

OF MUKLUKS AND MESSIERS: Dressing for Cold Weather Observing

article by Steven “Saratoga Smitty” Smith

Winter skies are a treat for me. The view of the heavens at night is usually crystal-clear and rock-steady. Such conditions seldom occur during the warmer months because moisture in the air degrades the seeing.

Oh, baby, it’s cold outside! Have you ever wondered how soldiers in foxholes or sailors at sea cope with frigid temperatures? They stay warm by trapping air in pockets around them and insulating their bodies from the outside air.

Long underwear, boots, gloves, etc., are made with new materials such as Thinsulate, but even they need some help in keeping us toasty warm. Standing next to your 8” Dob for 2-3 hours at night in the dead of winter can be like standing artillery duty in Korea at Christmas. Astronomers viewing the universe and military personnel standing watch tend not to move around very much. When we’re inactive, our bodies do not generate enough warmth to replace the heat that is lost to the outside air; we need to cover our bodies in layers, including head, trunk, hands and feet, in order to minimize our heat loss.

Dressing in Layers. Long underwear is the first layer. Wear the bottom *and* the top, or a one-piece union suit, in either case with an undershirt or tee shirt beneath it. Next, put on a sweatshirt, thermal shirt or sweater. (I prefer a sweatshirt with a hood.) Wear heavy pants such as jeans, and not polyesters. Better yet, wear a pair of bib overalls. You’ll feel like a farmer, but the overalls will help to trap the air around your torso.

Now that you’re dressed in a fair amount of layers, you may think your favorite winter coat will keep you warm. It may, but there’s a better way. The ideal final topping in your winter ensemble is a pair of one-piece, insulated coveralls. I call them walking sleeping bags, and have slept out under the stars in mine numerous times. Made with tough cotton outer shells or lightweight nylon outers, they are known familiarly as coveralls, hunting suits or snowmobile suits. They come in colors ranging from camouflage to day-glo orange. I prefer the more rugged cotton or brown duck outer type because it’s more durable.

A good selection of insulated coveralls can be found in the Sears Workwear catalog. You can also find them in K-Mart, Wal-Mart and Army-Navy surplus stores. Every major city has such stores; if you’re looking for cold weather gear, a trip to one of them definitely should be on your agenda.

With the major portions of your body covered with at least three layers of insulated clothing, you shouldn’t expect any admiring glances from the opposite sex because, in all seriousness, you’ll look like a waist gunner in a B-17 bomber flying on a mission to Berlin. So now that the major areas are protected let’s progress to the extremities, starting at the top.

Staying Warm From Your Head... We lose an enormous amount of heat from our heads. Many people don’t like to wear hats, and others say that it’s not their head

that's cold, it's their hands or feet. While their feeling is correct, their reasoning is faulty. Your metabolism is designed to keep your two most important organs, your *heart* and *brain*, warm and functional. When you're cold, your circulatory system pumps warm blood to your head to keep your brain working. An uncovered head functions as a radiator, giving up heat to the cold air!

It's somewhat like a game of chess, and your body is a pretty smart player. It's not too concerned about your toes or feet being cold because, like pawns, they are important but expendable. Protecting the brain (i.e., the king) is what wins the match; lose the king, and you lose the whole shebang. Even if your head isn't cold, you should wear head protection so the blood-borne warmth that your brain doesn't need will circulate to other parts of your body rather than being lost to the air around you.

When it's chilly, you'll see me wearing a wool knit hat; when it's cold, I'll have the hood of my sweatshirt pulled down over my hat. At frigid temperatures, I wear two knit hats. And at the temperature at which French-Canadian fur trappers appear on the observing field I'll put on a balaclava, or knit face mask, under everything else.

To Your Hands... Wearing winter gloves while observing creates problems in turning pages of your favorite atlas or manipulating eyepieces, focusers, and especially set screws. When it's really cold, I wear glove liners – thin gloves that are worn inside the regular gloves and can usually be found in Army-Navy stores or motorcycle shops. I wear these liners under a pair of snowmobile-type mittens. (Leather gloves, while providing warmth, are too stiff to work effectively.) When I have to pull off the mittens to change eyepieces, the glove liners keep my hands away from direct contact with the cold air and my fingers can grasp and function reasonably well.

To Your Toes. The hardest part of the body to keep warm in wintertime is your *feet*. They're the farthest extremities from your heart, and your footwear is in direct contact with the cold ground. Wet feet get cold quickly, so a good pair of insulated leather or rubber boots is important when walking around in dew-laden grass or snow.

Leather insulated boots can be purchased for as little as \$30, but they should have insulated toes. Look closely before you buy. Insulated leather boots should be treated with a preservative, or else water will soak through the leather.

Rubber insulated boots are usually made with rubber lowers and cloth or nylon from the ankle up. They usually have a removeable insulated liner and are similar in design to Eskimo mukluks. Such boots can be purchased for around \$30.

Some excellent boots of both types can be found in the \$90-\$150 price range, but unless you're spending a lot of time in the cold a less expensive pair will keep your feet comfortably dry. A cheap pair of insulated work or hunting boots beats a pair of sneakers that absorb moisture, no matter what they cost! Expensive boots of better quality and comfort will probably keep your toes and feet a little warmer. Still, it doesn't matter whether your feet are clad in first class or economy, there are benefits to be gained from layering your clothing here, too.

First, remember that wet feet are cold feet, and apply powder liberally to your feet to help keep them dry. Put on a pair of thin socks, and then a pair of the thickest wool hunting socks you can buy. This is the minimum you should wear to keep your feet warm and dry. Purchase a pair of Dr. Scholl's "Double Air-Pillo" cushioned insoles,

they're about twice as thick as regular insoles, and they'll add another layer of insulation between your feet and the soles of your boots. If your boots have removable liners, insert the insoles under the liners.

You may have known someone who has tried to cram 6-8 inches of insulation into a 3-1/2" wall space in his home, expecting to insulate it better. Well, it doesn't work that way because insulation is just material that keeps the air from moving and being lost. Trapping air is what keeps our houses and our bodies warm.

With extra layers of clothing and insoles trapping the air around your feet, don't expect your size 10 feet to be comfortable in size 10 boots. The fit will be too tight, and you'll wind up squeezing the warm air right out of your boots. When purchasing insulated boots, buy them at least one full size larger than the size that fits. You may feel like you're wearing Bozo the Clown shoes, but you'll have extra room to wear another pair or two of socks. I have a second pair of boots that is *two* sizes larger than I need, leaving room for me to put a couple of chemical heat packs in the toes!

To recap: The best way to insulate your body from the cold lies in trapping air in layers. Try to dress with thin layers at the skin and gradually build thicker layers outward. My recommendations are flexible, and you can add or change anything you wish, such as more shirts, hooded overalls, neck warmers, thinsulate socks, etc. But don't depend on anything by itself to keep you warm: build boundary layers. A loose fit is important: you'll want to be able to bend over and move easily, and be able to maneuver in the restroom, too!

Winter has a large number of easy-to-find Messier objects; it is, therefore, a good time for you to start earning your Messier certificate and pin. It's a great time for binocular observing, too. When you see me out at Cox Field this winter, I'll be the farmer on the observing field who looks like just parachuted out of a B-17 bomber, wearing clown shoes and letting a group of fur trappers look through his telescope.