2 instant coffee flask

K) STORAGE

1. 4 Crates to be hinged/sealed
2. Water pump (electrical)
3. Hoses
4. Water house
5. 2 fuel` pumps
6. box (spare parts)
7. steel box for valuables (KK6EK)

L) SECURITY

ID tags/sticky labels/tags (tied)

M) RECORD KEEPING

1. Pencils
2. Xerox copy
3. Diskettes/computer supply
4. Radio logs
5. Bronze plaque (VK0IR)
6. White Boards: Radio sched/Announcements/Progress rpt./Tasks

N) WATER

1. Jugs
2. Tablets (Clorox) to make it safe to drink
3. Water testing kit
4. Clean funnels (marked for water use only)
5. Plastic tubing
6. Stream splitters/valves
7. 100 x 10 ft 1" PVC/glue/coupling/valves/elbows

O) ANCHORING AND WIND PROTECTION

1. 1 Drill, heavy duty/Bits/Anchors
2. Eye screws (200 of them)
3. 20 2 ft metal stacks used in construction
4. 150 army stakes
5. plastic stakes (marks)
6. plastic ribbon
7. 7,000 ft of 3/16" nylon
8. 20 screw eye for crates (to secure for wind)
9. 500 ft of 1/2" nylon braid
10. Webbing

P) MISC.

1. Video equipment
2. Party gear
3. Bell
4. Megaphone
5. Shut down box: caulking/sylicone'gun
6. screws (dry walls)

7. Metal banders/ plastic banders(?)
8. Lots of duct tape
9. Markers to identify boxes
10. Liquid wrench/WD40
11. Bolt cutter
12. Flares
13. Smog producers
14. Stroboscopic light
15. Rolling wheel platform
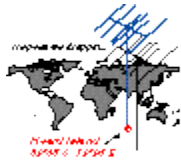16. Gifts for members

Q) SCIENTIFIC EQUIPMENT (KK6EK)

1. GPS
2. Labels
3. Jars w/lids
4. Fixer
5. Log
6. Hand lens/microscope
7. Digging tools
8. Funnels
9. Ultraviolet lights
10. Marking pens.

R) DEPARTING ACTIVITIES

1. Last radio
2. Flares, other signals
3. Handheld radios
4. Anchor removal tools
5. Incinerating supplies

You are invited to make suggestions: carlos_george-nascimento@cc.chiron.com

COMPUTERS, NETWORKS, AND LOGS

Bob Fabry N6EK

The logging setup

 The logging setup we have is based on there being at most six HF CW and SSB stations on the air at one time utilizing up to four FT-1000MP transceivers and up to three FT-900 transceivers. RTTY logging will be handled separately using the WF1B program. Satellite logging may or may not be a part of the main logging system. All the computers will be connected together using the CT loop network and all the radios will be connected to the logging computers to allow computer control of the radios. If you are bringing a transceiver that might be used in a pinch, please bring the cables and converters necessary to connect the transceiver to the computer using a standard 9-pin serial port connector.

We have five Compaq 410C computers and two Compaq 400C computers for logging. One of these is a spare. The 410C's are new from Don Greenbaum this year and the 400C's are ones that Bob Schmieder and Glenn Vinson bought last year and have made available. In addition, I have a 400C that I bought last year and which I will use for processing the logs. The 400C's are 33 MHz 486's and the 410C's are 50 MHz 486's. All have eight megabytes of main memory and 250 megabytes of disk. All run Windows 3.1, but will run CT under DOS while logging. There are six PC-card serial ports which plug into the computers to provide a second serial port.

Since the computers are not really designed to run in a hot RF environment, there is RF filtering on every lead coming into each of the logging computers. This includes the power input cable, the CT loop network cable, the rig control cable and CW keying cable. This scheme was tested on the February Wake Island trip and we had no RF interference to any computer while running the network at 9600 baud. There are six CT loop network cables, four rig control cables for the FT-1000MPís, three rig control cables for the FT-900ís and six keying cables. All of these cables are made up and tested.

According to the manufacturer, the only part of these computer that may be bothered by the grit in the air is the floppy disk drive. The keyboard and hard disk are sealed units. As insurance against a floppy disk drive failure, LapLink is installed on all computers and we have serial and parallel cables which allow transferring files between computers without using floppy disks in the event of a floppy disk drive failure.

Networking Considerations

We use a CT loop network which requires one serial port per machine for connecting the logging computers. This is an RS-232 network. We have over a thousand feet of four conductor wire to connect the three operating sites. There are six CT loop network cables, one of which plugs into the serial port on each computer; they include RF filtering and terminate in a barrier strip for connecting to the network wires.

We expect to run wires using RS-232 directly between the operating sites. we have two other options for these connections, however. One option is two pairs of RS-232 to RS-422 converters so we can run RS-422 between sites if we need to. These may help if the wires pick up too much RF or other noise. The other option is two pairs of 900MHz RF modems which can be used to run between sites without using wires at all. These may help if the sites are too far apart to run wires or if the wires are impractical due to wildlife or other hazards. I have tested both types

of hardware and they work fine with the CT loop network. The main drawback of either is that they require power. Each time any operating site loses power, the whole network goes down. (Because the laptops each have an internal battery, the network will otherwise keep running even if an operating site loses power.)

When the CT network is running, all contacts are recorded on all machines. This provides us with redundancy in case a computer dies completely, gives each operator a feel for what the other operators are doing, and lets us communicate between the operating positions using the CT gab function.

To keep the CT network running, we must keep all the logging computers powered up and running CT at all times. If any computer is turned off or is not running CT, then messages can no longer be forwarded through it and the whole network becomes dysfunctional. If we have to power down a logging computer or leave CT momentarily, we must first unplug the network cable from the back of the computer and plug the cable into a loop-back plug to provide network continuity. There is a loop-back plug for each computer.

The batteries in the laptop computers can be depended on for about an hour of operation. If one of the operating site is going to have its power shut down for less than an hour or so, leave the computers running even if no one is using them so the network will continue to function and the computers can record all the contacts made by the other stations. If one of the operating site is going to have its power shut down for more than an hour or so, use the loop-back plugs to provide network continuity and put the computers in standby mode by pressing the power button once. In standby mode, the power-on (left) LED will blink quickly every five seconds. The battery is good for about a week in standby mode. To restart from standby mode, press the power button once more and the computer will restart exactly where it was. It will not be necessary to restart CT. Then remove the loop-back plug and reconnect the network cable to the back of the computer.

It is critical to remember to use the loop-back plugs. When someone forgets to use a loop-back plug, one of the operators from another tent will probably be the one who has problems as a result. This operator may have to stop operating and wander from tent to tent in the pitch black rainy night to find the cause. Not a happy thought!

If we need to use the RS-232 to RS-422 converters or the 900MHz RF modems for the network, then we will simply have to put up with network outages whenever any site has its power shut down, say for generator refueling. If a site is going to have its power shut down for an extended period and if it is not the middle of the three sites, then we can install a loop-back in the middle site to keep the other two sites working.

Logging Using CT

All logging will be done in real time using CT. All operators must be proficient with CT before we land. It is essential that everyone work very hard to be accurate loggers, both getting the call correct and changing bands and modes correctly.

Band and mode changes must be initiated from the computer rather than the radio. Changes made at the radio may not be noticed by the logging computer and can result in contacts being logged on the wrong band or mode. To minimize problems, the band and mode recorded by CT for all contacts will be compared to a paper record of log changes each day before the log information is sent off the island.

Even with 8 megabytes of memory, we can record only a few over 46,000 contacts in the log. We hope to make more contacts than that. We will truncate the logs once we have worked 46,000 contacts, and at that point we will not have information about previous contacts immediately available at the operating positions.

We will be running CT in 24-line mode and using special fonts which make the characters more readable. We will have the CT feature called super-check-partial enabled. This allows calls to be checked against a very good database of DXer calls that Peter Casier has prepared. I have tested the 33 MHz computers with 46,000 contacts in the log, the network running at full speed, super-check-partial running with Peter's full database and several people logging bogus calls as fast as they can, and everything works fine.

This won't normally come up during operation, but if you have to setup a computer for a new radio, the FT1000MP is on the CT menu, but the FT900 is not. Use the FT990 settings for a FT900.

Peter asked me to point out a feature related to super-check-partial that is not documented in the CT manual: If you enter a call using a question mark, as in SP?MGM or SP??GM, when you move the cursor back to a question mark, you are automatically switched to overstrike mode instead of the usual insert mode.

Paper Record

There will be a paper log associated with each computer that will be used to log all operator changes, band changes and mode changes as well as comments about operating conditions, equipment problems and so on. Each operator must make an entry at the start and the end of his shift and whenever he changes band or mode. This paper record will allow us to verify that all contacts have been logged on the correct band and mode before the computer logs are sent off the island by satellite and will allow resolving band and mode questions that come up during QSLing.

Each time you operate on a band during your shift you must note the time and date you start and the time you end as well as the number of contacts which had been logged on the band-mode before you started and the number of contacts that have been logged on the band-mode when you finish. For the band, use the information shown on the radio. For time, use the time shown on the computer screen. This number of contacts is shown on the computer in the summary window which you can toggle on and off with ALT-S. It consists of QSOs plus dupes, called Q and D in the summary. If there were 1034 QSOs and 56 dupes on your band, you should enter this as ì1034 + 56 = 1090î. This will let us correct your addition in case you were punchy and made a mistake. Note that you MUST use the numbers from the highlighted line for the band you are on and not the total for all bands, which would be useless. If you wish, you can also calculate the number of QSOs you made by finding the difference. If you donít, we will, because it is this number that will be compared to a summary of the log to help make sure all QSOs were logged on the correct band-mode. Warning: If you do not do this correctly, someone may have to wake you up to confirm the log before we can send the log off by satellite.

Collecting the Logs

Once each day we will collect the logs from all the computers, merge them together, eliminate dupes, and ship information about the new QSOs off to John Devoldere. John will combine these QSOs with the ones he has previously received and forward a complete log to each of the people who are managing a log server where people who work us can find out for sure that they are in the log. We will have log servers accessible via the World Wide Web, via internet e-mail and via HF packet e-mail.

Most of us don't have to be concerned about this process, but we need a few careful people with a fair amount of CT experience and/or computer experience to help. If you are interested, please speak up. The following is a somewhat more detailed version of what is involved written for people who have some background with CT and computers.

Once each day, we will make a copy of the BIN files from each of the logging computers. Until we have about 28,000 contacts, the uncompressed BIN file will fit on a single floppy disk and we can collect the files by inserting a floppy disk into each logging computer and using the CT command called savelog. I donít know whether the network will run in the background during a savelog or whether we will have to use the loop-back plug to keep the network running. In order to minimize confusion, the BIN file has a different name on each logging computer. At station two, for example, the log is called LOG2.BIN.

We must treat the log from each computer with care and assume that each computer will have at least a few contacts that were not transmitted to another computer. If we are successful in keeping the computers powered up and in using the loop-back plugs properly, there should only be a few contacts that are unique to each computer.

Once we have reached 28,000 contacts, we will need to use the loop-back plug and quit CT in order to copy the BIN file. PKZIP has been installed on all the logging computers, and when one has exited CT, one is still in the CT directory where the BIN file is stored. Thus the DOS command ìPKZIP A:LOG LOG2.BINî will place a copy of LOG2.BIN in A:LOG.ZIP. A zipped version of a 70,000 contact log will occupy about 600K bytes, thus we can save several logs onto a single floppy.

Once we have obtained copies of the log files from each of the six logging computers, they will be loaded on my computer. In addition, Arie may give us RTTY and Satellite logs to be combined with the main logs. Before processing these individual logs at all, an archive copy of this raw input is to be stored in zip files on one or more floppies. In some cases we may be able to simply save the floppies that the logs were brought in on, but please note that if you are trying to fill a floppy using the savelog feature of CT, savelog does not complain if the floppy becomes full! It simply truncates the BIN file and I am not sure whether subsequent processing will detect the problem or not.

The archive copies will be saved intact for reference. They will be put in a Ziploc bag as soon as possible to protect

them from moisture and grit. Certain problems with subsequent processing can be resolved only by going back to these original logs, so consider these BIN files to be irreplaceable.

Once these files have been backed up, a merged version of the log is made using the CT merge program. This merged log is the starting point for further processing.

There will be a program for scanning the log data and summarizing the QSOs between band changes on each logging computer. The output of this program will be compared to the paper logs to validate the computer logs. I haven't written this program yet. I also hope to write a program to breakdown the US contacts on each band by call district, and maybe a few other programs to answer other interesting questions.

Once the merged log has been validated, a script will be run that strips out just the callsign, band and mode one QSO per line. The script then compares this data will to the same data from the previous day to isolate the new QSOs, and then sorts the new QSO information by band-mode so the band and mode information doesn't have to be included for each QSO. The script then combines this information with some more text explaining the time period represented by the log information and with certain obscure information which is used later to help detect modifications in transit. The result is a text file which we give to Arie for transmission back to civilization by amateur satellite, or if that fails by commercial satellite.

The file reaches civilization by being downloaded by Andre who sends it on to John Devoldere. John runs an unpacking script at his end which combines the information about the new QSOs with the data he has received previously to reform a complete log. The script produces a file called LOG.TXT which contains the QSO data and a file called MESSAGE.TXT which explains the time period represented by the log information and provides any other special information, and zips them into a single file called DIST1.ZIP the first time, DIST2.ZIP the second time and so on. John then sends this file via the internet to each of the people who are managing log servers for us. These people simply replace the older version of LOG.TXT and MESSAGE.TXT with the newer version.

The Details of Packing and Unpacking the Logs

It is not necessary for all operators to be familiar with the details of this process.

The logs need packing and unpacking because they are sent from Heard via satellite and the bandwidth is low over this path. For this reason, only the new contacts are sent each day, and they are sent in a way that requires on the average only three bytes of data per QSO (after compression.) On the Island, log packing starts with a complete log in CT BIN file format. A script is used to produce the data that is sent via satellite. When the data from the satellite arrives on the mainland, another script is used to produce a log of all the contacts to date and this log is then forwarded via the internet to all the log servers.

Although we refer to this information as a log, it is a little different from a normal log. It does not contain the time or date of any contact, only the fact that a contact did occur with a particular station on a particular band and mode. There are two reasons for this. First, it reduces the amount of information transmitted over the satellite. Second, since information on the satellite is public, including the time and date of each contact could encourage certain forms of cheating. Also, no duplicate contacts are included in the information sent over the satellite.

TXT format and QSO format

As the log comes in over the satellite, the contact information is in what I call TXT format:

10 CW:

EA1EGZ

EA1MC

JA0AZE

In TXT format the calls are sorted first by band and mode and the band and mode information is given only when

there is a change. In addition, there is some header information at the beginning that may look this:

:1123324167241049

:This information includes all qsos logged before December 9, 1996 0500Z.

:This message is not based on the real Heard Island 1997 logs. We are testing

:our server with some bogus data partly from the ZA1A and AL7EL/KH9 logs.

The first line of header information is used for authentication. It is an attempt to detect changes that might have been made to the data by someone who does not understand the authentication scheme. The rest of the lines are the text message written on Heard that explains the log data. This explanation may be updated each time new log data is produced.

In QSO format, there is one line per contact. This is the format used as input to the log servers. Each line has the band, the mode and the callsign for one contact:

15 CW YU4ELS

15 CW ZC4BS

15 RTTY JA5CEX

15 SSB 3A2LF

15 SSB 4U1WB

General Processing Scheme

The overall processing of log information goes as follows: On the Island, a single CT BIN file is constructed which includes all of the contacts to date. In addition, there is a file called GENINF.TXT which contains any explanation needed for the log data. (In the example above, the third and fourth line of the header came from GENINF.TXT.)

This BIN file is converted to a text version called a RES file. The band, mode and call columns are selected from the RES file to produce a file in QSO format. The file is sorted by band and mode and duplicate lines (representing dupes) are eliminated. This file is called LOGn.ALL and is retained for processing the next BIN file to be sent off the Island. If this is not the first log file to be sent, lines representing contacts that have already been sent to the mainland, remembered in LOG(n-1).ALL, are eliminated. This information is converted to TXT format and the header information is appended. The resulting file is named LOGn.PAK, where n = 1 for the first log sent to the mainland, 2 for the second, etc. PAK is short for packed and indicates that three different kinds of information have been packed in one text file: log data, explanatory message and authentication information. Everything in this paragraph is handled on the island using a DOS script called PACK.

The LOGn.PAK file is sent to John Devoldere on the mainland via satellite and the internet.

The log in TXT format is extracted from the LOGn.PAK file and validated using the information in the header. The rest of the header information is written to a file called MESSAGE.TXT for transmitting to the log servers. The log is converted from TXT format to QSO format and combined with all the log information previously transmitted into files called LOGn.ALL and QSO.TXT. LOGn.ALL is retained for combining with the next batch of log data from the Island. MESSAGE.TXT and QSO.TXT are zipped together into a file called DISTn.PAK. Everything in this paragraph is handled by John using a DOS script called UNPACK.

John sends a copy of DISTn.PAK to each of the people managing a log server: Don, Lyndon, Rob, Etc.

Detailed Instructions for Using the Pack Script

If you donít have a directory called C:\TMP, create one. (If you will be using a drive other than C:, use that drive letter instead of C: in these instructions.) This directory will be used for temporary files during sorting.

Create a new directory called C:\PACK to be used for processing the logs.

Change into this directory.

Place the PACK.ZIP file, which I will have sent you, in this directory.

Unzip the contents of PACK.ZIP.

You are now ready to process the files called LOG1.BIN, LOG2.BIN, etc. to produce the files called LOG1.PAK, LOG2.PAK, etc. which you will send off the Island.

Combine all the BIN log files from the various stations including packet and satellite into a single log. This is done with the MERGE program that comes with CT. Note that when you execute ìMERGE A Bî, a new version of A.BIN is created which includes both the contacts for the original A.BIN and the original B.BIN. This is not currently automated with a script, but I may well produce such a script after a few days of doing the merging by hand, Name the combined log file LOG1.BIN the first time, LOG2.BIN the second time, etc. Note that although the largest BIN file we can log with is limited to 46K contacts, the BIN files created by MERGE can be as large as we need.

Figure out the time and date for which you can say you have all contacts up to then in your log. This may be simply the earliest last modified time and date for BIN files you merged, although you may have special information that will allow you to use a later date. For example, although the satellite log information hasnít changed in twelve hour, no satellite work has been done in that time.

Read the file GENINF.TXT and verify that its information is still correct. If it is not, edit it with a text editor. Try to limit the line length to about 70 characters so the lines will be suitable for the servers to include in e-mail.

Type PACK n. That is, if you want to turn LOG2.BIN into LOG2.PAK, you type ìPACK 2î. The script that runs will keep you informed about what it is doing and how many contacts are being processed at various steps. Possible planned error conditions:

ìYou didnít give a proper log number.î

The number you type after PACK needs to be 1, 2, 3, and so on.

Error: LOG2.BIN not found.

The number you typed didnít correspond to a BIN file number in PACK directory.

Error: LOG1.ALL not found.

Either you havenít processed LOG1.BIN yet or the file has been deleted. If the file has been deleted, simply execute PACK 1 again.

The script will prompt you to type the time and date you have decided upon above. I suggest a format like 10 January 1996 1243Z, but this is merely text and does not have to be in exactly the same form each time.

When the script finishes, the file LOGn.PAK should exist in the PACK directory. Copy this file to a floppy disk and give it to Arie for transmission to the mainland.

Your directory will slowly fill up with the LOGn.BIN, LOGn.PAK, and LOGn.ALL files. This is OK, but if you are running out of space, you can delete all but the latest LOGn.ALL file. All the other files created during processing should be deleted by the script.

Complicated Situations During Packing

If you are unable to collect log files from all of the stations, you can go ahead without the missing log files. Modify GENINF.TXT to explain the situation. For example, you might say, ìAn elephant seal is sitting on one of the SSB logging computers and we were not able to collect its log today. This means a few of the SSB contacts on 15 and 20 meters between 0400Z January 18th and 0800Z January 18th are not yet included in this data.î

Our computers have eight megabytes of memory, which means they can hold only about 46,000 contacts. When we get near 46,000 contacts, copy each bin file, STNn.BIN, to a floppy disk and also make a copy of it on the computer as OLDSTNn.BIN. Then truncate STNn.BIN using the CT truncate command which is called TRUNC_BI.EXE.

TRUNC_BI.EXE is loaded in a directory called CTSTUFF on each computer. The truncate command removes all of the contacts from the log but leaves all of the settings intact. Then merge all of the collected STNn.BIN files into a file called PART1.BIN. Then each day when we merge everything together to form the LOGn.BIN file used as the start of the PACK process, PART1.BIN will be one of the BIN files merged. The resulting LOGn.BIN files will be too big to use while logging with CT on a computer with eight megabytes of memory, but the PACK and UNPACK scripts and CT's MERGE program handle them just fine. Note that this whole process is not that different from what we do every day to collect the logs, and the process can be done one computer at a time; it is not necessary to shut down the whole operation for consistency.

Testing the Pack script

I have tested the PACK script on the laptop we will be using on Heard for a set of four BIN files that represent one quarter, one half, three quarter and all of a BIN file with over 65,000 contacts made by combining the ZA1A log with the AL7EL/KH9 log.

I am sending Peter Casier a copy of PACK.ZIP and hope he will test it on the files from his recent 5X expedition.

Detailed Instructions for Using the Unpack Script

Create a new directory called UNPACK to be used for processing the logs.

Change into this directory.

Place the UNPACK.ZIP file, which I will have sent you, in this directory.

Unzip the contents of UNPACK.ZIP.

You are now ready to process the files called LOG1.PAK, LOG2.PAK, etc. that you receive.

When you receive one of these LOGn.PAK files, go into the UNPACK directory and copy the LOGn.PAK file into the directory also. Under normal operation, you must have processed LOG(n-1).PAK before processing LOGn.PAK. Your options when files are received out of order are described below.

Type UNPACK n. That is, if you want to unpack LOG2.PAK, you type ìUNPACK 2î. The script that runs will keep you informed about what it is doing and how many contacts are being processed at various steps. Possible planned error conditions:

You didn't give a proper log number.

The number you type after UNPACK needs to be 1, 2, 3, and so on.

Error: LOG2.PAK not found.

The number you typed didnít correspond to a PAK file number in UNPACK directory.

Error: LOG1.ALL not found.

Either you haven't processed LOG1.PAK yet or the file has been deleted. If the file has been deleted, simply execute UNPACK 1 again.

Data verification failed.

Original check information:

1123324167241049

Check information on received file:

2548593793572974

Hit ENTER to proceed.

Record both pieces of check information. Hit enter and proceed. Your options for using this data anyway are explained below.

The file DISTn.ZIP should now exist in the UNPACK directory. Extract the MESSAGE.TXT file from DISTn.ZIP and check that it makes sense. Send copies of DISTn.ZIP to all the people managing log servers. This list of people may change, but for now it is:

wb2dnd@pcix.com (Don Greenbaum)

lyndon@orthanc.com (Lyndon Nerenberg VE7TCP)

Rob.De.Wit@net.HCC.nl (PA3BXR)

Your directory will slowly fill up with the LOGn.PAK, DISTn.ZIP, and LOGn.ALL files. This is OK, but if you are running out of space, you can delete all but the latest LOGn.ALL file. All the other files created during processing should be deleted by the script.

Complicated Situations During Unpacking

There are several unusual situations which might arise during the unpacking and will call for good judgment to sort out. If the logs come in out of order, say you get LOG1.PAK, LOG2.PAK and then LOG4.PAK, what should you do? You can either simply hold up on the processing of LOG4.PAK or, if that seems painful for some reason, you can rename LOG4.PAK to be LOG3.PAK and go ahead and process it under that name. Before distributing a DIST3.ZIP made this way, you will want to extract MESSAGE.TXT from DIST3.ZIP, edit it to reflect what is happening, and update the ZIP file with the new version. If you rename the PAK file in this way, be sure and keep a copy of the original. When the real LOG3.PAK arrives, run the unpack script using the real one; this will overwrite the files for the interim version. Then process LOG4.PAK and send out DIST4.ZIP. Since each DISTn.ZIP file is complete in itself, the people running the log servers donít even have to be told what you are doing. They will simply install first the interim version and then the final version.

If you get a PAK file for which the verification fails, there is the possibility that someone has intercepted and modified the file while it was on the satellite. I have no idea how easy this is in practice, but if we believe all the error correction works, I canít see what else could cause a verification error. Send Andre back a copy of the PAK file which caused the problem and ask him to verify that it matches what he received from us. If Andre canít find a problem at his end, send us via e-mail both pieces of check information and a copy of the PAK file you received. This may help us to diagnose the problem. In any case, we will transmit the file to you again as soon as possible.

If something gets really screwed up, there is the option to retransmit the logs to you from scratch. I call this doing a ìresetî. In this case, create a new directory and unzip the programs in the new directory. Depending on how many contacts are in the log, we may have to retransmit the log as several pieces. You can send the new log information to the log servers in pieces or you can wait until you have received the whole thing. Which is better will depend on the circumstances.

Testing the Unpack script

I sent John copies of UNPACK.ZIP and four sequential test files: LOG1.PAK, LOG2.PAK, LOG3.PAK and LOG4.PAK. He can try processing these in order and sending the resulting DISTn.ZIP files, one at a time, to the people managing the various log servers. He can also send me copies to verify.

John can also pretend to receive LOG3.PAK late and practice working around not having it. He can send me the resulting DISTn.ZIP files and we can talk about what happens.

If John wants to see how a verification failure works, he can use a text editor to make any small change to the log data. (MESSAGE.TXT is not checked during verification. Maybe that is an error.)

[NCDXF/IARU Beacon](#) Tentative Transmission Schedule

As of September 9, 1996

W6ISQ and N6EK

This table gives the minute and second within each hour of the start of the first transmission of each of the new five-band beacons on each frequency. Transmissions currently being sent are indicated in bold. Each transmission is repeated every three minutes. A transmission consists of the callsign of the beacon sent at 22 words per minute followed by four one-second dashes. The callsign and the first dash are sent at 100 watts. The remaining dashes are sent at 10 watts, 1 watt and 0.1 watts. The actual starting time of each transmission is approximately twenty milliseconds after the nominal time due to the keying delay of the transmitter. Equipment used at each beacon site includes a Kenwood TS-50 transceiver, a Cushcraft R-5 vertical antenna, a Trimble Navigation Accutime GPS receiver, and a controller built by the NCDXF. For more information, contact the Northern California DX

Foundation, Post Office Box 2368, Stanford, CA 94309 USA.

The current version of the table can be found at http://www.ncdxf.org/beacon.htm.

	Country	Station	14.100	18.110	21.150	24.930	28.200	operator	status
1	United Nations**	4U1UN	00:00	00:10	00:20	00:30	00:40	UNRC	In New York 1
2	Canada	VE8AT	00:10	00:20	00:30	00:40	00:50	RAC	Ready to ship
3	USA	W6WX	00:20	*00:30	00:40	*00:50	01:00	NCDXF	On the air
4	Hawaii	KH6WO	00:30	*00:40	00:50	*01:00	01:10	UHRC	In Hawaii
5	New Zealand	ZLØ	00:40	00:50	01:00	01:10	01:20	NZART	Built, call?
6	Australia	VK6Ø	00:50	01:00	01:10	01:20	01:30	WIA	Built, call?
7	Japan**	JA2IGY	01:00	01:10	01:20	01:30	01:40	JARL	In Japan
8	Russia	UAØ	01:10	01:20	01:30	01:40	01:50	?	Locating site
9	China	BYØ	01:20	01:30	01:40	01:50	02:00	CRSA	Locating site
10	Sri Lanka	4S7B	01:30	01:40	01:50	02:00	02:10	RSSL	Shipped 9/96
11	South Africa	ZS6DN	01:40	01:50	02:00	02:10	02:20	ZS6DN	On the air
12	Kenya	5Z4B	01:50	02:00	02:10	02:20	02:30	RSK	In Kenya
13	Israel	4X6TU	02:00	02:10	02:20	02:30	02:40	U Tel Aviv	On the air
14	Finland	OH2B	02:10	02:20	02:30	02:40	02:50	U Helsinki	On the air
15	Madeira**	CS3B	02:20	02:30	02:40	02:50	00:00	ARRM	In Madeira
16	Argentina	LU4AA	02:30	02:40	02:50	00:00	00:10	RCA	On the air
17	Peru	OA4B	02:40	02:50	00:00	00:10	00:20	RCP	Ready to ship
18	Venezuela	YV5B	02:50	00:00	00:10	00:20	00:30	RCV	On the air

*The W6WX and KH6WO beacons are not yet licensed for 18.110 and 24.930 MHz operation.

**This beacon is still transmitting in the older format on 14.100 MHz.

CLEANLINESS

Glenn Johnson WØGJ

Concern: Illness/Injury

I. Problems

A. Us (you & me)

B. Them (wildlife, rocks, weather)

II. Health

A. Water supply

1. From ship (we should NOT rely on finding useable water)

2. Katydyn filters

B. Food supply

1. Should rotate KP duty as a slave

2. MUST keep clean (Your mother could not afford to come along.)

C. Toilets

1. I have six of the cardboard "Potty Time" toilets as used on Easter Island.

2. Problem will be getting them in a relatively waterproof/windproof shelter: an old ANARE building or one of the shipping containers.

3. I have extra plastic biodegradable (deposit,no return) bags for each potty.

4. Latrine duty should be about ONE day each! (That would make it nice for everyone!)

5. MUST practice CAREFUL hygiene and keep things clean and WASH those hands with soap/water or the ALCARE (see below)

6. An "outbreak" of the Heard Hustle could have disastrous consequences for EVERYONE!

D. Communicable Diseases

1. Fecal-oral stuff

a. Heard Hustle gastroenteritis (you heard it first right here!)

b. Hepatitis A, etc

c. The M.D.'s will be reminding all of you the incredible ease of fecal-oral contamination!

2. Viruses (colds/flu, etc)

3. Not just good, but GOOD handwashing is imperative.

4. Baby-wipes thingys should be brought by everyone for helping with personal/private parts cleaning.

5. Everyone will be issued a little can (easily fits into pocket) of emolliated alcohol foam ("ALCARE") for keeping your hands/face clean. It does NOT necessarily remove grime, but it does remove a lot of things. It completely evaporates, so no need for towel, etc. A little squirt will go a long way.

6. Please bring a pair of pocket nail clippers to keep your nails short, as this will greatly lessen the fecal-oral contamination problem.

E. Environment

1. Hypothermia/frostbite Layered, synthetic, breathable (Gore-Tex) clothing is a MUST. Long underwear and socks should be the kind that will wick away moisture from the skin.

2. Dehydration Will need to drink fluids

3. Overexertion Common sense

4. Guano/sand It will get into EVERYTHING.

III. Personnel

A. Personal hygiene You have the potential to have everyone remember you! PLEASE be considerate of others.

B. Clothing/perspiration

1. See above.

2. Synthetic clothing. Make sure your clothing will wick away moisture and outer garments can breathe.

C. Body Odors

1. Please bring plenty of deodorant.

2. Consider something like "Odor Eaters" for your shoes.

D. Bad breath

1. Please don't forget your toothbrush.

2. Use it often

E. Shoes

1. Must have waterproof, and preferably breathable shoes/boots.

2. Most of theses shoes will have a type of Vibram sole, which will be VERY efficient at tracking in copious quantities of penguin guano and sand.

3. We will have plastic basins (with salt water) in them and toilet type of brushes. PLEASE clean your shoes before entering ANY shelter!

4. For most of the time, you can wear a pair of the plastic knee boots I am bringing for everyone. I got them generously sized, so you can wear 2-3 pairs of socks in them. They clean VERY easily and are totally waterproof. The problem is that they don't breath too well. I have worn this type of boot in the frigid cold of Minnesota without problem (IF enough socks). I wear them 10-12 hours a day a couple days a week in the operating room....so they are comfortable.

F. Smokers

1. Do we have any in the group?

2. Please smoke outdoors and NOT in any of the shelters for two reasons: Fire hazard and respect for non-smokers.

IV. Living Quarters

A. Tracking in (sand, guano) see above

B. Keeping clean

1. Please keep shoes clean/off

2. Please use the brooms every chance you get.

C. Respect for others!

D. Fluid management: need to watch your fluid intake so rush trips to relieve oneself in the middle of the night is minimized. This will help keep living quarters cleaner and help the rest of us get better sleep.

V. Showers

A. YES! for real! A HOT one at that!

B. This is a separate category: This should be the first in history for DXpeditions like this!

C. You won't believe what the Clean Czar has come up with!

D. I have about 10 or so battery powered surgical lavage units that draw up water (warmed!) and spray it out like a shower.

E. I propose a "shower with a friend" scheme, as it will really take someone else holding the shower for you.

F. Wet, scrub, rinse: conserving water.

G. Stand outside and "blow dry" ....or is that "freeze dry?"

H. When the batteries run out (supposedly each unit good for 30 liters), jury-rigging to 6-12 VDC (Lantern battery) will run it.

I. Will try to make a shower stall with wood planks in one of the old ANARE buildings or maybe use one of the containers.

J. Every 2-3 days maybe we could use 1 liter each for showers.

VI. Equipment

A. Radios/headsets/computer

B. Excellent source for contamination!

C. Bring own personal headsets/mike

D. Recommend "wipes" for cleaning things

E. Remember to brush your teeth before taking your radio shift. (If you don't the next guy using the mike will wish you had!)

VII. Environment

A. Animals

1. Bites Give them their distance

2. Seal Finger Even a scrape on a sharp "marine environment" object can cause this problem infection.

3. LEAVE THEM ALONE!

B. Birds

1. GUANO - you won't miss it. It will be EVERYWHERE.

2. Skua birds (potentially our gravest hazard) Two people who have been to Heard have independently warned me of these birds. These large gull-like birds silently fly up behind their prey and pluck out the eyes to down their prey. An old Viking torture would be to stake out their captured enemies and let the skua birds take over. (Really!) Goggles or glasses might be a safety item to bring along.

3. Imperative that NO ONE take a nap in the sun! Don't laugh! You might get tired on a hike!

4. Hikes away from camp should NOT be alone.

C. Weather

1. Temperature (frostbite)

2. Rain (chill -> hypothermia)

3. Wind (falling objects (antennae)) "The WIND will KILL you" is what K8CW (1983) told me. MUST have the best wind-resistant clothing you can get your hands on. Expect 100 mph twice a week.

4. White-out conditions? Possible, not likely

D. Sand

1. Will get into everything

2. Mixed with copious volumes of penguin guano, should manage to permeate every conceivable crevice or orifice.

E. Rock/Ruins

1. The rocks & ruins will most likely be wet and slippery from rain and guano. "Don't run, children!"

2. The ruins will be in a sorry state of decay and sharp rusty edges will be everywhere. Be careful not to snag your clothes or to get cut.

Each person should bring:

- an attitude and determination to make living in guano and sand a FUN and CLEAN thing to do!

- nail clipper

- tooth brush (don't say you weren't reminded!)

- personal towels

- glasses/goggles

- odor eaters for shoe

The Clean Czar has packed the following:

1. CLEAN CZAR BOX #1 (24"H x 24"W x 51"L)

Zimmer Showers x 10

Potty Time toilets x 4

Toilet refills x 8

Plastic basin (20" x 15" x 5")

Kleenex tissue (250 ct) x 4

Toilet paper (9 roll pack) x 3

Wisk broom x 2

Baby wipes (100 ct) x2

AlCare emolliated alcohol hand cleaner, case of 24

Paper towel (180 ct) x 1

Surgical rags (pack of 20) x 2

2. CLEAN CZAR BOX #2 (24"H x 24"W x 45"L)

Plastic basin (20" x 15" x 5") x 4

Toilet bowl brushes x 6 (for cleaning boots)

Toilet paper (9 roll pack) x 1

Paper towel (180 ct) x1

Surgical rags (pack of 20) x 1

Rubber boots x 20

Size 13 x 5

Size 12 x 5

Size 11 x 8

Size 10 x 2

I usually wear a size 11 shoe. I can easily wear a size 9 (wife's), but for a short time. Size 13 is just fine with several pairs of socks. There should be a pair for everyone. These boots are called "knee boots" because of their height. Except for the coldest of weather, I predict everyone will be wearing these boots all of the time. They are comfortable and EASILY slip on & off. Most importantly, they are VERY easy to keep clean.
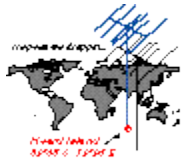
FOOD SERVICES

Willy Rusch HB9AHL

FOOD SERVICES

1) Responsibilies:
- organisation, general and preparation: Willy - HB9AHL
- cooking: every day I need 3 probably different people (in daily shifts)
- a list with all responsibilities will be done at least one day in advance

2) Daily food
- I'll try to guarantee one hot (big) meal per day at evenings
- enough food for snacks between the meals will be available 24 hours (self service)
- hot water for tea and coffee will also be available 24 hours and stored in thermos flasks (self service)
- the daily ration of consumable food and water will be claerly marked. If somebody needs more, he has to speak with the food services czar

3) Cleaning
- everybody is personally responsible for the cleaning of his utensils
- once per days (evenings after "diner") it'll be a big cleaning of all utensils
- if possible we'll use "island-water" for cleaning
- the galley has to be kept as clean as possible all the time
- no smoking in the galley tent

4) Waste
- everybody is personally responsible for his waste disposal
- all trash will be collected in plastic bags
- full waste bags will be safely stored by the food services czar

5) Kitchen gear for 20 people
- enough plates, cups (plastic only), knives, forks and spoons
- enough pans (all unsful kinds)
- enough waste bags (20 gallons) ev. light containers
- many, many plastic bags
- cleaning and drying towels/papers
- enough and big thermos flasks (daily hot water storage in the tent)
- enough foldable plasic containers at 5 gallons with handle (daily cold water storage)
- 2 - 3 cooking stoves (propane)
- and all the small normal kitchen items (e.g. can opener, funnel, water pump)

6) Food list
- according to the contract with the French I need until November 15 a list with the prefered food for 20 people for 25 days.

Storage for food, drinking water, cleaning water, fuel and propane

FOOD (Sheltered Area)
[for 20 people, 25 days]
2 daily rations warm area in the galley tent
provisions area in wooden container or tent, can be cold

DRINKING WATER (Sheltered Area, in tents)
[3000 liters from the vessel in suitable containers]
daily rations and provision
warm area (ice!) in the galley tent

CLEANING WATER (Sheltered Area, in tents)
[from the island]
daily ration warm area in the galley tent

PROPANE (Sheltered Area, outdoors)
[25 bottles, 20 kg each]
active bottles near the stoves (in or outdoors)
stock wooden containers

FUEL (Outdoors)
[15 drums, 200 liters each]
active drum filling station in wooden container
stock outdoors

Heard Island Expedition 1997 (Planning Documents)

MEDICAL

Mike McGirr K9AJ

I. Pre-trip canvas of each team member

1) past medical problems
2) allergies (food, meds, etc)
3) current medications
4) on-going medical problems
5) immunizations (ie: tetanus, etc)

II. Pre-trip consult w/ CDC

1) malaria concern re: Reunion Is visit
2) yellow fever concern re: " " "
3) other medical concerns re: " " "

III. Medical concerns on Reunion

1) will rely on local medical facilities (our supplies will be stowed)
2) to avoid customs problems, may have to obtain some pharmaceuticals
(ie: narcotic pain meds) on Reunion
3) be appraised of local medical capabilites & recommended physicians
through pre-trip consultations w/ FR7 locals

IV. Sea voyage

1) sea sickness
a) scopolamine patches-presently unavailable-will follow up on
this
b) oral/parenteral/rectal anti-emetics (should be available from
ship's dispensary) *
2) other on-board medical problems
a) likely will be dealt w/ by ship dispensary, w/ input from
Heard medical team (our supplies will be stowed)

V. At Heard

1) environmental concerns
a) hypothermia ---
b) frost bite |---> to be covered at SF meeting 9/96
c) trench foot ---
2) minor wound concerns

a) simple wound infections & simple skin infections
b) bumps/bruises/sprains/simple lacerations
c) animal bites & misc wounds
4) serious trauma/medical emergencies
a) stabilization
1. attempt to preserve airway
2. attempt stop hemorrhage
3. vent pneumothorax
4. splint major fractures
b) arrange for evacuation * **
1) protocol for contacting ship & Kerguelen base
5) non-traumatic problems
a) GI problems: diarrhea w, w/o constitutional symptoms
b) dehydration
c) respiratory sx: cold/cough/sore throat, etc
d) misc
6) Health maintenance
a) dietary concerns-constipation often a problem
b) hand washing
c) sufficient sleep
d) common sense in a strange environment (don't pet the sea lions,
don't walk on thin ice, etc)
e) psychological health-adequate personal/quiet time
7) Medical consultations w/ MARCO panel of physicians
a) protocol to be established w/ MARCO group

* IMPORTANT: need to know capabilities of ship's dispensary, as well
as the medical facilities at Kerguelen

** we have three physicians in our group, and we will act as a team. All
major medical decisions will be made (where feasible & appropriate) w/
input from the medical team members.

Health information for Heard Island team #1 (draft)

Each team member should have a physical exam before the Heard operation.
The member's physician should be made aware of the physical challenges
this undertaking will present, so appropriate fitness screening (ie:
stress testing) can be considered.

Each team member should have a dental exam before the Heard operation, so
any dental problems can be addressed before departure.

Those who wear glasses & have not had an eye exam in the past 2 years
should have an eye exam to be sure their current eyeglass prescription is
correct.

Personal medical kit: each team member should pack a small kit of items for
his personal use. This may include bandaids, blister
dressings, aspirin/acetaminophen or ibuprofen,
antacids, creams/ointments commonly used at home, etc.
It may also contain medications suggested by your
physician-for example for traveller's diarrhea & other
things you & your physician might deem helpful. This
kit should contain any prescription medicines &

a spare set of eyeglasses (also take sufficient
quantities of any prescription meds in your carry-on
bag on your flights). This would be a good place to
pack your mosquito repellant for our visit to Reunion
(see below).

Motion sickness: A call to CIBA-GEIGY headquarters 15 Aug 96 informs that
Trans-derm scop patches for sea sickness are still not
available, and will likely not be available before early
1997. Ask your physician for an alternative motion
sickness medication.

Conditioning: No later than 2 months prior to departure, the sedentary
amongst us (your humble health czar included) should begin
a progressive exercise program to condition us for the
arduous physical demands this expedition will place on us.

Immunizations: NONE required by law, MANY are suggested. Most are due to
our brief stop in Reunion. The Heard team medical kit will
NOT contain any of these vaccines-they must be given
prior to departure (see note at end of list). The below
information is a distillation of information obtained
from the CDC, and several medical texts. The final decision
as whether to vaccinate or not rests w/ you and your
physician.

TETANUS: boosters are usually given every 10 years, but are given
for contaminated ("tetanus prone") wounds if no booster within
previous 5 years. As we can't foresee who, if any, will sustain
such wounds, prudent to have booster if more than 5 years since
previous booster-but consult w/ your physician if any problem or
local reaction w/ past boosters. (Assumes team member has
received primary series earlier in life).

POLIO: adults should have been immunized in childhood. Ask your
physician whether you need a booster.

MALARIA: Reunion is not on the CDC's list of African malaria-infected
countries.

YELLOW FEVER: immunization only required if arriving from an infected
country (generally central Africa). If arriving in Reunion
from Mauritius, Mauritius is not considered an infected
country.

DENGUE FEVER: a mosquito-transmitted viral disease characterized by high
fever, bone & joint pains, headaches & rash. Dengue fever
occurs sparodically in Reunion. There is no vaccine
available so mosquito avoidance & repellant sprays are
suggested.

TYPHOID FEVER: occurs in East Africa & transmitted by contaminated food
or water. Vaccines are available. CDC recommends vaccine
for travellers who leave the usual tourist itineraries
(ie: visit rural areas in Reunion). CDC guideline would

not require typhoid vaccine for our brief stay in Reunion.
Note: usual advice to avoid food-born illnesses is operative
here: peel it, boil it, or toss it! Don't forget ice cubes
are frozen local water & as infectious as non-frozen water.
Drink bottled water if possible.

HEPATITIS A: viral liver infection transmitted by contaminated food
water. CDC recommends vaccination for all travelers.

HEPATITIS B: viral liver infection transmitted by blood & body fluids.
CDC recommends vaccination for all travelers who might have
need for medical or dental attention in the visited country.
Since this cannot be predicted, vaccination is advised.

CHOLERA: not reported in Reunion in latest CDC list.

MISC:

SHISTOSOMIASIS: parasitic disease transmitted by swimming/bathing in
contaminated fresh water. Avoid swimming/bathing in
non-chlorinated fresh water (especially rural lakes,
rivers & streams).

NOTE: some of the above vaccinations require a series of shots &
should be attended to well in advance of our departure.

Heard Island team medical information questionnaire (draft):

In the case of serious illness or injury where you might not be able
to tell us important information about your medical history, it is
important that the medical volunteers on Heard have your medical history
readily available:

Name:

poor fair good excellent
What is your overall health?
What is your overall physical condition?

Name & specialty of your personal physician?

Address & phone " " " " ?

Current non-prescription medicines (names/dosages/frequency):

Current prescription medicines (names/dosages/frequency):

Allergies to medications?

Other allergies (including foods, animals/insects, cosmetics, etc):

Past medical conditions/surgeries:

Past hospitalizations:

Current/on-going medical conditions:

Any surgery recommended but not done?

Are you on a special/restricted diet?

Do you wear a medical alert tag? (if so-what is the alert msg?)

Do you know your blood type?

Have you had any of the following (if so, please elaborate):
Heart disease (includes angina/coronary dis, angioplasty/bypass surgery,
leaky or replaced valves)
Vascular disease (includes cerebral vascular dis, stroke/TIA, etc)
Lung disease (includes asthma, effort or cold provoked wheezing, etc)
Cold intolerance
Seizures
Kidney stones
Diabetes
GI problems
Back/spine/joint/orthopedic problems
Sleep walking

Mike McGirr, MD
mcgirr@interaccess.com

Final list of medical supplies going to Heard Island.

Final list of medical supplies going to Heard Island. This list includes the
medical supplies packed and shipped on our two containers going to Reunion,
as well as last minute additions to be brought to Reunion w/ Mike & Glenn.
Note: aj/puj refers to whether Mike or Glenn has procured the item & is
packed w/ his supplies. Note also that many items listed as trade names have
been procured in generic.

List of medical gear for Heard Island Jan '97:

sterile surgical gloves (sizes to fit team docs)
size 7 x 2 aj
size 7 1/2 x 4 aj
size 8 x 3 puj
size 8 1/2 x 5 puj
surgical masks x 21 puj
non-sterile gloves x 20 puj
SYRINGES
3cc 22ga x 8 puj
10cc - handle "

12cc x 5 "
various syringes/needles aj
irrigation syringes x 2 "
NEEDLES
25ga x 2" x 3 "
25ga x 1.5" x 9 "
25ga x 1.25" x 1 "
25ga x 5/8" x 3 "
22ga x 1.5" x 8 "
18ga x 1/5" x 12 "
sterile basin x 2 "
sterile field 18" x 26" x 13 "
aperture drapes 24" x 24" x 2 "
Chux x 2 & x 7 " & aj
large suture set x 1 "
small suture set x 2 " & aj
bone set x 1 "
SCALPELS
#11 x 3 "
#15 x 3 "
#20 x 3 "
#15 on handle x 4 "
#10, 11, 15 x 1 ea aj
SUTURES
1 Ethibond x 3 puj
0 Vicryl x 4 "
2-0 Vicryl x 4 "
3-0 Vicryl x 4 "
4-0 Vicryl PS-2 x 2 aj
4-0 Vicryl PS-4 x 2 aj
2-0 Nylon x 3 puj
4-0 Nylon x 6 "
5-0 Nylon P3 x 4 aj
5-0 Nylon PS-2 x 4 "
6-0 Nylon x 3 puj
Steristrips 1/2" x 4" x 5 packs "
sterile Q tips x 9 puj
alcohol prep packs x 36 "
bottle isopropyl alcohol 16 oz x 1 aj
Betadine
swabs, single x 8 puj
swabs, triple x 6 "
scrub brush x 6 "
bottle 4 oz x 1 aj
saline for irrigation x 3 liters aj
stethoscope aj

BP cuff aj
SPLINTING MATERIAL puj
2" Stockinette 6'
3" " 10'
4" Synthetic cast padding x 2
3" Webril x 4
2" Fiberglass roll x 1
3" " x 1
4" " x 3
1/2" x 9" Alumafoam splint x 2
1" x 6" " " x 1
Fingertip " " x 1
DRESSING MATERIALS puj
Kling (6") x 1
Kling (4") x 5
Kling (3") x 4
sterile 3"x3" gauze x 11
sterile 4"x4" " x 11
Kerlix 4" rolls x 2
6" Ace x 2
4" Ace x 3
1" tape (rolls) x 5
bandage scissors x 1 aj
liter bags of saline x 3 aj
liter bags of D5/RL x 3 aj
IV tubing x 3 aj
angiocaths #18 & 20 x 5 & 7 aj
tourniquets x 1 aj
foley catheters 14, 16, 18f x 1 ea aj
" " 18 30cc balloon x 1 aj
catheterization set w/ leg bag x 2 aj
epistaxis tray x 1 aj
nasal/epistaxis tampon x 2 aj
silver nitrate sticks x 100 aj
razors (shave scalp wounds) x 4 aj
surgical stapler x 1 aj
stapler remover x 1 aj
C-collars (hard & soft) puj
oral airway puj
tongue blades x 12 aj
flashlight x 1 aj
ET tubes puj
laryngoscope puj
ambu bag puj
urine dipstick x 100 aj
safety pins x 9 aj

Tucks pads 100 x 1 aj
"big" band aids 50 x 2 aj
tweezers (fb) x 2 aj
tegaderm x 4 aj
Bandaids 1" x 3" x 100 puj
thermometer x 1 aj

MEDICATIONS (parenteral):
xylocaine 1% w/ epi 30cc x 1 puj
xylocaine 1% plain 20cc x 2 puj
Marcaine 1/2% 50cc x 2 puj
Marcaine 1/2% w/epi 50cc x 1 puj
epinephrine 1mg/cc 1cc x 10 aj
Benadryl 50/cc 10cc x 1 aj
Compazine 5mg/cc 10cc x 1 aj
Versed 2cc x 6 puj
Romazicon x 1 puj
Fentanyl 2cc x 6 puj
Narcan x 2 puj
Katalar 20cc x 10 puj
Rocephin/ceftriaxone 1gm x24 puj
MEDICATIONS (oral):
cephalexin (Keflex) 250mg 100 x 2 aj
acetaminophen 500mg 100 x 1 aj
ibuprofen 600mg 100 x 1 aj
viscous xylocaine 2% 50cc x 1 aj
prednisone 20mg 100 x 1 aj
Benadryl 50mg 100 x 1 aj
nitrostat (sub-lingual) 100 x 1 aj
tetracycline 500mg 100 x 1 aj
Cipro 500 & 750 mg x 190 tabs puj
Flagyl 250mg 100 x 1 aj
sudafed 60mg 100 x 1 aj
Imodium 2.5mg 1000 x 1 puj
colace 250mg 100 x 1 (bo) aj
Imitrex 25mg x 6 tabs puj
DHC+ x 40 tabs puj

MEDICATIONS (topical & other):
nitroglycerine ointment 2% 60gm x 1 aj
Silvadene cream 1% 50gm x 2 aj
Bacitracin/Polymyxin ointment 1oz x 2 aj
Miconazole 2% cream 1oz x 2 aj
Lidex ointment 15gm x 1 aj
Lidex cream 60gm x 2 aj
gentamycin opth drops 15cc x 1 aj
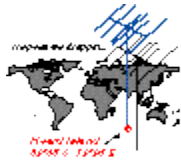
cyclopentolate 1% opth drops 15cc x 1 aj
erythromicin opth ointment 1/8oz x 1 aj
Afrin nasal spray 30cc x 1 aj
Cortisporin otic drops 10cc x 1 aj
annusol HC suppositories x 25 aj
dulcolax suppositories x 12 aj
tucks pads x 100 aj
tigan suppositories x 10 aj
Tobrex opth drops 5cc x 1 aj
Alcaine " " 15cc x 2 aj
Dacriose " " 15cc x 1 aj
flurocein strips x 6 aj
cobalt light x 1 aj

MISC
Dental emergency kit x 1 aj
(supplied by ham/dentist KJ9B)

POWER

Wes Lamboley W8FMG

A. Mission Statement

"To provide safe, reliable, uninterrupted 115/220 Volt/60 Hertz power to the Heard Island (HI) Expedition at the locations specified by the Operations Manager during deployment on HI January/February, 1997".

B. Applicable Information

1. List of equipment requiring power during the HI deployment.

a. name of equipment
b. power requirement (peak watts)
c. voltage requirement (volts)
d. intended operating interval(s) per day
e. connector style on equipment
f. other special features of equipment as required

2. Site plan/layout of equipment locations
3. List of power generating equipment in current inventory
4. All manuals relative to power generating equipment in the inventory
5. List of wiring (length, size, etc) in current inventory

C. HI Power Requirements

1. Radio/Amplifier Power

a. list total power required, by location (ie-"cw tent")
b. list equipment connectors by location

2. Support Equipment Power (computers, keyers, lamps, etc)

a. list as in 1.a/b above

3. Supporting Facilities/Resources

a. power generators
b. power distribution equipment
c. fuel sources and distribution systems
d. safety equipment/grounding
e. spare parts

4. Personnel Training

5. Special Handling/Shipping

D. Organizational/Operational Concept

1. Power generating equipment will be located 100 feet (minimum) from radio operations tents.
2. All generators, wiring, pumps, syphons, distribution boxes, fuel containers, etc shall be checked out prior to

shipping to HI.

3. Spare parts for generators shall be included per manufacturer's list of recommended spares (including oil).

4. Fire extinguishers shall be located with each generator.

5. Voltages shall be measured/verified prior to any equipment
"plug-in" on HI.

6. Generators will be fueled while running.

7. At least 1 Uninterruptible Power System (UPS) will be provided for the most critical computer location.

E. Approach to Satisfying Mission Statement

1. Compile equipment list by tent site.

2. Determine power/connector requirements by tent site.

3. Combine all tent power requirements for HI operations.

4. Generate power distribution schematic diagram(s) for site and tent(s).

5. Determine if existing power generating equipment/wiring/distribution resources are adequate.

6. Acquire additional resources as required.

7. Test all power equipment prior to packing/shipping from U.S.

a. voltage tests

b. load tests

c. distribution wiring/equipment tests

d. fuel pumps and fuel containers tests

e. safety equipment tests

8. Calculate worst-case fuel consumption; ensure adequate fuel is available at HI (in 55 gallon drums).

9. Pack equipment as required for salt air environment of 3 months.

10. Prepare information describing power system for team members.
Develop approach to fueling as a function of weather conditions, safety, etc.

ANTENNAS

Ralph Fedor KØIR

VKØIR ANTENNA DEPLOYMENT

Ralph Fedor - Antenna Czar

This document sets forth a plan for erection of antennas upon our arrival on Heard Island. There are variables, both known and unknown which may alter this plan. Hence, this plan is not etched in stone. It serves as an initial starting point.

Deployment of the beams and a vertical system that will cover 80 through 10 meters will be the first priority. Thereafter priority will be given to a vertical system that will cover 160 meters and concurrently a vertical system that will be most effective on 30 meters.

The vertical system that we will use to initially gain access to the low bands will be a decision made on site. It will depend on the strength of the winds at the time, the terrain, and the amount of daylight we have available to do our work. The Battle Creek Special may be the first low band vertical to be erected since it covers 40, 80, and 160. However, if the winds are too high, another vertical system will be easier to erect.

Once the beams and basic vertical antennas are in place, operation can commence. Then work on the more elaborate antennas can be completed. The more elaborate antennas include the 4-square arrays.

Placement of the beams is proposed as follows:

20	15	A3S	40		WARC	A3S	20	WARC
OP SITE 1					OP SITE 2			

The elements will be relatively parallel when the beams are pointed north to northwest. Note that there are two 20 meter monobanders to maximize our ability to operate SSB and CW concurrently on 20 meters. A single 40 meter beam can be shared between the two op sites (it is doubtful that we can operate SSB and CW concurrently on 40).

We will have major redundancy on the ìpremium bandsî -- 20, 30, 40, and 80 meters.

I feel that positioning of the four square arrays will have to be an ìon siteî decision. These arrays require considerable area. Local topography, ruins, anchorage, wildlife runs, and how all these relate to feed line length we have available will have to be evaluated to decide on placement of these arrays.

Bands that will be heavily utilized on CW (160, 80, and 30) will have antennas most accessible to the CW shelter.

I will defer placement of the satellite antennas to PA3DUU. We will all support Arie with our help whenever he needs it.

Our push-up masts will not survive if they are fully extended. Our masts are 40 ft. when fully extended. I doubt they will survive if extended beyond 20 ft. Leave them partially collapsed to add to their strength. I have seven heavy duty tripods to support the push-up masts at their bases.

Our guy lines will be stressed. They will require adjustment and re-tensioning. Please learn how to tie off a guy line so that your knot can be released easily when adjustments are needed. Ask me about this on the ship if you need help.

Another on-site assessment weíll need to make is the impact of birds on our antennas or vice-versa. There are multiple species of birds on Heard that like to swoop low to investigate (or attack). If our guy lines impale these creatures, the guys may need to be made more visible with fluorescent tape strips. I have packed tape for this purpose.

Lastly, the deployment of the antennas will have to be coordinated with the plans and needs of the radio czar, the power czar, and the general logistics required by the team leaders. All of this is a cooperative venture that we need to bring together to form a well-tuned machine.

ANTENNA OUTLINE - HEARD ISLAND 1997

Triband Beams:

Cushcraft A3S tuned for CW with 30 meter kit
Cushcraft A3S tuned for SSB

WARC Beams:

1 Cushcraft A3WS with 30 meter kit; 1 Cushcraft A3WS without 30 meter kit.

Monobander Beams:

Cushcraft 15-3CD
Cushcraft 20-3CD
Cushcraft 40-2CD

Vertical Antennas:

Cushcraft R7 multiband vertical
Battle Creek Special (160, 80, 40 meter capability)
ON4UN 80 meter vertical
ON4UN 160 meter vertical

Antennas supplied by WØGJ:

4-square array for 160 meters
4-square array for 80 meters
4-square array for 40 meters
2-vertical array for 30 meters
2-vertical back-up array for 20 meters
(phasing lines and switching units are included with the above)

Satellite antennas:

To be supplied by PA3DUU

Support systems:

There are seven tripod support systems available. Each tripod will accept a 40 ft. push-up mast which will be guyed at two levels and extended to the 20+ ft. level. One tripod will be dedicated to the satelitte antennas, one tripod will

support the 15 meter beam and the WARC beam, the others will support a single beam.

Feed lines:

150 ft. lengths of RG-213/U will serve as principal feed lines for the HF beams.

Additional 100 and 50 ft. lengths of coax are available to be patched in for added length when required. All connectors have been pre-installed. When baluns are required, current baluns will be used in lieu of coaxial baluns.

Antenna separation:

Antenna separation will be maximized to the extent possible by providing 150 ft. 240 and 120 VAC lines (10-3) from the generator area and 150+ ft. coaxial feed lines. Atlas Cove is a relaitively open area that should allow this although local tussocks, existing ruins, and terrain may have an impact on antenna placement.satelliterelatively

Back-up systems:

Keeping beam antennas up will be a challenge on Heard Island. We have a number of antennas available from the Easter Island DXípedition which can be used for back-up antennas. Several will be brought along but not deployed unless necessary. We already have duplication on the key bands: 20 meters can be accessed with the tribanders, the monobander, or the phased verticals. 30 meters can be accessed with the WARC antenna or the phased verticals. 40 meters can be accessed with the monobander, the Battle Creek Special, or the phased verticals. 80 meters can be accessed with the Battle Creek Special, ON4UNís vertical, or the phased verticals. 160 meters can be accessed with the Battle Creek Special, ON4UNís vertical, or the phased verticals. In addition the R7 will cover 40 through 10 meters and if antennas get damaged we should be able to salvage enough aluminum to construct additional verticals for 10 through 20 meters.

General comments:

The antennas in my posession have all been preassembled and marked with color coded tape for easy assembly.

We will orientate and position antennas in such a fashion that antennas likely to be utilized on the same band at the same time will be as widely separated as possible with elements parallel as much as possible.

Our antenna inventory is huge. It is reasonable only because we have a team of twenty and will likely have enough manpower to erect the antennas in a timely fashion and maintain them during the DX/pedition. We must guard against having too many which take too long to erect and which consume all our time and energy to maintain. ß®8©í, radials,Receiving antennas:

WØGJ is also providing components for beverages for the low bands.

It is my opinion that we should assemble a complete, basic antenna system for 80 through 10 meters, making all these bands available for use before commencing operations. Thereafter, after operations have commenced, we can proceed with erecting the auxillary or more complex systems and the 160 meter antennas. I defer this decision to KK6EK and ON6TT, however.

Directional antennas will be rotated by a rope tied to the end of the boom.

Six to eight anchor points will be required for each mast supporting an antenna. In addition, the Battle Creek Special requires four to eight anchor points and the other verticals require guying. This will consume a lot of anchor stakes.ete, basic antenna system for at least 80hrough 10 meters and if beamsOur antenna inventory is huge. It is reasonable only because we have a team of twenty and will likely have enough manpower to erect the antennas in a timely fashion and maintain them during the DX/pedition. We must guard against having too many which take too long to erect and which consume all our time and energy to maintain.

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WØGJ Antennas

The following inventory has been shipped by WØGJ:

Crates 1 and 2 are Clean Czar materials)

3. BEVERAGE & TOOL BOX (10.5"H x 13"W x 74.5"L)

Electric fence posts (bundle of 25) x 2
Fence post insulators (bag of 25) x 2
17 gauge electric fence wire x 1/2 mile (~2600')
RG-8X 500' spool x 1
I.C.E. Beverage Matching Box x 3
I.C.E. Beverage Termination Box x 3
Sledge hammer (maul) x 1
Pick-axe x 1
Fence post driver x 1
Wooden dowel 1" x 3' x 1

4. 160M 4-SQUARE ARRAY BOX (19"H x 20.5"W x 8'L)

Mast 2"x90" x 4
Antenna base (tubing inside) x 4
Top inductor section x 4
Bottom inductor section x 4
Radial inductors x 16
Radial wire short x 16
Radial wire long x 16
Plastic basin 20" x 15" x 5" x 1
Plastic basin 13" x 10" x 5" x 3
Control box x 1
Phase box x 1
20/3 control cable (500') x 1
RG-8X 500' spool x 1
RG-11Foam Phasing lines on spool x 4 (all on one spool)
Wooden dowel 1 1/4" x 5' x 1
Spool of 1/8" guy rope (pre-cut) x 1
Guy stakes (1.25" x 1.25" angle iron, about 28" long) x12
Survey flags x 10
Hardware pack
1" x 7 1/2" tubing x 4 (connects the inductors)
Scotch 33+ x 1
SO-239 pigtails x 5 (one spare)
Mast clamps x 12 (3 per 4-SQ) plus 4 spare nuts)
Guy eyelets x 5 (one spare)
Hose clamp
#16 x 4

#10 x 12
#6 x 8
#3 x 4
10x24 1" hardware plus spares
Manuals in Zip-Lock bag
Gladiator 160M vertical
DX Engineering 4-SQ Phase box manual

5. 80M 4-SQUARE ARRAY BOX (16"H x 15.5"W x 8'L)

2" x 6' Masts (tubing inside) x 4
Bases x 4
Inductor sections x 4
Radial wire (pre-cut) spool (for 4 verticals) x 1
RG-11Foam phasing lines (4) on spool
3/20 control cable 500' spool x 1
Control Box x 1
Phase Box x 1
1/8" rope, spool ~600' uncut
Guy stakes (1.25" x 1.25" angle about 28" long) x 12
Plastic basin (13" x 9" x 5") x 2
Survey flags x 5
Hardware pack
Mast clamps x 12
SO-239 pigtails x 5 (1 spare)
Hose clamps
#16 x 4
#10 x 12
#6 x 8
Scotch 33+ x 1
10-24 x 1" hardware plus spares
Manuals in Zip-Lock bag
Gladiator 80M vertical
DX Engineering Phase Box manual

6. 40/30/20M CONTROL & CABLE BOX (18.5"H x 18.5"W x 62.5"L)

RG-11Foam 40M phasing lines on spool (8 lines)
RG-8X 500' spool x 3
20/3 500' control cable spool x 2
1/8" rope guys, set of 24 on spool x 2
40M radial spool (complete set for 1 4-SQ) x 2
30M radial spool (for 2 verticals)
20M radial spool (for 2 verticals)
30M phasing cable set
Coax "T" connector
RG-11Foam x 2
RG-8X x 1
20M phasing cable set
Coax "T" connector
RG-11Foam x 2
RG-8X x 1
40M Control Box x 2
40M Phase Box x 2
Plastic basin (13" x 9" x 5") x 1
40M Hardware set plus spares

30 & 20M Hardware set plus spares
Manuals in Zip-Lock bag
DX Engineering phasing manuals
Vertical phasing manuals

7. 40M ANTENNA BOX (12"H x 14.5"W x 12'4"L)

40M Bottom section (top sections inside) x 8
40M Middle section x 8
40M Top section x 2 spare
Insulated base x 8
Short ground rod x 8
Stakes (1.25" x 1.25" angle approx 28" long) x 12
(will need stakes for 2nd 40M 4-SQ)
Survey flags x 10

8. 30M/20M ANTENNA BOX (12"H x 11.5"W x 12'4"L)

30M Bottom section x 2
30M Top section x 2
30M Insulated base x 2
20M Bottom section x 2
20M Top section x 2
20M Insulated base x 2
Short ground rod x 4 (the insulated bases slip over these)
8' ground rod x 4
Sand shovel x 1
Broom x 2
Stakes (1.25" x 1.25" angle, approx 28" long) x 11
PVC tube 1.5" x 5' x 1
PVC tube 3/4" x 6' x 1
PVC 3/4" to 1.5" adaptors x 4
PVC glue

The following items are in the Medical Crate (#9)

Tool bag (yes, in medical box)
Gladiator spare parts bag
Nutdriver 9/32" & 3/8"
1/2" wrench x 1
Cresent wrench x 1
Scotch 33+ x 2
Eye bolts (bag of assorted sizes)
Metal brightening pad x 2
Superglue x 1
100' tape measure x 1
16' tape measure x 1
Black permanent marker x 1
Vise grip pliers x 1
Needle nose pliers, curved x 1
Ring forceps x 1
10" Hacksaw x 1
Hacksaw blades x 3
Hose clamps (in bag)
Large x 6
Medium x 6

Small x 6
Punch x 2
Phillips screwdriver x 1
Standard screwdriver x 1
Maglight flashlight x 1
WD-40, small can x 1
PL-259's plus RG-8X adaptors x 6

Manuals
Gladiator 160M Vertical
Gladiator 80M Vertical
DX Engineering Vertical Phase Box manual
Vertical Antenna information (HyGain)

Heard Island Expedition 1997 (Planning Documents)

RADIO OPERATIONS

Peter Casier ON6TT

Radio Operator's Manual
Last update: Oct.24 96

Contents

Some Famous Quotes:

"Here we are gathered, all of us, some of the world's best operators ready to embark on a long adventure. Each of us with our strong points and weaker points, each of us with our expectations, each of us with our own ideas of how to do things. Now is the time to set all of our individualisms aside, and to work as a team to our common goal. Air an event that will long be remembered for its quality."
WØRLX - co-teamleader AH1A expedition, Waikiki Beach, Hawaii, 1993

"Tomorrow we sail. Today is a day to decide. Each one of you must decide for himself, for the last time, if he is up to the task, the task to work in this team, operating from the most wanted country in the world, from the most isolated place and from the harshest living conditions on the face of the earth. This manual describes how it is going to be done. This operating manual sums up the rules by which we are going to achieve our goals. If you decide you can not live and operate according to these rules, then you decide to leave the team. Right here and now."
KØIR - teamleader 3YØPI expedition, Port Stanley, Falklands, 1994

"Let's kick some ass!"
WA2FIJ - teamleader FOØCI - Clipperton Island, 1992

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0. Introduction.

Over the past two years, we have planned this expedition to one of the most wanted countries in the world. We have gathered the biggest and by far the best, most experienced expedition team ever. We have now embarked on the

most expensive and best prepared amateur radio trip, but also one of the most spoken off, and the most visible. But whatever our potential, experience, financial capacity or preparedness, we can still fail as no team has failed before. But we can also succeed as no team has succeeded before.

Now, my friends, has come the time to prove what we are really worth. And the only way we are going to be valued on is how we perform on the air. Each of us has contributed a great deal to this expedition. We have all invested a great deal of our own money, our time and efforts in this project. Each of us should have an equal share of joy during this expedition.

This manual is the guideline for all on how to perform well on the air and how each can have an equal share of the radio joy. For some of us, most things will sound obvious, for others some of it might be new material. This manual contains more than guidelines, they are rules, they are laws. Each of us will work as a team member, by these rules. And together, we will what we really are: the world's best. Ladies and gentlemen, fasten your seat belts, here's VKØIR!

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1. Our goals

In order of importance:

1.1. Have fun and provide fun:

Each operator in the team should get his equal share in the joy. And each of us will work as a service to the ham community. There will be no ego tripping, no preaching, no bitching to the audience nor to each other.

1.2. Provide as many hams as possible with a new country

We will always air as many stations as possible to concentrate on the main open bands, so we can get as many different calls as possible in our log.

1.3. Evenly spread our attention over the different continents' audience

Some continents will be easier to work than others. Europe and Japan will be relative easy. South and North America will be more difficult. During the openings to the latter, we will give priority to them. On an activity sheet in the kitchen tent, we will log which continents we worked during our shift, and regularly revise which continents we will have to give more attention.

1.4. Evenly spread the modes

We will equally divide our attention between CW and SSB, on all bands. RTTY will only be run on the main open bands to each continent. The activity sheet will log which modes we have run on which band and to which country.

1.5. Provide as many band-countries as possible

We will only start operating when the whole camp is set up, and when all bands are installed. From the first moment on, we will, while the main band stations work the main flow, look for openings on the 'edge' bands. From the first day on, we will work on top band and on the high edge bands. On the activity sheet, we will turf the contacts on each band, and keep track of when the different bands open up to the different regions.

1.6. Provide as many band/mode countries as possible

We will do an effort to work CW and SSB on as many bands as possible (except 160/30 SSB-hi). The activity sheet will help us in this goal.

1.7. Make as many QSOs as possible

A good and consequent rate, full time manned operating positions, adequate operations, will all contribute to a good number of QSOs. The goal is set to 100,000 QSOs

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2. Introducing our audience

Know your audience! Here are some basic statistics on the spread of the world's ham communities. This will help us in allocating our time to the different continents, and help us dividing our time between the different regions or call

areas in each continent.

Note that this is not the only determining factor: US West coast might be much more difficult to work than East coast, so more time will be needed for the West.

By continent: Asia: 49%, North America: 26%, Europe: 18% (North: 11, South: 7), South America: 5%, Pacific: 1%, Africa: 1%
By US call areas: 1: 6%, 2: 9%, 3: 6%, 4: 19%, 5: 11%, 6: 15%, 7: 10%, 8: 9%, 9: 8%, 0: 8%
By US Coast: Eastcoast (1-2-3-4-8): 49%, Midwest (9-0-5): 26%, Westcoast (6-7): 25%
In Japan: 1: 33%, 2: 11%, 3: 13%, 4: 7%, 5: 3%, 6: 9%, 7: 9%, 8: 8%, 9: 3%, 0: 5%

Note that the Asia figures might contain a lot of VHF-only licenses, but it gives you an indication.

Now what do all of these people want? (the most important first)

a. Log us at least once (our goals 1, 2, 3 & 7)
b. Be sure that they were logged correctly (make sure they know without a doubt that they are in the log!)
c. Log us once in every mode (our goal 4)
d. Log us on as many bands as possible (our goal 5)
e. Log us on as many band/modes as possible (our goal 6)

---

3. Natural resources: Propagation

3.1 Predictions

See appendix. These predictions are calculated based on the characteristics of the antennas we have (gain and angle) and our output power.

3.2 Propagation indicators:

- Our own logs:

Our own logs will be one of the main indicators of propagation. From the logs, we will turf our main openings (including: time, band, mode, continent/part of continent) we worked on the activity sheet. This activity sheet will be one of our main tools. In the appendix, you find a schematic overview. The same will appear on a large sheet of paper, showing what we worked, how (mode) and when.

Underneath the first part, there will be a matrix, band/continent. And we turf (in the number of pileups) we worked to each continent, on each band, on each mode (see appendix)

As such, it will also be an indicator for the future days on what and when we can work: at the beginning of a shift, we will see at the glance of an eye what bands will probably be open, and what mode should be emphasized.

- Solar figures:

Our pilots will give us the solar figures and predictions once per day. These will be displayed in the kitchen tent.

- World wide beacons:

See the list in the appendix. We will set up a spare station to look for rare openings. This station should check the beacons regularly. If no listening station is available, the running stations on the highest and the lowest bands, should check regularly for openings on the next lower and higher band.

- Our own beacons:

we will have two beacons of our own: the NCDXF beacon (phase III, see appendix) and the edge band beacon (10 and 160).

We will switch on the NCDXF beacon as soon as we can (soon after landing), way before we actually operate. Our audience will monitor them, and give feedback to the pilots on when and how they heard them. This will already be a main indicator of propagation flows before we get on the air. The NCDXF beacon will also continue to run into the operation, as long as it does not interfere with the operation itself.

The edge band beacon will run on 10 during the day (only if the NCDXF beacon is not active), and 160 during the

night, at full power. We will ask real time feedback from our audience to break in when they hear those beacons. This will avoid us wasting time calling CQ on a dead band hoping for an opening. If we have spare operator power to keep an eye on 160 during the night, we will switch off the beacon, but we should remember that often it does not mean there is no propagation because we hear no traffic. So we need to generate traffic to generate activity.

- Feedback from pilots:

The pilots will inform us of the feedback from our audience. This will be beacon information, feedback on our signal strengths etc.. but also possible openings to look out for, things to try etc.. atop of the routine feedback (such as 'op on 80 last night went too fast' or 'loads of QRM on running frequency during 12m opening last night')

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4. Equipment resources

Note: most of the equipment is on loan from sponsors. Handle it with care. Some of the keyers, paddles, mics, etc.. will be personal property. Do not use it before asking. Avoid doing major adjustments to equipment (especially personal equipment). If you come to an operating station and someone's personal keyer etc.. is still plugged in, set it aside carefully!

4.1 Operating positions:

The main source of information is the site manual by Bob, KK6EK. Basically, there will be two radio tents, each with two high power operating positions. Then there is the 'storage' tent, which will shelter the beacons, a fifth high power station and a spare station. The VHF position and the satellite telephone will also be in the same 'storage' shelter.

4.2 Layout and equipment of each station

Each high power station will consist of:

4.3 Antennas

We have a vast antenna park, the setup of which will be explained in the 'Antenna manual' by KØIR.

Basically we have as main antennas:

- two 10-15-20m tribander 3 element yagi (one with 30m extension kit), one tuned for SSB, one tuned for CW)
- two 12-17 duobander 3 element yagi (one with a 30m extension kit)
- one 15m 3 element yagi
- one 20m 3 element yagi
- one 40m 2 element yagi
- one Battlecreek vertical for 40-80-160
- 4 square for 40
- 4 square for 80
- 4 square for 160
- monoband vertical for 80
- monoband vertical for 160
- beverages
- one R7 10-40m vertical
- as spares: one 2 vertical array for 30 and one for 20

All yagis will be lined up facing NW/SE, spread as much as possible. The low band antennas will be placed as close as possible to the water, also spread as much as possible.

Because of our limited resources, we will need to share the antennas between the different operating positions. Some planning (through the operating schedule) will be needed to keep things running, though the operators should show enough flexibility to share these resources.

There are a few facts we should remember:

- A monoband antenna is less prone to cross band interference

- There is not much performance difference between a three element monobander and a three element multiband yagi, at the height we will use it.
- Side rejection is your best friend. Hopefully we can run the yagis mostly facing the same directions. Avoid yagis pointing into each others back, or worse, pointing towards each other
- You do not need a yagi to run a pileup, a vertical can do the job as well. A yagi might help you to keep control better over a pileup if you are facing weak propagation.
- Though our yagis are not very sharp (horizontal angle), they do have directivity! 10-15 degrees off course will not differ much, but 30-40 degrees off course, you will feel. Do not forget to turn the antenna when changing directions.
- Experiment with longpath/short path. Eventually ask assistance from a station on the band to figure out where propagation comes from, and assistance from team member to swing the beam to and fro.
- If you turn the antenna, turn the right one (right! we'll see who is laughing there, hi).
- Because of the vast antenna park to be installed, we will install first the basic park, and while operating, we will extend it with more antennas. Practically, at first, we will first install all yagis, the Battlecreek and the ON4UN vertical or phased arrays first (to be decided). While operating, we will install the rest of the low band antennas. We have a lot of backup antennas, so we might not install all of them from the first moment.

4.4 Amplifiers

'We need to be big', Martti says. We have five Alpha 91Bs, one for each high power station. Run power whenever possible, enough power to keep a good control over the pileup, and to keep a good rate going. Do not run the amplifiers to maximum power needlessly. More power is more strain on the generators, and more potential interference. If you need it, use it.

Make sure the amplifiers are correctly tuned. Take your time to tune. If you can not tune it well (Alphas are tricky beasts), ask assistance. The simplest way to tune an amp is to set your radio to 20W, preset your amp to factory settings, tune for maximum power. Increase the input power, while tuning the amp for maximum power, until you input and output maximum power. Decrease the output power by decreasing the input power.

Basic rule: keep an eye on the Ip (Plate current). High plate current gives guaranteed interstation interference!

Note that according to VK regulations, we can only run 400W.

4.5 Band pass filters

Each tent has a set of single band filters. We will have one backup set. They are symmetrical (no in, no out). They can only take 150W (100W continuous) in, so they go between the radio and the amp. If, for any reason, we would have a radio which gives 200W, certainly reduce the input power. Be careful to switch filters, as you switch bands. Unless there is a good reason not to, always use a bandpass filter. You might not gain much in reception, but your neighbor might!

Keep all bandpass filters with the station. There is nothing as frustrating as scouting for a certain filter, if you want to do a quick band switch.

4.6 Computers and CT

Most of the information on the computers, you will find in the part by N6EK, the computer and network czar. Nevertheless, there are a couple of rules/tips:

- All logging is done with CT
- Always keep the computer switched on, and IN CT! If you quit CT, you will interrupt the network.
- If you need to reboot, do it quickly
- Each log in each computer might differ slightly
- Use the super check partial feature.
- Use the gab feature with care. It is rather intrusive, but sometimes useful
- Use the frequency display feature to show you the frequencies of the other stations
- If you get into trouble with the computer, or with CT, ask for assistance. Do not experiment.
- There will be no need for you to save your log onto floppy.

4.7 Generators

Each operating position of the radio tents will be wired to its own 5 KVA generator. The 'shelter', kitchen and sleeping tent will be wired to the 7 KVA generator.

For more specialized information on the generators, I refer to the generator manual by W8FMG.

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5. Human resources

5.1 Specialties of each team members

Each of us has his own specialties. Specialties he is born with or has acquired during previous experiences (this starts to sound like a psychology course for first graders hi hi, but seriously:) It is a strong team that can make ultimate use of the strong points of its individual members. In our expedition, there are many ways to manifest one's strong points: in organization, in mechanics, electricity, problem solving, survival techniques, marine knowledge, radio etc. etc.. This will be the same in the operating part of our operation. Some of us are CW specialists, others love RTTY pileups, while others are keen on SSB piles. We have some high rate specialists, who get a kick out of chasing the speed counters up, who might get frustrated at the low rates that go with edge band operations, while others do not want the high rates, but would rather dig into the noise. Some of us speak several European languages, while others only speak English, and fortunately, we also have a Japanese national with us. Each of us understands his own language and culture better than others....

On another level, there will be some of us for whom expeditioning is a way of living, who live on pileups for breakfast, can run 40 wpm pileups while making jokes to the one next to them. Others are far less routined, and will want to come to the same level of those lifelong expeditioners.

And... we have people in their twenties, joining team with fifty-ers...

How to melt all of these qualities, differences, experiences into a well-oiled operational machine, that will be a challenge. And all the czars will take up their part of the challenge, but I feel double responsibility, as radio is finally what we came to do on Heard, and expectations are high.

- Each of us needs to feel that he gets an even part of the radio-joy
- Each of us must realize his own qualities and weaker points
- I will have to learn your own qualities and weaker points
- I will assign operating schedules to each of you, according to your qualities, but every job will equally contribute to the quality of the expedition.

Let me raise a warning finger to you on the following:

- Each of us has to prepare for his task to operate HF pileups
- Each of us has to completely master CT, the logging program
- Each of us will have to operate by the operating rules

5.2 Operating time schedules and operating shifts

Starting note: whatever operating schedule, we put in, it is second priority to survival. If the circumstances dictate it, operations might be suspended, or reduced, to be determined by one of the two expedition leaders, Bob or me. Let us hope this will not be needed often!

Second note: whatever schedule we put up, it will never please all of us. Each of us will have to compromise. Though I have the responsibility for the radio operations, I will base the scheduling on your input.

Third note: In a DXpedition, you can run in fixed schedules, or you can leave it up to the operators to discuss it amongst themselves. I have been on expedition where one or the other is used. Both run well, if the people comply to the rules, and are considerate. For VKØIR, we have chosen to run in fixed schedules, while giving the flexibility to shift amongst yourselves, within your operating shift. As such, everyone in one operating shift will be more seen as one operating team, rather than five individual operating positions.

Everyone's operating shift(s) will be one of 6 hours, or two of 3 hours (as you prefer) per 24 hours. The scheduling will be done by me, and will be flexible enough to coop with some of your personal preferences. The shifts will shift within the day, so no-one will be forced to run the same pileup to the same continent every day. Also, we will be flexible enough to allow someone for 'a day off' e.g.

The only one falling out of the HF operating schedule will be Arie, PA3DUU, whose operating schedule will be dictated by the opening times of the satellite. This means we have 19 ops to shift in 24 hours.

For each operating shift, and every operating position, I will assign an operator to do a specific task: be it work EU on 20-15 CW, or JA on 40 SSB, NA on 20 RTTY or look for edge openings etc.. These schedules will be made up every evening and will be displayed in the kitchen shelter. Input for each day's schedule will be taken from you, the propagation, and the pilots.

Each operator will in principle work from his operating position alone, though someone might ask if he can listen in on the second headset. Again it is for the main operator to decide if that is OK. He is the master of his 'position'.

There is a sixth operating position (the spare barefoot station) free for anyone who has spare time.. It has no logging computer and should be used for monitoring only. Operating the spare station in itself has no priority. The rest of the work has...

5.3 Owning operating positions

The 'main' operators will 'own' the operating position. The main operators might each ask someone else to take over their shift, or part of it (feeling tired, or willing to help other tasks etc..). I strongly encourage the main operators to rotate operating positions amongst themselves: ask another 'main' operator in the same shift, to swap places (e.g. someone running the main pileups for 3 hours might ask a swap with someone on the edge bands, so they can take it a bit easier, etc....). Or an active operator might want to ask a 'free' operator to take his place for 30 minutes so he can take a break. Rotating with the operating team will give everyone a chance to operate the main pileups, or the easier pileups, or different modes (if that is what your preference goes to).

Whatever rotation is taking place, the main operators (per operating position, as assigned by the schedule) are responsible to what happens during their shift, with his station. Each main operator 'owns' that operating position, and is responsible for it, during his shift.

5.4 Operator comfort

It is important that everyone can get the most from his operating shift, and can completely concentrate on his task. This means that he should not interrupt his pileup to refill the generators, prepare food, get drinks etc..

The 'slave' duty people therefore should take care of 'running the camp' and to serve the others. This includes:

- Refilling the generators
- Going around the tents to see if there is any food or drinks needed
- Keeping the water hot and the soda cold
- Preparing food
- Cleaning, general camp maintenance.

The slave duty will be further outlined in the manual by Bob, KK6EK. I hope that everyone will take as much honor in his slave shift, as in the operating schedule!

5.5 Conflicts

We should not make ourselves any illusions: there will be conflicts. Minor ones only, I hope. How to go about it? If it is a conflict between people, try to solve it between yourselves. If it can not be solved between yourselves, or the problem is not related to 'humans', go to the designated Czar in whose area, there are problems or potential problems. If he can not solve it to the satisfaction of the 'complainer', he can go to one of the two expedition leaders. If they can not solve it, KØIR, assisted by Wes, W8FMG will function as consolidators/referees etc....

In the radio-operations, we will follow the same way: you have a problem with a certain person's operating style or behavior, settle it with him. If that can not be done, or it has nothing to do with anyone else, come to me. If we can not find a solution, Bob will come in. If still, we can not solve the problem, Ralph and Wes will jump in.

Do know that many people are 'sensitive' when it comes to operating styles, or personal criticism. Go easy with others. Remember: in operating, there is not much black or white, right or wrong. Often, the color is gray, or the matter is 'somewhere in the middle'.

Although there will be some conflicts, I hope that they will remain minor. I have been on expeditions where not a bad word was said, and everyone enjoyed himself. I have heard of others, where people were ready to shoot each

other. With the system of 'counseling', we will not come to that.

Express your conflicts! Do not let them sizzle until you explode, or until we are back on the ship. But let's not exaggerate! The working environment will be very stressful, and with 20 people, there will be plenty of alternate ways that everyone sees to every single situation.

Although we will run the operation democratic, there is a hierarchy of authority. As the radio operations czar, I have the authority to put someone in a schedule, or to take him out. And I will exercise this authority. Nothing personal, but the team performance and satisfaction has priority.

5.6 Preparation and training sessions

Prepare yourself to operate from Heard! It will be a condition sine qua non that you know CT very well. If you do not know CT, you will not operate, simple as that. Though we will have some training sessions on the ship, this will be only to brief you on the specific features which we will use in the multi-op network we have. We will NOT train you on how to log stations, change bands, correct calls, etc..

Also try to familiarize yourself with the FT1000MP, FT900 and Alpha 91 before the trip. We will have some training sessions on these rigs while on the ship.

The most important part of your personal preparation will have to do with your physical condition. As mentioned in the medical plan, you need to get your body into shape for a lot of very heavy physical work, long shifts, and a lot of stress.

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6. Management resources: Operating practices

6.0 Callsigns

The only callsigns that will be used are the group callsigns:

Reunion	TOØR
/MM	FOØR/MM
Kerguelen	TXØK
Crozet	TXØC
Heard	VKØIR

6.1 Managing public relations

Our public should have confidence in our operation. This confidence can be won by running the pileups in a professional way. Note that the pileup's behavior mirrors that of the DXpeditioner who runs the show. Some of us might also adapt the 'conversational style' of operating, see below, as a way to manage the public, all while keeping up the rate.

6.2 The DXpedition frequencies

(see the appendix)

We will stick to the announced frequencies as much as possible nevertheless, small deviations might be needed, as e.g. the announced frequency is busy or filled with QRM.

Make sure that once you start calling on a new band, the frequency is clear, and that you have a reasonable clear RX window.

6.3 Dividing and spreading our audience

- The pileups are going to be big. Therefore we will have to spread the audience, be it by using split frequency, splitting them up by working by numbers, by continents or by continent zones.

Remember: you are in control of the pileup and you are responsible for its behavior.

One of the basic rules is that you absolutely stick to the split, be it frequency, zone, number or continent, There are no exceptions. Once you start accepting exceptions, there is often no stopping of the undisciplined callers in the pileups. If, on the contrary, they feel that you stick to your rules, discipline will be good.

Whatever split you make by working by numbers or continent zones, work until you end the split sequence. Never stop in the middle of a sequence, e.g. work 1-2-3-4 and stop the pileup at 5. The crowd is not likely to forgive you for that.

Follow propagation: use bigger splits in big peak openings (if needed), but use small splits in low propagation.

Follow propagation: do not try to run USA West Coast when there is no propagation to the West Coast.

Follow the population (see appendix), if e.g. you run USA by call areas, make sure that you work at least twice as many QSOs from the 4 and 6 district than for the others

Make very clear as what you are doing, in SSB, even in a conversational way: 'The pileup is getting too dense, I have to split you guys up and work by numbers. I am going to work numbers 1 to 0, 20 callers for each area'. And 'That was it for 4's, now switching to 5's'. Also: 'WØRLX, tu, Zeros?'

6.3.1 Use of split frequencies

Our absolute max split frequencies are 25 on SSB and 15 on CW. And that is the absolute maximum, reduce it as much as possible, without going too dense and as such decreasing your speed.

When listening within the split window, you scan the split frequency - following a tuning pattern, by preference while starting at the bottom, slowly working your way up. And then back from the bottom. This will have the experienced DXers following you. This predictability will increase the chance of the experienced audience to work you quickly.

Never have the pileup spill over the limits of the your preset window, therefore never work anybody outside of the split window.

Spread the pileup. Often, the pileup concentrates at the bottom and top. Work the top and bottom faster, and spend more time in the middle. In SSB, do not hesitate to say: 'there is nobody on 14207'. Good listeners will quickly catch on.

A usual tactic for fast pileups is to work a station, on a certain frequency, work the others tail ending on that same frequency, until the pileup is becoming too dense on that frequency, then spin the VFO higher or lower, within the split window, following your pre-set pattern.

Avoid spilling the pileup over ongoing SSB QSOs in your split window. Say rather: 'listening 5 to 15 up, avoid 14205'. If you work guys on top of existing QSOs, the rag chewers will get mad and might start to jam you. Of course, this is mainly for SSB! In CW, determine your split mainly by where you are listening

It is important that the pileup hears you. Jammers and policemen on your frequency will decrease your rate, and will make it difficult to keep the discipline AND will make it difficult for those you DO work, to hear confirmation of their call. A very good habit is to check your TX frequency from time to time. If you hear people calling on the wrong VFO, tell them 'xxØyy, I am working split'. NEVER work people on your TX frequency when working split. Do not forget to switch back to split mode after you checked your TX frequency (right, laugh,... hi)

How do you notice there is QRM on your TX frequency while running the piles, and without actually checking your TX frequency: there are several indicators, such as your speed going down, people asking for a repeat, people not coming right back to you after you call them, loosing the discipline (like people keep on calling when you call a certain station). Do not hesitate to ask if your frequency is clear.

The FT1000MP have two RX VFOs. It is NOT a good habit to listen with one VFO in your split window, and with another one on your TX frequency (just to check it remains free). Unavoidably, you will start working people who are calling on your TX frequency, without you realizing that you do so. In a minimum of time, you will create a mess on your TX frequency.

When starting a pileup, start with a small split, and eventually increase the split size.

While working on edge bands, or while working with weak signals, ALWAYS work split, just 5 up will make life for all much easier. Never think of working simplex on 80/160. Pileups will get out of hand before you know it, and

it will take ages before you get it back under control, by making it known that 'now' you work split frequency.

6.3.2 Splitting up by continent

There are three continents in our book: Asia/Pacific, Europe/Africa/Middle East, and the Americas.

This will be very important, as propagation will differ to each continent. Splitting by continent ('SSB: Asia/Pacific 5-10 up'), will ensure that you get the maximum out of every continent, and that every continent gets its chance.

Know what you are doing: by default, work the continent with the peak propagation. If openings to a rare continent happen during peaks to another continent, make sure the latter understands that you try to work some rare opening to the first and that they have to standby. This is very tricky, as often ops in the peak will hear you with 9+ sigs, while you work some other continent.

Stick to the continent you are working. No exceptions. If you hear too many callers from another continent, this means that something goes wrong: your TX is jammed, or the non-targeted continent is not pleased. Figure out why.

It is good from time to time to listen out for rare DX stations outside of the continent you are working. A YB or DU can be worked in the Asia pileup, but might be covered by JA's. In phone, do not hesitate to ask for any Asian stations outside of JA.

Also do not forget some rather large populations within the continent you work. E.g. make sure VK/ZL can get through when working Asia/Pacific...

6.3.3. Splitting up by continent zones

This might only be needed for EU and NA. This is mainly usable in SSB

EU there are two zones: North/Central Europe down to G-DL-HB9-F and South EU (mainly EA, I, ex-YU, SV). It might be needed to ask for North/Central EU only, as sometimes (due to the difference in propagation) South EU totally covers the rest of EU. (This was often the case on AH1A). Make sure that the southerners stand by if needed.

NA has 3 zones: East Coast: areas 1-2-3-4-8, including VE9's, Midwest: 9-0-5, West-Coast: 6-7, including KL7 and KH6.

Make sure that the pileup understands which area you work, and what is contained in that area.

While working with NA areas, people might sign portable. If not, ask them what area they are in. If not in the specified area, they do not go in the log. No exceptions. No mercy, or the pileup will grow out of hand. Make sure though, you remain calm and courteous. 'Sorry, working Eastcoast only now' is better then 'Why the hell are you calling me, you know I am working Eastcoast only? Buy a receiver'.

6.3.4. Splitting up by numbers

Tricky tricky, very tricky.

Before you start working by numbers assess the following:

- Is the pileup too dense? If so, that is an indicator to go by numbers
- Is my speed too low because of the density? If so, an other indicator to go numbers
- How stable is the propagation? If stable, then work 20 QSOs per number, if not, do not go for more than 10 per number. This is very very tricky. If you misjudge, the numbers at the end will have no more propagation by the time you work them

Never go for more than 20-25 per number (or about 5-6 minutes per number), making sure you work more for the densely populated areas (USA 4-6). Limit the time you spend on each number! Always count that you will spend (time per number) x 10 = total time needed to finish the list... Will there still be propagation?

Once going by numbers, stick by numbers. Announce the change of numbers in advance: 'one more with number 1'. 'Now going for twos, twos, twos, listening 200-210'

Once switching to the number system, it might be useful to reduce your window.

The number sequence for EU/Asia is the normal: 1-2-3-4-5-6-7-8-9-0. Do not go with more creative sequences.

Very important: the number sequence for NA follows propagation:

For NA: 1 2 3 4 8 9 0 5 7 6

Do NOT, repeat NOT, deviate from this sequence.

Portables are a non-issue. AA1AA/4, is a 4, not a 1. If he calls in as AA1AA, he is a 1.

Double numbers are a non-issue: Z32ZG can call in as a 3 or a 2.

Propagation for NA might probably so, that it is not opportune to run by numbers. Propagation might be so selective that there is only one zone to be worked at the same time. Be very careful that you make sure that one zone is not covering the other though!

6.3.5. Other splitting methods

There are none.

We do not work nets or lists. We do NOT work by country (e.g. for EU) ever ever!

6.4 The operating rhythm

Now we get into the metaphysics of the pileup techniques. Hold on to your knickers! hi. Rhythm will make your life easy. Rhythm will have you run a pileup like a professional or like a machine.

6.4.1. The rhythm of working stations

Rhythm does not mean rate. Rate is not everything. Rhythm is. Do not over emphasize rate.

Insist in working the guys in the same way, with the same words, with the same rhythm.

Typical exchange for our expedition in SSB (with incomplete calls) is:

- 'KU', 59

- VE1KU, thanks, 59

- VE1KU, thank you, up 5-10 --> ALWAYS repeat his complete call to confirm!

Typical exchange for our expedition in SSB (with complete calls) is:

- 'VE1KU', 59

- VE1KU, thanks, 59

- thank you (occasionally: 'thank you, up 5-10')

In CW (incomplete call):

- 'KE 5NN

- de VE1KE 5NN

- VE1KE TU or VE1KE UP --> always repeat his complete call to confirm!

In CW (complete call):

- 'VE1KE 5NN

- de VE1KE 5NN

- TU or UP

In all modes make sure that the one that you worked clearly understands that he is now logged. In all modes, repeat the station's complete call if you had it wrong or incomplete the first time, before you call QRZ again. This will increase the certainty of the guy that he was logged correctly, and thus increase the pileups joy, and reduce the chances for dupes. Your rate will be a bit lower, but the end result will show more net QSOs (less dupes).

In SSB make sure you speak clearly

A good habit to establish rhythm in SSB is not only to standardize your words (see example above) but also to minimize words.

In CW standardize your overs (how you give a report and how you call QRZ.

Partial persistence: In all modes make sure that you persist in the selected station until you have his full call. Do NOT ever make exceptions. Once you get 'KU', you stick to 'KU' until VE1KU gets through. If you realize that you made a mistake (you must be sure), and 'KU' does not come back, but it is 'KA' go like this:

- CW: 'NIL UP' and then after 3 seconds: 'KA 5NN'

- SSB: 'nothing heard, QRZ' and after 3 seconds 'KA 59'

In this way (though it is a bit naughty) you make clear that only KU was what you needed, and KA just called on the next QRZ.

Dupes are a non issue. Normally, you should not make a remark. If, however, 1 out of 10 stations you work in a pile shows to be a dupe, make clear you do not appreciate dupes. In a friendly way. e.g.: 'KKØKK, worked before. or KKØKK QSO B4' Try to figure out why you have so many dupe callers.

There are people that say that you can even work a couple of fake stations to increase the feeling of a rhythm (or at least not to loose the rhythm). I would not go that far, but it is up to you to decide. Make sure that you do not log the fakes, and that the fakes are no existing calls ('Gosh I heard him work my brother, who is not even home right now')

One more note on rates and speeds: do not dare to go faster than 20-25 wpm in CW on 160/80. Also make clear repeats of the calls on the low bands. Get your speed records on the main bands, not on the edge bands!

Rate is not the same as speed. You can work 4 stations per minute, with a CW speed of 30 wpm, but maybe only work 2 with a speed of 60 wpm.

Remember that a lot of hams can only get their own call at a high CW speed. So do not try to give QSL info or pileup directives at 50 wpm, reduce it when sending information!

It is important to get yourself into the right gear, before you start operating in the right rhythm. In other words, before you start operating, make sure the amp is properly tuned, right antenna, right direction, right mike or speed or keyer settings. With the first station you work in your new session, check your modulation and ask him if your frequency is clear. The latter is very important on the lower bands (e.g. 40 and 80m are very narrow and crowded and it can take a long time to find a good clear spot).

6.4.2. The rhythm of announcing calls, splits, QSL manager

Establish your rhythm of announcing our call, the split and the QSL manager. Depending on your speed, the best rhythm is:

Call: every 10 QSOs

Split: in SSB: every 10 QSOs (together with the split, call area etc..), in CW: every 20 QSO or so.

QSL manager: every 25 odd QSOs in SSB, every 50 odd QSOs in SSB. Our QSL manager is W4FRU.

6.4.3. The rhythm of announcing other frequencies (mainly for SSB)

People want to be informed. Tell them where the other stations are, what mode, and eventually what area they are working. This gives a professional impression ('Gosh, those guys know what the other stations are doing, and/or are well planned'). At the same time, it will give the people with limited air time, the chance of working us on a couple of band/modes in a short time.

Best is to integrate the announcement of the other frequencies together with the QSL manager.

6.4.4. The rhythm of announcing news (mainly for SSB)

When pileups do allow it, announce a bit of news every 100 odd QSOs. How many stations are on the air, temperature, wind etc.... This is called a 'conversational style'. We leave it up to each operator to integrate this into his own operating style. In most pileups, I found that 30 second announcements every 100 QSOs, gives you a bit of a break, stretch of a leg, and makes yourself ready for another go. Do not exaggerate this

There is a difference between a 'conversational style' and 'preaching'. Never preach to the crowd, no matter how badly they are behaving. If you need to correct them, do it in a professional way. Preachers belong in church, not on a DX station's key or mike.

You will get questions in the middle of pileups. By default, we do not answer questions, but if you get the same question over and over again, you might announce once the answer once in a while. This is much easier in SSB than in CW though. Typical questions are: 'when on 160', 'when on RTTY'. Answering questions directly just encourages more questions. And questions can totally disrupt your rhythm.

6.5 Logging

Always log onto the computer directly. Do not use paper to log the call first, and then fill it into the computer. If you need to do that, this means you are not familiar with CT or can not type. In both cases, you do not belong in the operating seat of this expedition.

Always keep paper and pencil ready, in case that you hear two or more calls at the same time, log the first while scribbling the others on a bit of paper. Some of us might be able to stack those in their memory.

Keeping paper and pencil ready is always handy if someone comes over to do something on your computer (taking a backup etc..). Make absolutely sure that you first log those on paper, back into the computer, before doing anything else.

Personally, I always write down the split I am using, otherwise I tend to forget (right: laugh hi.)

There is a difference between 'zeros' and 'oohs' on a keyboard.

A couple of notes on CT:

- Make extensive use of F12: the super check partial. We have the most extensive DX call database in the world, based on 3 million QSOs. The hit rate of the database is very high, and it will help you getting calls through faster and more correctly.
- Make use of the 'ALT-N' - note function to note things that might be of interest later (e.g. 'AA6AA not sure of call', is useful for the QSL manager - 'pile out of control' too) 'AA5AAA is not behaving' might be useful too. Or note funny remarks for the book later.
- Make use of the alt-J window: to show the frequencies of the other transceivers.
- ALT-G to send a message to the other computers (use it with care).
- ALT-I to disable the gab window.
- ALT-R to show your rate window (remember: rate is not everything!).

6.6 The war between the continents

We have to make absolutely sure that we give all continents an equal chance on all bands and all main modes (at least one band for RTTY, most bands for CW/SSB).

The main tool will be our central activity sheet, as hung in the kitchen tent. On there, we will log when we had what openings on what bands to what continent, and turf what mode we run that continent. This will make it very easy to overview what modes/bands we will have to stress to what continent. In this way e.g. RTTY-ers in JA will not be left out, or we will not forget to work EU on 17 CW e.g.

Make sure that you fill in the activity sheet RIGHT after your shift (a bit of self discipline, guys!), and to check it before going on shift.

Another tool to make sure that we give all continents an equal chance will be the pre-arranged operating schedules: Each op will be assigned to each operating shift with a well determined task: e.g. to run USA on 20 CW, or to work JA on 40 SSB, with a possible shift to 80 SSB whenever the openings might occur.

6.7 The war between the modes

While making the operating schedule, I will decide what modes to work, when to work what modes, what modes have priority, based on your input, and on the central activity sheet (what we have worked before). In this way we will make sure we balance the modes per continent and per band well.

Note that there will be NO 160m SSB, and 80m SSB will be limited.

A short note concerning RTTY: RTTY operations are tricky. They are very time consuming and are often more interruptive (cross band interference) than the other modes. If we do not run enough RTTY, the digital DXers will complain, if we run more than needed, the main DX public will complain. Therefore we will go by the following guidelines:

1. During the first two days, the RTTY activity will be limited to one hour per continent.

2. As the digital DXCC award is not split up by bands, we will try to provide as many as possible with one RTTY contact. There will be NO efforts to work as much RTTY as possible on the different bands. We will just try to work all continents on any of the main bands that are open, and that can provide that one RTTY contact that is needed.

3. After about 800-900 RTTY contacts in the log, the RTTY activity will be reduced to a minimum (there simply are not much more people active in this mode)/

6.7 Skeds, working friends & family, odd splits

Sorry, we will NOT keep skeds with non-ham friends and family over the radio. All traffic will have to be passed over Internet, Inmarsat phone and fax. We simply can NOT loose time for family traffic. Imagine that each op talks for 5 minutes (and that is NOT a lot, in calculating that the other party might be late, or there might be QRM etc..), we loose 100 minutes. No way.

We will NOT keep skeds with pilots. All pilot traffic will go via internet, with Inmarsat as fallback.

By default, we will NOT keep skeds for interviews. Most of that traffic should go via Inmarsat (and THEY call us on a pre-arranged telephone sked time, thus THEY make the expenses)

On the use of the Inmarsat:

- All calls/faxes out will have to be logged. They will be billed to you later.
- Keep the telephone and fax number secret. Only your own family and the pilots will know it. We will NOT take any wild callers.
- Make sure that you arrange with your family to call you at a pre-arranged time. It will be very interruptive for anyone to look for you (Ev. get you from the operating table or out of bed) because you have a call. Also, it will be very expensive for the other party to hold the line for 5 minutes while we look for you

If we run across friends or family in the pileup, you can take your time to say hi of course.

All of us have the problem with friends asking for skeds or odd split systems, just to make sure that we work them. Also most of the local QRPers (many who probably helped you in getting ready etc..) will want to make sure that they work you. How to go about it? First of all, be very discrete in whatever you do. Secondly, any favors of this kind are to be done in the second half of the operation. Thirdly, I have nothing against odd splits with a bunch of friends, or an odd split (upup means I am listening on frequency so and so), as long as you do it very discrete. I know that this system is not common in the US, but it is in EU and JA. Please please be discrete and wise. Some expeditions got into trouble because it was too obvious (running a whole JA or OH pileup 50 KHz above the top of the split, or working the guys by French department numbers, which indicates the frequency...). Also, whatever you do, make sure you get the turnover of number of stations: do not loose an hour of propagation, trying to work 10 local QRPers while the band only opens up 2 hours per day!

6.8 The DXpedition pilots

I refer to the DXpedition Pilot manual, by ON4UN.

Summarized, we have the following pilots:

- ON4UN - John (Europe and pilot coordinator)
- N1DG (WB2DND) - Don (US Eastcoast)
- WØEK (WDØAEK) -Bob (US Midwest North)
- KØEU - Randy (US Midwest Central)
- WØWW (N4PYD) -Scotty (US Midwest South)
- W6IJ (WA2FIJ) - Jay (US Westcoast)
- JH1ROJ - Isao (Japan)

These people are our main public relations and feedback channel to and from our DX audience. They will feel how our expedition is perceived and what we can do to improve. Their input will be very important.

The input/output to/from the pilots will go via satellite (Pacsat or Inmarsat), and printouts will be displayed in the kitchen shelter. Read it! In regular meetings, we will discuss the most important points of adjustment needed.

Telephone numbers of the pilots (and home numbers for each of us), will be distributed before the operation in a separate document.

6.9 Dealing with operational interference

Operating an expedition station is not simply a matter of sitting in front of a radio, and running the piles. There will be interruptions. How to handle them?

6.9.1 Self induced

As an operator, you might get tired, need a coffee or a cigarette, or just a break. You can, but make sure that your operating position is filled with another operator, if you decide to stop for a while. Brief him on what you are doing, e.g. 'running USA by numbers, my split is 200-220 and propagation is good and stable'. If it is a short break that you need, tell the pileup that you will be back in 2 minutes and to keep your TX frequency clear.

Whatever you do, make sure that you complete the number series you are working before stopping!!

6.9.2 Externally induced

You might be interrupted by other factors on which you have little or no control. The propagation might change (change continent, or start working freelance after finishing the numbers). You might get interference from another station within the camp: ask that operator if he has his filters in, or if he tuned the amp correctly). Your pileup might be interrupted by QRM, too many questions, requests, policing, wrong split. Deal with it on the spot. Get the stations off your TX frequency, or ask someone at the other end of the pileup what is happening.

6.10 Criticism, course corrections

Listening position: we will have a position that is free to listen in to the pileups that are operated.(make sure that you listen with the attenuator in, or without antenna, so you do not blow up the front-end!). People that listen in should be aware that their criticism to the running operator is interruptive. By preference, give your feedback to the operator after his shift, tell me as the radio operating czar, and only if urgent, tell the operator. Be considerate!!

Feedback from pilots: Pilots might give us feedback that requests for some course changes. Feedback from pilots will be given priority

Feedback from the pileups: The pileups might give you some feedback, or criticism. If it is only once, it might be a one time thing, but if it is repetitive, you might be doing something wrong, correct your course.

Monitoring progress: during the operation, we might experience we need to do some course changes. These will be hung out in the kitchen tent.

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7. Operations from Reunion, MM, Crozet and Kerguelen

7.1 Reunion

FR is not a priority but if there is time available, we will be able to operate somewhere. How and where will be decided later. Probably, there will be no opportunity to get some of our radios and antennas out of the cargo, but we might find a station in FR from where we can operate somehow.

7.2 Maritime Mobile

We will install a /MM station from the moment we can get on the ship. We will man this station as much as possible, mainly to keep the public relations going, and to get ourselves in the running a bit with the Yaesu radios and the CT setup. Though the manning of the /MM station is not a priority, we will try to man it as much as possible. On the ship, there will be plenty of other work to be done: training sessions, rearranging the cargo.

7.3 Crozet

A short operation from Crozet will be possible. Probably we will be able to use the station which is already installed there. If not, on the ship, we need to prepare a small kit to operate with. Though the time on Crozet will be short, it would be good to run some (in priority) RTTY, CW and SSB. WARC activity would also be appreciated. We will

give everybody a chance to man the station for a limited time.

7.4 Kerguelen

Same as Crozet, although we might spend some more time on Kerguelen.

8. Operator specialties:

Each of us has his specialties and preferences:

OPERATOR	BANDS	PREFERENCES

OPERATOR	BANDS	PREFERENCES
9V1YC	10-80 CW and SSB	CW US east coast
EA8AFJ	10-80m SSB and RTTY	10-40m SSB
HB9AHL	10-160m SSB and CW	
K4UEE	10-160 SSB and CW	CW and low bands
K9AJ	10-160 SSB and CW	CW and Warc+low bands
KK6EK	10-80m, SSB	USA
KØIR	10-160 SSB and CW	low band CW
N6EK	10-160 SSB and CW	20 SSB/CW, 40 CW
N6MZ	10-160m, CW and SSB	CW, low bands, Warc
NP4IW	10-80 SSB and CW	South America
OE9AMJ		
ON6TT	10-160m, SSB and RTTY	
PA3DUU	VHF and HF RTTY	VHF
RA3AUU	10-160m SSB and CW	lowbands
VK2TQM		
HB9AFI		
W8FMG	10-80m SSB and RTTY	CW
WØGJ (WAØPUJ)	10-10 SSB, CW, and RTTY	SSB on main bands, CW on low bands
WA3YVN	10-160	

9. Operating tips and tricks:

If your rate is getting lower, and people ask for repeats, or people do not get back to you fast enough, this is an indicator that your TX frequency is not clear or propagation went down.

Pick and drag method: often, when there is a high band opening, people might not be there while propagation is. Tell the guys: 'now switching to 18145, band is open to USA', or ask the operator on the other bands to announce that we are now starting on 17m CW e.g.

Checking propagation: a quick way to check if there is propagation on another band, without switching antenna, or retuning the amp, is to ask the pileup to give a tune on the new band (certain frequency). Unplug the bandpass filter and listen on that band to see if you hear something. If not, stay on your current band, if there is propagation, then you might go through the effort of retuning and switching

Ask for info: do you hear our beacon on 10m?

Start small and grow (split): when starting to operate on a new band, start with a small split, and if needed only, let your split grow, while announcing the change.

If the pileup is very thin, ask the guys to put us on the cluster

React to your prime reaction, operate with your subconscious: This I find important: while running dense pileups, you might switch of your rational thinking, and start to switch to subconscious mode: react to every bit of a call that you heard. Try it, it will increase your hit rate!

If there is uncontrollable QRM on your TX frequency, it is a good habit to shift your TX a couple of KHz down (preferably not up or you will get too close to your RX frequency), and start listening again on ONE frequency, until the pileup has found you again, and then start broadening your RX window.

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10. Appendices

10.1 VK bandplans

160 m: 1800-1875	1800-1875	CW
	1810-1815	FSK
	1815-1875	SSB/AM
	1815-1835	DX Window
	1870 +/- 4KHz	Avoid this freq!!!

80 m: 3500-3700 and 3794-3800	3500-3700	CW
	3525-3625	Novice segment
	3535-3620	SSB/AM
	3620-3640	FSK
	3640-3700	SSB/AM
	3794 + 1 KHz	Avoid this freq!!!
	3795-3800	DX Window

40 m: 7000-7300	7000-7300	CW
	7030-7040	FSK

	7040-7300	AM/SSB

30 m: 10100-10150	10.100-10.150	CW
	10.115-10.140	SSB/AM
	10.140-10.150	FSK
	10.1415 +/- 4KHz	Avoid this freq!!!

20 m: 14000-14350	14.000-14.350	CW
	14.070-14.112	FSK
	14.070-14.080	AMTOR
	14.080-14.095	RTTY
	14.095-14.112	Packet Radio
	14.100 +/- 500Hz	IBP Beacon Guard Band
	14.112+14.350	SSB/AM
	14.230	SSTV Calling Freq
	14.250	FAX Calling Freq.

17 m: 18068-18168	18.068-18.168	CW
	18.100-18.110	FSK
	18.110-18.168	SSB/AM

15 m: 21000-21450	21.000-21.450	CW
	21.070-21.125	FSK
	21.125-21.300	Novice Segment
	21.150-21.450	SSB/AM
	21.150 +/- 500Hz	BP Beacon Guard Band
	21.340 +/- 5KHz	SSTV calling freq.

12 m: 25890-24990	24.890-24.990	CW

	24.920-24.930	FSK
	24.930-24.990	SSB/AM

10 m: 28000-29700	28.000-28.200	Narrow band modes
	28.000-28.050	CW Only
	28.050-28.150	FSK
	28.150-28.200	CW Only
	28.190-28.200	IBP Beacon Segment
	28.200-29.100	general CW/PHONE
	28.200-28.300	continuous duty beacons
	28.300-29.100	SSB/AM
	28.680 +/- 5KHz	SSTV calling Freq.
	28.885	International 6M liasion Freq.
	29.120-29.280	FM SIMPLEX
	29.200	National domestic calling freq.
	29.300-29.510	Amateur Satellites
	29.510-29.700	FM Repeaters & Simplex
	29.520-29.580	Repeater inputs
	29.600	International Simplex Calling Freq.
	29.620-29.680	Repeater Outputs.

10.2 Expedition transmit frequencies (depending on QRM):

	CW	SSB
160 m	1.8265	-
80 m	3.522 (for USA)	3.799 (RX down in SSB)
80 m	3.507 (for EU/JA/VK)	3.799 (for EU/JA- rx down in SSB. For VK: simplex)
40 m	7.022 (for non-EU)	7.065
40 m	7.007 (for EU)	7.065
30 m	10.104	-

20 m	14.024	14.195
17 m	18.074	18.145
15 m	21.024	21.295
12 m	24.894	24.945
10 m	28.024	28.475

RTTY:

21.085
18.105 (if 17 m proves to be the best band to one continent)
14.085
10.140 (if 30 m proves to be the best band to one continent)
7.030 (if 40 m proves to be the best band to one continent)

10.3 Some world wide beacons (to be completed):

160m		
80 m		
40m	80m	
30m	10.144	DKØWCY - CW: 30 watts gives solar flux, A index, geomagnetic activity, aurora
20m	13.270	New York Air traffic control: SSB
	13.264	London Air traffic control: SSB
17m	18.068	IK6BAK beacon (continuously, low power)
15m		
12m	24.915	IK6BAK beacon (continuously, low power)
10m		

:

NCDXF beacons

This table gives the minute and second within each hour of the start of the first transmission of each of the new five-band beacons on each frequency. Transmissions currently being sent are indicated in bold. Each transmission is repeated every three minutes. A transmission consists of the callsign of the beacon sent at 22 words per minute followed by four one-second dashes. The callsign and the first dash are sent at 100 watts. The remaining dashes are sent at 10 watts, 1 watt and 0.1 watts. The actual starting time of each transmission is approximately twenty milliseconds after the nominal time due to the keying delay of the transmitter. Equipment used at each beacon site includes a Kenwood TS-50 transceiver, a Cushcraft R-5 vertical antenna, a Trimble Navigation Accutime GPS receiver, and a controller built by the NCDXF.

	Country	Station	14.100	18.110	21.150	24.930	28.200	operator	status
1	United Nations**	4U1UN	00:00	00:10	00:20	00:30	00:40	UNRC	In New York 1
2	Canada	VE8AT	00:10	00:20	00:30	00:40	00:50	RAC	Ready to ship
3	USA	W6WX	00:20	*00:30	00:40	*00:50	01:00	NCDXF	On the air
4	Hawaii	KH6WO	00:30	*00:40	00:50	*01:00	01:10	UHRC	In Hawaii
5	New Zealand	ZLØ	00:40	00:50	01:00	01:10	01:20	NZART	Built, call?
6	Australia	VK6Ø	00:50	01:00	01:10	01:20	01:30	WIA	Built, call?
7	Japan**	JA2IGY	01:00	01:10	01:20	01:30	01:40	JARL	In Japan
8	Russia	UAØ	01:10	01:20	01:30	01:40	01:50	?	Locating site
9	China	BYØ	01:20	01:30	01:40	01:50	02:00	CRSA	Locating site
10	Sri Lanka	4S7B	01:30	01:40	01:50	02:00	02:10	RSSL	Shipped 9/96
11	South Africa	ZS6DN	01:40	01:50	02:00	02:10	02:20	ZS6DN	On the air
12	Kenya	5Z4B	01:50	02:00	02:10	02:20	02:30	RSK	In Kenya
13	Israel	4X6TU	02:00	02:10	02:20	02:30	02:40	U Tel Aviv	On the air
14	Finland	OH2B	02:10	02:20	02:30	02:40	02:50	U Helsinki	On the air
15	Madeira**	CS3B	02:20	02:30	02:40	02:50	00:00	ARRM	In Madeira
16	Argentina	LU4AA	02:30	02:40	02:50	00:00	00:10	RCA	On the air
17	Peru	OA4B	02:40	02:50	00:00	00:10	00:20	RCP	Ready to ship
18	Venezuela	YV5B	02:50	00:00	00:10	00:20	00:30	RCV	On the air

*The W6WX and KH6WO beacons are not yet licensed for 18.110 and 24.930 MHz operation.
**This beacon is still transmitting in the older format on 14.100 MHz.

Note that our Heard beacon will be running in the same schedule too.

10.4 Propagation charts

Most figures are modeled for possible openings. If I have time, I will calculate the peaks for those that I have not done it yet. Typically, the high band openings are done with a low probability.

All propagation charts are modeled for our antennas (and those of our average public):

gain: from 10m as 15 dBi going down to 80/160: 3 dBi

angle: from 10m as 5 dgrs going up to 80/160: 25 deg

Flux assumed as SFI 75.

Es, PCA and indices are not taken into account.

Europe:

mode: openings:

10m: SP: 9-13

12m: SP: 8-14

15m: SP: 7:15-15

17m: SP: 7-15:30

20m: SP: 5-17

30m: SP: 6:15-18

40m: SP: 14:15-3:30

80m: SP: 16:15-03

160m: SP: 19-01

Japan:

mode: openings:

10m: SP: 2-10

12m: SP: 01-10:45

15m: SP: 01-10

17m: SP: 23:30-1:30

20m: SP: 22:30-13

30m: SP: 21-18

40m: SP: 09-01

80m: SP: 1130-22:30

160m: SP: 15:30-21:45

NA-Eastcoast:

mode: openings:

10m: SP: 11:30-18 (10% chance)

12m: SP: 11-18 (10% chance)

15m: SP: 11-18:30

17m: SP: 10:30-21

20m: SP: 11:30-21:30

30m: SP: 15-23

03:30-6:30

LP: 12-16

40m: SP: 18-07

LP: 9-17 (low probability)

80m: SP: 20-4:30

LP: 10-15:30

160m: SP: 22-23:00

NA-Midwest:

mode: openings:

10m: SP: 14:15-21 (10% chance)

12m: SP: 14-01

15m: SP: 14-00:15

17m: SP: 13-01:30

20m: SP: 12-04

07-11:30

30m: SP: 23-11

LP: 13-22:30

00-02

40m: SP: 23:45-11:45

LP: 11:45-02

80m: LP: 12:30-18

21-01

160m: LP: improbable

NA-West Coast:

mode: openings: peak:

10m: SP: 22-02 (very low chance)

12m: SP: 16-03 (low chance)

15m: SP: 16-02:30 (50% chance) 16:30

17m: SP: 15-04

20m: SP: 14:30-07 (might swing to LP) SP: 11:30-12:30+22-00 LP:16-17:30

30m: SP: 13:30-19

00-12

LP: 14-04

40m: SP: 02:15-17 13:30-15:00

LP: 13:45-04 23:00-01:00

80m: LP: 21:15-02:30

160m: LP: improbable

10.5 Main beam headings:

Though CT gives the short path beam headings for all locations, here are the most important ones:

- EU: 300-330
- JA: 50
- East Coast NA: 300 (North) to 210 (South)
- Mid West NA: 240 (East) to 180 (West)
- West NA: 180 (South) to 120 (North)

Boy you should see the US on the great circle map! It really stretches out!

10.6 Main sunset/sunrise tables:

Though CT gives most of the sunset/sunrise tables, here are the main ones:

10.7 Switching checklist:

Here is a list of items you need to check every time you start operating, or switch bands:

1. Connect correct bandpass filter (you will blow your final or the filter if you do not do this first!)
2. Connect the right antenna
3. Check the right amplifier setting (band switch, tuning and loading, Ip)
4. Check your RX and TX frequency
5. Check the computer on the correct band and mode setting

10.8 Appendix: My personal activity sheets

(this needs to be a nice spreadsheet, which you will have in the paper copy of the operating manual):

These table, you can fill in, while you are operating, so you can fill in the central activity sheet on the chart in the kitchen shelter after every operating shift:

The propagation activity sheet, you mark with crosses the opening per continent, per band, per hour, that you have observed. After a few days, this will give, on the central Propagation activity sheet, a good overview of the openings we observe and help us plan our operators/modes/bands...

Example of Propagation activity sheet:

JAPAN

	10	12	15	17	20	30	40	80	160
00					X	X	X	X	X
01			X	X	X	X	X	X	X
02		X	X	X	X	X	X	X	
03	X	X	X	X	X	X	X		
04	X	X	X	X	X	X			
05		X	X	X	X	X			
06			X	X	X	X			
07			X	X	X	X			
08				X	X	X			
09					X	X			
10					X	X			
11					X	X			
12					X	X			
13					X	X			
14					X	X			
15					X	X			
16					X	X			

	10	12	15	17	20	30	40	80	160
17					X	X			
18						X			
19						X			
20						X			
21									
22							X		
23							X	X	

EAST COAST U.S.

	10	12	15	17	20	30	40	80	160
00									
01									
02									
03									
04									
05									
06									
07									
08									
09									
10									
11									
12									
13							X		
14						X	X		
15					X	X	X	X	
16			X	X	X	X	X	X	
17		X	X	X	X	X	X	X	
18	X	X	X	X	X	X	X	X	X
19			X	X	X	X	X		

20				X	X	X	X		
21					X	X			
22						X			
23									

The mode activity sheet gives an overview of how many stations we worked on each band/mode to each continent. It will help to ensure us that we:

- balanced the continents as much as possible
- balanced CW/SSB for each continent/mode
- run RTTY to each continent

Each turf or tick on this sheet represents about 100 stations worked.

Again, after your shift, fill this in on the central mode activity sheet in the kitchen.

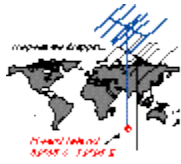**Example of Mode activity sheet:** (every turf or tick is about 100 stations)

JAPAN

	10	12	15	17	20	30	40	80	160
CW	II	I	II	III	I	II	III	II	I
SSB		I	II	II	II		II		
RTTY					I				

EAST COAST U.S.

	10	12	15	17	20	30	40	80	160
CW	I	I	II	III	I	II	III	II	I
SSB		I	I	I	I	I	I		
RTTY					I				

PILOTS

John Devoldere ON4UN

Last document update: Nov. 15, 1996

Confidentiality

A number of E-mail addresses in this document are shown as ...@????.?? These are confidential addresses which should not be published. These addresses will be forwarded individually to all pilots, but should not be published.

The information on how to contact the island directly (PACSAT or e-mail address, tel. nr., fax nr. etc...) as well as the telephone and fax information of all pilot stations is CONFIDENTIAL. Only the team members, their families, the pilots and the technical support crew know this.

DO NOT DIVULGE ANY OF THIS INFORMATION!

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1. THE PILOT STATION CONCEPT.

In the past, many DX-peditions have made the mistake of cutting themselves off from their audience, once they got on the air.

While criticism was building up, sometimes to a very high level, e.g. the Bouvet affair, the expeditioners were not aware of it. This can easily be avoided by providing a flexible way for the DX-community to provide feedback to the DX-peditioners.

On the other hand, there often were situations where DX-peditioners were getting frustrated because the pile-ups were not going the way they wanted, or because they had equipment problems and were unable to explain why they could not do certain things they wanted to do.

On a third level, DX-peditions often go to very remote places, where danger and the possibility of accidents lay behind every corner. DX-peditions need a flexible way to keep in touch with their homes, have access to emergency sources etc..

The pilot program provides means to achieve all these goals.

1.1. Goals of the pilot program:

a. Be a permanent and established communication link TO and FROM the DX-community.

The success of an expedition is measured in terms of the reaction it gets from the DX-community. This is done in two ways:

- by performing well (significantly re-rank Heard Island on the "most wanted list")
- by doing a good public relations job

Both are equally important, and can only be achieved if there is a good communication between the two sides: the team needs to know from the DX-community what they are doing well, what can be improved, what the DX-ers propose, etc. so that the DX-pedition can adjust its operation according to this feedback. On the other hand, the DX-community needs feedback from the island: going from 'why were they not on 160 yesterday', to 'when RTTY?', 'why 20 KHz split in SSB' to 'what is the weather like', 'is the 5th amplifier back on' and 'did the landing succeed well'...

This worked well for the mid west, west coast and EU during the 3Y expedition in 1994. People like to inform and to be informed. It makes them feel part of the DX-pedition. And it made it fun for the 3Y0PI operators to fulfill the needs of the community. And.. the DX-ers commented favorably on the way they had their say.

This time, the pilot station concept will be extended to all of the US, as well as to Japan.

b. Provide a way to keep in touch with the civilized world when commercial systems fail.

This DX-pedition is taking along Inmarsat telephone equipment, which enables the team members to call home, and to receive calls from home. The pilot station will, however, be in a fold-back position, in case problems might arise with the commercial satellite links.

1. 2. The pilot's profile:

A few of the pilots for the Heard Island DX-pedition have served before in this role during the 3YØPI DX-pedition.

We think we know what a good pilot looks like.

In order to make the present expedition an example 'par excellence', pilots were chosen which fulfill the following profile:

the pilot MUST have an excellent (well above average) HF-station

- he must be well respected in the DX-community
- he must have access to all the modern communication systems and links (internet, access to DX-cluster, Packet BBS is a must)
- be a communicator: he must be able to communicate/QSP messages briefly, to the point and objectively
- he must have a lot of free time during the expedition.
- he must be dedicated to his job (he must be convinced his job is as important as being a team member on the island).

Being a pilot requires a lot of time and patience. This should not be underestimated. Be prepared to spend a minimum of 4 to 5 hours every day at your pilot job!

During the 3YØPI expedition the pilots had to collect the info from the DX-pedition, broadcast the latest info to the DX-community, collect feed-back from it, and feed it to the DX-pedition, all by amateur radio means, most of it by HF or via packet-radio.

We are now 3 years further in an ever faster evolving telecom environment, which means our communication channels have changed significantly.

The primary communications system to be used on this DX-pedition is amateur satellite communications (PACSAT). We have a fold-back with internet via Inmarsat commercial satellite. This means we will not have to waste valuable HF operating time for this purpose. It also means more flexibility for the pilots. They will be able to concentrate more on talking to their audience, on listening to the DX-community and on broadcasting the latest news.

It is the feeling of those who took part in the 3YØ DX-pedition (either as operators or pilots) that the 3Y pilot scheme helped A LOT in optimizing the operating procedures, times, band choices etc.. (read the 3Y book!)

The pilots are to a large degree responsible for determining the perception and the quality of the Heard Island expedition. As such, the pilots take care of an important part of the deliverables as a team.

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2. WHO ARE THE PILOTS?

First of all let me tell you all how proud and happy I am to be part of it, and to be able to work, hand in hand, with you, pilots, to make this the most successful DX-pedition of this century.

I am delighted to have you aboard our VKØ/H team. Yes, you are fully-fledged team members! Once the DX-pedition has landed, you will be the key people in determining the course of the expedition. With your dedication and help, we will make this project a tremendous success.

Remember: we are the DX-pedition's public relations people. Be patient and friendly. Mind your language. I know how difficult it might get, with DX-ers giving very one-sided views or aggressive comments... Remember: you can not please them all, but you can lend a 'friendly ear'. Put the blunt information you received in the right perspective. Rephrase if necessary before passing on to us. Co-ordinate with your fellow pilots. Communication is the key word here.

Don't be afraid to stress things to the guys on the island. If they are doing certain things wrong, tell them. If they do not change, tell them again.

I am sure we, pilots, will have a lot of fun, too. And I am speaking of past 3YØPI experience.

I've been asked to act as Pilot co-ordinator or Pilot Czar. That means that I write the Pilot's manual, and that you come to me, if you have any questions as to your role as pilots. I'll do my best to help you as much as I can.

JH1ROJ - Isao Numaguchi (Japan)

Isao is 41 years old and has a ham since 1969. Profession: commercial photographer, living in near Tokyo.

Family: XYL Yumiko, 12 yrs old daughter Hiromi, 10 months old daughter Yuki and his parents. Isao has two stations, one is at his home QTH which is about 10 miles north of downtown Tokyo and one is at his country house which is about 100 miles north of the home QTH. He will be at this mountain side shack during the first week of HI operation.

Isao has been in a number of DX-peditions himself: J79ROJ, JH1ROJ/V2, 9M6/JH1ROJ, JH1ROJ/VE2 Zone2, 9M6RO, V2/JH1ROJ, HA/JH1ROJ, PS7ZIN, ZY0FZI(PY0), V31RO, JH1ROJ/TG, ZF2RO.

KØEU, Randy Martin, (USA, Mid-West, South)

Randy is 41 years old and married to Brooke with a son Thomas, who is 5 months old now. Thomas keeps Randy and Brooke pretty busy right now. They live on the outskirts of Denver, Colorado, in what Randy calls a piece of the country surrounded by lots of subdivisions. The lot is just over 1.5 acres in size. Randy is an independent consultant in the mining industry and his expertise is in computer-aided mine design.

Randy has been on three separate DX-peditions. The first, AH1A, was probably the most successful (4 guys from the present Heard team were there as well). Randy was one of the four CW operators on Howland, and also took care of the RTTY duties. Randy's second DX-pedition was a solo job to Ghana as 9G1XA, about 7 months after the Howland trip. Although working 10 hours a day, 6 days a week as a mining consultant, Randy managed to make almost 18,000 QSO's in his spare time on all bands and all modes. The Southwest Ohio DX Association voted it DX-pedition of the year in 1993. The International RTTY DX Association voted this the 1993 RTTY DX-pedition of the Year. Finally, Randy joined forces with K4UEE and K0IYF down on Isla Juan Fernandez in 1995 as CEØZ. He likes to think that this was also a very successful operation, even though CEØZ is not considered rare, with emphasis to Europe and on the low bands (it indeed was - ON4UN-)

Also Randy has recently upgraded his antenna farm. He now has two KT-34XA tribanders stacked at 67 feet and 120 feet, and also has two stacked Cushcraft 40-2CD's on the same tower, one at 127 feet and the other at 60 feet. He uses a quarter wave sloper on 160M and a full sized quarter wave vertical on 80M. Four 290 foot beverages are used for receiving on 80 and 160. The primary rig is an FT-1000D with HF-2500 amp. The second radio is a TS-670 with an Alpha 76A.

When not DXing, Randy "dabbles" in contests. His favorite has always been sweepstakes, low power. He usually manages a top-ten finish in sweepstakes, and even took first place on both CW and Phone in the same year. More recently, Randy has done some serious single operator entries in the CQWW CW contest. Randy has also been active in multi-op efforts from K0RF and W0CP.

N1DG (ex WB2DND) - Don Greenbaum (USA - North East)

Don is 45 years old, married with 2 children. Micah, age 16 who is N1QMM. Jocelyn is 13 and not yet licensed.

Don was first licensed in 1961. He has held DXCC Top of the Honor Roll. An avid DXer and contester he has been on several expeditions as well. These operations include A61AD, AL7EL/KH9, /VP9, /VS6, /BV2, and /4X.

Don is President of Aurum Telemedia Co. a distributor of computers and telecommunications services. Aurum provided the laptops for Heard97. An accomplished musician with multiple television appearances and records, Don has been moonlighting as principal Tubist with the Brockton Symphony Orchestra since 1986. In his spare time (RIGHT!) he is often seen on his Harley Davidson Softail Custom (without the Tuba).

ON4UN - John Devoldere (Europe and Pilot co-ordinator)

Age:55, licensed since 1961. Retired (since Sept. 96) professional engineer. Author of technical books and software. Family: XYL Frida, one daughter, Marleen (John thinks she is going to get her ham ticket).

Avid DX-er, contester and home-brewer (antennas and equipment). Holder of 80-meter DXCC award #1 (now 345 countries, needing only 3), holder of 5-band WAZ plaque #1, DXCC 160m (271 ctries), 160 m WAS, USCCA (all 3000+ counties), and many contest plaques. Holder of European all time record in CQ WW Phone 80m and in both the CW and the Phone 160 m CQ WW contests..

John loves CW, can stand Phone, but HATES lists. RTTY is a great mode as well! He loves opening his station up for newcomers and young hams to train them in the art of contesting. John is the responsible as well for the contest calls OT4T, OT5T, OT6T.

Station: M/S contest set-up with 2 FT1000MP's, home made amps and all home made antennas: 1/4 wave full-size

vert on 160, 4-square with elevated rads on 80, 3 el full-size yagi at 30m and 4-square for 40, 5 el (15 m boom) on 20m (at 25m), 6 el (12 m boom) on 15 (at 22m), and 6 el on 10m (12 m boom) at 19m, plus an array of 12 Beverages (one every 30 degrees) for reception on the low-bands.

WØEK - Bob Bruner (ex WDØAEK). (USA, Midwest, North)

Bob is 43 years old and married to Deb (KB0SIL). He has been self employed for 27 years doing auto body repair. Bob has been licensed since 1977 and then the DX virus hit home. He is in charge of VE testing in his area. A little over 2 years ago Deb and Bob bought their dream home that they have been searching for over 10 years. They have 40 acres in the hills. (where the towers are now growing). Bob's main rig is a FT1000MP, an ALPHA87a, and a TH11DX yagi. Bob uses wires for 80 and 160, plus 5 beverages at 1000 ft plus.

Bob is a member of Twin city DX association, Northern Minnesota DX association, and the ST.Cloud radio club.

W2IJ (ex WA2FIJ/6) - Jay Kobelin (USA - Westcoast)

Jay is 50 years old and has been married 23 years with 2 children (19 and 16 years old). Jay was licensed in 1959 as WV2FIJ (NOVICE), WA2FIJ, VK6AP and now W2IJ.

Jay's original station was comprised of home-brew equipment and relics from WWII as he likes to dabble in electronics. Jay is an electrical engineer presently employed by the Northrop Corporation where he works on the B-2 program. He also has a business that designs and does printed circuit board layouts, PCB4U which can be found on the WWW at http://www.ecsworld.com/~pcb4u/ .

Jay has been on two unique DX-peditions: the 2nd operation ever to Kingman Reef (WA2FIJ/KH5K, 1980) but prior to getting to the Reef the airplane crashed at Palmyra requiring the United States Coast Guard rescue to fly into Palmyra with 2 C-130's rescue aircraft. In 1992 Jay was in the team that "stormed" Clipperton for 9 days setting an all time record from this spot, approx. 48,000 Qs which came out to 3.75 Qs a minute for 9 days. Jay is proud to say that this is the expedition that exposed to the DX world one Peter Casier (ON6TT)!

Jay is putting up a new tower which should be ready for HI. The HF station consists of a TS950S and a Collins 30L1. The antennas are 2 multiband yagis (30/20/15/10 and 12/17 meters) and a 40 meter rotatable dipole. Jay is on the DXCC Honor Roll with a 332/323 count. His prime interest is DX-ing ever since his first DX contact at 5WPM on 40 meters, XTAL controlled, 50 watts, longwire and using a receiver with bandspread to tune off the XTAL frequency one cold evening in 1959...PY7CY, Jay says he'll never forget it and neither will his parents as he screamed out loud realizing what had just happened!! As you say, Jay is a REAL amateur!

W4WW (ex N4PYD) - Scotty Neustadter (USA - South East)

Scott Neustadter is M.S., C.P.L (Certified Professional Logistician) is 52 years young, and works as a Logistics Analyst for the Boeing Company, working on the International Space Station. Scott is a retired US Air Force Training Devices Superintendent. He is also member of the Question Pool Committee that generates the Question Pools for all Amateur Tests in the United States. Scott is the chairman of the Huntsville Hamfest, as well as Field Day Chair for K4BFT (#2 overall in '96) for the past 7 years.

Operating interests: Field Day, DX and Contesting including RTTY. Home Station: Yaesu FT-1000MP, Ten-Tec Titan Amp, Mosley Pro 67B @ 70ft. Wires for 80 & 160. 5BDXCC, DXCC Honor Roll, WPX Honor Roll.

ON1AIG - Andre Marchandise

Andre is our PACSAT man:

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3. THE PILOT'S COUNTERPART ON HEARD ISLAND.

On the island, Peter (ON6TT) and Ralph (KØIR) with Bob (KK6EK as a backup) will be our contact people for all matters related to information to and from the pilot stations.

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4. THE PILOT'S JOB

4.1. General Mechanism.

We are 7 pilots, and each one is fully responsible for his own area: Europe, Japan, USA North East, South East, Mid West/North, Mid West/South and West Coast. This means you should encourage the people in your area to feed you with information, impressions, proposals etc... You can do so by mail on PBBS and DX-cluster and better even, you can have a nightly Heard Island info net on 75m SSB, with a question and answer session afterwards.

Now that we know what the DX-community thinks, we have to feed that to the guys on the island (let me call them "the islanders"). This step is somehow tricky. You will get a lot of information. Some of it will be relevant, some will be contradictory, some of it will be insulting, some will be chit chat. It is up to you and your common sense to filter, condense, reword and summarize all feedback. Send it to the island, with a copy to the other pilots. Make sure that the mail is short and clear. Please do not delay sending the info to your colleague pilots. There is no competition between the pilots!

The task of the pilots is not only to listen to the DX Community, we should also inform them. This task is at least as important. For that, the "islanders" will send us daily news. Here we make a clear distinction between world-wide news and local news.

4.1.1. World-wide news.

World-wide news, also called "news of general importance" will be sent from the island to ON4UN, cc all other pilots. Only ON4UN will feed this world-wide news to the HEARD ISLAND internet reflector (see "THE HEARD ISLAND REFLECTOR"), and onto the EUROPEAN packet and DX-Clusters. This is to avoid misunderstandings and conflicts. ON4UN will send a copy of all world-wide news, that is sent to the Heard Island Reflector to the 6 colleague pilot stations. The local pilots will distribute the news (unchanged) to their local information networks via packet, and use it in their local information broadcasts as required.

Examples of world-wide news:

- general information on the expedition
- the operating schedule of tomorrow
- what they did today
- how many QSO's they made so far
- how the bands are
- what's the weather like

In my daily world-wide news bulletins that I will send to the Heard Island reflector, the European BBS's and DX-Cluster networks, as well as to all pilot stations for further distribution and use in their own areas, I will regularly make use of general information on the DX-pedition, in addition to the "news" from both sides. Most of this general and generic information is available on the Heard Island Web pages, but we have to consider that many amateurs do not have access to the internet, and will get this information via Packet Radio, or even via the 75 meter news broadcast. All local pilot stations are encouraged to use some of the same information to spice their daily news bulletins.

Some of the topics covered will be:

- Island 1977, main data
- Budget, sponsors
- Heard Island and Internet
- Am I in the log?
- The island
- Amateur Radio from Heard Island
- Traveling to Heard Island
- Landing on Heard Island
- Camping on Heard Island
- The antennas
- Propagation predictions
- The Low Bands
- Food and Water
- Electrical Power
- Medical Care

- Hygiene
- Clothing
- Safety
- Security

I will send a copy of these texts to the responsible Czars as well as to all Pilots as soon as they are ready. Please do not hesitate to amend them. You will be using these texts for your job as well. So let it be yours also! It is evident that some parts of these texts may have to be altered in view of actual developments prior to the broadcasting date.

4.1.2. Local news:

News of "local importance" will be sent from the island directly to the area pilots, with cc to all colleague pilots. Each pilot will divulge this news as deemed necessary. Replies to earlier questions from a pilot also fall in this category. Local news can of course be sent as a "local addendum" to the world-wide news. Each area pilot is responsible for broadcasting the world-wide news unchanged, plus the local information to all information channels he has available in his area (packet, voice HF-broadcasting, local radio magazines ...). Local news can be released by the pilots on the internet reflectors but should be clearly identified as local news (e.g. LATEST HEARD ISLAND INFO FOR JAPAN.... FOR EUROPE... FOR EAST COAST). The area pilots are requested to send a copy of their news releases to their colleagues (by internet).

Definition of the "local areas":

The US pilots will agree amongst them which states are covered by which pilots. Inform ON4UN before the start of the expedition.

Areas without a "resident" pilot are covered as follows:

- North America (except USA) and South America: N1DG
- Oceania: W2FJ
- Asia: JH1ROJ
- Africa: ON4UN

Examples of news of local importance:

- VKØIR will listen tomorrow 14:45 - 15:30 on 160 for West Coast
- VKØIR will listen 21:00 z tonight for East coast on 80 m CW
- VKØIR heard W6RJ on 80 m SSB at 15:10 yesterday with 59 signals
- Comments from JA operators on the 160 m opening last night.

4.2. Frequency of communication.

The rule is that all kind of INFORMATION and QUESTIONS from and to the island are sent at least ONCE a day. Replies to questions are sent within 12 hours of reception of the questions (whatever side this is on). This means that in general we will communicate with the island TWICE a day. All of the pilots are to be copied on all of this traffic.

4.3. Communication between pilots.

The rule is to use E-mail. But we have a fold-back of Fax or phone. The frequency rule, as explained under 4.2. applies. Please do not delay answers to questions you may have received from your colleagues.

4.4. Communication TO the island.

The guys on the island need to know how they perform. Tell them what they do well, but tell them also how to improve. Give them feedback on best openings for your area, how strong they were, when, LP/SP. Send any relevant info which will help the islanders to tailor their expedition to the needs of the DX-ers, or information to encourage them (be fair).

You will get this relevant info from:

- your daily SSB nets on 75 m
- E-mail messages from your audience
- Packet radio mail
- your own observations

A few examples:

come on 80m CW 30 minutes earlier. You miss the sunrise in the 1 - call area

- Scandinavia asks to try 10m long path at 11:00z
- give your ID more often.
- check your TX freq more often in SSB
- operator xyz got criticized because he lost his temper
- boy, biiig sig on 160 last night. Excellent op
- everyone is impressed by the ssb op. on 40 last night
- you appeared at the right time on 10m for JA yesterday
- the opening on 20 yesterday morning was long path first and switched to short path at 13:00z

How to send your mail to the island?

As said before, the primary digital link with the island is via PACSAT. All your digital communication must be sent by E-mail to the internet account of ON1AIG, who gateways manually between Pacsat and internet.

PILOTS ¨Æ INTERNET ¨Æ ON1AIG ¨Æ PACSAT ¨Æ ISLAND

Andre, ON1AIG will gateway your messages at least TWICE a day.

Procedure to send mail through PACSAT to the island:

1. Send the mail to ON1AIG@????.??via internet,
2. Put in the subject: TO ISLAND (so ON1AIG knows where to forward it to)
3. Copy all colleague pilots
4. Identify your message with a sequential numbering system, including your call. (e.g. W0EK001). This is to make it possible to verify if they got all your messages on the island.
5. Put anything in the message, BUT DO NOT USE ATTACHMENTS, NOR BINARY FILES
6. Andre, ON1AIG will load the message onto PACSAT, the islanders download it automatically

The fact that we use a low orbiting satellite means that there is some delay in getting your messages to the island. This is not a real-time operation.

format:

from: pilot X

to: ON1AIG@????.??

cc: all pilots

subject: TO ISLAND

Fold-back communication systems are described in par. 6

4.5. Information FROM the island.

Any news coming from the island will be clearly identified as WW (world wide)or LOCAL by the senders. WW news is sent to ON4UN with copy to all other pilots. Local news is sent to the interested pilot, cc all other pilots.

Each message from the island should carry a SERIAL NUMBER, starting with H001. This is to enable us to check if we received all messages.

As to the content, three kinds of information will be coming from the island:

- answers to your earlier questions (Islanders: make sure you answer all questions, even if it were "sri don't know the answer"). This news is mostly LOCAL.

- planning: what will they do in the next 24 hours

band/operating schedules

e.g. tomorrow 75 SSB and 40 CW, possibly 40 CW

change of frequencies

planning for the next days

This news is always WW news.

- general information, human information: e.g.

weather conditions on the island

e.g. very strong winds, (+ details), only antenna X and Z operational

no one slept last night, we all tried to keep the antennas up...

general HF-conditions

e.g. we tried the 15 m opening to so-and-so as announced, but nothing heard

technical difficulties

e.g. the ON4UN 160 meter antenna collapsed in the first wind....

tips for you who are chasing us,...

e.g. there is a short long path opening at 13:00z to Scandinavia on 30 m

too many Eu stations behaving undisciplined, please obey operator instructions

humor: they ran out of "toilet paper" as on Peter 1st island. What now?..

results: already made 25,000 QSO's! Worked 300 US stations on topband last night..

This news is always WW news.

All this information will be sent AT LEAST ONCE A DAY to all pilots

You will receive this mail via internet only, either via PACSAT through ON1AIG or directly via internet from the island (first fold-back communication systems are described in par 7).

- The standard procedure for the islanders to send mail through PACSAT into the internet is:
- hey upload mail to PACSAT
- they clearly identify the addressees and the CC's IN THE FIRST LINES OF THE TEXT.(e.g. TO: PILOTS, TO: ON4UN, TO...., CC:.....)
- anything can be put in the message
- ON1AIG takes the message and forwards it onto internet to the addressees and cc's.

Note that this link does NOT use our internet account, but goes through ON1AIG only.

format:

from: island

to: ON1AIG@????.??

subject: PILOT INFO

Text: first lines must identify the TO's and the CC's.

4.6. Information to the DX-community

Each pilot can develop his own way of distributing news. I would highly recommend the use of a daily HEARD ISLAND information net on 75 m SSB. This kind of information net was extremely successful in Europe (and was listened to by a lot of US East-coasters) during the Peter 1st operation.

World-wide information is spread on the internet HEARD REFLECTOR (see par. 8) only by ON4UN. The local pilots can send local news messages to the Heard Reflector, but should identify the news clearly as being local (e.g. " latest USA West Coast H.I. news").

The pilot co-ordinator, ON4UN, will send the world-wide news to the Heard Island reflector at least once a day. He

is also responsible for sending all news (WW and local) onto the European Packet Radio networks.

The local pilots will send the WW news (as received from ON4UN), and their locally generated "area" news onto the local Packet networks and other media as required. Local news can be sent by the pilots on the Heard Island internet reflector but should be clearly identified as local news (e.g. LATEST HEARD ISLAND INFO FOR JAPAN.... FOR EUROPE... FOR EAST COAST). Area pilots in the US should agree with one another to delimit their geographical area of responsibility.

Don, W1DG, is responsible for the Heard Island Web page. For news on the Web Page, he will use only world-wide news items, as released by ON4UN.

If a pilot has news that he considers world-wide, he should not hesitate to pass it on to ON4UN by E-mail! Also do not hesitate to give ON4UN your comments as to the world-wide news he broadcasts. Your comments can help him to improve!

In your local news bulletins, ask your audience to check the special beacons (especially the band edge beacons on 10 and 160m), as well as the NCDXF beacon which will be operational as soon as the guys land on Heard island. This is important information to be gathered while they set up the antennas.

The NCDXF/IARU beacon is all programmed, tested and ready to go. Its call is VK0IR It will transmit on 14.100, 18.110, 21.150, 24.930 and 28.200 for eight seconds once every three minutes. (The bands can be turned off individually if they cause a problem.) This beacon is one of a network of eighteen beacons around the world that share these frequencies and this transmitting pattern.

4.7. What are the back-up communication systems for the pilots?

Do not use any of the fold-back communication systems without FIRST informing ON4UN.

4.7.1. First fold-back: internet via Inmarsat telephone service.

If the PACSAT system does not work, we can communicate via internet and via the Inmarsat maritime telecommunication satellite system.

The internet address of the DX-pedition is: heard@????.??

How do we know that the PACSAT system does not work? What's the procedure?

a) If Andre, ON1AIG, cannot upload your messages to the satellite for a period longer than 12 hours, he will send all queued (waiting) messages via internet (to heard@????.be) and keep doing this (for all messages he "may" receive from you) until the PACSAT links is operational again.

b) If Andre, ON1AIG cannot download messages from the satellite for a period longer than 12 hours, he will send a message to the island via internet (e-mail) asking to send all messages after XYZ (=identification of last received message) via internet DIRECTLY to the addressees (the pilots).

Andre will immediately inform all pilots by e-mail of the above situations. The pilots should immediately start send their messages directly to the island via heard@????.???.

Andre will send a message via e-mail to the island as soon as the PACSAT system is again operational, and invite the pilots (by e-mail as well) to stop sending direct e-mail to the island, and to start sending all messages to his address again (ON1AIG@????.??). He will immediately resume sending all mail via PACSATT.

c) If on the island no messages have been received via PACSAT for a period longer than 12 hours, the islanders will check the e-mail server (heard@????.??) to see if any messages have been posted there because of a defective PACSAT system. They will check if there are any missing messages (check sequential numbering!), and inform the pilots (each pilot has his own individual message numbering system) by e-mail of any missing messages, which then can be sent again via e-mail.

d) If messages cannot be sent from the island because of a defective PACSAT system, then the messages will be sent by e-mail (/inmarsat) directly to all pilots at least every SIX hours. Always copy the pilot coordinator ON4UN!

The islanders should keep checking the PACKAT system to see when it has been restored to operation, and revert to PACSAT as soon as possible.

If communications is done directly from the pilots to the island (via E-mail through heard@????.??), the format

should be as follows:

Format:

from: pilot X

to: heard@????.??

copy: to all pilots

subject: TO ISLAND

4.7.2. Second fold-back: via Inmarsat phone/fax

This alternative is not available if the Inmarsat station on the island is not functioning.

Use this as fold-back and for urgent messages only. (we have no telephone operator standing by at all times.)

4.7.3. Third fold-back: via HF skeds

This is the most flexible way, but on 3Y we spent a lot of air time on this. Openings on VK0/H will be shorter and more erratic. Only if all other communication systems fail, we will use HF.

4.8. Back-up communication systems for the islanders.

If PACSAT does not work, the islanders have the same fail-back communication systems as provided for communications TO the island:

4.8.1. First fold-back: internet via Inmarsat telephone service.

see 4.7.1.

The format to be used for direct e-mail communication from the island to the pilots is as follows:

Format:

from: Island

to: pilot.xyz@abcd.efg

subject: PILOT INFO

cc: all other pilots

4.8.2. Second fold-back: via Inmarsat phone/fax

See 4.7.2

4.8.3. Third fold-back: via HF skeds

See 4.7.3

4.9. Message indentification (numbering).

- All messages TO and FROM the island should be identified by a sequential numbering system.
- Messages sent from the island to the pilots should be identfied as: H001, H002, H003, H004 etc..As ON4UN gets copies of all mail to all pilots, he can check if anty messages are missing.
- Messages from ON4UN to the island are identified as: ON4UN001, ON4UN002 etc..
- The messages from JH1ROJ will be identified as follows: JH1ROJ001, JH1ROJ002 etc..
- This identification is necessary to be able to see if any messages are missing.

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5. EMERGENCY COMMUNICATIONS

For urgent personal matters, use fax, or if really urgent, phone. Remember, the Inmarsat unit will be in the warehouse tent, and might be unattended at times.

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6. BEFORE LANDING ON HEARD ISLAND

It is important that the pilots establish contact with their audience and with the operators long before the operation on Heard island starts.

I plan to release world-wide news to the internet, and send copies to all pilots as soon as the party gets on the air from Reunion as TXØR. At the same time start the 80 meter news broadcast on a 2 or 3-times a week schedule, later to be increased to daily.

6.1. On the ship

The guys will be active as much as possible on the ship. We pilots, should keep in touch with them by radio as much as possible as well. This will create the right link, and provide us with "human" and other "general" information to be used in our news releases and bulletins.

6.2. On Crozet (TXØC)

Time on land will be very restricted. Some low-band operation possible.

6.3. On Kerguelen (TXØK)

Time on land will be very restricted. Some low-band operation possible.

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7. BEACON STATIONS

7.1. NCDXF Beacon:

From the first day of the landing, while setting up camp, the NCDXF beacon will run from the island as VKØIR with an R5 vertical. It will transmit on 14.100, 18.110, 21.150, 24.930 and 28.200 MHz. The beacon transmits for ten seconds on each band every three minutes . The VKØIR transmission on twenty meters is at one minute and ten seconds after the hour, and every three minutes after that. The transmissions on the other bands follow every ten seconds with the ten meter transmission starting at one minute and fifty seconds after the hour, and every three minutes after that.

On each frequency it sends VKØIR in CW at 100W, then 1 seconds long steady tones, at 100, 10, 1 and 0.1 W and then moves to the next higher frequency. Let's ask our public to keep an eye open on these frequencies as they will provide unique information for when hell will break loose. The latest beacon information is available from WWW.NCDXF.ORG.

This means that the beacon will be on the air probably 3 days before the operation will start! Invite you audience (by whatever means of communications) to listen for the beacon and report peak times, strength and SP/LP specs to you or directly to ON4UN (via E-mail to john.devoldere@innet.be or via packet to ON4UN @ON4AWP.OVN.BEL.EU). Please forward any information you may receive daily to ON4UN, who will co-ordinate this with the islanders.

The quality of these reports will be an important tool to draft the operating plan for the first days of operation. Tell everybody they have the operation in their own hands, through their reports of the beacon station.

If this beacon does not interfere with normal traffic, it will continue to operate throughout the DX-pedition. I will inform you as to the status of the beacon ON the island. All pilots should inform their audience of the status, and if operational ask them to listen especially for openings on "higher" bands. When someone hears openings on bands higher than the ones they are running on, call them on the lower" band and tell them.

7.1. The 160 meter beacon.

Throughout the whole operation (from just before sunset to just after sunrise on Heard Island), whenever they are not running on 160, the Heard Island DX-pedition will run a topband beacon on 1,826.5 KHz. It will sign "V V V V V V V V V DE VKØIR VKØIR VKØIR " . The beacon will run with full legal power on a monoband top-loaded vertical.

Ask your audience to check this frequency during times of possible propagation (likely when the DX-pedition will be operating on 80 or maybe 40m). Whenever the beacon signal is heard with a comfortable signal, the low band freaks are asked to come down (to 80 or 40m) and to inform the operation of the band opening. If possible, they will

QSY immediately. Tell your audience to be fair in their judgment: if they have a super-duper topband station and only hear the beacon now and then (in the noise?), don't bother to ask to QSY.

SWL reports on this beacon with all details are to be sent to the pilots. The pilots can report back to the islanders but should copy ON4UN for any report.

Why do they run a 160m beacon? A lot of time is often wasted by the expedition calling CQ in vain when the propagation is not there (yet). DX-ers are often waiting uselessly on topband too.

Also, expeditions are often said 'never to be on topband when the opening is there'... Well, this time it's the top-banders themselves who will tell when 160 is open!

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8. THE HEARD ISLAND REFLECTOR.

The calls and the e-mail addresses of the pilot stations are well known by the DX-community. In order to prevent each of the pilot stations to get swamped with "personal" e-mail about the DX-pedition, we have created a full blown reflector, the Heard Island reflector. eard Island reflector.HeThe pilot stations are invited to read the e-mail on this reflector.

Each pilot one should react to questions related to his local area. Make sure you do not answer any "world-wide" issues. ON4UN will take care of those. If in doubt, ask ON4UN. As a rule, reactions are NOT posted on the reflector as individual messages. Reactions are part of the world-wide or local news bulletins (on Internet, on the PBBS or via 75m broadcast).

The "local areas" are defined in par 4.1.

On the internet, all information on the Heard Island operation will be released via the Heard Island reflector. I will send the information on how to subscribe to the Heard Island reflector in time before the expeditions takes off, as well as the guide lines on how we will proceed the questions and suggestions received on the reflector. The e-mail reflector allows readers to "communicate" with their pilot stations.

Invite your audience to send their remarks, observations and queries via internet ONLY to the Heard Island reflector. We will not respond to any mail on other reflectors. Invite your audience to use the Reflector. Explain that we will not individually answer the mail, but respond in our news bulletins.

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9. THE HEARD ISLAND WEB PAGES.

Don Greenbaum, N1DG, is responsible for the Heard Island Web pages. He will include the WW news that he will receive from ON4UN on the Web pages.

The pilots are invited to tell their audience about the Web pages.

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10. LOGS AND QSO INFORMATION.

As a pilot station you will likely be asked by some stations "can you check to see if I am OK in the log". Tell your audience they can check themselves, either via a Packet Radio server or via internet (E-mail or WWW) .

No one will be able to "read" the entire log. Anyone will however be able to trace his own QSO's. Duplicate QSO's (same band, same mode) will not be given.

There are several ways of obtaining this information which are described in detail in a separate document.

THE 10 COMMANDMENTS FOR THE AREA PILOTS
1. Know who your public is. Communicate with your public. Run a 75 meter net.
2. Expect to hear the same question 10 times. Do not get nervous about it.... Think you are a salesman.
3. Send all World-wide news that you receive from ON4UN (by E-mail) to the DX-cluster and packet network in your area. Use the news in your daily 75 m news broadcast.

4. Send a copy of the local news you generate to ON4UN and your colleague pilots (via Internet)
5. Send ONLY local news on the Heard Island Internet reflector. This news must be clearly identified as local (mention the area).
6. Do not answer any E-mail from the Heard Island reflector. ON4UN will take care of that.
7. If necessary ON4UN will forward "local questions and comments" from the H.I. reflector for you to answer. Do not answer without being asked, in order to avoid conflicting answers.
8. Send your comments on the World-wide news to ON4UN. He needs to know how he is doing.
9. During camp set-up, invite your audience to send reception reports from the beacons stations. Forward the info received to ON4UN.
10. To send mail to Heard island: send an E-mail message to ON1AIG@????.?? via internet. Put in the subject: TO ISLAND (so ON1AIG knows where to forward it to) and copy all pilots.

SCIENTIFIC ACTIVITIES

Robert Schmieder KK6EK

BIOLOGICAL STUDIES

We plan to examine the cryptofauna on Heard Island, in particular the meiofauna. We would concentrate on identifying protozoa, insects and other arthropods, annelids (if any), and other small, interstitial species living in the sand, soil, plants, structures, or on the rocks. The general procedure would be to make representative collections of soil, with some onsite processing and full documentation, for forwarding to specialists. We would carry with us sterilized containers (e.g., plastic bags, small vials) for the samples. Extraction of the meiofauna could be done shipboard, or the samples could be returned intact. We propose that an extractor such as a large Berlese funnel (for dry extraction), a Baermann funnel or sand extractor (for wet extraction), and perhaps light traps be taken to assess the effectiveness of the sampling onsite, and to concentrate the effort on the most useful location and procedures {Southwood, 1978}. We would be pay particular attention to sampling in and around sites of former human habitation, under the hypothesis that foreign structures or substances could provide niches for foreign organisms. Thus, we would propose to visit disused buildings, dumps, and excavations to sample the resident cryptofauna [Jenkins-Smith, 1985].

In addition to this primary activity, we propose to collect representative specimens of plants, together with their surrounding soil, processing them in similar fashion. Since only about 8 species of plants are documented from Heard Island, confirmation of their presence, and archiving of representative specimens, would be of value to ongoing protection and management of the resources. A more extensive mapping of the occurrence of the plants within a limited region could be undertaken.

In the absence of more detailed information, and based on similarities of latitude, we might have expected the ecosystem at Heard Island to have much in common with South Georgia, for which we have some guidance [Headland, 1984]. However, South Georgia supports several hundred plants, including 26 native vasculars, 125 mosses, and 150 lichens, far more than the reported 8 plant species at Heard. Therefore, one would naturally expect the entire ecosystem to be correspondingly impoverished. It appears to be more similar to that of the Antarctic Peninsula [Moss, 1988], which lists only 18 plant species, mostly cryptogamous. The corresponding fauna is likewise impoverished: a few protists, rotifers, nematodes, tardigrades, mites, springtails, and midges. Thus, we will be searching for very small animals, probably less than a few mm. With some foresight, we could plan specifically for species known from Heard Island, thereby increasing the efficiency of their identification.

METEOROLOGY

The area of Atlas Cove is subject to extremely unstable air movements, due tot he proxity of the Laurens Peninsula. We plan to record the temperature, wind speed and direction, barometric pressure, humidity, and precipitation at the campsite. Combined with the information from the automatic weather station, this should provide insight into the microclimate in the vicinity of Atlas Cove.

HISTORY

We plan to document the current disposition and condition of the remains of the ANARE station at Atlas Cove. This will include photo-documentation, and a site drawing. We will also record the contents of any stores (no stores will be used for any part of this expedition).
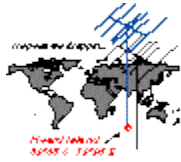
EMERGENCY PLANNING AND RESPONSE

David Muller VK2TQM

This is a draft document and will be used as the basis for our planned response to disaster. Note however, due to good planning and implementation of the overall expedition, I trust this document will not be needed. This document will be changed often in the next few weeks. Please consult this document often.

Issue: 1
Last update: 16 August 1996

Contents

1. Fire
2. Fall from cliff or crevasse
3. Damage/loss of stores/equipment
4. Lost person/people
5. Disaster at Sea
6. Contaminated Food or Water
7. Injury/Sickness

Appendices

A: Emergency Communications and schedules.
B: Emergency Response Kits (contents).
C: SITREP - Situation Report
D: Training Requirements

1. Fire

The risk of fire will be high.

Prevention

Do not smoke within a hut.
Do not smoke with in the area of generators or fuel stores
Caution when around heaters

In the event of fire

Immediate action

shout "FIRE" loudly three times.
Grab the closest extinguisher and apply it to the *base* of the fire.
Sound the camp fire alarm.

If you hear the fire alarm, proceed to the fire and grab more
extinguishers along the way.

The expedition leader is to take control of the fire ground.
By assessing the situation and the effort to combat the fire.
To re allocate people to where they are most needed.
To ensure ALL members are accounted for.

Equipment required

Qty of fire extinguishers - Type Compressed CO2,
Exact qty still to be determined.
Recommend, minimum one large per each fuel store, refueling and generator point
one small per each hut, or one large shared between huts as long as it it easily and quickly accessible.

---

2. Rescue From Depths. (cliff or crevasse).

Prevention

Do not put your self or others at risk.
If traveling across ice or rough ground then rope off to each other
Test the ground before walking on it.
Do not take risks.

Actions

In the event where someone falls down a cliff or crevasse:-
1. Immediately report the incident to expedition leader.
2. Effect rescue. Use Single rope techniques to recover person(s).

Equipment required.

2 by 50Mtrs of Kernmantle Blue Water II, 11mm Rope
1 by double sheath rescue block
2 by single sheath block
1 set of dumars
8 by large "D" type krabenas.
5 lengths of tape.

---

3. Damage/loss of equipment

Prevention

When transporting equipment ensure:-
All equipment is suitable loaded and secured. Then Double check !
That the craft carrying the equipment is not overloaded.
Spread the type of the load, ie do not put all the HF radios in the one box. If that box fall over then what do we do for two weeks? Play beach volleyball?

When setting up or using equipment:-
Take time to ensure it is set up/installed/commissioned correctly. The extra time spent here will save time later, after it fails.

---

4. Lost Person(s).

Prevention

1. Do not go walkabout by yourself. If going a reasonable distance then a minimum of three people should go.
2. Take suitable provisions with you. Food and water.
3. Take a 1st aid kit
4. Take a hand held radio
5. Take a map.
6. Take a compass and GPS where available.
7. Regularly report to base what your location is and what your intentions are.
8. Before departure seek approval from the expedition leader, and explain your intentions.
9. Take a signaling mirror

Emergency Procedures - Help Yourself

If lost remember:-
Panic kills: collect your wits. Ensure your immediate personal safety and then assess your priorities.

Priorities
1. First Aid
2. Shelter
3. Nourishment
4. Communications.

There are several ANARE survival huts - (Apple Huts), located around Heard Island.
They contain:- food, cooking equipment and three bunks.
They are found at:-
Atlas Cove (not reliable, it may have gone), map ref ??
Sydney Cove, map ref ??
Long Beach, map ref ??
Paddick Valley, map ref ??

They contain food, water and offer shelter from the weather.
The hut looks like a big apple, red in colour and about 2 Mtrs tall.

Actions
1. Retrace your steps or attempt a square search

2. Use any navigation aids
3. Establish communications with help
4. If these procedures fail, stay put, protect yourself and your party, and use signals.
5. Reassess your plans at intervals but do not hinder the chances of a search party finding you.
6. If you move, leave an indication of your intentions.

4.1 Lost individual

In unfamiliar or obscure terrain it is very easy to become disoriented, particularly in powerful winds and excessive noise. This situation can and does happen even within the station while moving between building, huts and tents. You may be ill-equipped to survive for any length of time but you will survive if you keep your head and plan your actions. Do not attempt anything that will lesson the chances of searches finding you. If a search is imminent, stay put, protect yourself and use your signals.

If an immediate search is not anticipated:
1. Do not wander aimlessly hoping to find a landmark. You will cover a lot of ground and become far removed from the location of a likely search area. If you cannot confidently retrace your steps do not attempt to do so.

2. Minimize your heat loss. Fasten your clothing to keep out snow or rain, and stay dry to prevent loss of vital body warmth.

3. Pause and think. Use available shelter or sit back to the wind and THINK. Try to remember your movements and discover where you went wrong.

4. Take note of the wind direction, it is your reference point for any subsequent movement.

5. If help may be close at hand, signal with whatever means available (shout, whistles, flares, mirrors, banging etc.) and remember to stop and listen for the sounds of searchers and others.

6. Try a square search where appropriate in the immediate area but do not be tempted to move to far on the first attempt. Proceed upwind ten or twenty steps - you may have to crawl. Then move across the wind left or right the same distance then downwind and back to your starting point having completed a square. You may not be exactly in the same spot, but you should be near to it. If nothing is found and you have not regained your bearings go up wind the same distance again and complete a square in the other direction. This process can also be repeated downwind of the starting point. The distance covered this way obviously depends on your visibility. When you are sure you have covered the four squares repeat the process with larger squares. Do not panic if the first efforts reveal nothing, after all you have only covered an area 40 square meters.

7. Go to ground before you have exhausted yourself . Lie down in the lee of a rock, tussock or drift. It is essential that you are not moving around to shelter from the wind. Make a shelter with whatever is available, bury your body as much as possible or allow yourself to be drifted in. Curl up and keep your back to the wind. Cover your face with your gloves or balaclave and calmly wait for an improvement in conditions. Keep listening for the calls of a search party. Ensure there is an obvious marker for a search party in case you become unconscious or not visible.

4.2 Lost Party

Stop ands examine the state of the party. Attend to the care of the weak and injured members. Be supportive of each other and maintain morale. Keep together unless there is an excellent reason not to. Assess the resources of the party e.g. food, fuel, shelter, communications and other equipment. Consider what SAR (search and rescue) action may be expected from others. (See section 3). If a search party is imminent stay put, protect the party and use signals.
If an immediate search is not anticipated:
If you have a radio refer to ????
Remember missed schedules may precipitate SAR action.

4.3 Search And Rescue (SAR) - Helping Others

A SAR mission may be mounted at anytime. It is important that all personnel remain familiar with location and use of all emergency equipment.
Any person may initiate an SAR operation.
There are formal procedures associated with the conduct of a SAR operation.

4.3.1 Coordination and control

Once SAR procedures have been initiated total control is to be exercised by the searchmaster.

4.3.2 Duties of a searchmaster

There are:-

Obtaining all the facts concerning the event.
ensuring that no activity occurs without their arrangement or knowledge
alerting, dispatching and coordination the activities of the search parties.
keeping the expedition leader fully informed
calling for an evaluation report form all sources

4.3.3 Phases of SAR Operation

1. Uncertainty Phase
2. Alert Phase
3. Distress Phase

Phases are used to indicate the seriousness of the SAR incident and for generally determining the action to be taken at any stage of the mission. Upon initial notification of a SAR incident, it is immediately classified into one of the three emergency phases. As the incident progresses, the emergency phase may change depending on how the situation develops.

4.3.4 Uncertainty Phase
The uncertainty phase is declared when doubt exists as to the safety of a team or person because of knowledge of possible difficulties, or because of lack of information concerning the progress or position.

4.3.5 Alert Phase
The alert phase is declared when apprehension exists about the safety of the team or person because of definite information that serious difficulty exists which does not amount to grave or imminent danger, or because of a continuing lack of information concerning the progress of position.

4.3.6 Distress Phase
The distress phase is declared when a team or person is threatened by grave or imminent danger, require immediate assistance, or because of continual lack of information concerning progress or position.

4.4 Participation In SAR Operations

Once a SAR alert is declared the searchmaster will take definite action. The actions taken depend on the nature of the emergency. For example, if contact is lost with a field party the searchmaster will:
monitor all communication systems
notify the expedition leader
ask other expeditions to be on the alert
go into an hourly listening and calling watch in addition to the normal schedule times.
broadcast 'blind' to the field party that SAR preparations are being made, to reassure them if they are listening. and prepare search teams for possible commitment
if still out of contact:
notify the expedition leader
request 'foreign' stations to keep a listening watch

finalize preparations for SAR mission

If the field party still not head from

notify the expedition leader

roster personnel for a 24 hour radio watch, (with calling every hour).

do not allow search teams to be committed to far forward without adequate logistic support

consider placing a doctor (or 1st Aider) with search teams

maintain normal camp operations as much as possible.

4. 5 Search Techniques

4.5.1 Searching the Base Camp Area

If someone is reported missing the person in control should consider the following actions:

sound the fire alarm; the missing person may turn up on hearing it.

Thoroughly question all personnel to find out where the person was last seen, where he is likely to have gone and the persons known habits, reactions etc. Someone may have know that the person has a habit of going to a certain place. This step is most important as a great deal of time can be lost if it is not done properly. Do not be tempted to rush out in all directions or let anyone else do so.

Check all tents, huts and buildings, inside and out.

Divide the area into search zones and allocate groups to check these zones. Stress the need for these groups to stay together and check each other. (allocate a number per person, check by count). Record the names of the parties in the search area.

Make sure everybody is suitable kitted with ropes, whistles, torches, and radio. Remember even these signals may be ineffective in heavy weather.

Set the search parties off with the instructions to report back as soon as the area is declared clear. Nominate a deadline for reporting back.

Search patterns. The sweep or line search requires one person to stay close to a building or other known fixed point and the rest of the team to spread out along a rope at visible distances. Several sweeps may be necessary further away from the building depending on the number in the party. Circular or arch searches can also be made from a central point.

All areas cleared by searches should be reported by to the search control center so that search areas are not covered twice.

Debrief each search team and estimate the effectiveness of the search. Do not hesitate to re-search an area if the initial search was felt to be inadequate or suspect.

Should the lost party be found, check to ensure all the search parties are recalled and that all members are accounted for.

4.5.2 Remote Search areas

Keep a careful watch for the missing party - they may be anywhere on route. Watch out for tracks leading away from the route.

Keep regular and frequent contact with the search control, advise progress and situation report.

Mark the route taken and leave evidence of passing with flags or markers, and note left in obvious locations indication who you are, the time of passage and what your intentions are. The lost party may miss you by hours or even minutes, or pass in poor visibility.

Various search are employed depending on the limits that can be placed on the search area.

The reconnaissance search covers a large area and reduces the search area into manageable proportions. The method broadly covers the intended route of the party and the likely alternatives by looking for evidence of the party.

The general search covers all the main features in the area of greatest probability. It uses several small fast parties to cover the area. The square search technique can be used to thoroughly cover the area defined. The square search pattern can be extended as necessary to widen the area covered. The expanded square technique and the parallel track ensure that the same ground is not covered twice.

The contact search is a saturation technique in the area of highest probability. A formation of a line of people is used to cover a small area. Each person in line maintains visual contact with the next and the searches the immediate ground. This method is slow and is not used until there is reasonable certainty of success.

5. Disaster at Sea

The ship's standing operating procedures will apply.
Ensure that we are briefed by the crew.
Follow the crews instructions.

6. Contaminated Food or Water

Preventative Actions

Always secure food in suitable containers

Immediate Actions:
If food or water is suspected of being contaminated then isolate from other food.
Tag food as suspect.
Report Immediately to Expedition Leader.

7. Injury/Sickness

Preventative Actions:-
Attention to personal hygiene
Do not take risks.

Immediate Action:
If injured:- apply 1st aid.
Report immediately to medical services.

If sick: Report immediately to medical services.

Annex A: Emergency Communications and Schedules

Field Party with HI Base Camp - 146.??? Mhz FM - Hourly on the hour.
HI Base Camp with Ship hf marine ?? Daily ??

HF Emergency Marine Frequencies. 2182 kHz

ANARE Frequencies 2720, 3032, 4040, 5400, kHz
Note 4040 & 5400 are the prime operating frequencies.

Annex B: Emergency Response Kit

A folder to contain:-

A list of all members
A map of the island
A map of the camp
A list of emergency frequencies and stations
A list of emergency phone numbers
Log sheets - used to log details of response activities to disaster.
4 by headache tablets

Annex C: Situation Report SITREP

Used to convey information about the incident to a higher level of command or control.
A SITREP should only contain fact and should not include any assumptions or predictions

SITREP
1. What has happened - Where - When
Overview of immediate effects from the impact of the event
Exact location, - access.
Estimate of problem - size/scope/area/dangers/numbers involved.

2. What has been done to date

Who and what is involved.
Activities undertaken to date.
What has been achieved.

3. What is being done now

4. What is proposed to be done.
Intentions?
What resources are required?

5. Other Considerations

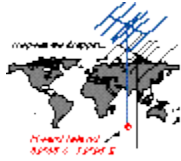Safety of other people
Contact external agencies

Annex D: Training Requirements

All members should be competent in the following areas.

The ships emergency drills
HI Fire Drill
Effective use of a fire extinguisher
Basic map and compass skills.
Basic rope work, including roping off to each other.

You are invited to make suggestions: davidm@gec.com.au

HEARD ISLAND RESOURCES ON THE WEB

This list of links was assembled by Tim Totten, KJ4VH. Thanks, Tim!

- Australian Antarctic Division (AntDiv)
- Research Ship Information and Cruise Schedules
- Public Relations and Humanities Berths
- Joint Australian Centre for Astrophysical Research in Antarctica
- Australian Environment, Sport and Territories Portfolio
- Other Antarctic Web Servers
- Australian Surveying and Land Information Group
- The Australian Environmental Resources Information Network
- Amazing Antarctica
- Exploring Antarctica
- British Antarctic Survey
- Expedition Link
- Heard Island in 1995 CIA Fact Book
- Heard Island in 1992 CIA Fact Book
- Imperial Shag - Heard Island subspecies
- Bird Index
- Research in the Great Wilderness
- Map of Antarctica
- Environmental Awareness
- Heard Island Flag
- The Australian Region
- Flora of Australia
- Slides Needed
- Aboriginal Studies Electronic Data Archive (ANU, Australia)

KJ4VH Home Page

Last modified 15 December 1995

Last modified 6 March 2011
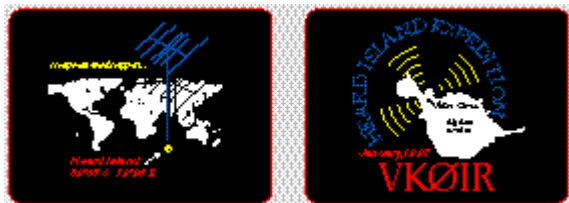
MISCELLANY

SOUVENIRS

The souvenirs serve two purposes: (1) to provide you with a memento of your participation in this project; (2) to raise a bit of cash to help offset the expedition costs. We realize that you can buy a serviceable mug or tee-shirt for less, but these are designed to celebrate the success of this historic event. We hope you will get one of these souvenirs and cherish it. ***All profits from these souvenirs go to defray the cost of VKØIR.***

BOOK
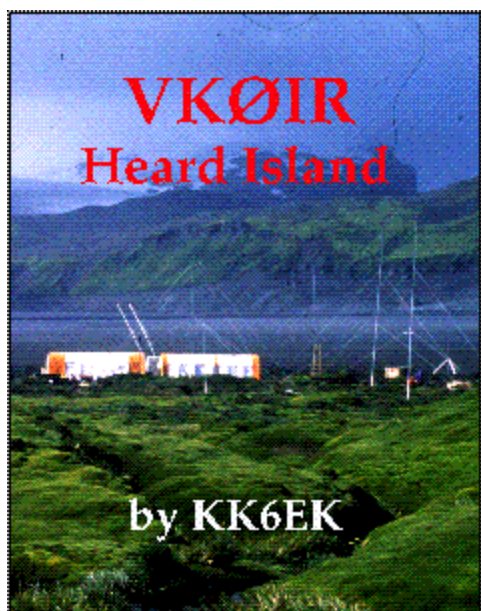
 [Click on book for extended description]

VKØIR: The 1997 Heard Island Expedition

by KK6EK

224 pages, hard bound, 17x24 cm (about 7x9"), **full color** throughout.

In the U.S., please order from:

Dennis Motschenbacher K7BV
4357 Appollonio Way

Carson City, Nevada 89704
k7bv@aol.com

$25 US. Make check out to Cordell Expeditions/Heard Island or to K7BV. Please include $3 postage US or $8 DX for each copy. Sorry, no VISA or Mastercards. Payment must be as a check drawn on a US bank in US dollars. Alternatively, you could send cash (any kind, but please wrap it securely).

In Europe, please order from:

Ghis Penny ON5NT
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B-9880 Aalter
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Mailed : in EU, Cash US$ 35 (or 1000BEF). Cheques, ONLY if Eurocheque in BEF, cardnumber on the back! Outside EU, US$ 40. No credit cards.If you can find it at a meeting in EU, it is US$ 30.

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If you would like the book personally autographed by the author, please order direct from:

Robert Schmieder KK6EK
4295 Walnut Blvd.
Walnut Creek, CA 94596 USA
cordell@ccnet.com

Prices as above, but please feel free to make an extra donation to VKØIR, whatever you think appropriate. Please indicate how you would like it inscribed.

MUGS

The favorite from previous DXpeditions. These are extremely strong and handsome, safe to use, and decorative. They come with a forever guarantee: if you ever break it, for any reason, we'll replace it free, if we have any left!

1997 Heard Island mugs, 4-color, $20.

1997 Heard Island mugs, white on black $15

Please order these from (Mail orders only, please):

Dennis Motschenbacher K7BV
4357 Appollonio Way
Carson City, Nevada 89704
k7bv@aol.com

Make check out to Cordell Expedition/Heard Island or to K7BV. Please include $3 postage US or $8 DX for each mug. Sorry, no VISA or Mastercards. Payment must be as a check drawn on a US bank in US$. Alternatively, you could send cash (any kind, but please wrap it securely).

TEE-SHIRTS

These are top-quality Haynes beefy cotton shirts, guaranteed to be color-fast and long-wearing. They are the same quality as those produced for the South Sandwich DX Group several years ago. Proceeds benefit the DXpedition. Personal checks are fine. Sizes Adult S-XXL, and XXXL by special requrest. Orders will be shipped the same or next day. Bulk orders or single ones.

1997 Heard Island tee-shirts $20 U. S., $25 airmail DX

(Front) (Rear)

Available from:

Tom Anderson, WW5L
3505 Cliffwood Drive
Bedford, Texas 76021-2043
(817) 498-2820
ww5l@gte.net

The prices listed above are postpaid. Do not add anything for postage.

VIDEO

The video is 55 minutes long and is completely professionally produced, with original sound and music. It was written and produced by Peter ON6TT, co-expedition leader of VKØIR. In a word, it is brilliant, brilliant! Whether or not you worked VKØIR, you can't live without this video. It will make you a member of the HI team, let you participate in more than two years of planning, and transport you to this awesome place for the most awesome event in the history of DXpeditions.

NTSC version (US):

Dennis Motschenbacher K7BV
4357 Appollonio Way
Carson City, Nevada 89704
k7bv@aol.com

$25 plus $3 postage US priority mail. US orders will get the standard NTSC version. If you are outside the US, you can also order the PAL version from ON5NT (below). Sorry, no VISA or Mastercards. Payment must be as a check drawn on a US bank in US$. Alternatively, you could send cash (any kind, but please wrap it securely).

PAL version (Eu, non-US):

Ghis Penny ON5NT
Lindestraat 46
B-9880 Aalter
Belgium
ghispenny@club.innet.be

Mailed : in EU, Cash US$ 35 (or 1000BEF). Cheques, ONLY if Eurocheque in BEF, cardnumber on the back!
Outside EU, US$ 40. No credit cards.Only PAL version. You cannot get NTSC version fromhere. If you can find it

at a meeting in EU, it is US$ 30.

STAMP COLLECTORS

For those interested in stamp collecting, or memorabilia:- We will be producing a commemorative "cover", this is an envelope that has an Australian Antarctic stamp, plus one of the Heard Island DXpedition logos. This envelope will be signed by one of the expedition members. There will only be a limited number produced.
http://www.gec.com.au/hic.html

LINKS TO THE OTHER DOCUMENTS

The major documents for the HI97 project are obtainable via these links:

- SCOPING (Overview, background, logistics, financing, etc.)
- PLANNING (Working documents being developed by the team)
- OPERATIONS (To be updated during the expedition)
- POST-EXPEDITION (QSLs, speakers, etc.)
- MISCELLANY (Souvenirs, other)

Return to Heard Island Home Page

This document is posted on the World Wide Web (WWW) at

http://www.cordell.org/HI