



PHOTO ESSAY

Northern Lights

The stunning photography of **Bjørn Jørgensen**



Where to see the lights
in the UK over the
coming months



Photographing the Northern Lights

David Kettle talks to Bjørn Jørgensen about how and where to capture the aurora

THE INUITS *thought they were the souls* of the dead, or the spirits of the animals they hunted – seals, salmon, deer and whales. Scandinavian shamans summoned them to cure the sick. It's no surprise that the astonishing spectacle of the Northern Lights gave rise to unearthly explanations. Even today, these huge curtains of colour that streak across the night sky in dazzling greens, reds, violets and blues still inspire awe in watchers well aware of their cosmic origins.

The aurora borealis (to give the Northern Lights their proper name) has long played a significant role in Scandinavian culture. The sagas reveal that the Vikings had a real terror of it, and early Norwegian theorists believed that it was caused either by vast fires that surrounded the oceans, or by energy trapped by glaciers that was eventually emitted as fluorescent light.

Photographer Bjørn Jørgensen is based in Tromsø in northern Norway, a country that witnesses the aurora every year. He has been photographing the aurora for a decade. "All my Northern Lights photos are taken in north Norway," he explains. "I prefer to photograph them in the coastal areas where the fjords and mountains add more drama and impact to the photos."

Developments in technology over recent years have enabled Bjørn to capture ever more striking photographs. "Modern digital cameras are superior to film when it comes to photographing the Northern Lights – they capture much more light, with far less noise in the resulting photos," he says. Indeed, photographing the aurora on film can be problematic: because of the different spectra of energy present, and their changing intensity throughout the exposure, results can be very unpredictable.

"Any digital SLR can be used," explains Bjørn, "but Northern Lights photography involves long exposure times and high ISO settings, so a fast, wide-angle lens and a camera with good noise capabilities give better results." But he adds that it's important to keep the exposure time as short as possible. "The Lights are moving, sometimes very fast, so if the exposure time is more than 10 to 15 seconds, you will lose the drapery-like effect."

The aurora's breathtaking light show takes place about 100km above our heads. It's created when the solar wind (a constant flow of electrically charged

particles emitted in all directions by the sun) hits the Earth's atmosphere. Our planet's magnetic field draws the solar wind towards the poles, and when the charged particles collide with oxygen and nitrogen atoms in the upper atmosphere, the impact creates a release of energy that results in a light emission. Oxygen creates a green or red light; nitrogen makes blue or purplish-red.

The aurora can be seen all over the higher regions of Scandinavia – in northern Finland, Sweden and Norway – and also in Iceland, Greenland and Canada. "The two northernmost provinces in Norway – Troms and Finnmark – are the best places to see the Northern Lights here," explains Bjørn. "In Troms the largest city is Tromsø, and in Finnmark it's Alta. Both cities are easily accessible, with several daily flights from Oslo, and they make good starting points. Generally the best time of year is from October until the end of March, usually from around 8pm until 2 or 3am. They are visible every winter, but it varies from year to year how often they can be seen and how powerful they appear."

How well you can see the aurora obviously depends on the weather, since it's obscured by cloud, but also on how active the sun is. "In the last two to three years, the sun has been remarkably quiet, with less solar activity and so fewer Northern Lights," says Bjørn. But NASA predicts that we are about to experience the most intense period of solar activity – termed the 'solar maximum' – since 1958. That year, the heavily charged solar winds meant that the aurora could be seen as far south as Mexico, the Caribbean and southern Europe. Scientists predict that in the frozen north, the lights will be at their most dazzling for years. The period of the most intense activity should be between January and May 2012.

Bjørn has plenty of tips for a perfect aurora viewing experience. "Check the weather forecast before travelling. In northern Norway, it's not unusual to have long periods of cloudy, snowy weather, so consider spending several days to increase your chances of seeing the aurora." It's also vital to get as far away from streetlights as possible. "Get out into remoter, darker areas. Either rent a car, or go on a guided tour with experienced guides who know where the chances of seeing the Northern Lights are best. And finally, it can be very cold in the winter in the Arctic – minus 30 degrees is not unusual in Finnmark. So bring warm clothing!"

PREVIOUS PAGES

These 'angel wings' were spectacular – a very powerful outburst of Northern Lights that I saw in March 2011. The aurora's typical curtain-like shapes are clearly visible here. I took the photo from a mountain pass not far from Tromsø.

← Sometimes it's best to photograph the Northern Lights in a vertical format. These whirlwind-shaped auroras are unusual. I took the image on the island of Kvaløya, near Tromsø.

This picture was taken in November 2010 in a remote area with no light pollution half an hour's drive from Tromsø. It was a night with no moonlight, so the landscape turned green from the strong colour of the aurora. The needle-shaped peak to the right is called the Devil's Tooth. →





↑ I visited the Lofoten Islands in September 2011 and was surprised to see this beautiful display of Northern Lights so early in the winter. This is the fishing village of Sakrisøy close to Reine.

This image was taken in the outer parts of the Lofoten Islands in northern Norway. It was shot in September, early in the aurora season, which is why the orange colour of the sunset is still visible. Seeing the sunset and the Northern Lights at the same time is quite unusual. →







Seeing the Northern Lights this winter

AURORA-WATCHING is big business in northern Scandinavia, with a veritable industry of tour guides, accommodation and organised trips all competing to help you experience one of the natural world's true wonders. The Norwegian tourist board offers plenty of options at www.northern-lights.no, and there's similar information available from Sweden (www.visitsweden.com), Finland (www.visitfinland.com) and Iceland (www.visiticeland.com).

But what about closer to home? If you're in the UK, there's still a chance you could experience the aurora without leaving the country. It's not unknown (although rare) for the Northern Lights to be visible over England: a huge geomagnetic storm in 1859 created an aurora so intense that it lit up the night sky in London – and it brought so much electricity into the Earth's atmosphere that telegraph lines could be used with their normal power turned off.

But the further north you are, the better chance you'll have of seeing the light show. The aurora makes frequent if sporadic appearances in Scotland – it's called *fir chilis* in Scots Gaelic. Particular hotspots are the Isle of Skye, the northern Highlands and Dunnet Head, as well as Orkney and Shetland.

However far north you are, though, always be sure that you're in a location free from artificial light pollution. Although the Galloway Forest Park (www.forestry.gov.uk/darkskygalloway) is in southern Scotland, its status as the UK's first dark-sky park means it's ideal for stargazing, even if the aurora doesn't make an appearance.

AuroraWatch UK (<http://aurorawatch.lancs.ac.uk>), based at Lancaster University's physics department, offers an invaluable service for anyone wanting to catch the lights in the UK, tracking and predicting when and where UK sightings might be possible, providing email and mobile alerts, and even giving guidance on how to build your own detector to predict increasing solar wind activity.

But bear in mind that even if the Northern Lights do show in the UK, there's the possibility that they might just appear as a glow on the northern horizon, rather than the spectacular curtains of light seen further north in Scandinavia.

← Self-portrait under the full moon. This is the fjord Ersfjorden close to the city of Tromsø in northern Norway. I used the camera's self-timer, and it took me 15 attempts until I was satisfied with this shot. I prefer taking photos of the Northern Lights when there is moonlight. The landscape appears brighter, and the mountains are not just black silhouettes. ■