

Nightscape

IN THIS ISSUE

How the stars shaped humanity

Dark Sky Lodging
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+ more

On the cover



“Estrellas Ancestrales”

Guatemala

by Sergio Emilio Montúfar Codoñer

Parque Nacional Tikal, Instituto de Antropología e Historia de Guatemala, Dirección General del Patrimonio Cultural y Natural, Ministerio de Cultura y Deportes

The Milky Way above Parque Nacional Tikal, a UNESCO World Heritage Site in northern Guatemala. The image shows an iconic Mayan funerary temple — Tikal Temple I, also known as El Gran Jaguar. It is a Petén-style stepped pyramid dating to around 730 CE. The Maya people of Tikal watched and recorded the movements and patterns of celestial objects and developed a sophisticated study of astronomy and a calendar system. Many of their structures were built to align with the night sky.

TECHNICAL DETAILS

2 horizontal images of 20sec to create a vertical panorama | Lens: 24mm | Aperture: 2.8 | ISO 6400

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From the Executive Director

Two essential traits define the company of dark sky enthusiasts: a penchant for staying up late and an immunity to motion sickness.

Recently, these attributes were put to the test during my visit to La Palma, a volcanic island renowned for its dark skies, world-class telescopes, and winding roads. While attending the Astronomy and Satellites: Pathways Forward symposium, I marveled at the star-studded sky during a memorable night at the southern tip of the island.

As the sun set, the Milky Way unveiled itself, accompanied by a parade of satellites crisscrossing the heavens. La Palma, part of the Santa Cruz de Tenerife province of Spain and one of the Canary Islands, is a pioneer in night sky protection. In 1988, it enacted one of the world's first sky laws to combat ground-based light pollution. Today, sitting in the city square beneath warm, shielded lights, residents and visitors can enjoy the night sky, showcasing that effective lighting practices foster vibrant communities.

Regrettably, this hard-won achievement is now under threat. The Canary Islands, once an isolated haven for stargazers, face challenges from satellite swarms that jeopardize even the most remote locations.

In this issue of *Nightscape*, Jo Marchant, author of *The Human Cosmos*, reflects on our evolving relationship with the night sky. Despite the challenges, the awe-inspiring nature of the night sky remains a constant. While the battle to preserve it intensifies, I am optimistic about the strength of our global advocacy community. Safeguarding the night sky for future generations demands bold, united actions. I am honored to embark on this journey with you.



For the night,

Ruskin Hartleyruskin@darksky.org

Tucson, Arizona, U.S.

The gamma-ray high sensitivity mirror telescope at the Roque de los Muchachos Observatory (ORM) in La Palma, Canary Islands, Spain.



From the Editor



Megan Eaves



Above Left: The Killadangan Stone Row points to a notch in the mountain where the sun sets on the December solstice.

Above: Neolithic spirals carved onto the Boheh Stone, thought to symbolize the celestia and infinity.

This year's Under One Sky conference has once again come to a close, bringing together supporters of the natural night from around the world. Keynote speaker Jo Marchant delivered an inspiring talk about how the night sky has shaped human cultures for millennia. This issue of *Nightscape* includes a Q&A with Jo (p.6) about her book, *The Human Cosmos*, which covers the history of human connection to the stars.

I joined the conference from County Mayo in Ireland, where I was also attending the annual dark sky festival at Mayo International Dark Sky Park. It was a weekend full of art, music, science, poetry, kinship, starry skies, and, of course, some token Irish rain! With an extra day to myself after the festivities ended, I took a drive around Mayo, inspired to explore several ancient sites in the area. These included a megalithic complex at Killadangan where, on the December solstice, a row of standing stones aligns with the sunset through a niche in Ireland's sacred mountain, Croagh Patrick. A few miles away, another neolithic rock — the Boheh Stone — also aligns with the mountain and is marked with classic Celtic spiral inscriptions, which some archaeologists

believe symbolized the Sun, Moon, and Earth or a connection to infinity. To stand in these ancient places and wonder at our ancestors' physical connection to the cosmos, still visible to us today, was truly inspiring.

I also recently had the pleasure of visiting Under Canvas Lake Powell, a glamping resort in Utah, which has been certified as the first DarkSky Approved Lodging — the first of a new Dark Sky Place certification program for accommodations. Read about it on page 4. Inside you'll also find our annual award winners, dark sky news from around the globe, and more.

Thank you for joining us this year and supporting the night wherever you are in the world! The dark sky effort depends on us all.



Megan Eaves
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London, U.K.

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DarkSky

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Introducing Dark Sky Lodging



DarkSky's new "Lodging" certification brings accommodations into our Approved program

If you've ever been traveling and wished away a hotel's bright lights for a view of the stars, DarkSky's new Lodging certification is here to help. DarkSky Approved Lodging is over-night visitor accommodations with exceptional or distinguished night-time environment preserved through DarkSky Approved lighting. These properties can include camps, seasonal campgrounds, hotels and resorts, retreat centers, ecotourism properties, and lodges located in dark locations.

Approved Lodging is intended to complement the International Dark Sky Places program by recognizing operators that provide opportunities for visitors to spend the night in a dark sky location — an increasingly rare experience for much of the world's population.

DarkSky Approved Lodging criteria

Properties go through a rigorous review and certification process similar to International Dark Sky Places, including regular reporting and periodic re-certification. To qualify, a property must:

- ◆ Be located in a region with exceptional dark skies
- ◆ Understand sensitive nighttime resources and appropriate ways of reducing the impact of light at night
- ◆ Showcase exemplary outdoor lighting practices
- ◆ Allow regular nighttime access and provide educational or outreach material about night sky conservation to guests

Learn more at darksky.org/lodging/

Under Canvas Lake Powell – Grand Staircase

By Megan Eaves

DarkSky's Lodging scheme was developed in partnership with Under Canvas, a leader in outdoor hospitality with 11 safari-inspired, luxury, tented camps in the U.S. designed to connect guests to experiences in nature. The certification criteria were developed through a pilot scheme at Under Canvas' Lake Powell – Grand Staircase property in southern Utah, which opened in 2020. It is located under Bortle Class 2 skies (the second darkest classification), with Class 1 skies (the darkest) just a 10-minute drive up the road.

I had the opportunity to stay at Under Canvas Lake Powell a few weeks ago to experience its starry nights for myself. There are 50 safari tents spread out over 220 acres (890,300 sq km), so you do see and interact with other guests but still experience

privacy and nature. Each tent is a built structure with wood floors, full-sized beds, flushing toilets, and showers enclosed by their namesake canvas. I stayed in a "Stargazer" tent, which had a clear plastic window above the bed that allowed me to spot the Big Dipper, Jupiter, and several meteors from my pillow.

Caitlan Cullen, Director of Real Estate Development at Under Canvas, told me that the company's operations team worked hard on lighting management, including dimming, reducing overall lighting, and adding night-sky programming.

"This is a long-term commitment," she said. "There is an ongoing plan where we look at improving the light-

ing at all of our camps. If there are any fixtures that don't meet the standard currently, it gives us the opportunity to go and find alternatives and improve, and to evolve as the lighting technologies evolve."

The Lake Powell property is lit with bespoke, warm-temperature lighting. There are pathways connecting the tents to the main lodge, which are waymarked by very dim solar lights, which are so unobtrusive that you barely see them. In the evening, a telescope and naked-eye stargazing session was led by a member of staff in a flat area away from the main lodge for maximum darkness. Sunrise and sunset were also particularly wonderful, with Venus rising over the surrounding Utah desert awash in lush pinks and purples. ✦

More info and booking at undercanvas.com/camps/lake-powell

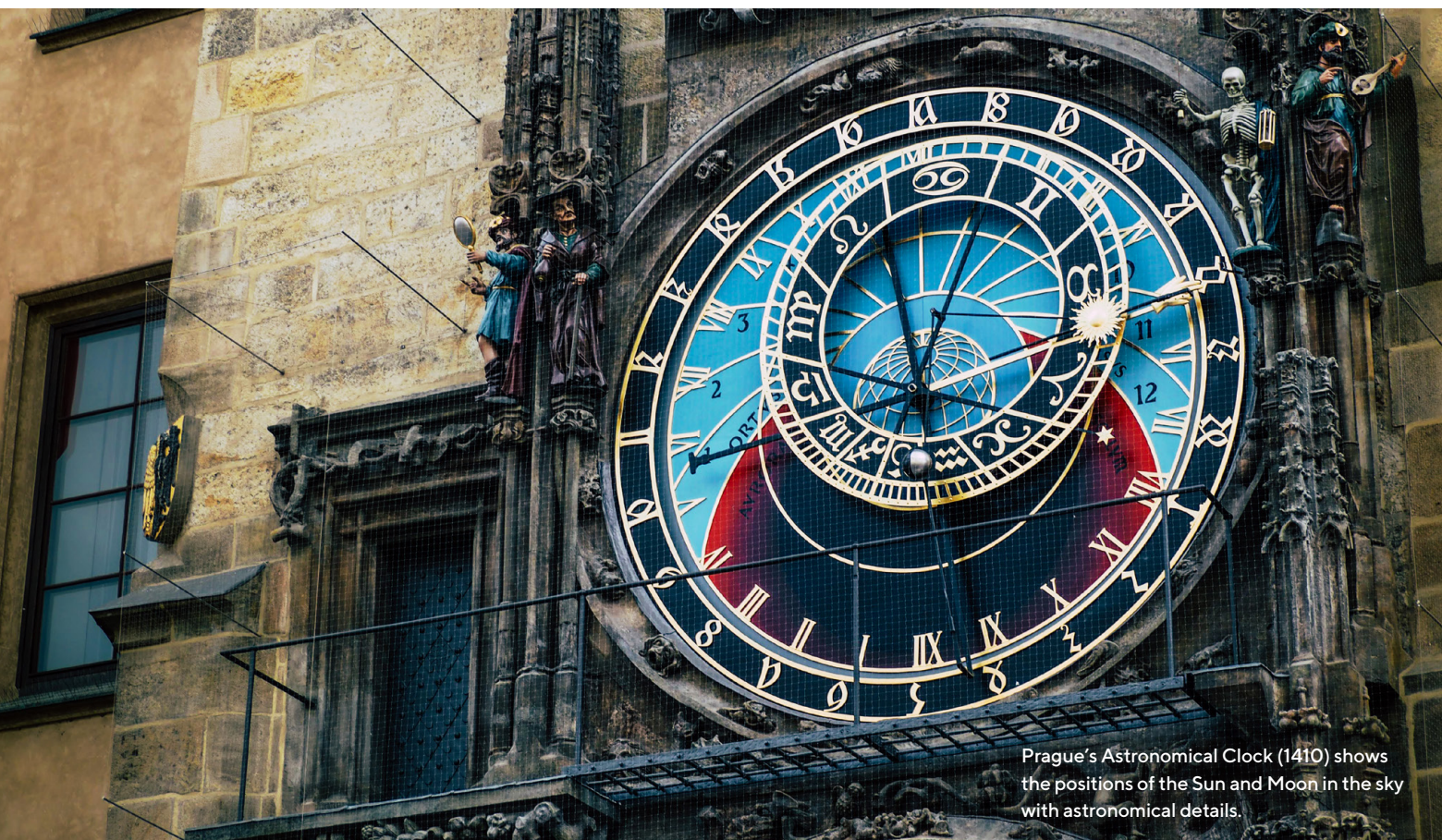


Under Canvas Lake Powell is located a few miles from Grand Staircase – Escalante National Monument in southern Utah. The Stargazer tent (left) allows you to view the dark night skies from your pillow.

How the stars shaped humanity

A talk with author
and science journalist
Jo Marchant

by Megan Eaves



Prague's Astronomical Clock (1410) shows the positions of the Sun and Moon in the sky with astronomical details.

Jack Hunter / Unsplash



Jo Marchant is an award-winning science journalist and author of popular books including *Decoding the Heavens* and *The Human Cosmos*, which traces how the night sky shaped human history. Her writing explores the nature of humanity and our universe, from the mind-body connection to the awesome power of the night sky.

Jo delivered the keynote address at DarkSky's 2023 Under One Sky conference, exploring the cultural importance of the sky and weaving a story of how the Sun, Moon, and stars have inspired and guided

humanity since Palaeolithic times. She traced how our relationship with the stars has changed as we've built a scientific understanding of the universe and become more reliant on technology. Jo argued that alongside the elegant and powerful explanations of science, our physical, spiritual, and ecological well-being depends on rediscovering a more personal connection with the cosmos in which we live.

I sat down with Jo for a Q&A about her keynote address, her book, and her own relationship with the night sky.

Tell me a bit about your book and research into the human connection to the cosmos.

The Human Cosmos is told as a history. I've shaped it by picking out stories that I thought would be particularly interesting to tell and that might not be the stories people often hear. It's not necessarily definitive — often there were shifts that took place over long periods of time and I've picked out episodes that illustrate that.

How did you originally become interested in the human relationship with the night sky?

I am trained as a scientist and have a PhD in genetics and medical microbiology. So, I was a biologist originally and then became a science journalist. When I was working as an editor at *Nature*, we got a paper about an ancient Greek clockwork computer — the Antikythera mechanism — that was found by sponge divers on a shipwreck. It was essentially a model of the universe; a machine with a dial showing the positions of the Sun, Moon, and planets through the sky over time, as well as eclipse predictions. I completely fell in love with the story and wrote a feature article about it for *Nature*. That turned into my first book, *Decoding the Heavens*.

And how did that lead to your research for *The Human Cosmos*?

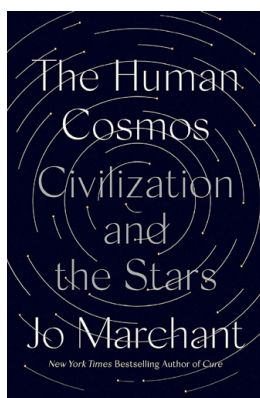
The Antikythera mechanism research really got me interested in how every human society throughout history has looked to the same sky, and been inspired by that same view



Antikythera mechanism, Fragment A, National Archaeological Museum, Athens, Greece. The mechanism had 37 bronze gears used to follow the movements of the sky and predict eclipses.

— the circling constellations and the glittering Milky Way, the planets, the Sun, the Moon. It was giving order to people's lives, these regular cycles that could then be correlated with events that were happening down on Earth. So you've got this sense of the passage of time, the cycle of life and death, the passing of the seasons, all shaping and giving meaning and order to everything that people were experiencing. And then you've got this slightly more spiritual aspect which is the huge, vast, beautiful heavens — this universe that we are part of that gave

people a sense of their place in the world. That made me interested in the bigger story of how people see the sky — the different ways they've interpreted the sky and coming to realize how important that view has been in the story of humanity and how that has changed over time.



How do you personally relate to the night sky? Any favorite dark places?

Living in London, you have to be a little bit creative about this. I have a range of strategies. If I'm traveling, I try to seek out places where I can see the night sky. In the U.K., we've got our Dark Sky Parks and Reserves, which I think are so important. In London, I've had to build a relationship, I would say, with what I can see. I spent a month or so, particularly trying to become more connected with the phases of the Moon. And the brighter stars like Sirius and planets like Venus — we can see those. So you do get that sense of order in the sky — that there are patterns and movements that you can make meaning out of if you take the trouble to notice

Continues on page 10





“Cat ahăḍ as uḍănăt,
ttukayey ttegmyey, anwar
day ttsasseḡ. As d-gmaḍent,
ttukayey ttegmyey tabruḡ
ttelseḡ.

When the Pleiades fall, I
wake looking for my goatskin
bag to drink. When the
Pleiades rise, I wake looking
for cloth/clothes to wear.”

– Tuareg Berber proverb

1250 BCE, Valley of the Queens, Luxor, Egypt

Ancient Egyptians drew both mythical and practical lessons from the night sky. Astronomical drawings were placed on the ceilings of tombs as a ritual for the passed king or queen’s transition to the afterlife. Pictured is the ceiling of the Tomb of Nefertari, the Great Wife of Pharaoh Ramesses II, depicting yellow stars against a dark blue night sky.

Photo by Lauren Keith
www.noplacelike.it



Continued from page 7

them. In the winter, walking my kids home from school, we notice day-by-day where the Moon and planets are. It gives a sense of what these patterns are and it's almost like getting to know different characters.

Was there an event in particular that started humanity on this path toward a near-total loss of night?

Clearly, it's been a process but if you want to point to one site or something in the archaeological record, the Gobekli Tepe site [the earliest known megalithic monument, built around 11,000 years ago in what is now Turkey] is the first sign that we see. You could go back to the first stone axe millions of years ago, the first signs of technology, even painting on a cave wall was modifying the environment. So it's very difficult to give one point. But for me, Gobekli Tepe is interesting because you get this real sense that people were no longer just another species. There's an explicit recognition of humanity as something dominant, where they are no longer just seeing living beings or animals in the sky, they're seeing human ancestors. And they are altering nature in a more dramatic way, building their own portals to different cosmic realms, whether it's up in the sky or to the underworld. They've gone from using natural caves to building stone circles.



Top: The aurochs bull in the Lascaux Cave [reconstruction], thought to represent the constellation Taurus (with six dots representing the Pleiades).

Bottom: The Neolithic burial chamber at Pentre Ifan in Wales has a north-south orientation, possibly providing astronomical alignments on the solstices and equinoxes.

For me, that is quite a dramatic shift. So if I had to put the starting point anywhere, I would put it there.

What are we losing by lighting up the night?

I think it's a sense of who we are and where we fit in the universe. That sense of place, belonging, connection. Without it, we can do a lot of practical

physically we could live without those things. But we don't want to live without those things. If we were suddenly losing our view of the ocean, I feel like people would be up in arms about that. And for me, the sky and the stars are just as important in terms of history, who we are today, and who we want to be going into the future.

more just a choice. It's asking every day, what do you want your mindset to be? What are you going to focus on? I think the only hope of regaining our view of the sky, and in general, healing our relationship with nature is to take that positive approach and focus on what we have and what those things can give us. ✦



things with technology, but we're in the most self-centered world. I think that humanity can go different ways — we can go with a purely technological route where we're masters of everything. But personally, I think we need to balance that with the fact that we don't understand everything and we are just a small part of this vast reality. It comes down to what it means to be human and the fact that we do need art and poetry and nature. And yes, maybe

Do you have hope for the future? What helps you get out of bed in the morning?

I think we've always got a choice between whether we focus on optimism and the positives, on what we have that makes life worth living and the ways in which we want to try to make things better. Or on the things that are going wrong, the things that we're losing, and our fears. I don't think there's an objective view; it's

Gobekli Tepe, Turkey. The earliest known megalithic monument, built around 11,000 years ago. Several central pillars are oriented toward the setting of the star Deneb, and animals carved into the stones may represent constellations.

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2023 DarkSky Awards

Crawford Hunter Lifetime Achievement Award

The highest honor DarkSky bestows upon individuals who, in the course of their lifetime, have contributed an extraordinary effort to light pollution abatement.

Nancy Clanton U.S.

Nancy Clanton is a trailblazing advocate for dark skies in the lighting industry, notably serving as the chair of the Illuminating Engineering Society RP-33 Lighting for Exterior Environments Committee. Her contributions include shaping global lighting standards, championing the inclusion of light pollution credits in LEED and WELL building systems, and leaving a lasting legacy through extensive presentations, academic involvement, and mentorship in support of dark sky preservation.



Bob Gent Community Leadership Award

Given to a DarkSky Chapter or Chapter member who has demonstrated outstanding achievement at the local level in combating light pollution and fostering support for DarkSky's mission and programs.

Starry Skies North U.S.

Awarded for their advocacy of DarkSky principles — gaining significant recognition and support in their community, leading to heightened awareness and notable reductions in light pollution, especially that from the Essentia building in Duluth, Minnesota. "The difference is day and night!"



Galileo Award

In recognition of outstanding achievements in research or academic work on light pollution over a multiple-year period.

John Barentine U.S.

Awarded for his significant contributions, John Barentine has been a dedicated researcher for DarkSky International since 2016, covering topics such as low-Earth-orbit object impact, post-COVID space policy, and legal frameworks for light pollution regulation. His work, including the report, "Artificial Light at Night: State of the Science 2022," has advanced our understanding of light pollution's environmental and astronomical effects.



Dr. Arthur Hoag and William T. Robinson Award

Given to an individual who has been outstanding in educating governmental organizations, businesses, and the public about the merits of outdoor lighting control ordinances.

Michel Deromme France

Awarded for his dedicated and passionate DarkSky advocacy spanning 20 years, Michel has been a transformative force in raising awareness of light pollution in France. His expertise, optimism, and humility have not only contributed to preserving the night but have also inspired and empowered others to become advocates for the cause.



Dark Sky Place of the Year Award

A recent exceptional achievement by or for an International Dark Sky Place.

Wimberley International Dark Sky Community Texas, U.S.

Awarded for their enthusiastic and successful efforts to keep the stars shining bright in the Lone Star State. Wimberley is a small, river valley community located between two of Texas' largest and fastest-growing cities. Through education, marketing, and a robust outreach program, they have built a community that treasures the night sky, further preserving their "little bit of heaven" for generations to come.



Clay E. Ewing

Dark Sky Defender Award

In recognition of individual efforts to promote and advance DarkSky's mission and programs.

Africa
Zach Kolp Kenya

Asia
Xia Guo China

Oceania
Landon Bannister Australia

Europe
Mario Di Sora Italy

North America
Babak Tafreshi, The World At Night U.S.

South America
Commune scout group on light pollution Chile

Rising Star Award

Honors students who demonstrate enthusiasm for and commitment to dark sky conservation or research.

Ashley Garcia and Quiana Lorenzo
U.S.

Bonnie Peng
U.S.

Don Wong
U.S.

Advocate highlights

News snippets from our network of DarkSky Advocates around the world



A Pennsylvania, U.S.

Thanks to work by the **West Chester Dark Sky Committee** and **Advocate Mark Grosz**, a light pollution and responsible lighting bill has been introduced in the Pennsylvania House of Representatives. If passed, it will ensure that all state facilities adhere to responsible lighting practices including minimizing overall lighting, use of timers, adding shields, the avoidance of light trespass, and light color temperatures of 2700 K or less.

bit.ly/PAlightingbill

B Aruba



The Space and Nature Aruba Foundation, including **DarkSky Delegate Jairo Vrolijk**, met with Aruba's Minister of Transport, Integrity, Nature, and Elderly Affairs, Mr. Ursell Arends. They briefed the ministry about the escalating concerns related to light pollution, their efforts to amplify awareness around the island, and made a range of recommendations for potential policies.

C U.K.

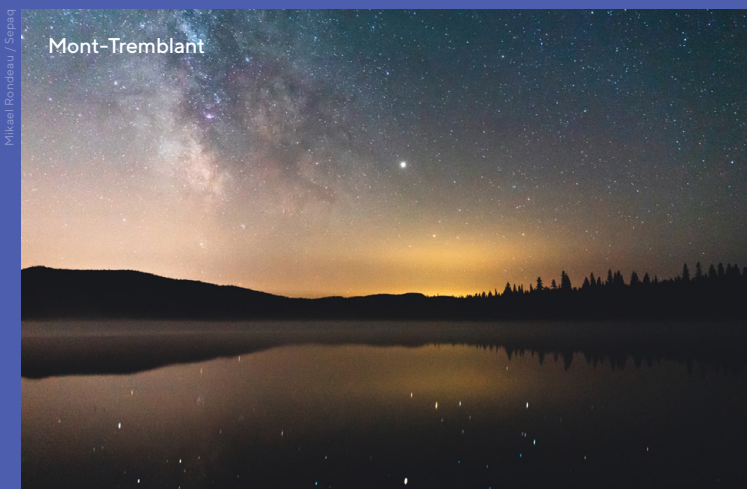
U.K. **Delegate Dan Oakley** appeared on a special PBS Newshour report about how light pollution makes seeing the stars more difficult, and how the British government is being urged to impose new planning regulations to reduce light pollution to stop the loss of the nation's dark skies.

bit.ly/3R3PAAc

D Uzbekistan

DarkSky Delegate and *Nightscape* editor **Megan Eaves** was featured in a promotional video for the UN World Tourism Organization about the importance of addressing light pollution as part of the United Nations Sustainable Development Goals. The video was shown to participants at the 25th session of the UNWTO General Assembly in Samarkand, Uzbekistan in October.

bit.ly/UNTWO-LPvideo



Newly certified International Dark Sky Places

Parks

- 1 Parc national du Mont-Tremblant, Québec, Canada

Reserves

- 2 Vercors Natural Park, Auvergne-Rhône-Alpes, France

Urban Night Sky Places

- 3 Minami-Rokuroshi, Ono City, Japan
- 4 Parque Ecológico Joya-La Barreta, Querétaro, México

News & notables

News from the global movement promoting responsible outdoor light at night



MyImages - Micha

McCormick Place to go dark

A Chicago building has agreed to turn off lights and utilize window blinds after around 1,000 birds died by colliding with the building on one night in October during the fall migration. The collisions at **McCormick Place Lakeside Center** resulted in a petition to require the lights to be shut off at night, which received over 10,000 signatures.

National lighting law in Chile

The Chilean Ministry of the Environment has enacted a new **National Lighting Standard** to emulate the dark sky success of the country's observatories in the Atacama Desert. It calls for the improvement of outdoor lighting by moving away from blue light to warmer color tones and requires illuminated advertising to remain switched off between midnight and 7 a.m.

OVERHEARD

“As a wilderness trip leader, I take people backpacking to Dark Sky Places. The most rewarding part of these adventures is the reaction I get from participants the first time they see the Milky Way.”

– Jeremy Evans, U.S.

Help reclaim the night



DarkSky memberships provide only 25% of our annual budget each year. We rely on our yearly campaigns and special gifts to continue our important work. Your contribution to DarkSky International funds strategic initiatives and projects that restore the nighttime environment. Donate by scanning the QR code or visit

act.darksky.org/connection



NEW RESEARCH

Light pollution in complex ecological systems

The journal **Philosophical Transactions B** published by the Royal Society in the U.K.



has dedicated its December special issue to light pollution in complex ecological systems. The articles cover light pollution's effects on global ecosystems, soil, plant diversity, insect communities, habitat selection, and more.

bit.ly/PTB1892



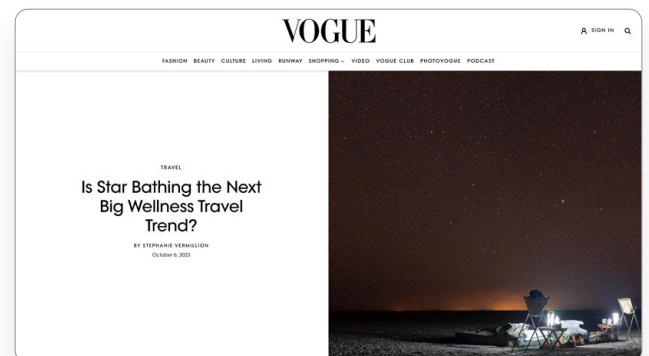
Tip your hat for dark skies!

A great way to support DarkSky is to purchase our customized apparel, mugs, and totes.

bonfire.com/store/idadarksky

In Vogue

Journalist and DarkSky member **Stephanie Vermillion** wrote an article in **Vogue** magazine about how starbathing is the next big travel and wellness trend. For the piece, she traveled to Botswana's Makgadikgadi salt pans, where safari operator Desert & Delta offers sleepouts under the stars.



bit.ly/vogue-starbathing



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**We have a plan to reclaim the night.
But we need your help.**

DarkSky memberships provide only 25% of our annual budget each year. We rely upon our annual campaigns and special gifts to continue our important work.

Your contribution to DarkSky International funds strategic initiatives and projects that restore the nighttime environment — protecting wildlife and communities around the world from the harmful effects of light pollution.

Contribute today!

Donate online by scanning the QR code or by visiting act.darksky.org/connection



DarkSky

Photo: Drive by Marcin Zajac

