

# HEARD ISLAND

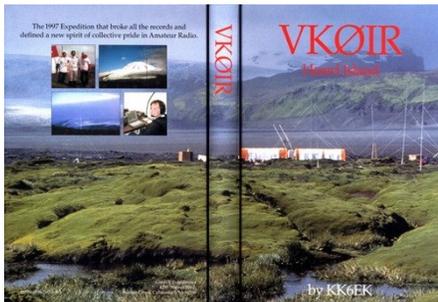
## The 2016 Cordell Expedition

Discovering Life in the Extremes

# VKØEK

Linking the Remote in Realtime

## Excerpts from *VKØIR—Heard Island*, by KK6EK



This is the story of an expedition to Heard Island, in the subantarctic Indian Ocean, during January, 1997. Twenty men, supported by hundreds of others, spent two weeks at the bottom of the world and the bottom of the sunspot cycle, making a world-record number of two-way radio contacts using the callsign VKØIR. For those of us who were participants, it was an amazing journey to the edge of our planet and beyond the edge of our experience. But it was much more than that: It was a new *kind* of journey for amateur radio: a shared, collective experience in which thousands worldwide use advanced technology to become nearly real-time participants in this extraordinary adventure.

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### The problem with Heard Island...

*Heard Island is very far away.*

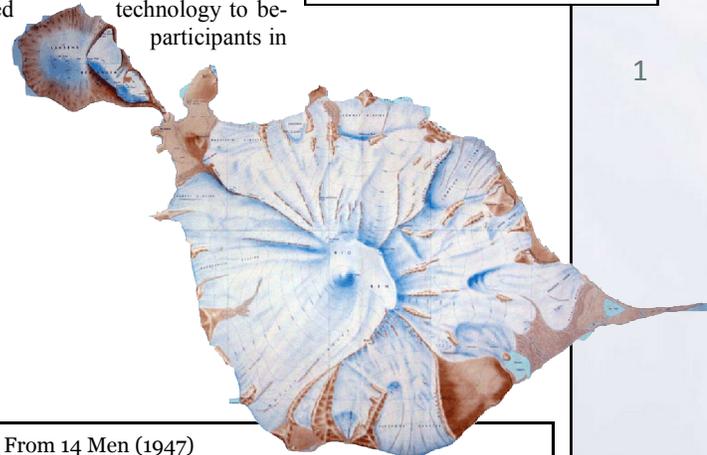
For much of the world, Heard Island is about as far away as you can get without a spaceship. It lies deep in the southern Indian Ocean, at 53°05' S – 73°30' E, practically to Antarctica. It is not near, on the way to, or on the way back from, anything.

In spite of its geographical distance, Heard Island lies close to the hearts of thousands of amateur radio operators. It represents probably the greatest challenge for radio operations, at least for those of us who don't own a communications satellite. Imagine what it takes for a radio wave to get from Heard Island to somewhere in Canada. Leaving the island with a few hundred watts of power, it spreads out in a flattened cone perhaps 10° wide, bouncing back and forth between the ionosphere and the Earth's surface, losing its power by heating the atmosphere and the wet ground. By the time it reaches its destination, the beam is 2000 miles wide and 20 miles high. A piece of aluminum tubing about 20 feet long catches about a square foot of it, about one trillionth of the original wave. Heating your cup of coffee with this power would take roughly 3000 years.

The worst problem with contacting Heard Island by radio is, of course, the simple fact that, almost always, there is no one there. Regardless of your best hopes and dreams, the overwhelming likelihood is that there is no radio on Heard Island. Nor is it likely that there will be one anytime soon. Your best option for talking with Heard Island is to stay tuned, and wait.

### Encounter...

We might as well have been stepping onto another planet. The four of us exited the helo onto a landscape that was so utterly foreign we wondered if we had the wrong island. A slight drizzle misted out glasses, making the scene appear fuzzy and indistinct. In the failing light, the jet-black volcanic rocks were wet and shiny, like metallic coal. We were vaguely aware of the mountains around us, but they were lost in the slowly drifting elevated fog. To the North, huge hummocks of moss were outlined by dark brown gutters of slippery mud. To the East a low ridge lay covered in glistening black mounds, erratically strewn with jagged boulders. To the South, a wide and low sandy plain was almost completely flooded from an ephemeral creek. Beyond the creek, to the West, lay the ghostly ruins of an outpost from long ago, its metal buildings slowly disintegrating into shards and rust. There was no color; only black and less black. Even the disappearing light seemed to have a spooky blackness. The island stretched away to awesome distances, a phantasmic spectacle of hugeness. For a few frozen moments, we gazed in awe at the grand bleakness around us. It was pointless to speak. Anyway, there wasn't time.



### From 14 Men (1947)

"On the whole, the island was a depressing place. There was little beauty in the gaunt gray rocks, the barren flat and grim precipitous coastline. But despite that, there was something of almost indefinable loveliness about it. In the morning sunrise, the great mountain was a heap of sparkling diamonds, reflecting flashing tints. When the sky behind the dome was the pale clear blue of the Antarctic, the mountain was awesome. When a full moon glinted round the ice slopes the dome shone like silver. At sunset, the shadows flitted in long lines across the glaciers, the mountaintop was a dome of gold."



## Village...

We began to turn things on. Heard Island Light and Power was up! Others arranged the area around the water containers and began filling the large blue jugs and orange coolers. Heard Island Waterworks was working!

Now to my delight, several team members discovered the tractor and wagon, using it to carry around heavy things like big cases of food and gasoline barrels. Late in the afternoon, my precious tractor refused to start. I fell into an instant depression. Mike N6MZ opened it up and determined that the battery ground connection was open. Grinning widely, he announced that he had just performed Heard Island's first-ever bypass operation.

## A radio city...

The antenna inventory looked like a hardware store. A dozen large white PVC pipes ten feet long. A pile of steel tripod parts. Stacks of elongated wooden crates containing four antennas each—the four-squares produced by Glenn WØGJ. In a few hours Glenn and his team had the 40m four-square up in the mossy tussocks just north of the village, and they were working on the 0m four-square at the edge of the Nullarbor plain, perhaps 500 feet from the village. Although it seemed quite reasonable at the time, we were reminded that this was the first time any expedition had ever deployed four-square antennas, and we had them for 40, 80, and 160! We relished the reports that would almost certainly be returned from these hot antennas.

## VKØIR QRV...

"John. This is Peter. John, we're ready to go on the air...Yep. Nothing to add. We're ready with four stations. We'll try to get two more ready later today."

It was shortly before 7 AM in Belgium, shortly before noon on Heard Island. By agreement, VKØIR would not be QRV until John ON4UN said it was. He would be the first QSO, and then, only then, would he turn the rest of the world loose.

"Yep...Yep...See you on 20 meters."

Most of the team gathered in OP-1. Its 12x12 ft area was roomy and warm. Ralph dialed the FT1000MP to 14.195 MHz and tuned up the Alpha.

"ON4UNB. ON4UN. ON4UN. This is VKØIR. John, are you there?"

"Roger. Roger. Roger. Five-and-nine. Five-and-nine. ON4UN."

There was a joyous whoop in OP-1, and someone yelled "Log him!"

We got to work. Like pilots racing for their aircraft, we raced for the radios. Within minutes, five stations came on the air, simultaneously. Willy and I went to OP-2, where we had set the station of SSB operation. I tuned up and made a speech, and turned the station over to Willy. In minutes, it was bedlam.



## Volcano...



We shared the binoculars and looked at the mountain. There, just off the summit to the west, was a tiny protuberance of snow, and there was a thin ribbon-like cloud attached to it. It was a steam vent. Big Ben was erupting! To us it appeared tiny, and compared with the mountain it was tiny. But a quick mental estimate indicated that the protuberance was probably several hundred feet high, and the vent a blistering rush comparable to the outpouring from a nuclear reactor cooling tower. I thought of the discovery of volcanism on the Jovian moon Io, when someone noticed an almost imperceptible cloud in a photograph from Voyager.

## Glacier...

Late in the afternoon James and I took an extended hike to the glacier at the foot of Big Ben. We both took our video cameras. The wind was brisk, and blew the tenuous fog and fine grit across the nullarbor against our back. Seen from far away, we must have appeared ghostly apparitions floating on a shimmering lake. Near the rock house where I had rested several days before we encountered a group of about a dozen king penguins. One, then a second, waddled away from the group and followed us for a quarter of a mile or more. They waited while we made a close-up inspection of a sleeping leopard seal, noting a bright red tag clipped in its tail. Eventually it lifted its head sleepily, and humped slowly into the surf. Hundreds of seabirds were replaying tag with the breakers, rising to avoid being clobbered, then settled behind the crest, snapping up small morsels. Further along the beach a solitary elephant seal was sleeping and we skirted it to the end of the spit.

At that point our way was blocked by a torrent of glacial runoff. It was a yellow-gray with sediment, and very cold. Directly in front of us was the butt end of the glacier, dirty and fractured, and large chunks of ice littered the beach. A huge tunnel was evident at the edge, and a river of water poured out of the opening with a loud roar. It occurred to me that this was how a glacier eliminated wastes. This was the glacier doing its #1! We tried to find a way across the river so we could proceed along the foot of the glacier, but the water was too deep, too fast. Turning to the right, to the West, we climbed the gentle rolling mounds of the terminal moraines. There was no ice, only huge piles of cobbles, gravel, and mud, dropped at the posterior end of the glacier. This was glacial excreta, where it did its #2. The analogy was complete.

## Hike...

In a dark gray drizzle, we walked rather briskly along the wide flat sand rimming Atlas Cove. Now and then we forgot to watch ahead and nearly walked straight into a pod of elephant seals. A solitary skua stirred slightly as we passed, staring with one eye or the other. More fur seals than I remembered when we were there before, watching us, ready to act aggressively.

A mile further we were walking along a cobble beach with a violent surf. As the water rushed out, and then back in again, the cobbles made a fearful racket. Now and the beach was partially blocked by rockfalls or soil ridges, and we had to climb up to pass. In some places the passage was practically in the surf, and the rocks were covered with slippery kelp. Once we had to wait for the surf to slide away before we could pass.

A cobble breakwater against the foot of a grassy cliff...bizarre piles of that yellow stringy kelp that looked like space aliens...fur seals demanding we walk to the side...large mats of seaweed clung around by the breakers...Every hour Hans talked with Willy on the handheld, and gave him the news that we were OK.

## Radio activity...

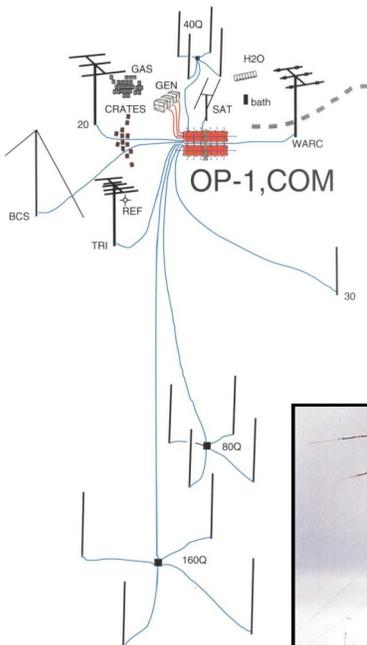
Peter uploaded a very long message to John, giving all kinds of details of our fantastic Saturday. He kept his prose compact and cryptic, because Pacsat time was at a premium:

“Tnx feedback. Thx compliments. But there is still a lot to be done to accomplish our goals... All people sacrifice sleep to keep all stations on...”

Arie struggled to keep the Pacsat running, so the logs could be uploaded about once each day. They went to an intermediate Pacsat operator, who relayed them to John, who updated the log server, so DXers would get confirmation at least once per day.

John continued to pass us a very long, very detailed list of how we were doing and what we should do: Move faster when working by numbers, identify more often, use “up” on CW and nothing else. There were about 20 specific suggestions each day. Peter posted these lists in the COM site, and most of the team read them. Ironically, there was so much incoming information that it was hard to extract the really important messages from the not so important ones. Peter acted as a filter and announcer, but that wasn’t enough. What we really needed was a meeting...

## VKØIR Siteplan



## Walking...

Between my shifts I took a solitary hike to Rogers Head. Loaded with cameras, I picked my way between enormous clumps of *Azorella*, doing my best to avoid walking on them. I had no idea whether our footsteps, which produced a depression about an inch deep in the thick mossy carpet, were doing permanent damage, or whether the moss would spring back unharmed. The spaces between the hummocks were almost invariably littered with tiny bones, as if the processor had used that location as a dumpsite. The brown skuas living among the tussocks watched me warily, and now and then made a diving attack to deter me from proceeding in the direction of a chick.

To the left rose a small cinder cone, completely covered with moss and bushes, and to my right another cone, open on one side. Rogers Head appeared at the end of the peninsula, about a half mile from our camp. It is an astonishing rock that apparently o-o-o-ozed upward in a series of contractions, leaving a striated pinnacle perhaps 500 feet high. As I walked giddily to the precipitous edge of the cliff and looked across at the Head, I saw it was covered with thousands of macaroni penguins, cackling, crying, walking in lines, slithering around on the mud, jumping in the surf, climbing laboriously up the slope. It was an infestation of penguins. The smell was what you might expect, but because I was so far away, it was not obtrusive.

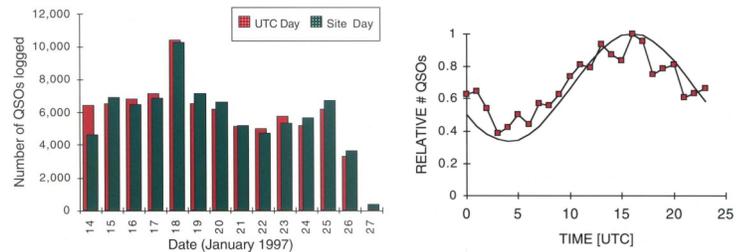
## Propagation...

We were finally having some success getting the logs posted in enough places for people to use them. Arie was able to keep the Pacsat transceiver running by keeping it in the cold. At the present time, the logs were about 2 days behind. We got reports, especially from Japan, that hams were checking the logs, not finding their calls, and complaining. Clearly they were not aware of the delay in posting them. After all, what could take the time? It was ironic but satisfying to me to see the amateur community now expecting it to be fully functional and with no delay. It was only 15 months earlier that we had implemented the world’s first log server, for XRØY. As predicted, the DXing community was instantly and forever changed!

## Statistics...

Last night’s runs took us another notch up. This morning we had 71,184 total QSOs with 24,871 different stations. There were 39,798 CW, 29,768 SSB, and 1618 RTTY contacts. By now, Peter had worked more than double the known world population of RTTY stations. Arie had logged 450 QSOs by satellite.

In the face of these statistics, and looking at the calendar, we had a long discussion on strategy for the remaining days. Should we go for breadth, working no-code-novice-bicycle-cave-mobile-QRP, or should we go for length, aiming at 100,000QSOs by encouraging dupes, taking lists, and working ourselves? We had a long discussion about shutdown: Should we leave one station operating until the last possible moment to gather a few last stragglers, or should we pull the switch cleanly and devote the last two days to packing? The discussions were heated and sometimes emotional. What we did agree on was that 80,000 QSOs was our goal; we would keep operating until either we reached 80,000, or I mandated closure for safety reasons. We all assumed it would be the former. I knew, however, that I may have to shut us down even if we were short.



## Experiencing Heard Island...

Afternoon wore into evening. We gathered for dinner, and talked about the impending shutdown. We talked about how well the team had functioned, and about the fact that there had been no significant, or even perceptible, disagreements. ... This evening quite a few of the men called home. Others wrote in their diaries, while other walked outside. Wes, as he had done the entire time, maintained the generators, keeping 30 kW of power flowing. We ate as much bread as we could. Some took a shower. Other slept or read on their bunks. A few hung around analyzing data and propagation charts. Everyone thought about what we had just experienced. I wrote an essay, in part:

“Heard Island has all the feeling of an outpost on another planet. Even after 2 weeks of living here, I am awe-struck by the feeling of remoteness. There is little here that is familiar to temperature suburban backyard living. We constantly hear the deep throaty roar of huge animals hidden in the hummocks nearby. Sometimes we practically trip over them walking at night. The elephant seals stare at us with huge flat dark eyes that track up and down our bodies as we step around them. The brown skuas fly at us like torpedo bombers, veering off at the last moment, inches from our heads. The grass grows on tops of mounds of moist red earth about 2 feet high, and everywhere there are gigantic pillows of green moss that is spongy to our step. Everywhere the ground is littered with bones of birds and mammals that glow bright white against the black volcanic sand and rock.

“Except for our bizarre surroundings, life on Heard Island is somewhat routine. Every day we post the operating assignments for the stations, and take our shifts. We have little to do but operate the radios and capture the experience of being here. We have a small tractor to drive heavy loads around. When off-duty, we sit in the dining area and trade stories, mostly about the band openings. Every day we tally the progress. Now and then we send a fax. Sometimes the phone rings and we answer “Heard Island, good evening.”



### THE HEARD ISLAND PROJECT

The Heard Island Project is centered around an expedition to Heard Island, lying at 53°S 73°E in the Southern Ocean. The island is extremely isolated, and very seldom visited.

The project will include an ambitious amateur radio operation using the callsign **VKØEK**, and a variety of scientific investigations under the title "Discovering Life in the Extremes" and "Linking the Remote in Realtime."

The expedition team of 14 will sail on or around March 10, 2016, from Cape Town, South Africa, spend up to 21 days on Heard Island, and end the voyage at Fremantle, Western Australia.

### VKØIR QRT...

It was a great shock when Bob N6EK posted our total, as we were nearing shutdown: 79,913. I was dumbfounded. Apparently we still needed 87 more QSOs to reach our goal of 80,000. "No mistake," Bob said. "We need 87 more QSOs." Unfortunately, by then the bands were dead, dead. One QSO per 5 minutes. We would never make it.

Then salvation arrived. Bob reviewed the records and found that there were 700 more QSOs than we thought! The team was jubilant. We began to gather for the ceremony and shutdown.

The last QSO was logged at 1155 UTC 27 January 1997 on 20 meters, five-and-nine. Then Ralph said simply:

"This is VKØIR Heard Island, now QRT."

Just then one person asked on the reflector: "Just got my RTTY stuff hooked back up. Is there a time VKØIR shows up on RTTY?" Derek AA5BT answered him: "About once per decade. Try again next century!"

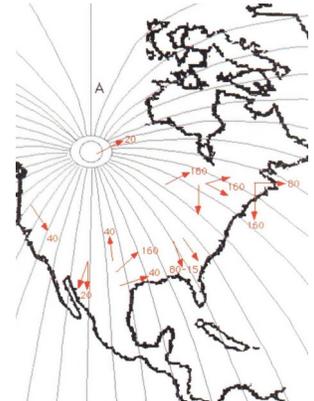
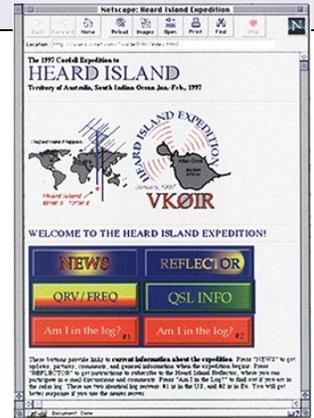
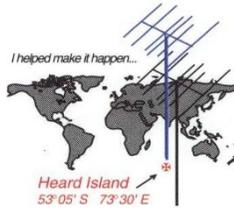
### Leaving...

"Everything goes in cycles," I thought to myself, as I walked slowly toward the spot where the helo would return. As I slipped for a few moments into my private thoughts, my companions almost certainly did the same thing.

"Everything goes in a peak," I thought. "This was some peak!" I gazed at the towering mountains around me, and at the glaciers, and the expanse of volcanic badlands that stretched away for miles.

Then suddenly the helo was there, and at 10:28 in the morning, we stepped off Heard Island for the last time. Within seconds we rose, tipping slightly, and wheeled around, flying away from the ship. Tonton wanted to give us a treat, and we raced in the direction of Big Ben. Skimming fifty feet above the glaciers, we looked down at an ever-changing pattern of fractures: diamonds, rectangles, triangle, lines, crisscross. Some areas were flat on top, other jagged. The ice here was clear and clean, there it was dirty with the load of glacial till. Prisms, wedges, blocks...repeated hundreds, thousands of times in a white-fray-blue tessellation that evolved in front of our eyes like a gigantic kaleidoscope. Above us, enveloped in clouds, was the hot crest of Big Ben, the master of all this magnificence.

Those minutes were among the most magical of my life, an encounter with a world of exquisite beauty and awesome power. The sheer size of the glaciers made me feel tiny and inconsequential. I secretly hoped we would fly completely around the island, but at last we reversed and headed back, along the beach, across the nullarbor, to the ANARE ruins. We made two complete turns around the rocky slope, looking with wonder at the bleakness that had been our home. Then, pausing for only a moment for a last look at the face of another world, we gunned the engine and roared across the place that had been VKØIR, clinching our fists and screaming with the thrill of victory.



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...and many more issues coming soon!