

If there is a hierarchy in the Antarctic it is those people who winter over who garner the most respect. Making it through a winter—the endless dark, the confined working conditions, the extreme cold and the small population—can be a challenge. By the end of the winter, most are looking forward to the sun rising and to leaving. However, after a winter at South Pole, Katy Jensen is not ready to leave the community that has formed through the dark Antarctic winter. In her essay she describes with love and honesty the complexity and beauty of this small world.

Katy Jensen has spent more than four years in Antarctica, including three winters at the South Pole and two seasons as the station's first female area manager. She continues to support the U.S. Antarctic Program in various contract positions, and someday she'd like to visit Jensen Rampart, a set of cliffs named after her in the Darwin Mountains. Some of Katy's best friends are Ice people—especially her husband, Rod, with whom she shares a home and a blue heeler in Saint Paul, Minnesota.

Sunrise at 90 South

Katy M. Jensen

It is September 1993 and I am standing alone at the geographic South Pole, wind stinging my eyes, snow rolling across my boots in waves. This is the first time I have seen the sun in six months. And to tell the truth, it's not that impressive. There is no flaming chariot speeding across the heavens; no angel's face with a mane of golden rays. Just a pale, egg-yolky blob floating above a frozen ocean.

One of the perks of spending a year at 90 South was supposed to be a chance to see two fabulous equinoxes, complete with awesome mirages. But the guest of honor was a no-show for our sunset party in March and again for last week's sunrise gala, in spite of our pagan attempts to lure it into view with sacrifice and song. This year, anyway, ol' Sol seems to prefer slinking across the Equator, protected by a curtain of clouds and blowing snow.

I shouldn't complain. The pre-dawn twilight was glorious, beginning in August with a bright violet glow, then progressing smoothly through early September's raspberry-tangerine and last week's bouquet of spring pastels. But sunrise brings with it a bittersweet realization that winter is over, and I am not ready to let it go.

For the past year, our little tribe of 28 scientists, construction workers, and support staff have called this place home. It seems like forever ago we zipped up our parkas and tumbled out of that cargo plane, our lungs slammed by the altitude and the cold. The first four months were a blur of activity as 125 people tried to jam a year's work into the short austral summer. Our mantra was, "Sleep, bad. Coffee, good!"

Suddenly it was February, and most everyone headed north, leaving our group of 28 "winter-overs" to mind the shop. When the last plane of the season took off, the pilots zoomed it low across the sky, tipping the wings in a final salute. Our lives became increasingly small, and we lost touch with the world revolving around us. Charles and Di split up, Steven Spielberg shocked the masses with a movie called *Schindler's List*, and,

after 45 years of fighting, Arafat and Rabin shook hands on the White House lawn. But with the *New York Times Fax* for news, we only saw the stories that were depressing or sports-related. In fact, most of us skipped the “news” altogether and headed straight for the crossword puzzle on the last page.

All winter, we have enjoyed a comfortable, protected existence. Now it’s time to Ramp Up, get the place ready for summer, and allow the cycle to begin again.

I lower my goggles into place and pull my fur-lined hood low across my face before turning toward the wind. At 20 knots, it kicks up the dry snow like a sandstorm, and the wind-chill temperature of -150 °F (-101 °C) makes frostbite a real concern. It takes almost ten minutes to stumble across 200 meters of hard-ridged *sastrugi* to the place where I work. The “Clean Air Facility” is a drafty wooden building that sways in the breeze, but it is my Walden, and I wouldn’t trade it for the world.

I sweep piles of encroaching snow off the porch and stairs, and climb up to the roof to wipe frost from the lenses of the light-measuring instruments. After a quick weather observation, I duck inside and shed my cold weather gear, trading my heavy “bunny boots” for sheepskin slippers. With Bonnie Raitt on the stereo and a mug of cocoa in hand, I’m ready to begin the daily rounds of checks and calibrations.

I am a “beaker”—a scientist—an NSF grantee sent here by the National Oceanic and Atmospheric Administration (NOAA) to monitor things that might affect the Earth’s atmosphere. The idea is to understand what’s in the cleanest air on Earth so we can use that as a baseline to help people better manage the rest of the planet. The owners of these instruments live in Boulder, Colorado, and when they’re not analyzing data or training observatory crews, they’re *out there*: celebrating the outdoors and remembering why all these things are important.

As our group’s field team leader, most of my time is spent collecting samples of air and snow, recording data, and writing reports. Ray is the technical guru who keeps the equipment running, and Carl is heading a special ozone-monitoring campaign. Another NOAA scientist named Kathie uses a mysterious array of beeping, black boxes to study atmospheric winds and temperatures.

Everything we have heard about climate change seems to be true because we’re seeing it here, first hand. Carbon dioxide and other greenhouse gases are increasing at an alarming rate. Average temperatures seem to be rising in some parts of Antarctica, yet falling in others. And this year’s “ozone hole” looks like it might be the worst ever, with significant depletion occurring 15-20 kilometers above the Earth’s surface, where ozone is supposed to protect the planet by absorbing harmful Ultraviolet radiation.

I have developed a certain fondness for the instruments in our little observatory. For its name, I love the nephelometer, which measures the optical properties of aerosols. For their magic, nothing compares to the gas chromatographs and their ability to separate halocarbons from ambient air. Whenever I need an ego trip, I can make lightning with a Tesla coil or build tiny clouds in a Pollak Condensation Nucleus Counter. But my most favorite job of all is measuring ozone with a Dobson spectrophotometer. This hulking, metal submarine-on-a gurney has enticed me out of bed at ungodly hours just to point its periscope at the sun or the full moon—through an open window—regardless of the temperature outside. With frozen fingers spinning a metal dial, I can attenuate the wavelengths of light bouncing around inside the Dobson and figure out exactly how much

ozone is between me and the light source. It's simple, it's ingenious, and it's how British scientists proved the ozone hole existed when other systems had been programmed to disregard such low values.

Sunrise means job security for ozone researchers. It's the returning sunlight that breaks up chemicals in the polar stratosphere and begins the chain reaction of ozone destruction every year. But the sun is too low on the horizon for the Dobson, and the Nimbus-7 satellite's instruments haven't worked since May, so Carl's balloon-based research is more important than ever.

I hear the front door slam shut, and I catch my breath, thinking, *Please let it be anyone but Ray*. We used to work together really well, but lately Ray and I have been riding a rollercoaster of misunderstandings, and I never know what to expect from him. I know it's my job to try to work this thing out, and I plan to. Some day. I just don't feel like doing it right now.

I peer around the corner, trying my damndest to look nonchalant. It's Kathie. I have never been so happy to see her, and she laughs at my obvious relief.

"You should just talk to him."

"I know. You're right. I will."

She smiles. "Uh-huh."

Kathie has been a good friend all year, and she knows me better than I'll admit. Together we have started a science club, an exercise group, and a "Red Rocks at 90 South" concert series where we play music videos on the big screen, drink fruity cocktails, and dance like maniacs until we're sweaty and tired.

She has just come from the dark room, where the photography buffs are developing copies of our winter-over photo. It's a hundred below zero and we're outside, organized in neat rows and holding our breath to keep the fog from obscuring our faces. It's all perfectly professional...except for the brightly-colored jester hats that BK sewed for us from scraps of felt and fleece. Hardly a motley crew, however: we are men and women of varying ages, but that's where our diversity ends. In fact, we represent a good cross-section of middle-class, white America. Our token international representative is a (white, male) British astrophysicist named Andy who gets a kick out of our cowboy accents. "Oh BOY," he says with an exaggerated Texas drawl, and "Good JOB." Looking at the photo now, Kathie and I decide half of us look like we'd stay forever if we could. The other half look haunted and ready to get the hell out of here.

Before lunch, I gear up and walk over to visit Carl in the Balloon Inflation Tower, about a quarter mile away. I dance up the spiral staircase to the Inflation Room and then whistle through the hatch before climbing the ladder into the tiny electronics lab where Carl is sitting, listening to the whirr and burp of ozone data returning from the balloon's transmitter. Ray is here, too, tweaking the antenna to help Carl get a stronger signal. He barely acknowledges my hello, and I pretend not to notice.

Since late August, Carl has increased the number of balloons he launches each week, and we have watched anxiously as the ozone layer continues to disappear above our heads. The experts in Boulder think this year's depletion will reveal leftover effects from a volcano that erupted in the Philippines two years ago. And they're right: today's flight registers the lowest total ozone ever recorded on Earth. And it's still early in the season, meaning it's likely to get worse before it gets better. Certainly not good news, but NEWS

nonetheless, so as soon as the flight ends, we hustle down to the radio room to call our boss in Boulder. He's like a proud papa on the phone. He tells us we're the best crew ever, and to keep up the good work. And we smile at his little lie, remembering last year when we were on his side of this conversation. He would gush with compliments and then hang up the phone saying, "They sounded really tired. Didn't they sound tired?" Still, we appreciate his soothing voice across the miles. Whenever we are particularly frustrated, he brings us around with something like, "Of course it matters. Everything matters. But none of it *counts*."

At lunch, people seem to have a renewed energy. Or maybe they're in panic mode, sunrise triggering a new awareness that there's only one month left to get everything done before the summer crew arrives. In addition to the increased productivity at work, folks are suddenly discovering new interests and frequenting the gym. Tables in the galley are littered with travel brochures and Harley Davidson catalogs. A note on the message board chides, "How's the working out working out?" The rest of the board is crowded with a "Toasty Self-Test:" a list of indications that your brain is beginning to get crispy around the edges. Number 18 is, "You break it off with your fantasy lovers due to their predictability and lack of imagination."

I grab a plate and a monster cheeseburger with a homemade bun. The food here is fabulous. We're on our own for breakfast, but our cook, Kari, supplies two huge meals per day, including an endless supply of desserts and fresh breads. Thanks to a NASA grant, we have a greenhouse that produces more lettuce than we can eat, so there's salad every day. And in June, the U.S. Air Force "dropped by" in a C-141 cargo plane, roaring overhead at 1,000 feet and dropping two dozen pallets of goodies onto the snow. The most treasured items were personal mail and "freshies" like eggs, milk, fruit, and some sort of New Zealand tuber that we never identified, but ate anyway. Airdrop also brought 200 pounds of chocolate and 100 pounds of *People* magazine. I fear my subsequent addiction to both will land me a job in a dentist's office when I get home.

I load my cheeseburger with greenhouse lettuce and grab a seat at a crowded table. Across from me is Jerry, who is our connection to the outside world. He is the "Comms Guy," responsible for collecting all of our data and e-mail messages and sending them home over a serial modem. He is also the keeper of the weekly sign-up sheet for our 10-minute phone calls, so he is understandably popular. The guy is a puzzle, though. On one hand, he was the only one brave enough to eat the 40-year-old LOAF, TURKEY we found in the emergency supplies. But he also seems increasingly paranoid about a ghost that he swears is haunting the Comms office. Not wanting to lose our phone calls and messages, we usually just smile and nod politely when he describes his latest encounter.

The rest of the guys at the table are making a list of things they'll miss most about this place. No one is willing to say "each other," so when the question comes to me, I gush about the night sky...how the stars seemed close enough to touch, and how it took me so long to realize the moon was upside down, and how I've never seen such amazing auroras, from rose-colored washes to acrobatic white spirals and spiky teal needles that rained down in all directions. Just about every outdoor venture in June and July ended with us lying in on our backs, giggling and enjoying the celestial show.

But as much as I'll miss all that, I'll miss these people, too, whether they like it or not. Every crew is different, and we'll never be "us" again. Except for four days of R&R at

McMurdo Station in January, all of us have spent the last year within a few miles of where we sit now. With no way to leave and no place to hide, we have come to know each other better than most of us know our own siblings. We have become a family, complete with the power to soothe or provoke at a moment's notice. So when I casually begin to remark, "Well, when you've lived together this long..." Jerry is quick to correct me, saying, "We do NOT 'live together'." Man, he's toasty! His irrational fear of inferred intimacy just makes me want to reach out and plant a big, sloppy kiss on his cheek. Instead, I wad up my napkin and bounce it off his chest.

One of the science projects here is an anthropologists' study of group dynamics: how people interact with each other in isolated environments. By monitoring several winter crews, these researchers hope to improve the winter-over selection process. They also want to determine an ideal mix of personalities for prolonged spaceflight and other extreme situations. They label us like bugs in a glass case: jokester, floater, philosopher, social shepherd. Stan is not only our Station Manager, but our emotional leader as well, which is good but unusual. He is sarcastic and caring and kind, and his sense of humor is the metronome that sets our pace. BK is another natural guidance counselor who often has a line of people vying for her attention. Her diverse life experiences, from llama training to forest-fire-fighting, have earned her an unparalleled confidence and authority that's incredibly attractive. As with most families, we have a small group of favorite aunts and uncles who only come around once in a while, and there are more than a few weird cousins. We have shared each other's highs and lows, consoled couples through breakups, and celebrated news of a baby on the way. He has become a sort of mascot for us, and we insist that the parents name him Ichabod, but I doubt they'll come through. They are more likely to choose something admirable, like "Andy." (I can hear his namesake now: "A BOY. Good JOB!")

The anthropologists' study requires us to fill out annoying questionnaires about emotions we have experienced and people we have interacted with during the week. I always circle "blue," but never "sad." And lately I have tried to hide the fact that I'm spending less time with Kathie and more time with...well...there's *this guy*.

His name is Rod, though most everyone calls him Rodman, and this year is his third winter at the South Pole. He's an unassuming Minnesotan who works nights as the maintenance mechanic, quietly ensuring that the place stays warm while the rest of us sleep. We had shared some great conversations, but we didn't really notice each other romantically until the rest of the night shift got involved. I had been staying up way too late with them, sneaking out on snowmobiles, or playing Assassin, or thinking of new ways to make ghost sounds in the Comms office. After a while, the hoodlums got bored and decided to start a rumor about the most unlikely couple they could think of. And the rest, they say, is history: I guess Rod and I fell victim to the power of persuasion. It's been a whirlwind. A great ride. And the newness of it all makes me regret sunrise even more.

There's a commotion by the microwave, which can only mean one thing: a new tub of ice cream has been opened. Our dairy products come from New Zealand, meaning they are full-fat and (usually) delicious. But in addition to the standard varieties, the ice cream comes in weird flavors like Banana Chip and Hokey Pokey, and we're not allowed to open a new tub until the previous one is finished. The new stuff has been stored outside (average

temperature: -57.1 °F / -49.5 °C), so it's too cold to eat without chopping off a chunk and softening it in the oven.

JP approaches me with a two-scoop cone of Rocky Road.

"Does this smell like diesel fuel to you?" And like a dope, I lean forward to sniff the ice cream, which he pushes up against my nose, laughing at my predictable naiveté.

For his birthday, JP ended up duct-taped to a table. Now he's talking about coming back in two years as Station Manager of the Ultimate Winter Crew. It's just like fifth grade kickball and I pray he will pick me for his team.

After lunch, I have to hustle back to Clean Air to catch "Zero Z," or midnight in Coordinated Universal Time. That's when I mark the charts and change the tapes and do another set of observations. As I leave the Galley, I notice the wind hasn't quit; I can hear the snow sizzling against the Dome's aluminum shell like grease in a frying pan. Every once in a while, the whole place shakes with a rumble and a BOOM: "Dome Thunder." It's harmless but spooky, like a creaky old house. And ever since April Fool's Day, a life-sized mannequin has hung from a noose in the center of the Dome—a morbid pendulum reminding us not to slam doors or take the last cup of coffee without brewing a new pot.

When I get to Clean Air, I notice Ray's coat in the entryway. It's too late to turn back...he must have heard me come in...and anyway it's almost Zero Z. I am like one of those cartoons, with an angel on one shoulder saying, "Just *talk* to him" and a devil on the other saying, "No way, this is *his* problem, not yours." I am standing there, trying to decide what to do, when Ray walks up.

"Hey, Katy," he says lightly. "I went ahead and marked the charts early. And we got an e-mail message from Boulder about that missing G.C. data."

As if everything is fine. Is he just messing with my head? Is this the same guy who got righteous about me missing Pollak observations and "relegating" his technical section to the back of our turnover report? Am I losing my mind? He's standing here, looking right at me, explaining what he's working on in his oh-so-patient way. And the whole time he is talking, I am staring over his shoulder at the world map on the wall, getting lost in the colors and wondering why India seems so small. Nothing is making sense! After a while, he says well it's been a long day, and his back is sore, so he's going to head into the Dome for some coffee and then work in his room. And I think, *Hey, that's cool. Bizarre, but cool: I guess I was worried about nothing.*

Until I see him disappear into the Dome and remember this is the afternoon I wanted to start hauling crates over to the Cargo office.

I can't believe my ignorance, and Ray's duplicity. Cursing, I load a couple of empty nitrogen cylinders onto a sled, hoping "empty" will mean "lighter than usual." But these are big steel cylinders, and they sink my banana sled like a rhino in a rowboat. I try walking with the rope over my shoulder. The sled won't budge. I tie a quick bowline and step into it, wiggling the loop up to my waist. Slow progress. I think of Robert Falcon Scott, slogging along, singing sea shanties. So I start hollering, "Oh, what do you do with a drunken sailor..." but the snow is all speed bumps and baby powder, and the atmospheric pressure is low today, resulting in a "physiological altitude" of 11,099 feet (3,383 meters). *Ray, you weasel! I can't believe you suckered me into doing this alone.*

It takes all afternoon to make three trips with the sled. Mostly because I'm feeling sorry for myself, I stop into the galley for cookies and cocoa after each trip.

Evenings are usually reserved for pinochle, or trauma team meetings, or basketball, but tonight is “date night” and I’m headed for Rod’s cabin by the lake. The cabin is a satellite receiver shack that Rod has converted into a condo, and the “lake” is Lake Patterson, a deep hole in the snow where we dump the station’s raw sewage. Two months ago, Rod invited me out here for what I thought was a one-night stand...and he has let me stay ever since.

I’m hoping we will watch a movie together, but Rod has other ideas. We have to do water runs. More specifically, *I* have to do water runs, and he’ll talk me through it. We climb into the cab of the 953 track loader, and he reminds me which controls are for the tracks, and which are for the bucket.

I’m nervous, so instead of driving, I begin to jabber.

“So, do you think we’ll ever...?”

“Don’t talk. Just drive.”

“Yeah, I know, but what I’m saying is-”

“Stop procrastinating.”

“I know. I will...”

Eventually, I work up the confidence to start rolling, and he tells me stories during the long drive out to the snow mine, where I carefully scoop up a bucket full of pristine snow to take back to the melter. When we get to the ramp that leads up to the roof of the Power Plant, Rod hops out with a shovel to lead the way. Alone in the cab, I am freaking out, barely breathing, certain I’m going to slide this thing off the ramp and into a ditch. I feel like a jet pilot landing on an aircraft carrier, and Rod’s just smiling, waving me in. His trust in me is overwhelming. So, with agonizing jerks and starts, I inch the loader up to where he’s standing, lift the bucket, and tip it, hoping most of the snow lands in the melter.

“Right on,” he says casually. “Next week I’ll teach you how to drive the D-6 so you can help me drag the skiway.” The D-6 is a bulldozer with a manual transmission. I don’t tell him that my father, my best college friends, and many a boyfriend before him have been astounded at my inability to manage a stick shift. Instead, I just smile and say, “Cool.”

Afterward, while Rod fuels up the 953, I stop by the Dome to grab some supper from the leftover fridge and a bottle of wine from my room. On the way back out to the cabin, I notice the sun looks somehow different. The sky has cleared a bit, and the air is thick with diamond dust—tiny ice crystals that sparkle like rainbow glitter. And there, stretching away from my feet, is the longest shadow I have ever seen. Longer than a school bus...easily the length of a bowling lane...I can barely see the end of it and suddenly I feel tall, and thin, and invincible.

Funny how one sunrise can elicit such a range of emotions. I am jazzed. Wide awake and ready for whatever’s next. I know I’ll miss the upside-down moon, the killer sastrugi, and the mixed bag of auroras. I worry that this fledgling relationship with Rod won’t survive the harsh light of reality back in the States. But suddenly I am ready to say goodbye to my South Pole family, the same way I left my parents a year ago, with a hug and a promise to carry them in my heart. I’ll even miss Ray, though I doubt we’ll ever have that talk after all. I imagine my last day here will be like Dorothy leaving Oz: Love ya, Scarecrow. Take care, Tin Man. Later, Cowardly Lion.

I look around slowly, pledging allegiance to this magic world, promising to come back some day, and bursting with big ideas of things to do in the meantime. Soon, Rod and I will wake up in a place surrounded by trees and grass and big puffy clouds...a place where we can walk barefoot near the ocean and eat fruit from a coconut bowl. A place—though it's hard to imagine right now—where the sun rises *every single day*.

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