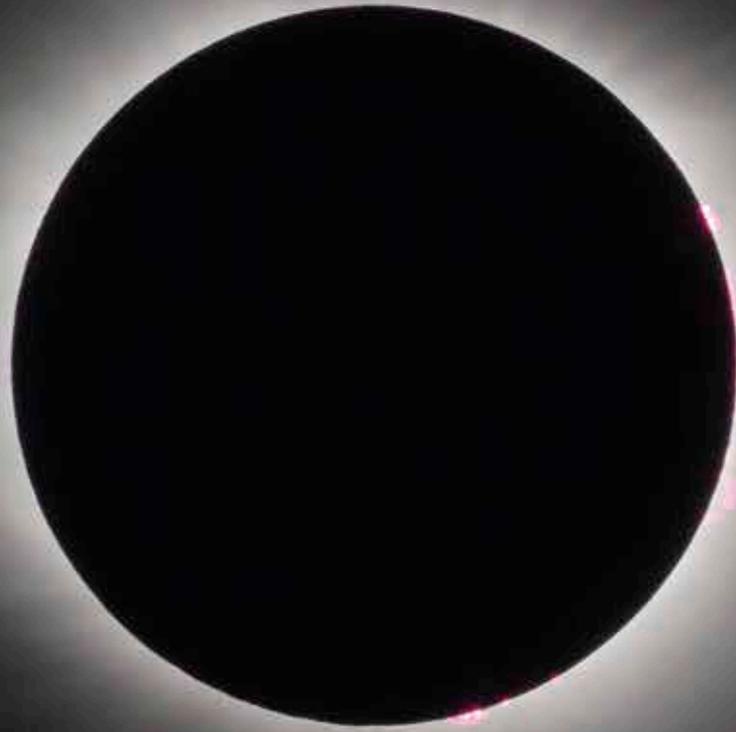


The Sun at totality during the 21 August eclipse, with pinkish flares visible in our star's corona



CHASING THE MOON'S SHADOW

This summer, **Elizabeth Pearson** travelled across the US to hunt down the total eclipse of the Sun on 21 August 2017

In 1999, a total eclipse of the Sun passed over Cornwall. And I missed it. Ever since, I have wanted to see totality, and so when I heard that the Moon's shadow would be passing coast to coast over the US mainland on 21 August 2017, I knew I had to be there. I decided to take a road trip that would end up taking me almost 3,000km across the country as I attempted to chase down the lunar shadow.

My journey started in Salt Lake City, Utah, where I picked up the hire car that would prove to be my faithful steed for the week. My first stop was Salt Lake City's Clark Planetarium, where I found queues out the door. The crowds had been brought



▲ Elizabeth covered 3,000km on her travels

in by an email from a major online retailer recalling eclipse glasses, sparking a panic. "A lot of people who thought they had glasses just got emails saying their glasses cannot be trusted, and have come to the Clark Planetarium because we have the real ones. We never thought we'd be the only supplier in town. We have a supply for today, we may even have a supply for tomorrow, but then who knows," says Seth Jarvis, the director of the Clark Planetarium. Like most of the nation, Salt Lake City would only see a partial eclipse, making appropriate eyewear crucial. But for me, the 91 per cent it would see wasn't enough. I wanted totality. It was time to start chasing that shadow. ▶

CLARENCE HOLMES PHOTOGRAPHY/ALAMY STOCK PHOTO, ELIZABETH PEARSON, J STOCK



▲ Some people queued at the Clark Planetarium for 45 minutes to get eclipse glasses, which were strictly limited to five per purchase to prevent touting



▲ Elizabeth examines the dynamic nature of our star with a hydrogen-alpha scope a few days ahead of totality



Carhenge in Alliance, Nebraska, where Stonehenge has been given a modern makeover



▲ AstroCon 2017 was the most popular ever, and sold out a year ahead of the event



▲ From locals with lemonade stands to hospitals, everyone was trying to cash in on eclipse fever



▲ While at Mount Rushmore, Elizabeth stopped to take her first ever photo of the Milky Way

► As I drove from Utah into Wyoming, I began to see signs that I was heading into totality country. On the highways there were notices banning heavy vehicles on 20-22 August to keep traffic moving, while in towns handwritten signs offered eclipse parking. Every business, it seemed, had special 'Totality Deals'.

The building buzz

Eventually I made it to Casper, Wyoming, the largest town on the eclipse's central line and host to the Astronomical League's annual AstroCon convention – which happened to coincide with my visit. The event had drawn people from all over the world, keen to see the eclipse.

"Once you've seen totality, you've just got to see it again," says Sue Baldwin, an eclipse chaser from Auckland, New Zealand. "The first time I saw it I bawled my eyes out for 30 seconds, and actually had to hit myself so I could look at the totality. It's just that emotional, there is no comparison."

"By the time I reached Sutherland, Nebraska, the forecast had grown worse. The nearest place with completely clear skies forecast was almost 400km back the way I had just come"

With so many eclipse enthusiasts together under one roof I couldn't help picking up on their excitement. And it only grew when I drove on to my next pit stop of Alliance, Nebraska. "They're saying that there are going to be 20,000 people in town altogether," says Jessica Hare, the acting manager for local monument 'Carhenge', a replica of Stonehenge made from scrap cars and the reason this remote location is so busy when I arrive.

"For the most part people in town are excited. There's a reason we live here, though: we're not into big crowds," Hare continues. "But it's a change of pace for a few days and then we've got something to talk about for 60 years."

With only two days to go, people were already arriving and setting up camp. But amongst the bustle, an air of disquiet was beginning to form. People were checking the weather and all was not well. On 21 August, clouds were forecast across the eastern side of the US. Combined with the eclipse glasses scare, it looked

like huge numbers of people might not get to witness the great event.

By the time I reached Sutherland in central Nebraska, where I had planned on watching the eclipse, the forecast had grown even worse. The nearest place with completely clear skies forecast was almost 400km back the way I had just come, along roads already gridlocked with traffic. Did I stay and risk being clouded out, or go and risk getting stuck on the highway?

I had come too far to end up staring at clouds. Time to chase those clear skies. Wanting to avoid the most horrific traffic, I picked a town just off the centreline and at 4am on 21 August, I was back in the car.

As I set off, the fog was so thick that at times I could barely see 30m ahead of me. But I was determined to beat the clouds and fought on until

four hours later I reached my final destination – an old airfield in Mitchell, Nebraska. A few hundred people had already arrived, most of whom had also undertaken long treks, and were ready to see their first eclipse when it started at 10.25am.

The moment of darkness

When the hour came, we donned our (certified) eclipse glasses to watch as the Sun was slowly eroded away by the Moon. As the spectacle unfolded, the dwindling sunlight made its effect felt. The air, which should have been uncomfortably hot by now, felt more like a breezy afternoon.

With around 20 minutes to go, I reached to take my sunglasses off before realising I wasn't wearing them. The light was fading and taking the colour out of the world with it, like an old photograph that's been left in the Sun. ►



ABOUT THE WRITER
Dr Elizabeth Pearson is BBC Sky at Night Magazine's news editor. She gained her PhD in extragalactic astronomy at Cardiff University.

STARGAZING CENTRAL

Usually regarded as 'fly over' states, the centre of the US has a lot to offer the astro minded



Sandhills, NE
The rural state of Nebraska is home to some of the darkest accessible skies in the world, making it a dream destination for deep-sky imagers. <https://visitnebraska.com/stories/visit-the-sandhills>



Strategic Air and Space Museum, Omaha, NE
The museum is home to several space artefacts and a tribute to Nebraskan astronaut Clay C Anderson, as well as dozens of aircraft. <http://sacmuseum.org>



Clark Planetarium, Salt Lake City, UT
As well as shows in the dome, the Clark Planetarium houses a space museum with interactive exhibits to enthuse little astronomers. <https://slco.org/clark-planetarium>



Yellowstone National Park, WY
Spend the days exploring the world-class park and the nights taking in the dark skies. An astronomy programme runs in summer. www.nps.gov/yell/index.htm



Carhenge, Alliance, NE
This huge replica of Stonehenge made from cars was built in 1987 as a tribute to the artist's father, and has proved to be a popular road trip stop ever since. <http://carhenge.com>



Craters of the Moon, ID
Follow in the footsteps of the Apollo 14 crew, who underwent geology training in this volcanic landscape prior to their trip to the Moon. www.nps.gov/crmo/index.htm

ELIZABETH PEARSON X 9, ISTOCK X 2, ERIK JOHNSON



▲ Hundreds gathered at the Mitchell Airfield to watch the eclipse

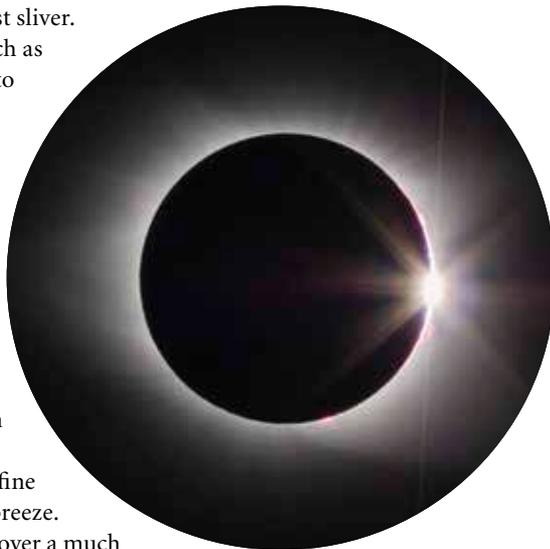


▲ Elizabeth enjoys a spot of pre-eclipse viewing with her hydrogen-alpha solar telescope

► At 11.46am, with one minute left, the Sun was down to the merest sliver. I turned to the west to watch as a wall of darkness seemed to advance across the sky.

Turning back, I watched as a sudden explosion of diamond light came from the Sun as the last of its rays were covered, accompanied by a huge cheer from the crowd.

Where once the Sun had been, there was now a hole of utter blackness. A crown of light danced around it and I could almost see the fine tendrils swaying with the breeze. It seemed huge, stretching over a much



The moment totality arrived, sending a swathe of the US mainland into a brief twilight



◀ As the Moon begins to move on a brilliant burst of sunlight appears to signal the end of totality

larger area of sky than I'd expected. Around me, the sky was in twilight with pink trimming every horizon, as if the Sun had just set in all directions together.

The crowd was quiet now. After all the excitement and panic, I felt a sense of quiet calm. I was under the shadow of the Moon, watching plasma arcing a million kilometres out of the Sun. It was humbling, a reminder of our small place in the grand Universe.

The chance of a lifetime

All too soon, I could tell totality was reaching its end. The perfect circle of blackness was beginning to look lopsided. One minute, 53 seconds after the first, there was a second burst of light as the shadow passed, sweeping across the nation and taking the spectacle to the millions who waited farther east. As others rushed home, I stayed to watch as the Sun returned, taking a moment to appreciate what I had just witnessed.

Later that evening, back in Sutherland (where the weather had been perfect, of course), I headed out to look at the Milky Way, knowing our Galaxy is only one of billions that all move together in the ballet of the Universe. I've devoted my life to studying that dance, but I have never grasped its majesty like I did in that one minute and 53 seconds.

Once you've seen totality, you really do have to see it again. On 8 April 2024, another eclipse will sweep across the US and I plan on being under the Moon's shadow once more. Maybe I'll see you there. **S**

Elizabeth travelled across the US with Hertz (www.hertz.co.uk/p/american-road-trip-planner)

ROADTRIP TO THE ECLIPSE

Our seven-day route to totality spanned 3,000km across four US states



ELIZABETH PEARSON X 3, CLARENCE HOUMES PHOTOGRAPHY/ALAMY STOCK PHOTO

THIS ROAD TRIP COST...

Flights:	£1,050
Accommodation (hotels; seven nights):	£490
Car hire (Hertz; others available):	£600
Petrol:	£70
Food:	£280
TOTAL (based on one person):	£2,490