

## Tips for a Warm Night in Cold Weather

Simon McElroy: [Key Adventures](#)

A cold night in a tent is rarely a positive experience and a bad night's sleep makes people grumpy, but there are a handful of simple practices you can use to ensure you sleep warmly and soundly no matter how low the temperature drops. I've listed them in order of usefulness:



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**Use the Right Kit for the Conditions:** If you're intending to sleep at  $-20^{\circ}\text{C}$  then your kit needs to be up to the job, otherwise, you will suffer. Similarly in warmer conditions; using kit that is designed to keep you warm at  $-20^{\circ}\text{C}$  will cook you at  $5^{\circ}\text{C}$ . It's not normal to expect kit to perform far outside its specification. Choosing kit that allows a little flexibility will enable you to plan for the coldest temperatures and vent if it's warmer.

**Unpack Early and Fluff your Bag:** Your sleeping bag works by trapping small pockets and thin layers of warm air around your body. Unpack your sleeping bag half an hour before you need it so the insulation expands and fluff it up before you get into it to increase the loft and effectiveness of the insulation.

Glow Worm 800 sleeping bag by [Summiteer](#)



**Insulate Yourself from the Ground:** The ground is hard and it sucks! Heat can be conducted through damp earth at over 20 times the rate of heat lost through a half-decent sleeping bag, so your sleeping mat needs to be a very effective insulator. Your mat works by creating a raft of insulating air pockets beneath you. If you have a self-inflating or insulation-filled inflatable mat (e.g. Exped Down or SynMat), inflate it (pump but don't blow!) a good while before you need it so that the insulation expands and, if it's down-filled, give it a good shake to redistribute and fluff-up the down before you use it. On very cold nights, your mat may cool and shrink as the temperature drops during the evening, so re-inflate it before you sleep. In colder weather you might consider using two mats for even more warmth *and* more comfort.



SynMat 7M by [Exped](#)

**Use Your Sleeping Bag Properly:** Your body warms the air inside your sleeping bag, so if that air escapes you lose heat. Sleeping bags are most effective when fully zipped and the cowl top (hood) is pulled close to the face so that the air cannot escape. Make sure the zip is closed to the top and the zip baffle is flush along the zip. On very cold nights, pull the drawstrings on the neck baffle and the cowl hood leaving only your face free. Ensure that your sleeping bag is the right size; too small and you flatten the insulation all around you, too large and the air circulates in large pockets and transfers heat to the outer layer quicker.

**Lie Still:** Every time you roll, turn thrash or wiggle in your sleeping bag, you move warm air from close to your body to close to the cooler outer wall, you flatten the insulation negating the fluffing you did earlier making it less effective, squeezing the warm air out and sucking cooler air in, and you pump warm air out through the neck of the bag.

**Sleep Dry:** Sleep in dry clothes in a dry sleeping bag on a dry mat; they all work best by trapping layers or pockets of warm air next to your body; any water that you add to that equation will suck heat of evaporation from your body and that warm layer of air gets filled with water vapour which then condenses and sucks heat again. Keep your sleeping bag, sleeping mat and dry clothes in drybags. If your day clothes are wet, keep them on as long as you have good body warmth so they start to dry but change into dry clothes before you get into your sleeping bag. If the environment in which you're sleeping is likely to be wet, use a breathable bivi bag.

Top Tip: Dry wet clothes by wrapping a hot water bottle inside them, but not inside your sleeping system.



Fold Drybags by [Exped](#) and Hunka Bivi Bag by [Alpkit](#)

**Eat and Drink Before Bed:** Food is fuel supplying the chemical energy to power your system and, as you burn it, you generate heat, even when you're not moving. Eating a hot meal in the evening and having a snack and drinking a hot drink before you sleep adds warmth and fuel to keep your core warm through the night. Alcohol is a non-starter in cold weather. If you're feeling the cold, a snack midway through the night adds fuel to the fire.

**Close the Tent:** It might sound obvious but making sure that the tent is closed will reduce the flow of cold air over you as you sleep and will reduce heat loss. In humid conditions there is a need for some ventilation to reduce condensation, mostly in the outer tent, but in sub-zero conditions, water freezes and sublimates (turns from ice to gaseous water) so there is less of an issue.

**Sleep with a Hottie:** Fill a 300-500ml Sigg-type water bottle with hot water (or any hot liquid), wrap it in a sock and take it into your sleeping bag with you. It might feel good near your feet but it is most effective next to your chest, adding heat to your core. Just make sure that it doesn't leak; avoid any bottle with a snap-closure.



Water Bottle by Sigg

**Wear More Clothes:** Add another wool or synthetic layer to increase the volume of insulation immediately next to your body. The larger pockets of air in your sleeping bag are then made smaller so heat loss by convection is reduced. If you wear too much you may overheat and sweat which goes against good practice. Add a hat, mitts and woolly socks. Don't add so much clothing that you're too big for the bag.

**Add a Liner:** A silk liner will add a few extra degrees of insulation, but a thermal liner can add up to 10°C of extra insulation. Avoid cotton or polycotton as they absorb and retain moisture (they are good in hot weather). A liner also protects your sleeping bag from sweat, body oils, etc.

**Go to the Loo:** Go to the loo before you get into your sleeping bag so you don't have to lose heat getting up in the middle of the night. In cold weather most people are reluctant to get out of their warm sleeping bags to go to the bathroom but that can prevent you getting the sleep you need. If you can pee into a designated (and highly distinctive) bottle you can retain the heat from that pee (use it as a hot water bottle?) and eliminate the need to go outside the tent.



Wide-mouth water bottles by Summit; one for drinking water, the other, with highly distinctive colour, definitely not for water.

**Add a another Layer:** I'm told that silver sided plastic foil blankets are effective if draped over the sleeping bag; I have no personal experience, but as they weigh 50g and cost less than 50p it's worth a try. Note that they cannot be folded as small as when first opened (carry an elastic band). If you use a foil bag, the condensation can't escape. If you can afford to carry them, consider an additional synthetic fleece or wool blanket or a larger 2-season sleeping bag to add a few degrees of warmth when it gets cold.

**A Few BIG Words of Warning:** NEVER USE A STOVE TO HEAT THE TENT. It's NOT an effective way to warm you; it generates high volumes of asphyxiating carbon dioxide and small volumes of toxic carbon monoxide. It's far more effective to make a hot drink and get the heat inside you. Always vent your tent whilst using a stove.

**The Author:** Simon McElroy has been freezing his arse off throughout the UK for over 40 years and now knows how not to suffer. “Everybody has a budget and I recommend spending it in this order of priority: Sleeping mat, sleeping bag, stove, chocolate. What could possibly go wrong?”

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### **The sleep systems that I use:**

**For colder UK temperatures; -15°C to +5°C:** Exped SynMat 7M, Summiteer Glow Worm 800 down sleeping bag, Exped Air Pillow, Meraklon sleeping bag liner, baselayer and socks, Merino wool skull cap, hot water bottle in a sock, big carb meal in the evening, decaf sweet tea, biscuit/chocolate and a pee before bed.

**Zero to 10°C:** Exped SynMat 7M, Summiteer Glow Worm 800 down sleeping bag, Exped Air Pillow, baselayer and socks, hot water bottle in a sock, big carb meal in the evening, decaf sweet tea, biscuit/chocolate and a pee before bed.

**5°C to 10°C:** Exped SynMat 7M, Nanock Performance 0°C synthetic sleeping bag, Exped Air Pillow, baselayer and socks, big carb meal in the evening, decaf sweet tea, biscuit/chocolate and a pee before bed.

**Above 10°C:** Exped SynMat 7M, vented (open) Nanock Performance 0°C synthetic sleeping bag, Exped Air Pillow, baselayer, carb meal in the evening, water and a pee before bed.

**Above 15°C:** Exped SynMat 7M, vented (open) Nanock Performance 0°C synthetic sleeping bag, Exped Air Pillow, undies, carb meal in the evening, water and a pee before bed.

### **References:**

Thermal conductivity: air=0.025, down=0.037, sand = 0.58 to 1.94, damp soil= 0.29 to 0.76, water=0.6, ice= 2.215; drier and more vegetated ground has lower thermal conductivity, wetter and rockier ground has higher thermal conductivity.

[The Structure and Properties Of Down Feathers and Their Use in the Outdoor Industry](#): Matthew Edward Fuller, 2015

[Soil Thermal Conductivity: Effects Of Density, Moisture, Salt Concentration, and Organic Matter](#): Nidal H. Abu-Hamdeh, Randall Reeder: July 2000