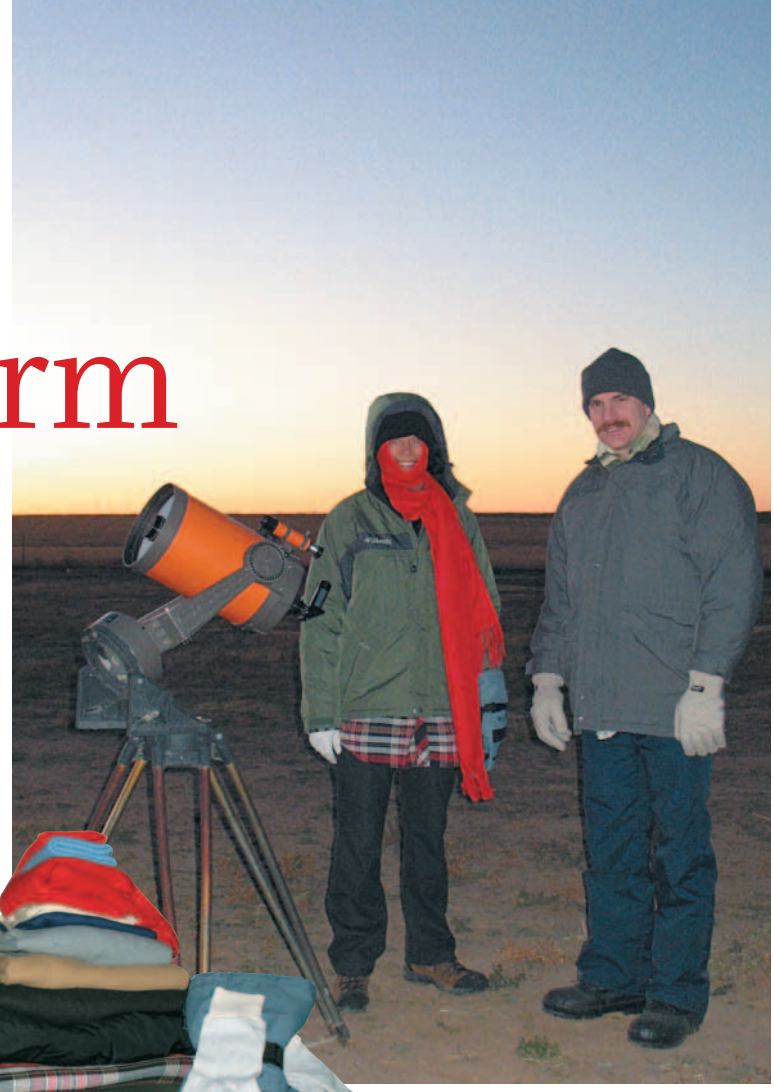
Keeping Warm



BUNDLE UP: Fabrics that wick moisture away from the body and trap heat help keep winter stargazers warm. Dress in layers — if you get too warm, just peel one off. Unless otherwise noted, all photos are by the author.

BEING PREPARED FOR WINTER'S WRATH WILL LET YOU STAY OUT UNDER THE STARS LONGER.

One evening this week, perhaps you'll step outside to take the trash to the curb and pause to look up and notice the crystal-clear night sky. You may linger and marvel at how the stars seem more brilliant than usual. The long, crisp nights of winter beckon to every skygazer — this is the absolute best time to grab your jacket and gear, and head out to catch the stars at their most glorious and pristine.

After 30 minutes, however, freezing fingers, numb toes, and chattering teeth force you back indoors and make you wish for summer again! But with the right clothes, equipment, and a little preparation, you don't have to give up so soon.

Dress for Success

Experienced cold-weather skywatchers know that dressing in layers is vital for warmth. But not just any layers will do — what your clothing is made from is key. Garments with the right fiber content trap heat and pull or wick bone-chilling perspiration away from the body. And if you begin to feel too warm, layers are easy to remove.

Wrapping yourself the wrong way will do little good — or could make the situation worse. For example, pulling on an extra pair of jeans or wearing several cotton T-shirts won't keep you warmer. Although cotton is lightweight and comfortable, it absorbs moisture and remains damp during cold conditions, causing skin to feel clammy and chilled. Avoid cotton for winter outings.

When dressing for frigid temperatures, start with a base layer of silk, Australian merino wool, or polypropylene long underwear. These fabrics are thin, lightweight, and conform to body size and shape. Made of heat-trapping fibers, they wick perspiration away from the skin and let it evaporate without sapping your warmth.

Wool contains natural oils, making it waterproof and an excellent insulator. Although woolen garments are known to be heavy and often feel itchy, one company, SmartWool, has improved wool products with new technology, greatly improving their comfort.

Moving outward, you should next add an insulating layer. Garments should be loose fitting to trap air and permit movement yet allow moisture to escape. Wear multiple layers for extremely low temperatures. Start with two short- or long-sleeve polyester/polypropylene T-shirts covered with a woolen or fleece shirt followed by a fleece or down vest. Wear loose woolen or fleece pants.

Ready to Roll?

When stargazing in your backyard, it's easy to run inside to defrost with a cup of hot cocoa. But if you're planning to drive to a rural location for darker skies not plagued by light pollution, be mindful of these additional concerns:

- Be sure your car is in good repair with a full tank of gas before heading out.
- Determine how the weather will be different and anticipate weather changes.
- Let people know where you'll be going and when you expect to return.
- Ensure that your cell phone is fully charged.
- Bring along these cold weather supplies: windshield scraper, jumper cables, basic tools, small spade to dig out of snow or mud, kitty litter or ice-melting chemical for traction, blankets, first-aid kit, bottled water, and plastic flashlight with extra batteries.

KEEP A LID ON IT
Heat rises; hats and scarves won't let it escape.

TRIPLE-LAYERED
Using the right garments for inner, middle, and outer layers is key for beating the cold.

FANCY PANTS
Layers are equally important below the belt.

SHOPPING FOR THE COLD

Academy Sports & Outdoors, www.academy.com, 888-922-2336
Bass Pro Shops, www.basspro.com, 800-465-2628
Cabela's, www.cabelas.com, 800-237-4444
Campmor, www.campmor.com, 800-525-4784
Gander Mountain, www.gandermountain.com, 888-635-2614
HotHands Direct, www.hothandsdirect.com, 800-748-9080
Kendrick Astro Instruments, www.kendrick-ai.com, 800-393-5456
L. L. Bean, www.llbean.com, 800-441-5713
REI, www.rei.com, 800-426-4840
SmartWool, www.smartwool.com, 888-879-9665

Goose or duck down, a great insulator, is lightweight and compressible, but it can be expensive and bulky. Furthermore, once wet, it takes several days to dry.

Fleece, a synthetic material with wool-like insulation properties, comes in three weights. It's thin, comfortable, breathes well, and dries quickly. Fleece and microfleece are perfect for the insulating layer. Another choice is Thinsulate, which 3M introduced in 1978 as a replacement for down. It's warm in thin layers and retains body heat even when wet.

Follow with a fleece jacket that has elastic at the wrists and waist to capture body heat. Ski or snow pants worn over loose pants will help keep legs warm. Some skywatchers prefer insulated coveralls manufactured by Dickies or Carhartt.

We're not done wrapping ourselves yet! The outer layer should be windproof, lightweight, and breathable. For general use, it should be waterproof too — but if precipitation has become an issue while stargazing, you should have quit already!

Nylon has been perfect for the outer layer since it became popular in the 1950s. Because it's tightly woven, it stops wind and repels water. An ideal choice is a heavy-duty fleece or Thinsulate jacket with a wind-stopping exterior extending below the waist and elastic or drawstrings at the cuffs and hems. Newer styles are light, allowing freedom of movement. When shopping for a jacket, don't forget to get one with a hood as well as pockets to keep handy a flashlight, laser pointer, pen, and high-energy snacks.

Nothing saps a battery's energy like frigid cold, so store a few extras in a warm interior pocket. And because skin sticks to freezing metal, use a plastic flashlight that you can hold in your mouth while writing or sketching in your observing log.

Digital Special Attention

Because feet lose heat quickly, take extra precautions in protecting them. Try polypropylene or silver-coated nylon sock liners covered by SmartWool merino-wool socks. These soft, lightweight socks provide cushioning, wick moisture away, and keep feet toasty warm. Follow with thick-soled boots lined with Thinsulate insulation or Gore-Tex, a waterproof material that allows moisture to pass outward, but not inward.

To protect hands and fingers, wear polypropylene or silver-coated nylon glove liners, covered by microfleece gloves thin enough to handle small telescope parts. By adding large mitts (available at hunting or ski supply stores) you can easily pull your hands from them to adjust equipment. Some observers use gloves with removable fingertips.

A fleece scarf wrapped around your neck prevents heat from escaping from the jacket opening. You'll feel warmer by covering your mouth and nose to warm the air you breathe. It may not look stylish, but consider wearing a balaclava or ski mask.

Experts say that as much as 70% of our body heat

KENDRICK ASTRO INSTRUMENTS

COLD COMFORT
Chemical hand warmers and hot beverages *(below)* can help stave off frosty effects. The serious stargazer may opt for the Observer Tent from Kendrick Astro Instruments *(above)* to provide protection for body and scope.

escapes through the head. So a microfleece or polypropylene beanie or toboggan cap that covers the ears and scalp is a must. And use your jacket hood to retain heat.

Hot Gadgets

You don't have to rely on just clothes to keep warm during cold weather. Technology also comes to the rescue.

HotHands by HeatMax ($8 for a 10 pack) are nontoxic, self-activating rectangular warmers that are odorless, disposable, and fit easily into gloves or pockets. Warming begins when the natural materials inside are activated by outside air. HotHands can last all night — and best of all they come in pairs.

NIGHT SKY'S STEVEN A. SIMPSON

Designed to work in a low-oxygen environment like boots, HeatMax's Foot Warm-Ups ($8 for a pack of 10) are ideal for observers who won't be moving around much. This product will warm your tootsies to 100°F for six hours.

Another handy accessory is the Therm-O-Muff from HotHands Direct ($14). It looks like a waist pack with a zippered pocket for personal items. Place HotHands in the pocket to keep hands warm.

Heat Sox by MPI Outdoors ($25) are low-voltage battery-powered, wool-blend socks using one or two D-size alkaline batteries. With three heat settings, they keep your feet toasty for 10 to 12 hours and have been designed to be safe when wet.

Recharge your *own* battery with high-energy snacks and hot, decaffeinated drinks. Thermos, a company that's been around since 1904, has affordable stainless-steel vacuumware and foam-insulated cups to keep drinks piping hot. Mugs start at about $17, and vacuum bottles are $26 on up.

For overall environmental protection, the Kendrick Observer Tent is a dream come true for stargazers. This nifty two-room tent measures 15 feet long, 9 feet wide, and 6½ feet high. Setup takes a few minutes thanks to shockcorded poles. One room can be used as a chart, computer, or sleeping room. The other is an observatory, protecting watchers from the wind. This popular unit sells for $369 from online astronomy retailers.

Keep Comfy

Experiment during cold-weather outings to determine which clothing mix works best for you — and try some of the technology if you like.

Reagan Herman, a friend of mine who watches clear winter skies from the Texas Panhandle, says that his general rule is to bring more clothes than he thinks he'll need. He plans for 20° to 40° colder than it should be. Furthermore, take breaks every half hour or so to warm up in the house or car.

Winter is a fantastic time to stargaze when the air is dry, free of dust, and doesn't often suffer from heat-generated turbulence. Using common sense, dressing in layers, and being alert to cold-weather dangers, you can enjoy a comfortable night with Orion, Gemini, and Taurus.

Gilda Bryant, a former science teacher, lives in Amarillo, Texas.

The Chilly Hazards

In spite of taking precautions, the weather can nevertheless get the better of you and make you suffer more than minor discomfort — frostbite and hypothermia are dangerous conditions.

Frostbite develops when the body diverts blood flow from the extremities to major internal organs. It may occur slowly or quickly, depending on the wind and length of exposure. Symptoms include a burning, tingling sensation, swelling, and loss of feeling. Skin hardens, changing to red or purple, or develops a yellow, shiny appearance.

To help prevent frostbite, avoid alcohol and nicotine. Alcohol causes blood to lose heat quickly, while smoking slows blood circulation to the extremities.

To treat frostbite, move the victim to a warm location, loosen tight clothing, and remove jewelry. Ignore the old wives' tale: never rub the frostbitten area with snow or soak in cold water. Instead, slowly warm the area by soaking in a tub of warm (not hot) water. Stop after about 45 minutes when the affected area becomes red — *not* when feeling returns. Thawing too quickly is painful, often causing blisters.

If warm water isn't available, cover the victim with blankets or place the frostbitten extremity next to the warmest part of the body, like an armpit or abdomen. Elevate the frozen extremity and never rub a frostbitten area because the ice crystals will damage tissue.

Hypothermia occurs when your body temperature drops below 97°F. Its symptoms are uncontrollable shivering, slow or slurred speech, confusion, slow breathing, stumbling, drowsiness, and loss of consciousness. If left unchecked, a person will die when the body shuts down completely.

To aid a victim, slowly warm him or her while seeking medical care. Warm the torso first by dressing in warm, dry clothing and then cover with a blanket. Warm arms and legs last because stimulation of the limbs can drive cold blood to the heart, occasionally leading to heart failure.

Never give a hypothermia victim caffeine or alcohol. The caffeine in coffee, tea, and chocolate is a stimulant, causing the heart to beat faster, speeding hypothermia effects. Alcohol, a depressant, slows the heart and magnifies the ill effects of cold body temperatures.