

# LAND mobile

WIRELESS COMMUNICATIONS FOR BUSINESS

GARY ROLFE

Tetra grows,  
smaller: World  
Congress report

Bluetooth update

Polar power:  
IT at 40° below



APPLICATIONS • SOLUTIONS • TECHNOLOGY

In 2002 I was on a part of the Arctic Ocean where, ten years before, a Frenchman had been discovered alone with his dogs.

He'd been overdue on his estimated time of arrival. A search and rescue party was mustered and he was quickly found, with his dogs. They had survived. He had not. He'd fallen through the ice and perished. The ice around him set fast and there he remained. The dogs had survived by eating him head first, down to his trunk, where, with encroaching ice, they continued to claw away at his frozen body.

I've always recognized the outright necessity for up-to-date safety and communication equipment while planning and deploying a successful outcome to a journey.

In a 33km/h wind, at -33°C, exposed skin freezes in 33 seconds. The unprepared will freeze - from oil in engines to blood in bodies.

On the tundra or Arctic Ocean I combine a Unisolar MBC-262 solar panel and rechargeable sealed lead-acid 12V Gel Cell deep-cycle battery for an independent and renewable power source. Even at forty below zero, the amorphous silicon alloy panel remains flexible. Its customized cable and junction box don't become brittle or snap.

To absorb energy from the sun, my solar panel is conveniently spread over my sled and from rings at each corner, four stretch bungee cords secure it. While on the move, the panel requires nothing more than the cable terminal tabs to be attached to the battery and it begins to charge. It's worth noting that the heaviest brick-like rechargeable batteries are the most effective, owing to their lead quality content.

My laptop, Iridium 9505 satellite phone and peripherals go inside a single neoprene-coated nylon dry bag and into a Pelican protective case. While on my sled, IT equipment remains frozen solid in brutal cold. It survives a punishing routine of scaling up and over, only to crash down chaotic blitzed ice areas created by the ocean currents. For days on end this routine continues through ice rubble higher than a double-decker bus.

At worst I've struggled with the dogs to cover a mile in 14 hours. I emailed my sister-



*Above: in polar bear country, Gary and his dogs camp on the Arctic Ocean ice, 200 miles from the nearest human being*

in-law in 2002 about the tragic state of ice conditions. "If only I could be so lucky", she replied, without sympathy. "A bus covering the same distance from Camberwell to Clapham would take longer than that."

### Speeding over the ice

When conditions are favourable I ski alongside my sled and dogs. The sled runners skim effortlessly at full lick over rare stretched flat pans of sheer, inky black ice, the dogs pulling in unison with their nimble feet going nineteen-to-the-dozen. A good day's travel in these conditions can see 20 miles covered in eight hours. Fine visibility helps me detect dark shadows on the horizon and, looking like black smoke, warns me of open water.

Conditions aren't always good. Sometimes I'm forced to sit out a storm in my tent. Winds called nocturnal jet streams are a legendary weather phenomenon generating colossal power in the western Arctic. They usually hit as the sun is setting. The atmosphere cools down, air sinks and warm air then sits on top creating a rapid change in wind speed. This isn't a unique weather system confined to the polar Arctic region: on the central plains of the United States they call them tornadoes.

### Booting up

Laptop schedules usually coincide with a rest day or are during a storm when I'm pinned

**Fast making a name for himself in the icy world of polar exploration is Gary Rolfe. On these pages he describes the IT systems which support him in his solo adventures amid the most inhospitable conditions known to man**



*The sled carries a flexible solar panel to power a computer, satellite phone and other equipment. Right: the author - at 40° below*





## In action



Above: the author pitches camp amid arctic ice rubble. These lumps, the size of a double-decker bus, are thrust upward by massive ocean currents. Right: huskies are tough purveyors of excellent efficiency. With their gorgeous thick, well-furred coats and tails, they love the cold. This is their domain

All photographs are by Gary Rolfe. Gary is currently planning and training for his next Arctic expedition

*"The Arctic can be savage", writes Sir Ranulph Fiennes. "There alone in 2000 I almost paid the ultimate price with my life. Gary Rolfe's consistent and proven track record sees him now at the highest level as an exponent of a skill few have mastered, the craft of handling huskies in polar regions. It's a specialist area that makes huge demands on people, dogs, critical gear and skills alike. The fact that he travels alone is testimony to his ability combined with the magical bond between him and his huskies. Every now and then someone very different from each generation appears who is capable of pulling off the unexpected. I believe Gary is one such person"*



down in my tent. With my laptop and peripherals still outside and frozen I remove them from the protective case.

At no time do I remove my gloves or mittens. Cold metal and plastics produce instant freezing to skin. Skin can be lost as a result. There are several people with their wedding fingers missing thanks to the great white North. Every intricate manoeuvre is made with hands covered. As an extra precaution my 35mm camera, video camera, tripod legs and head adjustment handles have adhesive moleskin wrapped around areas constantly handled.

The first time my mother asked, "What does 40 below zero feel like?", I said that one of my favourite tricks is to throw a cup of boiling water into the air and watch it explode into a bursting cloud of minute ice crystals. Another is to spit and watch it turn into an ice cube before touching the ground. My father asked me whether I'd ever felt the urge to build a snowman. I said no.

With the protection of a storm, stalking polar bears can appear from anywhere. In these circumstances I channel my fear into making camp. The thought of possible attack from a pitiless, crushing white cosh with bayonet claws emptying me on to the ice is never a warm one. After making camp and settling the dogs I'm about pole-axed with mental and physical fatigue.

### A nest of IT

I disconnect the freshly charged battery from the solar panel cable terminal tabs and bundle it into the neoprene-coated nylon dry bag before bringing it into my tent. Still fully clothed, I begin to organize the tent

*Left: the tent wall serves as a handy notepad for daily navigation coordinates, dog team formations and telephone messages. Right: a halt to settle the dogs, make camp and feed before an imminent storm*

interior. Once my stove is lit, I strip off my cold weather clothing paraphernalia and begin drying it from the suspended tent loft. This uppermost area looks like a latticed cat's cradle.

Drying the clothes doesn't take long and soon I create a snug nest for my IT gear, still in the dry bag. In the warmth of my tent, condensation forms instantly on the outside of the bag and, before I can even think about booting-up, I wait five to six hours for it to all thaw out while the stove continues to roar out gorgeous warmth.

Some things can be improvised on the Arctic Ocean. A stove can't. In extreme cold it sustains life. Daily it melts 90 litres of snow, then warms 12 litres of water to hydrate the dogs and myself – and it reminds me I can be warm again.

### Checking the charge

To use my laptop, I have to be patient. Water forming on the defrosting equipment would short out and cause irreversible damage if ever I'm tempted to turn it on too soon. When I'm satisfied everything has warmed through, I check that the battery is charged. For this I use a small and light auto-ranging multimeter. Because the battery is a deep cycle type, I remember it's never to be discharged by more than 50 per cent before recharging again.

Happy the battery's strong, I begin to convert its direct current through a lightweight inverter and into alternating current to power



## In action



Warm on the inside, cold outside: the end of a perfect rest day on the frozen Mackenzie River, in Canada's Northwest Territories



Almost above the tree-line, the sun sets behind boreal larch in the Mackenzie Delta

### Among Gary's equipment:

- Satellite phones:  
[www.iridium.com](http://www.iridium.com)
- Rugged laptops:  
[www.panasonic.co.uk](http://www.panasonic.co.uk)  
[www.itronix.co.uk](http://www.itronix.co.uk)
- Flexible solar panels:  
[www.uni-solar.com](http://www.uni-solar.com)
- Rechargeable batteries:  
[www.power-sonic.com](http://www.power-sonic.com)
- Portable inverters:  
[www.xantrex.com](http://www.xantrex.com)
- Protection cases:  
[www.pelican.com](http://www.pelican.com)
- Dry bags:  
[www.outdoordesigns.co.uk](http://www.outdoordesigns.co.uk)

Gary's website is at  
[www.garyrolfe.com](http://www.garyrolfe.com)



Above: a husky pup at play

Below: tools of the author's trade - a satellite phone, 12V rechargeable battery, inverter, multimeter, GPS, recharging AA ICP solar charger, all placed on a Unisolar MBC-262 panel



my laptop. The 12V battery and inverter also enable me to recharge batteries directly on a satellite phone or video camera.

Once up and running, emailing text with exciting image attachments, critical video or audio files is relatively quick. I keep a diary and create tables to accompany technical performance feedback data and research analysis on the tremendous tolerance capabilities of equipment materials. Gathering canine and human research data on the physiological and psychological effects of temperature extremes on performance also creates vast amounts of information which I can collate, send or save.

At prearranged times I phone to update base with essential progress by relaying my position coordinates, both weather and travel conditions, the time for my next call and the coordinates I'll be heading for. I always say how the dogs and I are doing too. From these conversations I write specific details on my tent walls. This gives me a sense of progress when often very little else matters.

If I were ever to make a satellite phone call to a base camp, I could forewarn of medical implications and landing conditions with precise diagnosis and coordinates. By talking directly to an *en route* pilot, medic and rescue team, critical information can be relayed.

### Space for bears

Another consideration is the death of a bear. Killing a polar bear is a poor strategy for avoiding bear problems. Though legal in the Canadian Arctic, it is considered the last resort in self-defence and by law the incident must be reported to the Department of Renewable Resources. They'll in turn fly to the incident. For their research purposes the bear should be skinned. The head and, in the case of a male, its penis would be left intact. A life-threatening explanation is also necessary for its having being killed.

Every hour, new live maps of weather and ice conditions can be picked up off satellite-linked websites. From these

maps I determine if I've open water ahead. Polar bears follow open water in order to hunt and though they aren't territorial they do protect critical space around themselves. This space varies in size and from animal to animal. If anything invades a bear's space, the bear is likely to try to eliminate it.

As the largest land carnivore in the world, a polar bear will consider stalking and then killing a human being as a source of food. It can weigh in at nearly half a tonne and stand over 12 feet tall. They are expert swimmers and have a remarkable sense of smell that can lead them to a source of food several kilometres away.

With paws the size of a man's chest, an adult male can easily bludgeon a 550lb seal with a single blow. I weigh 170lb. Claws and teeth are longer than human fingers. Swift, agile and with sudden bursts of speed, they can outrun the fastest human being or dog team. With varying dispositions, they're all unpredictable and fear nothing.

### The magic in technology

From 1999 to spring 2001, I used the world's most up-to-date mobile information technology on two Arctic expeditions. The first of these journeys involved on-line distance learning for schools in the US. Though advanced, the machines were identical to those worked on in homes and offices. The laptops weren't marketed as rugged and by today's extraordinary standards they'd be considered dated.

In those 18 months I hadn't stepped foot on carpet and had barely seen a few hundred people. With my return to the UK and the lapse of time from the outside world I was staggered at the improved technology of mobile communication functions and features.

On my return from another Arctic expedition in 2002 came more communication improvements. Every manufacturer is out there to tell the world they are developing the best products. Very few are. I wonder what the best will produce next?

There is magic in technology. I talked to a broadly smiling little Inuit boy who, on his way to school, told me he'd seen a polar bear. That same day I was able to relay the story to a friend's little boy in England. The tale made quite an impression. □