

## Winter safety notes for the SOTA newcomer. (G4YSS)

In early 2002 when it was first announced, I was excited about SOTA but no one knew then how it would develop and I realised there could be significant safety issues. When I was introduced to the fells as a child, it didn't occur to me that anybody would go there outside summer! Indeed, pre SOTA I'd climbed few fells in sub-zero conditions.

Within the SOTA ranks, there are real outdoor 'hardmen' such as mountain leaders, climbers, mountaineers and at least one British Antarctic Survey veteran. Their combined knowledge and experience would make the likes of me look decidedly 'O' level. Apart from an outward-bound course in 1968, I have no formal qualifications to be advising anybody on safety. I can only churn-out standard 'safety speak' and then add a few tips and warnings from my own activating experience with observations built up, mainly in British winters over the last few years. I hope this approach is adequate but at the same time doesn't discourage potential newcomers. It's not all about safety. Avoiding discomfort is a related subject and important to safety.

I remember being mildly taken aback when I read the term 'winter bonus' in the newly published 2002 SOTA rule-book. Was it advisable to encourage people to go out in potentially the worst conditions? In truth, we all face risk on a daily basis. Minimising it and the consequences if things should go 'pear-shaped' is really what we should be aiming at. The one fatality we've had so far is one too many so here are a few reminders.

A search on Google will reveal many books on mountain safety and any SOTA newcomer could do worse than to purchase one. E.g: 'Safety on Mountains' by BMC (British Mountaineering Council.) There are practical skills training courses on offer too. Obviously, a knowledge of first-aid is a big advantage, as are good navigational skills, an ability to read weather-signs and the properties of different surfaces and gradients etc. Unfortunately, there's no substitute for experience and that's the catch 22.

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### Preparation:

**Check your equipment:** Wax boots, cut toenails, charge batteries etc. Careful planning is your best opportunity to head-off trouble. Do your pessimistic thinking now and it will sharpen up your preparation.

**Research your route.** The SOTA website (Reflector or summit details) often has route information posted by someone who has already done the summits you're interested in. You can look at paper maps or use mapping software, e.g. Memory Map.

The OS Get-a-Map service is useful too: <http://getamap.ordnancesurvey.co.uk/getamap/frames.htm>

Aerial photos such as Google Earth or similar, can show the type of terrain and often give a clue to whether a path is available. Be accurate with minimum two-letter plus eight-figure grid refs and if you're creating GPS waypoints, assign a (universally) unique name to each one. Be aware of the positions of danger spots such as bogs, crags and precipices. If you are concerned, program them into the GPS as proximity waypoints.

When planning your route, allow one hour for every 4km (2.5 miles) and add one hour for every 500m (1,500 ft) of ascent with extra time for stops for rest, food and the all important activation. This is a variation on Naismith's Rule but individuals will eventually ascertain their own particular speed over the ground, groups being slower than individuals. Build some 'slack' into your schedule.

**Fitness:** It's no use trying to become a winter activator, who's expected to stand up to extreme climatic conditions, if you sit at home with the central heating full on! Turn it down and get used to the cold. Acclimatization will stand you in good stead. Get out into the weather locally as much as you can. If you are exercising strongly, minimise clothing. You can put on a coat when you stop.

If you have an injury or infection, are not well rested, not well nourished or (I hate to mention it) suffering from toxin build-up through constipation, your physical performance is likely to be adversely affected. Consider whether you are fit enough to meet the challenge you have in mind, with enough in reserve to cope with the unexpected. Remember, you'll be carrying a heavier pack than the average walker.

SOTA activating is not just about strenuous walking. Antennas must be erected over rough ground, perhaps shelters too and just sitting in the cold saps your energy, as does wind buffet and going over slippery or soft snowy surfaces. Multiply that by a number of summits and you'll see why fitness, mental tenacity and determination are required. A little fanaticism, or at least a single mindedness of purpose, is not a bad feature in a SOTA activator. You'll also need that strength of mind for the decision to turn back if it becomes necessary. If you're inexperienced, start small and work up. Build up self confidence, which is a product of good training and sound knowledge.

**What to expect:** Mountain weather is notoriously changeable. Fell and mountain-top conditions can be far more severe than in the valleys. Remember that for each 300m (1000ft) of ascent, the temperature will theoretically fall by 2 degrees C. Normally, it can be two or three times as windy on a summit compared to the valley so think about chill-factors. High up in the UK at least, low-cloud might be present perhaps half of the time though visibility rarely drops below about 30m in daylight. Sometimes low-cloud will wet you like drizzle but when it's really cold, it may appear that your face and clothing have been painted white and your antenna will sag due to the weight of ice accretion. In my experience a transition from falling rain or sleet to falling snow can be a welcome one, as it is less likely to soak and chill. The highest tops are the first places to catch snow & ice with the onset of winter and the last to be free of it in spring. Finally, whiteout conditions can be very frightening and disorientating. These factors can sometimes combine to make the high places at best unpleasant and at worst dangerous for the unwary, inexperienced or ill-prepared.

Check the target area forecast (e.g. <http://www.metcheck.com/>) and preferably a mountain forecast too (e.g. <http://www.mwis.org.uk/>). At the same time, check road conditions: (e.g. <http://www.highways.gov.uk/>). Look at a relevant webcam (e.g. <http://www.ingleboroughwebcam.co.uk/> or [http://www.nevisportlive.com/webcam\\_bennevis.asp](http://www.nevisportlive.com/webcam_bennevis.asp)).

**Clothing:** Weather protection should be the first consideration. Look in any reputable outdoor shop or catalogue. They will be recommending a layering system (base, mid & shell) using breathable, wicking, quick-drying and waterproof clothing. Don't wear denim jeans; they suffer from waterlogging, becoming heavy and stiff in the wet. They're slow to dry and poor insulators. The same goes for cotton shirts, which may be OK in the height of summer. Modern synthetic outdoor clothing is designed to retain most of its properties when wet (as does wool) and to dry quickly but remember, depending on your physiology a strenuous ascent might leave you as wet from within, as a rain shower can from without. Unlike the average walker who can choose to keep on walking, you are really going to feel the effects of this. You may be immobile for an hour or two at the point where conditions are at their worst; the summit! You won't regret carrying that spare /extra (mid) layer, perhaps a dry shirt and some form of shelter to get you out of the wind in poor conditions but if it's dry, walking-up wearing reduced top-cover is one way to minimise discomfort later on.

**Windchill:** If I had to choose a single weather condition that I like the least and fear the most, it would be the winter wind and its ability to induce hypothermia. I often take a warm (Primaloft) jacket to put over my fleece for the activation. Down is good but less so when wet. You should have a warm, wind /waterproof hat which can be adapted to cover the ears (and /or a balaclava) a waterproof jacket with a hood, waterproof over-trousers and a lower base-layer. Extremities (hands, feet, nose & ears) are the first to suffer in cold weather, so take good water-resistant mitts or gloves (I don both when it's really 'Arctic') and wear thick socks under comfortable, lined, stout boots which have grip-soles and ankle support. Use halcyards, tethers and chin-straps. Loosing gear can cause problems. Learn about wind-chill, frost-nip / frostbite and carry spare clothing. Prior knowledge of the presence of summit shelters, ruins, walls or natural windbreaks is very valuable.

**Food:** Pack adequate high-energy food and drink. This is your fuel; it gives you motive energy but will also help you keep warm. Ensure you have an emergency reserve (such as mint cake, chocolate, dried fruit etc.) and eat /drink little & often. In sub-zero conditions, I often carry fat in the form of a small block of cheese. Energy drinks which contain electrolytes for proper re-hydration after sweating have much to recommend them in the avoidance of cramp and dehydration. Purification tablets weigh little but need time to work and don't kill everything. You should be choosy about your emergency water source (basically, clear, fast running-water is best, at the highest ASL you can find). I find that 'pre-hydrating' with up to 1 litre of fluid before leaving the car allows me to carry a more manageable quantity of drinks.

**Navigation:** By all means take a GPS (regard it as secondary navigation) but only if you have a map and compass in addition (primary navigation) and the knowledge to use the latter items for both navigation and cross-bearing position-fixing. GPS needs self-training, long practice and spare batteries but if it can be well mastered & very carefully pre-programmed there may be little need to deploy the map for the entire walk, so long as it has been studied beforehand. The advantages of this are obvious in high winds, driving rain and if night falls in low-cloud. Leave it switched-on at all times when you're moving. Mine is carried high on a rucksack strap, where it can see the sky. Advances in technology will gradually increase our use of and reliance on GPS based / map-database devices but basic map skills should always be regarded as a low-tech and therefore reliable backup.

Maps can blow away so consider an A4 'copy map' as a spare. It can be kept (polythene-sleeved) in a pocket and easily consulted. You should know your position as you walk the route and in case things do go wrong, take advanced note of escape routes and the positions of shelters, bothies, ruins, closest tracks, roads, settlements and rescue posts etc. Note the wind direction. Getting out of it in an emergency is priority one!

Don't take unnecessary risks by tackling overly long or difficult routes and be prepared to change your plans if you feel unsafe for any reason. Allow plenty of time and turn back if in doubt.

**Let someone know:** Leave your route-plan with a responsible person and /or better still, with a fellow amateur who is a SOTA chaser. You should include details of your intended route and estimated time of return. I add a list of frequencies on which I'm likely to be found, including Amateur, PMR channels and mobile phone numbers. In addition, I leave this information visible in standardised format, in my car. The SOTA spotting system can create a history of your movements. Ensure that your 'minder' knows how to access it, if the worst should happen. Don't depart markedly from your announced route without notification and don't advance up unknown steep-ground to a point where you cannot reverse your moves.

If you do carry a mobile phone, it is best to leave it switched on all day. It may be possible for the authorities to obtain a (rough) position fix from it in an emergency. Mobile phone coverage can be sparse in remote areas, even on some summits, so don't rely on it (or radio) to get you out of trouble; though knowledge of local 2m / 70cm repeater channels & CTCSS codes could be crucial. If you are seriously delayed (and you have the means) inform your 'base' or the police as quickly as possible so that the Mountain Rescue service is not called out unnecessarily. The same goes for when you reach safety. Emergencies have been declared time and again because someone 'forgot' to say that they were safe.

**First Aid:** Pack a small first-aid kit (e.g.

<http://www.redcross.org.uk/shop/product.asp?id=70314&category=59095>

or outdoor shops do them). Choose one which has a booklet included (read it before setting off) and add your own items, keeping something to hand for treating blisters at the earliest opportunity. Keep toenails short. If you're on medication ensure you carry enough for normal use plus extra for if you're delayed. Write the details on a card and carry it with you.

**Accidents:** If there's an accident, make sure breathing is unobstructed, check pulse, and give first aid if necessary. Dress wounds to prevent bleeding, keep the casualty warm, reassured, sheltered and safe from further injury **but don't move them if there is any danger of a spinal injury, following a serious fall!** Remember to protect yourself **and** if necessary, send for help. Dial 999 for the police who will call out the nearest Mountain Rescue Team. Give all details including, the condition of the casualty and an accurate location (grid reference if possible). Remain at the telephone (or radio) unless asked to do otherwise and don't move your position without further consultation. If the rescue services are 'cold-searching' they are initially likely to search along features like wall-lines, watercourses, paths and tracks etc. so if you're in the 'middle of nowhere' and out of communication, at least try to get to a significant 'map feature.' Wear bright colours, use your whistle (see next paragraph) and turn your radio mast into a 'flag-pole' to advertise your position. It's very important to maintain a positive, confident, optimistic attitude in yourself and others, should things go wrong.

**Shelter /emergency:** Always carry some form of emergency shelter (e.g. bivvy, blizzard or bothy bag.) Think about what you would need if forced to spend a night out. Carry a whistle. (The emergency signal is six blasts repeated at 1 minute intervals.) I have a bivvy-bag, pain killers, matches, a lighter, a two Hexamine fuel blocks, a small candle and two small chemical handwarmers, PVC tape, tyraps, string and 'puritabs' etc, in my emergency-kit, plus reflective strips on my rucksack and radio mast. Know how to make a snow hole and how to use plant-matter (if available) to insulate your body from the ground. Make a habit of speaking to people you meet on the way; they might remember you and your whereabouts should you not return on time.

**The Activation:** Try to get out of the wind. Walls are a luxury; **sitting slightly down a lee-slope can help.** I used a big, strong umbrella for my first 1000 activator points. It's quick, weighs 0.8kg and straps to the outside of the pack. My beach shelter is a bit large for one person but I have found success with a rolled-up, externally carried 'peg & pole prepared' ridge-tent flysheet. Bothy Shelters are popular too and very quick to deploy. My folding map-case is an insulated sit-mat too, effective on ice or snow.

It may be a relief to sit down for 'rest and radio' but this is when cramp, leg stiffness and severe chilling can strike. Don extra clothing, cover extremities early, eat something, and set the pace on the air, working rapidly if you have to. Get up and walk-around at QSY's, or more often. Chasers will understand. I have been a fool in the past, shuddering, shivering, with teeth chattering so I can barely speak or send CW. The radio demands your full attention but your body needs consideration too. If I'd really learned this, I would have avoided descending Gt. Shunner Fell (G/NP-006) 'wet-through' because I was so preoccupied with a 'list' that I didn't make time for a 'comfort break' before it was too late to doff gloves and 'negotiate' multiple layers of clothing! Sorry to be so candid in trying to make the point but your first duty is to yourself. Be ready to shorten or abort the activation if you feel threatened by conditions or pushed for time.

**Hazards:**

**Ice & snow:** If you're taking high-level routes and ice is likely to be met, you'll be using stiff winter-walking boots with the appropriate 'B' grade, to match the right 'C' grade crampons and carrying an ice-axe. Most important of all; know how to use them. For this, don't trust 'book-learning;' a recognized practical course of instruction in winter is the only sure way to learn reliably (e.g. self-arresting techniques).

Be wary of snow-slopes which might have been soft at noon on the ascent; especially if they have an early-sunny aspect (e.g. E or S) or generally if you plan to descend via a different, unreconnoitred route. As the winter sun moves round, snow can turn into a 'one-way express ticket' to the bottom. Hard white ice, formed by freeze /thaw cycling, can look very much like innocent snow. One face of the mountain may have vastly different conditions to another. I almost learned this lesson the hard way on Ben Hope in February 2005 and at least one other experienced activator that I know, has been the victim of a terrifying and damaging, uncontrolled slide on ice.

Rock covered with a thin transparent coating of ice (Verglas) can also catch you out if you don't read the signs. Voids under deep snow, sometimes hiding drainage ditches (as on Hoove, G/NP-024) can be a real annoyance but cornices are to be avoided like the plague. Take heed of avalanche forecasting and find out about the signs.

**Wild life:** Midges in Scotland in the summer can be a serious irritant but I haven't yet needed an insect repellent in the UK winter. However, check for ticks after each walk, especially if it was through long undergrowth, e.g. Bracken. Research how to pull them out; they can carry Lyme Disease and I have picked 3 or 4 of these up as early as March. I have seen quite a few adders on the UK North York Moors in summer but none on the higher SOTA's. Be aware local practices, for example the deer-stalking season in Scotland. Pack antihistamine cream to treat stings and bites.

**Solitude:** If you are not confident or experienced about a particular WX condition or activity, avoid it or take someone with you who is qualified to advise you. Some examples are: Climbing, scrambling, icy surfaces, deep snow (with particular attention to avalanche conditions) arêtes, shear drops, scree, low-cloud, darkness, boggy ground, crossing steep boulder-fields, fording watercourses and seriously remote summits etc. If you're concerned about the added vulnerability of going it alone, join with others. There is a minimum party-size of three for best dealing with emergencies. One casualty, one companion and one to get help if all other communication methods fail. Look at the summit history; the number of activations and a map will help to identify which ones are easy and which are remote and potentially dangerous.

**Lightning & static:** We know the risk is small but it doesn't make lightning any less terrifying. With the obvious increased danger for the SOTA activator, it's essential not to be activating a summit if lightning conditions are present or imminent. There are stratagems to minimise risk if you're caught-out but the only sure response is not to be there! My Roberts R984 AM (Medium-wave) radio makes a good lightning detector by making the discharges audible and with its ferrite rod aerial null, doubles as a 'mock gyro-compass' for long straight marches over featureless terrain (but don't get distracted by listening to audio in trickier territory!)

Static is a related problem and builds up with the movement of charged fluid (e.g. air or falling rain / hail). It 'zapped' me and my rig on Skiddaw (G/LD-004) before I could get a grounding-lead fixed. I had shocks and fat, blue sparks on Mickle Fell too, followed within a couple of hours by lightning close enough to send me running for cover. Lightning is less common in winter but take heed of the WX forecast!

**Getting lost:** Don't panic; take time to work out your position analytically and logically. Don't allow your head to chill to the point where it could affect your ability to think. On the way out, you will have studied your progress on the map, through the landscape and looked around at your 'back-trail' every few minutes. Doing this will help you to retreat safely. In poor visibility you must rely on your compass or GPS. The latter makes a track of your progress. I have used this a few times to safely retrace my steps over featureless terrain, in clagg and/or darkness. Bring up the map page, set it to the largest scale and walk so as to make your descent track closely mimic your earlier ascent track on the screen. Walking in the dark is not recommended of course. Wayfinding becomes very difficult and it's easy to lose even the best of paths, particularly in cloud. If you really must optimise time on short winter days and you have the experience, walk up on good paths to meet the dawn rather than down into dusk and danger.

**Hypothermia:** This is best avoided in the first place by dressing for the conditions, not getting soaked or chilled, drinking plenty of water, eating high-energy snacks and not getting over fatigued but you should routinely look for the signs in yourself and others. They are drowsiness, fumbling hands, memory lapse, stumbling - slurred speech, and prolonged or uncontrolled shivering. The response should be. Shelter, warm clothing, gentle warming and, if possible, warm beverage but it's a complex subject and there's more than one stage, so if possible seek help. See e.g. [http://en.wikipedia.org/wiki/Hypothermia#Stages\\_in\\_humans](http://en.wikipedia.org/wiki/Hypothermia#Stages_in_humans)

**Hardware:** Danger from this quarter could be swift and unexpected. Think about what a splintered carbon or glass-fibre mast section, sharp antenna element or chemicals from a broken battery could do to an eye. Lithium batteries can ignite if subjected to strong impact. Lead-acid, Ni-Mh and Nicad batteries all have high short-circuit currents which are quite capable of setting wiring and your rucksack on fire; causing burns and /or destroying essential food & clothing. Use fuses or circuit breakers close to source and protect terminals from contact with metal items. The safest option is to disconnect batteries from radio gear when not in use. If this is not possible, fit a guard over 'Power-ON' switches to prevent accidental power-up in the rucksack. Don't be distracted when setting up the antenna over slippery or rocky surfaces or near vertical drops. Avoid injury to others from tangle / trip hazards or RF burn / shock from QRO transmitters. What about the sharp edge you left on the case of that home-brew rig? The hospital A & E dept. is hours rather than minutes away.

**Headlamp:** Regardless of your intentions about how long you'll be out, take a headlamp or at least a small torch. I carry both; one may be needed for putting fresh batteries in the other. If it's both dark and misty, you'll need to carry the headlight in your hand at waist level to avoid being blinded by back-scatter or your own breath if the wind's behind you.

**Batteries:** Know the state of charge of all batteries in your safety equipment and have sufficient spare ones handy. Remember that battery performance is degraded at low temperatures; I carry some in a pocket. My own tests tell me that earlier type Ni-Mh batteries self-discharge at 0.5% per day, so expect problems if you leave them in equipment for long periods.

**A place for everything:** Know the precise location of everything you carry and keep it the same every time. If things go badly, access will be automatic. I find that rucksack side-pockets provide quick access to waterproofs but I keep gloves, a hat, mobile phone, whistle, etc in my fleece or jacket pockets. Regularly check that you still have your critical items and use lanyards or zipped pockets where appropriate.

A 'ready-use' storage area is useful. I sewed a zipped bag to my rucksack waist-strap for this purpose. 'Promote' items to it as circumstances demand. If you think they would help you, consider taking walking poles. At least one (GM) activator, designed a way of making a radio-mast from his but I'm told that they can be a minor hindrance at times, e.g. up-scrambles. When walking long distances over snow in bright sunshine, you'll need dark-glasses and probably suncream to block UV. Your sunhat can't protect you from reflected glare.

**Beware the descent:** Most accidents happen on the way down when you're physically tired but mentally relaxed. 'Didn't I do well; meeting all my targets so efficiently!' Don't be complacent; by far the most important objective is getting back to safety 'in one piece.' Concentrate! Think of that nasty scramble on the ascent, that you must soon reverse. Don't rush. It's better to advance slowly and surely in half-light than be immobilised all night through injury but remember to let someone know if you're going to be late.

**Back at the car:** Don't underestimate the importance of access to your vehicle. How would it be if you returned to your remotely parked car, tired, cold, wet & hungry in driving rain or in high wind-chill, having lost the key? My car key (and attached penknife) is both in a pocket and on a lanyard. A second key is magnetically attached to the car underbody. Assume your car might get stuck in a snow-drift miles from anywhere. I carry a shovel, hand winch, ground spike and hammer and I've had to use them. If the car contains dry clothing, food, water, a sleeping bag and plenty of fuel, you're covered. If you wrap a large, full, thermos-flask in an old coat, you'll have a warm drink to come down to, even after 12 hours or more.

**Don't be put off:** Statistically you're much safer in the hills than in an inner-city or on the roads. I hope that reading this article will be useful to someone, without frightening anybody or 'tempting providence' for me personally!

That's all that comes to mind at present. I'm sure there will be a few more things to add from the ongoing experiences of a growing band of SOTA activators.

May your activating be safe, enjoyable and rewarding.....CU-S2S, 73, John (G4YSS / GX0000/P.)