AN INFORMATIONAL GUIDE TO THE AURORA BOREALIS

A BEGINNER'S FIELD GUIDE

The Northern Lights Explained

Everything a first-time traveler needs to know before chasing the Aurora Borealis: the science, the seasons, the best places, and how to actually see them.

CONTENTS

What's Inside This Guide

A complete, no-fluff walkthrough for anyone seeing the aurora for the first time. Read start to finish, or jump straight to what you need.

01 **What Are the Northern Lights?**
The science, simply

02 **When to Go**
Season, solar activity & the 2026 window

03 **Month-by-Month Visibility**
August to July, ranked for first-timers

04 **Where to See Them**
Destinations worldwide, north & south

05 **How to Maximize Your Chances**
Dark sky, forecasts, patience

06 **What to Pack**
Dressing for Arctic nights

07 **Where to Stay**
Glass igloos, ice hotels & cabins

08 **Photographing the Aurora**
A beginner's camera settings

09 **Beyond the Lights**
Daytime activities to fill your trip

10 **Common Myths & Mistakes**
What first-timers get wrong

11 **Glossary**
Key aurora terms, defined

HOW TO USE THIS GUIDE

Read Sections 1 to 3 to understand **when** the lights happen. Read Sections 4 to 7 to plan **where** you'll go and stay. Sections 8 to 11 polish the details once your trip is booked.

SECTION 01

What Are the Northern Lights?

The Aurora Borealis is one of the few natural wonders that looks better in person than in any photo. Here's what's actually happening in the sky above you.

The science, in plain language

The sun constantly releases a stream of charged particles called the **solar wind**. When this wind reaches Earth, most of it is deflected by our planet's magnetic field, but near the North and South Poles the field lines funnel some particles down into the upper atmosphere.

There, those particles collide with oxygen and nitrogen molecules roughly 100 to 300 km above the ground. The collisions excite the gas molecules, which release energy as light, exactly like a neon sign but on a planetary scale. That glowing, moving light is the aurora.

Why the colors change

COLOR	GAS & ALTITUDE	HOW COMMON
Green	Oxygen, ~100 to 150 km	Most common, the "classic" aurora color
Pink / red edges	Nitrogen, lower altitude	Often seen fringing a bright green band
Purple / violet	Nitrogen, higher altitude	Appears during stronger activity
Deep red	Oxygen, ~300 to 400 km	Rare, usually only during major solar storms

Aurora Borealis vs. Aurora Australis

The same phenomenon happens at the South Pole, where it's called the **Aurora Australis**. Both are driven by identical solar activity and occur in mirrored patterns, but the Australis is far harder to reach, since most of the visible zone sits over Antarctica and the Southern Ocean. That's why "Northern Lights" trips are the accessible, popular version.

> **GOOD TO KNOW**
>
> The aurora is happening all the time, day and night, all year round. You only "see" it when it's dark enough outside *and* the activity is strong enough to be visible to the naked eye. This single fact explains almost everything about when and where you should travel.

SECTION 02

When to Go

Three things need to line up: dark skies, clear weather, and solar activity. You can plan around the first two; the third is where luck comes in.

The aurora season

Aurora season runs from **late August to mid-April** in the Arctic Circle. Outside this window, the far north doesn't get dark enough at night for the lights to be visible, even if solar activity is strong.

The strongest, most consistent viewing window is **September to March**, when nights are long and dark. September and March are especially favored because they sit close to the equinoxes, when geomagnetic activity tends to run higher.

Best time of night

PRIME WINDOW

9 PM to 2 AM local time, often peaking between 11 PM and midnight. Be outside, away from light pollution, during this window rather than heading out right after dinner.

BE PATIENT

Auroras arrive in **waves**, not a steady glow. It's normal to wait 30 to 90 minutes between visible bursts. Dress warm and stay out; leaving too early is the #1 regret of first-time aurora chasers.

The solar cycle and the 2026 window

The sun follows an 11-year cycle of rising and falling activity. At its peak, called the **solar maximum**, it releases more solar flares and charged particles, producing more frequent, brighter auroras that are visible farther south than usual. We are currently near the peak of Solar Cycle 25, which crested around 2024 to 2025 with strong activity continuing through 2026.

WHY THIS MATTERS NOW

This is one of the best multi-year stretches in two decades to see the lights. Activity gradually declines after the peak, so the next comparable window is not expected until the mid-2030s. If the aurora is on your list, the seasons through 2026 and the years just after are an excellent time to go.

SECTION 02 · CONTINUED

Reading the Forecast

Two numbers decide most nights: how active the sun is, and whether the sky above you is clear. Here's how to read both.

Understanding the KP index

Solar activity is measured on the **KP index**, a scale from 0 to 9 that predicts how far south the aurora will be visible and how bright it appears. You don't need to be a scientist to use it; just check a KP forecast before heading out each night.

KP	WHAT IT MEANS	WHERE YOU MIGHT SEE IT
0 to 2	Quiet activity	Only under the auroral oval (far north, e.g. Tromsø, Abisko)
3 to 4	Moderate activity	Good, colorful displays across the Arctic Circle
5 to 6	Minor geomagnetic storm	Bright displays, visible slightly further south too
7 to 9	Major storm (rare)	Can be visible far outside the Arctic, a bucket-list night

BEGINNER TIP

For a first trip you don't need a high KP number. Based within the Arctic Circle, even a KP of 1 to 2 on a clear night can produce a beautiful display, because you're already sitting under the auroral oval.

Forecast tools worth using

A good aurora app or website pulls live space-weather data so you can decide whether to go out, wait, or sleep. The most useful ones combine several signals rather than the KP number alone.

- **Space-weather data:** the official source is a national space-weather center's aurora forecast (the OVATION model and planetary KP index). Most apps draw from it.
- **What to watch beyond KP:** the **Bz** value (a southward, negative Bz means particles connect to Earth's field more easily), solar wind speed, and real-time cloud cover for your exact location.
- **Alerts:** apps that only notify you when it's actually dark and conditions are favorable save you from false alarms at 2 AM.

SECTION 03

Month-by-Month Visibility Calendar

Not every "aurora season" month is equal. Here's how each one actually compares for a first-time traveler.

August late

SEASON OPENS

Nights turn dark again after the bright Arctic summer. Early, sporadic auroras are possible. Days are still mild, good for hiking, berry-picking, and fishing before the night watch begins.

September

PEAK WINDOW OPENS

One of the best months to start. Comfortable weather, early sunsets (~7 PM in Tromsø or Rovaniemi), and near-equinox activity. Colorful autumn foliage and reflective lakes add to the scenery. Pair night tours with daytime hiking, kayaking, or biking.

Oct to Nov

STRONG

Nights lengthen fast, boosting your odds. Expect rain or early snow. Good for reindeer sled rides, meeting Sami herders, campfire storytelling, and dog sledding on wheeled carts before real snow arrives.

Dec to Jan

PEAK DARKNESS

The heart of Polar Night. In many Arctic towns the sun doesn't rise for weeks, meaning near-constant darkness and high odds on any clear night. Snowmobiling, ice fishing, dog sledding, and skiing fill the days. Popular for glass igloo and ice hotel stays.

Feb to Mar

BEST OVERALL

Widely considered the sweet spot: still-dark nights plus the March equinox boost in geomagnetic activity, and milder daytime temperatures than deep winter. Great for husky safaris, fat biking, snowshoeing, and winter boat rides on reflective waters.

April early

CLOSING WINDOW

Still possible in early April, but nights shorten quickly as spring approaches. Good time for ice cave exploration and watching the landscape thaw.

May to Jul

NOT AURORA SEASON

The Midnight Sun keeps the far north bright around the clock. Skies never get dark enough, regardless of solar activity. Save this window for summer hiking, fjord cruises, and Midnight Sun experiences instead.

IF YOU CAN ONLY PICK ONE MONTH

Go in **late February or early March**. You get long dark nights, equinox-boosted activity, easier winter driving than deep December, and noticeably warmer days than the deep-winter months of December and January.

SECTION 04

Where to See the Northern Lights

Aim for the "auroral oval", a ring of most-frequent activity that sits roughly between 65° and 72° north. The destinations on the next pages fall inside or close to it.

The single most important choice is **latitude**. The closer you are to the auroral oval, the lower the solar activity needed to see a display. During strong geomagnetic storms the oval expands south, bringing the lights within reach of places well outside the Arctic, but for reliable viewing the far-north bases below are your safest bet.

The six most popular gateways

Tromsø

NORWAY

Under the oval; visible on most clear nights, even at low activity. Best September to March.

Abisko

SWEDEN

A "blue hole" microclimate keeps skies unusually clear, making it one of the most reliable spots anywhere. Best December to March.

Rovaniemi

FINLAND

On the Arctic Circle, the southern edge of reliable viewing; aim for higher activity. Best September to March.

Reykjavík area

ICELAND

Easy to reach; drive out of the city glow for viewing on active clear nights. Best September to April.

Fairbanks

ALASKA, USA

Directly under the oval with very high clear-sky odds; viewing on most clear nights. Best September to March.

Yellowknife

CANADA

Flat, dry, and directly under the oval; among the highest sighting rates on Earth. Best November to March.

HOW LONG SHOULD YOU STAY?

Clear skies aren't guaranteed on any single night, so plan at least **2 to 3 nights** in one base rather than a single overnight stop. Inland bases (Abisko, Kiruna, Fairbanks, Yellowknife) tend to have drier, clearer skies than the coast.

SECTION 04 · EUROPE

Nordic Norway & Sweden

Both sit under the auroral oval, so activity is high all season. The difference is weather: pick your base for the clearest skies.

Norway AURORA BELT

Season: Sept to March

- **Tromsø** Best: Sept to Mar Under the auroral oval; displays on most clear nights, and visible even at low activity.
- **Alta** Best: Nov to Mar Inland, so drier and clearer than the coast; a dedicated aurora observatory site.
- **Lofoten Islands** Best: Sept to Mar Under the oval, but coastal cloud is frequent; needs a clear-sky window.
- **Senja & Kvaløya** Best: Sept to Mar Same latitude as Tromsø with darker, less light-polluted shorelines.
- **Narvik & Lyngenfjord** Best: Oct to Mar Sheltered inland fjord positions that often stay clearer than the open coast.
- **Svalbard** Best: Nov to Feb Far enough north for a "polar night" season with rare daytime aurora around midwinter.
- **Bodø, Vesterålen, Nordkapp, Kirkenes, Varanger** Best: Oct to Mar Far-north bases under the oval with high sighting frequency on clear nights.

Sweden SWEDISH LAPLAND

Season: Sept to March

- **Abisko** Best: Dec to Mar A rain-shadow "blue hole" keeps skies unusually clear; statistically among the most reliable spots on Earth.
- **Kiruna** Best: Nov to Mar Inland and dry, with clearer skies than coastal Norway on a given night.
- **Jukkasjärvi** Best: Dec to Mar Beside Kiruna under the oval; consistent dark, clear winter skies.

BEST ODDS ON A GIVEN NIGHT

Coastal Norway has the highest activity but the most cloud. Inland Swedish Lapland (Abisko, Kiruna) sees clearer skies more often, which usually matters more than raw activity. Many travelers base in Tromsø and cross to the Swedish or Finnish side when the coast clouds over.

SECTION 04 · EUROPE

Finland & Iceland

Finnish Lapland sits under the oval with dark inland skies; Iceland is viewable almost anywhere you escape town lights, weather permitting.

Finland FINNISH LAPLAND

Season: Sept to March

- **Rovaniemi** Best: Sept to Mar On the Arctic Circle; the southern edge of reliable viewing, so aim for higher activity.
- **Saariselkä & Kakslauttanen** Best: Oct to Mar Further north and darker than Rovaniemi, with higher sighting odds.
- **Inari** Best: Nov to Mar Finland's far north, very dark skies, and strong sighting frequency.
- **Luosto, Sodankylä & Salla** Best: Oct to Mar Small, dark inland bases under the oval with clear-sky odds.

Iceland WHOLE COUNTRY

Season: Sept to April

- **Outside Reykjavík** Best: Sept to Apr Escape the city glow (Thingvellir, Seltjarnarnes) for viewing on active clear nights.
- **Kirkjufell & Snæfellsnes** Best: Oct to Mar West-coast dark-sky area; visibility depends on the frequent cloud clearing.
- **Jökulsárlón** Best: Oct to Mar South-coast dark site; clear-sky windows give strong low-horizon views.
- **Akureyri & North Iceland** Best: Oct to Mar Often clearer than the south, raising your odds on a given night.
- **The Westfjords** Best: Oct to Mar Remote and very dark, best when a clear-weather window lines up.

VISIBLE FURTHER SOUTH ON STRONG NIGHTS

During strong geomagnetic storms the aurora reaches **Scotland** (Highlands, Orkney, Shetland), the **Faroe Islands**, and far-north **Russia** (Murmansk). These are unreliable but possible when activity is high, roughly the same September-to-March window.

SECTION 04 · NORTH AMERICA & THE ARCTIC

Canada, Alaska & Greenland

North America sits squarely under the oval, with famously clear, dry inland skies that give some of the highest sighting rates anywhere.

Canada UNDER THE OVAL

Season: Aug to April

- **Yellowknife (NWT)** Best: Nov to Mar Flat, dry, and directly under the oval; one of the highest sighting rates on Earth.
- **Whitehorse & the Yukon** Best: Nov to Mar Dry interior with frequent clear skies and high activity.
- **Churchill (Manitoba)** Best: Jan to Mar Under the oval with very high sighting odds on clear nights.
- **Nunavut (Iqaluit, Inuvik)** Best: Nov to Mar High-Arctic latitudes with strong, frequent displays.
- **Jasper & Banff (Alberta)** Best: Oct to Mar Southern edge of viewing; dark-sky preserves that catch the aurora on active nights.

United States ALASKA & THE NORTH

Season: Aug to April

- **Fairbanks, Alaska** Best: Sept to Mar Directly under the oval with excellent clear-sky odds; viewing on most clear nights.
- **Anchorage & Denali, Alaska** Best: Sept to Mar Slightly south; a short drive to dark sites gives good odds on active nights.
- **Northern lower 48** Best: strong storms Michigan's Upper Peninsula and northern Minnesota catch displays only when activity is high.

Greenland REMOTE ARCTIC

Season: late Aug to April

- **Ilulissat & Kangerlussuaq** Best: Sept to Mar Dry, dark, and under the oval; very high sighting frequency.
- **Nuuk** Best: Sept to Mar Easiest access, with dark skies just outside town on clear nights.

SECTION 04 · SOUTHERN HEMISPHERE

The Southern Lights

The aurora has a southern twin, the **Aurora Australis**. Same physics, but far harder to reach: most of its oval sits over ocean and Antarctica. The season runs opposite to the north, roughly March to September.

Australia AURORA AUSTRALIS

Season: March to Sept

- **Tasmania** Best: Mar to Sept The best accessible southern spot; dark sites like South Arm and Bruny Island face the pole.
- **Victoria (mainland)** Best: strong storms Southern coast catches the aurora low on the horizon only when activity is high.

New Zealand AURORA AUSTRALIS

Season: March to Sept

- **South Island & Stewart Island** Best: Mar to Sept The far south; Stewart Island's dark skies give the best odds in the country.
- **Aoraki Mackenzie Dark Sky Reserve** Best: Mar to Sept Protected dark skies improve visibility of southern displays.

South America & beyond AURORA AUSTRALIS

Season: March to Sept

- **Ushuaia, Argentina & Punta Arenas, Chile** Best: Mar to Sept Southern tip of the Americas, the closest inhabited land to the pole.
- **Antarctica & sub-Antarctic islands** Best: Apr to Aug Highest odds anywhere, but reachable only via research stations or expedition cruises.

BEST ODDS

Because so little land sits at the right southern latitudes, sightings are far rarer than in the north. Your best chances are near the March and September equinoxes and during strong solar storms, when the aurora has reached as far north as southern Australia and South Africa.

SECTION 05

How to Maximize Your Chances

Seeing the aurora is part planning, part patience. These habits make the biggest difference.

COMMON MISCONCEPTION

A "strong" forecast doesn't guarantee a sighting if it's cloudy where you are, and a "weak" forecast can still produce a beautiful display on a crystal-clear night right under the auroral oval. **Weather often matters more than the KP number.**

1. **Get away from city lights.**
   Even moderate light pollution can wash out a faint aurora. Head to open countryside, a lake shore, or a dedicated viewpoint outside town.

2. **Check the KP *and* cloud forecast every evening.**
   Cloud cover matters just as much as solar activity; a clear sky with low KP often beats a cloudy sky with high KP.

3. **Mind the moon.**
   A bright full moon lights the sky like moderate light pollution and can wash out a faint aurora. A new moon gives the darkest sky and reveals fainter color and structure, though a strong display shows through any moon phase.

4. **Know which way to look.**
   In the Northern Hemisphere the aurora usually appears to the north. During strong storms it can spread overhead and even to the south, so scan the horizon first, then look up.

5. **Give it time and let your eyes adjust.**
   Stay out for at least 2 to 3 hours across the 9 PM to 2 AM window. It takes 15 to 20 minutes in darkness for your eyes to become sensitive to faint auroras, so avoid your phone screen at full brightness.

6. **Stay multiple nights.**
   Weather is unpredictable; more nights simply means more chances. A guided tour on your first night can help, since local guides drive to whichever spot has clear skies.

SECTION 06

What to Pack: Dressing for Arctic Nights

You'll be standing still outdoors for hours in freezing temperatures, so layering correctly matters more than any single expensive item.

The 3-layer system

LAYER	PURPOSE	EXAMPLES
Base layer	Wicks sweat away from skin	Thermal top & leggings (merino wool or synthetic; avoid cotton)
Mid layer	Traps warm air	Fleece jacket, wool sweater, insulated pants
Outer layer	Blocks wind & moisture	Windproof, waterproof winter jacket and snow pants

Don't forget

- ✓ Insulated, waterproof winter boots (rated for sub-zero temperatures)
- ✓ Thick wool socks; pack a spare pair for the night out
- ✓ Insulated gloves or mittens (mittens keep fingers warmer)
- ✓ A warm hat that covers your ears, plus a scarf or neck gaiter
- ✓ Hand and toe warmers (cheap, and worth it for a 2-hour wait)
- ✓ A headlamp with a red-light setting (preserves night vision)
- ✓ A thermos for hot tea or coffee
- ✓ A power bank; cold weather drains batteries fast

BEGINNER TIP

Buy or rent a proper insulated snowsuit locally if you're only doing one or two aurora nights. Many tour operators in the Nordic countries and Iceland include suit rental, which is often warmer *and* cheaper than assembling your own kit.

SECTION 07

Where to Stay: Sleeping Under the Lights

Part of the magic of an aurora trip is choosing where you rest between sightings. Here are the main styles of stay.

Glass igloos & aurora cabins

Freestanding rooms with glass ceilings or panoramic windows that let you watch the sky from bed. Popular across Finnish Lapland and northern Sweden; book early, as these sell out fast in peak months.

Ice hotels

Rebuilt every winter from snow and ice, with sculpted rooms and reindeer-skin bedding. A novelty experience best combined with one warm-hotel night, since ice rooms stay just a few degrees below freezing.

Remote cabins & lakeside lodges

Simple wooden cabins away from town, often with a wood-fired sauna or hot tub. Ideal if you want to step outside your door to check the sky rather than travel to a viewpoint.

Standard hotels in gateway towns

The easiest and most affordable option, especially if you're joining guided tours that drive you to dark-sky locations each night. A practical choice for a first trip.

BOOKING TIP

Glass igloos and ice hotels are the trip's most memorable stays but also the first to sell out, so reserve peak-season dates (December to March) several months ahead. For flexibility, base yourself in a gateway town and add one or two "bucket-list" nights in a glass igloo or cabin rather than the whole trip.

SECTION 08

Photographing the Aurora

You don't need professional gear to get a good shot, just a stable setup and a few manual settings.

Gear checklist

- A camera with manual mode (mirrorless or DSLR is ideal, but many modern phones now have a dedicated night or astro mode)
- A sturdy tripod, essential since shots require several seconds of exposure
- A wide-angle lens if using a dedicated camera
- Spare, fully charged batteries, since cold drains them quickly
- A remote shutter or timer function to avoid shaking the camera

Starting settings (dedicated camera)

SETTING	STARTING POINT
Mode	Manual (M)
Aperture	As wide as your lens allows (f/2.8 or lower)
Shutter speed	5 to 15 seconds, shorter for a faster-moving, bright aurora
ISO	Start around 1600 to 3200 and adjust to the scene
Focus	Manual focus, set to infinity
White balance	3500 to 4500K, or auto if unsure

WHAT YOUR CAMERA SEES VS. YOUR EYES

A camera captures far more color than the human eye can in low light, so the aurora in your photos will look more vivid than what you saw live. To your eye, a faint aurora often reads as a pale greyish-green glow. This is normal, and it doesn't mean you're missing it.

PHONE PHOTOGRAPHY

Use your phone's Night Mode or a manual camera app. Rest the phone on a small tripod or stable surface, set exposure to several seconds, and keep it completely still. Even the button press can blur the shot, so use a timer if possible.

SECTION 09

Beyond the Lights: Filling Your Days

An aurora trip isn't just about the night sky; the daytime is half the experience.

- Dog sledding or snowmobiling across snowy fields
- A Sami culture tour, including reindeer sledding and traditional storytelling
- Ice floating in a safe dry-suit on a frozen lake
- Fjord boat trips or guided photography tours
- Hiking, biking, or kayaking (best in September, before the deep snow)
- Relaxing in an ice hotel bar or a glass igloo
- Snowshoeing, cross-country skiing, or a campfire dinner
- Visiting a reindeer or husky farm
- Local food, small winter festivals, and unique photo spots in nature

MAKE IT A FULL ITINERARY

Booking daytime activities around your night watches turns a single-purpose aurora trip into a complete Arctic holiday, and keeps the trip rewarding even on a cloudy night.

SECTION 10

Common Myths & First-Timer Mistakes

Most disappointing aurora trips come down to one of these avoidable mistakes.

"A high KP forecast guarantees a sighting."

No. Cloud cover blocks the aurora completely, regardless of how strong the activity is. Always check both the KP forecast and the local cloud forecast.

"You need to travel incredibly far north."

Not necessarily. Well-connected gateway cities like Tromsø or Rovaniemi sit comfortably under the auroral oval, so you don't need the true high Arctic to see strong displays.

"One night is enough."

Weather is unpredictable. Booking only a single night dramatically lowers your odds. Two to three nights in one base gives the weather a chance to cooperate.

"The lights always look like the photos."

To the naked eye, auroras often appear as a pale, shifting greyish-green glow, especially at lower KP levels. Cameras capture color more vividly than our eyes do. Strong displays do look vivid in person, but don't expect every sighting to match a long exposure.

"You have to stay up all night."

The prime window is usually 9 PM to 2 AM. You don't need to wait until dawn; most sightings happen well before midnight.

SECTION 11

Glossary

The key terms you'll come across when planning and forecasting, defined in plain language.

Aurora Borealis
The scientific name for the Northern Lights, the glow seen at high northern latitudes.

Aurora Australis
The same phenomenon at the South Pole, the Southern Lights.

Auroral oval
The ring-shaped zone around the magnetic pole where auroras are most consistently visible.

KP index
A 0 to 9 scale measuring geomagnetic activity and predicting how far the aurora may be visible.

Bz
The north-south direction of the interplanetary magnetic field. A southward (negative) Bz makes auroras more likely.

Solar wind
The stream of charged particles released by the sun that triggers the aurora.

Solar cycle
The sun's roughly 11-year rhythm of rising and falling activity.

Solar maximum
The peak of the solar cycle, when auroras are most frequent and widespread.

Coronal mass ejection
A large burst of solar particles that can spark strong auroras a few days later.

Polar Night
The period in deep winter when the sun doesn't rise above the horizon in far-northern regions.

Midnight Sun
The summer opposite, when the sun doesn't set, the reason aurora season pauses from May to July.

Dark adaptation
The 15 to 20 minutes your eyes need in darkness to become sensitive enough to see faint auroras.

THE QUICK GUIDE

Six things to remember

- Go between late August and mid-April; aim for September to March for the darkest skies.
- Get under the auroral oval and away from city lights.
- Watch both the KP index and the local cloud forecast every evening.
- Be outside during the 9 PM to 2 AM window, and give it time.
- Stay 2 to 3 nights in one base to let the weather cooperate.
- Dress in three warm layers and let your eyes adjust to the dark.

The aurora rewards patience and a little luck. Plan well, dress warm, keep looking up, and give yourself enough nights for the sky to deliver.