NORTHERN LIGHTS PHOTOGRAPHY

A COMPLETE AND STEP BY STEP GUIDE

NEVRA ARTS

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A complete and step by step guide to the Northern Lights photography

- Created by Nevra Arts © -

First edition, 2020

To my son and my wife

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1. INTRODUCTION

First and most important, I would like to thank you for choosing this book to improve your Northern Lights photography skills!

Writing and producing this book took me several months and efforts. By purchasing this book you are supporting my work and helping me to produce even further contents in the future. For this I am grateful and keen to create always new contents for you.

I have been working as a Northern Lights photographer, I have been based and living in the Arctic for more than 12 years now, and I very often got questions and requests regarding how to take nice photos of the Northern Lights.
After some time, I decided that this is the right moment to start sharing some of the knowledge I earned during this time. I collected all the information I have and I tried my best to put them together in the most organic way possible; I tried to make them easily understandable for beginner photographer, but interesting also for those who already know about photography, that are interested in finding some new ways to test themselves in this amazingly fascinating art.

So here we are, ready to get started with Northern Lights photography!

In this book, we will go through different important steps to properly “capture" the Northern Lights; we will start from the basic and proceed into a more detailed walkthrough step by step.

In here, you will surely find suggestions about what you need to take photos of then Northern Lights, which tools and which skills. We will discuss camera settings, how these works, and how to deal with them. Most useful low light photography techniques will be discussed as well, gradually into details. You will find several examples, illustrations, schemes, and all the answers to the most important questions related to this topic.
More than these useful information, this book is not only about technical aspects of the Northern Lights photography because, to succeed in this field, you will first need to know how to properly plan your experience. For this reason, in this book, you will also find practical guides and suggestions about how to look for the right places to go to, information regarding the weather conditions interpretation, detailed and step by step information about photography general principles, which will help you to know the tools you are going to use.

All of this has been done keeping in mind what people wish and need to know; based on this premise I have, as I already mentioned, gathered the most frequently asked questions for many years and I have tried to use them to write this detailed workshop. You will find all these in specific FAQ boxes, with a straight-to-the-point answer.

I understand how frustrating it can be sometimes being out for hours, usually

in the cold, waiting for the dream of a lifetime to appear majestic in the sky; I understand that Northern Lights are in the dream bucket list of many people, who are ready to travel to the far North from all over the world, just for moments of pure magic; I also understand how nice it can be to bring home nice memories of this unique experience thanks to this unique phenomenon. What is better (after your great experience itself, and memories of it of course) than a great picture to freeze and make your dream come truly immortal?

So, without further ado, it is time to focus and become a great Northern Lights photographer. Let’s get started!

2. WHAT IS NEEDED?

EQUIPMENT AND TOOLS

First thing first, what do we need to get started? Well, this is pretty straight forward, and I will split it into two simple categories: what is ***needed*** and what is ***recommended***.

We need:

- A camera
- A tripod

It is recommended:

- a remote control
- spare batteries
- camera rain/snow cover
- a photo editing program to edit raw files

As you can see, when we are outside to capture the northern lights, we do not need many things, a camera and a tripod will do the job. Of course, not every single camera does the same job, and some cameras just cannot do it. So, let's see now which cameras are recommended, and later we will discuss the other possible alternatives that we have.

THE IDEAL CAMERA

The best options, without going into the professional area, are at the moment the DSLR/reflex cameras or the newest mirrorless cameras (there are several brands out there, Sony, Nikon, Canon, Pentax, and many many others).

Again, you will not need a high-end camera, but since we are going to shoot in ***very dark conditions***, and not only that, a good camera will help and sometimes make a significant difference. We will very shortly see that the camera “body” is not the only part of our equipment that can make a difference, but non the less it is one of them.

Keep in mind that, to get the best out of your camera, it is important to have the possibility to switch all the possible settings to a **full manual mode (M)**, so that we have control over all the possible variables!

Another reason that makes these kind of cameras preferable, is that we would also like to have the possibility to change lenses, not because we are going to change so many lenses during a single night (even though sometimes it will be a good idea), but because we need to have the opportunity to change the so called “stock lens” (the lenses that usually come with the camera box) with a better one, especially with better low light performances.

If you are thinking about purchasing a new camera for night photography in general, however, keep in mind that a good idea is to check low light performances (e.g. high ISO results) in the online reviews (and I would recommend to check several reviews, to get a significantly wiser idea).

Remember that we are talking about the ***ideal camera*** now, and later you will find useful tips also for other kinds of cameras.

THE IDEAL LENS

Now that we know what kind of camera we are looking for, we can try to figure out what lens we want to bring with us out in the night, and why.
Usually, when taking photos of a landscape, we tend to prefer to get as much as possible of that landscape; to do so we want to have a lens that is capable of doing that, a wide-angle lens.

Wide angle lenses are lenses that allow the camera to capture a very wide portion of the landscape in front of us, much wider compared to our normal vision. When we look at a landscape with our eyes, we are part of it, and for that reason, even though we do not have a wide angle view, we keep our eyes in constant motion, and our brain make us perceive le landscape as a whole.
If we take a photo of the same landscape with a lens which has a field of view comparable to our human view (which is, roughly, a 35-50mm lens), instead, we will get a photo of a quite narrow space, and most of the landscape will be excluded from the photo.
The same desire of getting as much landscape as possible, applies to the Northern Lights photography, since the Lights are part of a landscape, and usually (and hopefully) take place in a very wide area of the sky. For this

reason, using these wide-angle lenses will help us to get a beautiful shot of a big portion of the landscape, and a very good portion of the Northern Lights. Getting these kind of perspectives will also have a second benefit: having a big panoramic view of the surrounding area, with the Northern Lights in the sky, will provide many reference points, which recreate a sense of the scale of this phenomenon.

There are a few more qualities that we want to have on our ideal lens: because this is a big help in low light situations, we need to have a good maximum aperture (we will go into details about aperture later, for now you just need to know that the aperture is shown as a number after a “f” letter on the lens, and we want that number to be low, around 2.8 or less, if possible), and we want also a lens with a low lens distortion. Lens distortion is more evident the more we go towards wide-angle lenses, so it is important to consider also this aspect of the lens when we buy it.

To conclude this part, I would like to remind one more time that we are talking about the ***ideal lens,*** which means that these are the lenses that we are going to probably prefer *most of the time*, but you can still experiment with many different lenses to get more personal results, such as close-ups of unique objects, or maybe portraits under the Northern Lights.

FAQ:

- **How do I understand which lens is a wide angle lens?**

When you go “scouting” your future lens, and you want to be sure you are getting a wide-angle, you have to look at specific numbers that you can find on the lens itself (and of course on the lens box as well). These numbers are usually the first numbers after the brand name, and are expressed in mm (millimetres). Sometimes you will find lenses with only one number, sometimes you will find a range, for example:

1) Nikon 14mm
2) Nikon 24-70 mm

And many other possibilities. The range for wide-angle lenses is from 12 to 24. Below these numbers, a lens is considered a fisheye lens, above these it is considered a portrait-lens or a tele-lens.

If you find only one number (like the example number 1), it means that it is a so called “prime lens”, so you will not be able to zoom in or out, and your zoom level will be constant. If you find a range of numbers (like the example number 2), it means that it is a zoom lens and you will be able to change zoom level according to your own preference, within that range.

- **My lens is getting foggy when I am outside, what should I do?**

This is a very possible situation, since we expect to be outside at very cold temperatures fog/condensation can appear on your lens for different reasons:

- cold temperature + humidity: you accidentally breath close to your lens, your breath is warmer than the air and condensation stick to the lens surface.

- temperature difference outside/inside the car: if it is very cold outside and you suddenly enter your vehicle to go back home or just to change the place, the temperature difference will create a layer of “fog” on the lens.

This applies also on all your camera body, which can be also covered by condensation.

What you can do in these cases, is to **avoid cleaning the lens**, as you could scratch it easily if any grain of dust is attached to the micro drops of condensation , put your camera inside a plastic bag instead. In the best case scenario you also pre-packed this plastic bag together with some humidity absorbent kit, and you seal this all together as carefully as you can. You will then need to wait until the camera goes back to the normal temperature, and you will be able to open the bag, and take your camera. It is important not to force the temperature to change quickly by using warm straps of air or anything like that, since the quick temperature change could easily damage your camera/lens electronics and structure.

THE IDEAL TRIPOD

Regarding the tripod, the situation is much simpler, almost any tripod is going to do the job, but, of course, you have to consider the weight of your camera! For small cameras, such as compact cameras, bridge cameras, or entry level DSLR, usually a very light tripod will suffice, however, the more the combination camera+lens weights, the steadier tripod you will need. Keep in mind that sometimes also a light tripod can work, if it has a little hook underneath, which is meant to hang weights to it, to make it more stable.

Moreover, my recommendation is to keep the tripod very low; usually people tend to extend the legs of the tripod to have it closer to the eyes line, but this is not a good idea for several reasons: one of these is that tripods tend to fall much easier when fully extended, especially when slightly unbalanced on an

uneven terrain, and with a unbalanced center of gravity, which happen always when a camera is mounted on top of it. Thus, there are other reasons why we should prefer a low tripod, but we will see them later on, in chapter 6 (“How to frame a Northern Light”).

What if you do not have a tripod? Well, as I mentioned, a tripod is very important, if not necessary, to take a good photo of a northern light; the reason is that we are going to use long time exposures, as you will see later.
So, what can you do if you do not have a tripod with you? An emergency solution is to use what you have with you, maybe a backpack, the camera bag, or some rocks you find in the area. If nothing works, a final solution could be to sit down, raise your knees, point your elbow to your chest and use it as an anchor point to keep the camera as still as possible.
Remember, these are emergency solutions and are not to be intended as a primary way to go!

OTHER TOOLS

We now know what we need to get started, but you want to do your best and you are not satisfied yet, so here we will discuss few more useful tool that you can bring along with you to optimize your results, and do not worry, we will discuss later on how to properly use them!

1) First of all, you could think about taking with you a **remote control**, with or without cable is almost the same, but if you can choose, I would recommend the wireless ones, just to avoid any contact with the camera. The reason why we want that is to avoid to touch the camera when we are shooting, so to avoid getting a shaky and not perfectly still image. Micro vibrations from our finger pressing the shutter button will be visible on our pictures in a subtle way, in form of not completely sharp edges around any object in he frame.

2) If you are planning to take a portrait of a person under the northern lights, you will need some **light source** to get a correct general exposure. We do not always need super professional lights, actually, most of the times you will need just a normal light source, such as the mobile phone flashlight. Yes, that is right, I said mobile phone flashlight, even though we are not going to use it the way you usually do, and this point is crucial. This flashlight, in 90% of our mobile phones, is the same light used as the flash of the camera, which is meant to be used to take picture of people, so they have a warm light, which is what we need.
If you have a normal speed light, you might want to dim it, and maybe to cover it with some baking paper to make it softer.
In any case, it is fundamental not to use any cold light, so to avoid getting a very unpleasant result, especially on the skin tones and on the snow, if there is any.

3) Last but no least, we can assume that you might want to see where you are walking in the darkness (remember that Northern Light are only visible when it is dark outside!), so the best option is to bring with you a **red**

headlight to see around. It is very important to use a red light, and not a white one, simply because red lights prevent the eyes to get “bothered” in the darkness, so your pupils will not close and your night vision will not be affected too much, and you will optimize the vision of colors and brightness of the northern lights! For the same reason, I warmly recommend not to put any other source of light right in front of your eyes, for example avoid the use of mobile phones.

3. HOW TO CHOOSE A PLACE

When you feel ready to go, you have to choose also where you want to go, and this seems easy, but it is not as much as you might think. Let's see together what we have to consider when we choose a place, and which is the "ranking" to follow not to get lost in the process.

These are the factors that I care the most when I go out to "hunt" the Northern Lights. Let's see them together first, and get a deeper explanation right below:

1) Weather conditions
2) Light pollution
3) Landscape
4) Crowd density

To keep things simple and organized, we will now go through each one of these point individually.

WEATHER CONDITIONS

The first thing you have to consider is the weather, simply because thick clouds will block any visibility of the Northern Lights.

What you need is not a completely clear sky, but you need at least openings where you can spot some lights; usually when you check the weather forecast you should consider four things:

- **Low clouds**: these clouds are the thickest and usually are the biggest problem, so try to avoid them as much as possible! The good side of this kind of clouds is that they usually move pretty fast, so the situation could suddenly change.
- **Middle clouds**: these are a little bit trickier, sometimes these are thick but sometimes not, and usually move very slowly, so you have to be very careful with these.
- **High clouds**: these are usually not a big issue, since they are very thin most of the times.
- **Wind strength and direction**: it is important to know where the clouds are moving and toward which direction, so the wind is playing an important role in the selection process; consider the clouds altitude to check the correct wind speed!

(You can also have a look to the illustration at the end of this chapter for a practical help).

To check these factors, I recommend to visit several forecast websites and cross-check, the weather in the arctic can be very difficult to predict, so it is smart to look twice, always.

Some good websites you can check are these:

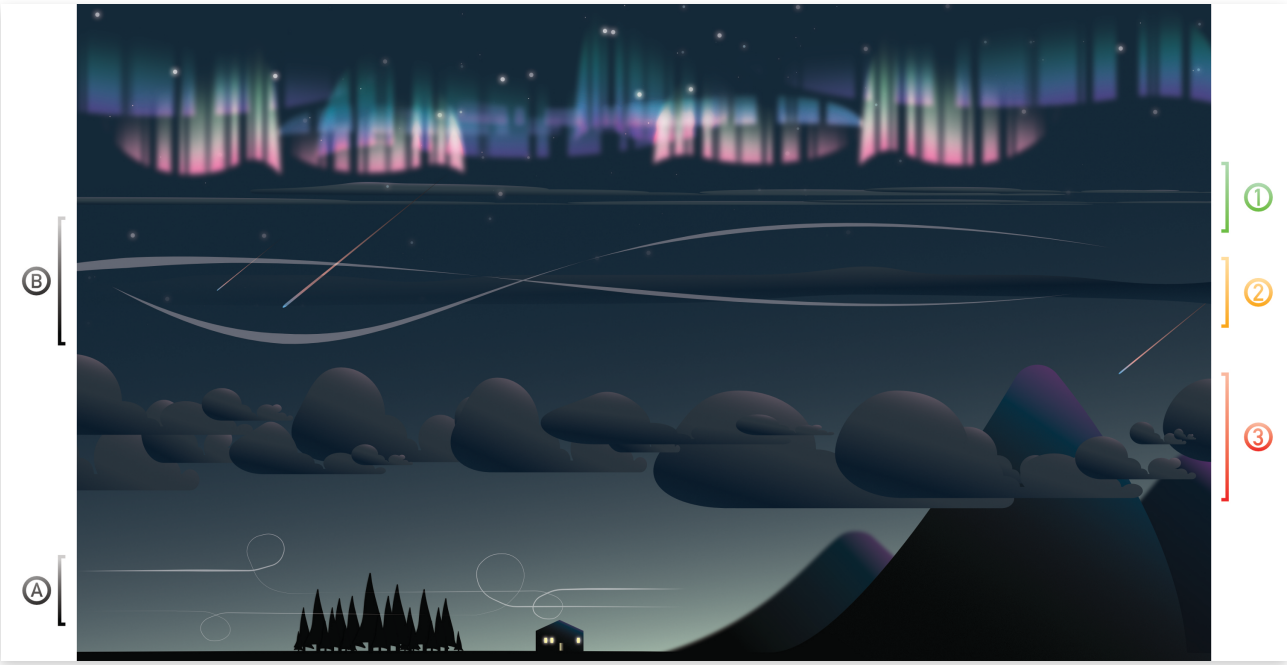
- **Meteologix.com**: it is not the easiest to navigate to find the correct page you want to see, but once you understand it, it is probably the most accurate one of this list. It has very good weather maps, with layered detailed explanations, and different forecasts models. It has a good visual system so that you understand perfectly where it is going to be good and where not.

- **Yr.no**: this is a Norwegian website, it is also very detailed, and it also have some good maps. Quite accurate, especially for the Norwegian territory. It also have some quite reliable information about wind and perceived temperatures, which is always a good thing to know.

- **Windy.com**: this one is particularly good for you to check wind conditions and forecast. Remember that it is very important to check the wind also for the driving condition, since a strong lateral wind and an icy road are not a safe combination.

It is important to use these websites in desktop mode, and this has to be said, since checking them with the mobile phone will most of the time land you on an oversimplified version of them. Also, let me remind to you one more time to always cross check these websites, and more if you are not sure!

As a last reminder, however, I would like to underline that we are now talking about Northern Lights photography, not just about how to see the Lights in general, so I would not exclude the possibility of willingly choosing a partially cloudy place to get a more dramatic photo!



In this illustration you can see two things: on the left side you see (A), which represents low winds streams, and (B), which represents high wind streams. These are not the same, which means that if you have strong winds at low altitudes, it does not mean that you will also have high speed winds where the clouds are as well (and vice-versa).
On the right side you can see the n°1, representing high clouds, very thin; the n° 2 are the middle clouds, thin or thick, depending on the conditions and areas where you are; the n°3 are the low clouds, very thick and dense, almost always a problem for the Lights visibility.

LIGHT POLLUTION

As mentioned earlier, in order to see the Northern Lights you need as much darkness as possible; therefore it is good to avoid light pollution from big cities and towns. The reason is pretty simple: the Northern Lights are a natural light phenomenon and in order to see them at their best, the darkest the better! Or at least it is usually like that, as we will see very shortly.

The rule “the darkest the better” basically applies to the visibility of the Northern Lights, which allows you to see better colors and brightness with your naked eyes and, usually, with your camera too.

The thing to keep in mind, as for the weather, is that here we are talking about photography, and so you should also consider the artistic side of this. For this very reason, having some faint light pollution from villages or street lights around could add a touch of color and create some nice contrasts too. As we discussed for the clouds, do not overdo with this, it is just one of the many options you have! (We will now leave the discussion about the moonlight pollution for a dedicated chapter, only about the Moon).

Before going on with another topic, it is also very important to mention other sources of light pollution that you might not think about immediately. One of these sources are the cars, and I am not only talking about the car driving by (which are anyway an issue in terms of light pollution and safety - so please do no stay by or on the road! -), but your own car is a potential issue here. If you leave temporary on the lights of your car, these will create an amount of light that will interfere with your night vision, they will create intense unpleasant lights on your photos, and if someone else is around, they will bother the other people in the area.

The other source is, apparently, usually pretty difficult to guess, even though it is something that we all know very well, and that we all use a lot: our mobile phones. These phones are an incredibly powerful light source, and not only they will create lights around but they will also disturb the photos taken by

people around you. However, the main concern here is related to your night vision. If you look at your phone for only a second, your night vision is gone for several minutes, up to 15, before getting back to an optimal pupil dilatation, so to an optimal ability to perceive colors and light lights, which are the two things you see when you see the Northern Lights.

It is understandable that you might need to use it sometimes for urgent communication or to check some weather/viability conditions, but it is a very good recommendation to keep the phone brightness as low as possible, and avoid using it as much as possible!

L A N D S C A P E

Last but not least, when you are out to capture a nice moment of Northern Lights, you probably want to have a nice landscape as well, that is fair enough!

In my experience, there has never been a, generally speaking, best landscape; it really depends on the night; so, let me explain that a little bit, before I give you some general recommendations to be kept in mind anyway.

Each photo you take should reflect an idea that you have in mind; are you looking for a dramatic picture? Or is it maybe the night for a funny picture? Maybe you want to capture a special moment (for example a proposal)? The ideas you might have are infinite, and probably will also change once you're out, so, how can you choose your perfect landscape?

Well, first of all you have to carefully consider the restrictions you have according to the previous factors we mentioned (weather conditions and light pollution), but let's think positive and say that the night you go out you have good weather everywhere and no problems with light pollution, I have then a few more recommendations:

- **find a place with water**: it could be a sea side, a nice beach, maybe with some rocks, or maybe the ending part of a fjord. The reason is pretty simple, when you take pictures of the northern lights, you will most likely be able to play with long exposures, which means that you can get very nice effect with the moving water. Thus, you will often also be able to get some very nice reflection of the lights on the water, an instant like for everyone!

- **a nice valley with surrounding mountains**: valleys give the "peaceful" feeling to the photos, usually are the darkest places and you can get high effect shots here. Just remember to be careful choosing the position of the valleys and consider the size of the mountains around you, weak Northern Lights appear sometimes very low over the horizon, so they might be hidden by too tall mountains, and you do not want that to happen!

- **Abandoned/"messy" places**: do not forget that you are out to take nice photos, not to be always comfortable: for this reason you might want to take an unusual shot, and play a bit with unusual backgrounds. These are very nice places to try also photos with

models in it (it does not have to be a professional one, a friend usually does the job too!), since you will be having also fun trying to get a very unique photo and memory!

4. CAMERA SETTINGS

This chapter is very important for its explanations about camera settings, which will allow you to grasp all the following steps of this guide. Since I do not know your personal skills, I will go through everything assuming you are a beginner, keeping all the information simple but without overlook anything!

If you are not an amateur or a very early beginner, you probably know all of these settings already, but you might find useful anyway to follow these steps to understand how to use them under the Northern Lights. I will also assume that you have a camera with full manual capabilities, which means that you have the possibility to control every single setting manually; if you do not, you will find useful this anyway, since you will try to set as many settings as possible, according to your camera. For compact cameras and/or mobile phones, I will discuss this a bit later in another chapter.

For this reason, I will now first give an overview of what a single setting is and what it does, and I will then tell you how to use it for Northern Light photography, but first one last thing to know before all of this is that: you should choose your image quality as RAW file, and not jpg (see FAQ here below for more information regarding this point), if you can do it.

After these information, and the FAQ box, it is time to dive into the action, beginning with the practical information about the settings, and all the other information we need to know.

FAQ:

- **What does RAW file format means?**

Raw files are a collection of information, that a dedicated software (there are several possible softwares to choose from) can “read” and translate into an image on your camera and computer. These files are usually pretty big, but they have as a bright side that they allow you to edit the photos in a much deeper and significant way compared to other formats (a typical one is the .jpg), and in a non-destructive way. You will find more details about RAW files later in this book. If you do not have a RAW reader or you do not feel comfortable using one, you should not use this format, otherwise you will only get unusable files on your camera.

- **Can I edit my photos even though I do not have the RAW file format option?**

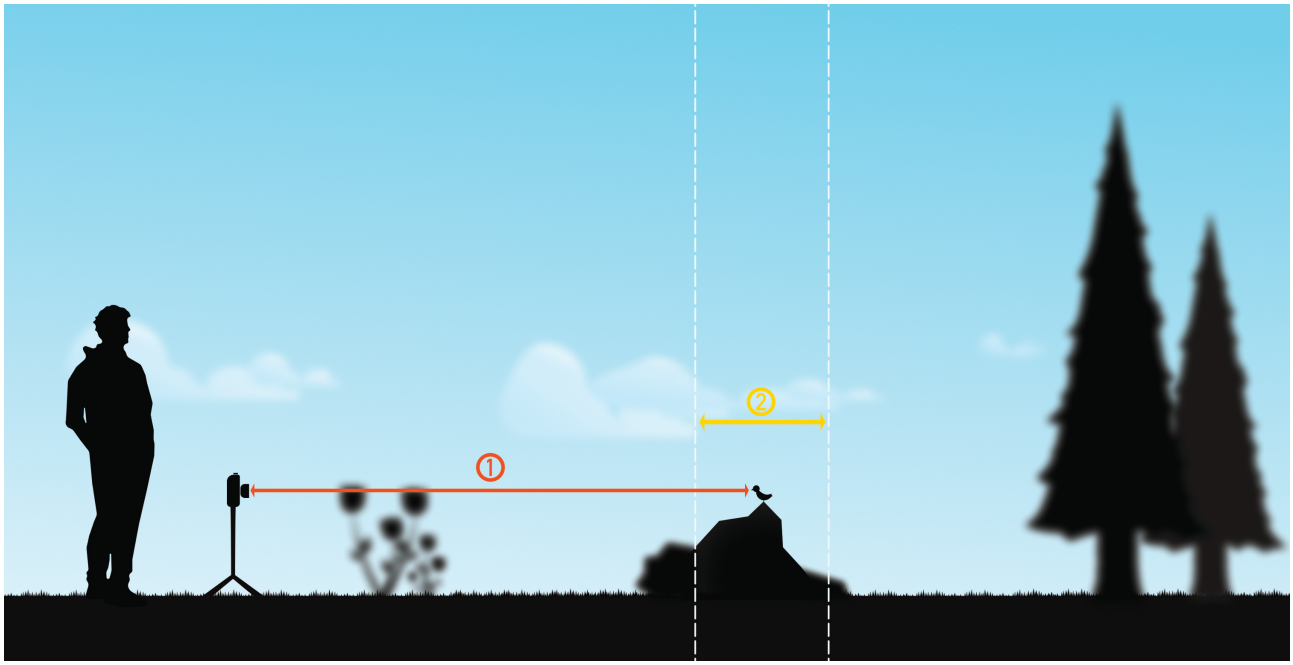
Yes. But it is better not to, or to do it as less as possible. This is because with other formats (usually cameras use RAW or JPG) each single thing you change, it is going to decrease the photo quality pretty quickly, and also what you can actually do is not that much. You can surely do some photo manipulation like deleting or cloning things, and similar modifications, but I would not recommend to edit / develop the photo if not from a RAW file.

FOCUS

The focus is the first thing we will set.

The focus is basically telling us what is sharp and what is not, on a photo. This works with planes of focus, but… what is a plane of focus (also know as depth of field, or DOF)? Basically, it is a portion of the space in front of you,

where things are in focus (sharp), while what is before and after that portion of space, appears blurred and out of focus. The following image shows visually how the depth of field effects your photos, and it is also useful to make it easy to understand the terminology around this concept.



As you can see here, we are focusing on the bird over the rock; the n°1 shows the focus distance, the n°2 shows the depth of field, included within the two white lines, and before and after everything is gradually out of focus. This effect can vary just by changing the aperture, as we will shortly see in the dedicated paragraph.

With a combination of settings, you can decide what you want to be in focus, and what not, and you will find some practical examples in the following paragraphs. In here, since we are talking about Northern Lights photography in general, and we are so considering mainly landscapes, we will want the landscape to be in focus. Later on, in chapter 7, when we will talk about portraits, we will see something different as well!

Given that you have the ideal camera (see chapter 2), you will have the option to switch your focus to manual, either on the lens itself, or on the

camera settings, which is the first thing to do. Once you have done this, you will need to focus to infinity. Focusing to infinity will give you very sharp images from the minimum lens focus distance to the further away planes of focus, which means that your landscape will be sharp!

How to focus to infinity? Also in this case, we have several options: let's see them together!

1) **DSLR, and pro/semi-pro Mirrorless camera lenses type I**: your lens should have an infinity sign like this one (∞) and you should set your focus to this sign.
2) **DSLR, and pro/semi-pro Mirrorless cameras lenses type II**: your lens does not have any infinity sign on, but you can still use manual focus. Here the situation is a little bit more complex:

    - you can either focus automatically to infinity (just by focusing to the furthermost point you have in front of you) until when it is still bright outside, and do not move the focus ring anymore until it is time to shoot at the Northern Lights (it is very difficult to mange to do this, because it is very likely that you will accidentally move the focus ring just while transporting the camera).

    - or you can use the "trial and errors" mode: try to set up your infinity focus manually, using the focus ring on the lens. Usually, the infinity is either to the far right or the far left of you focus ring, and back 1 or 2 millimeters. You will need to take few shots before you get it, but you will!

3) **Compact cameras**: usually, in this case, you either have the same infinity sign as above (∞), or you have the other infinity sign, which is usually something like a stylized mountain (⛰).

There is another thing that you can keep into consideration, which is the "**hyper-focal**": this is the shortest focus distance which you can use to get everything, from that point on, as sharp as your lens can provide. It is different compared to the infinity focus, and it allows you to get even better results, but it is a bit trickier to use. Anyway, I would recommend to get one of the many hyper-focal calculator you find online (also as a mobile app), so that you can test this solution too.

So, now that you learned how to focus, let's move to the next step, the ISO!

FAQ:

- **Why should I not just use the autofocus and take it easy?**

Well, that is fair enough, and you could, theoretically, but it involves some other factors that we should take into consideration!
First of all, when it is dark outside, your camera autofocus system will most likely struggle and fail to focus. Try now to focus with the autofocus while leaving the lens cap on, you will notice that the autofocus will keep going back and forth without any rest!
Some cameras are “smart” and when they fail to autofocus, go automatically to the infinity, but this is not a rule, and it is seldom accurate!
Another factor, for the same reason, is that even when your camera manages to focus in dark conditions, usually, the darker it is, the harder it is for most cameras to focus accurately anyway. So, for the shot of what is going to probably be one of the most memorable memories of your life, I would not rely on that.

- **My camera does not have the autofocus option (or I really do not want to try the manual focus anyway), what should I do?**

Well, if it is because you do not feel to try (and I can guarantee that this is happening more than what you might think, because it is somehow “scary” to try new things sometimes), you should try anyway! That is why you are reading this book no, isn’t it? There is something you can do, and it can really come in handy if you are at least a little bit lucky to have some minor lights around.
For example, if you have a village in the far distance, or a road with street lights, or a car, parked far enough, with the lights still on, you can try the auto focus on these lights (usually by half-clicking the shutter button), and than carefully reframe the photo without releasing the shutter button, and shoot! Not the recommended solution, but here we are discussing quick fixes for non-optimal situations!

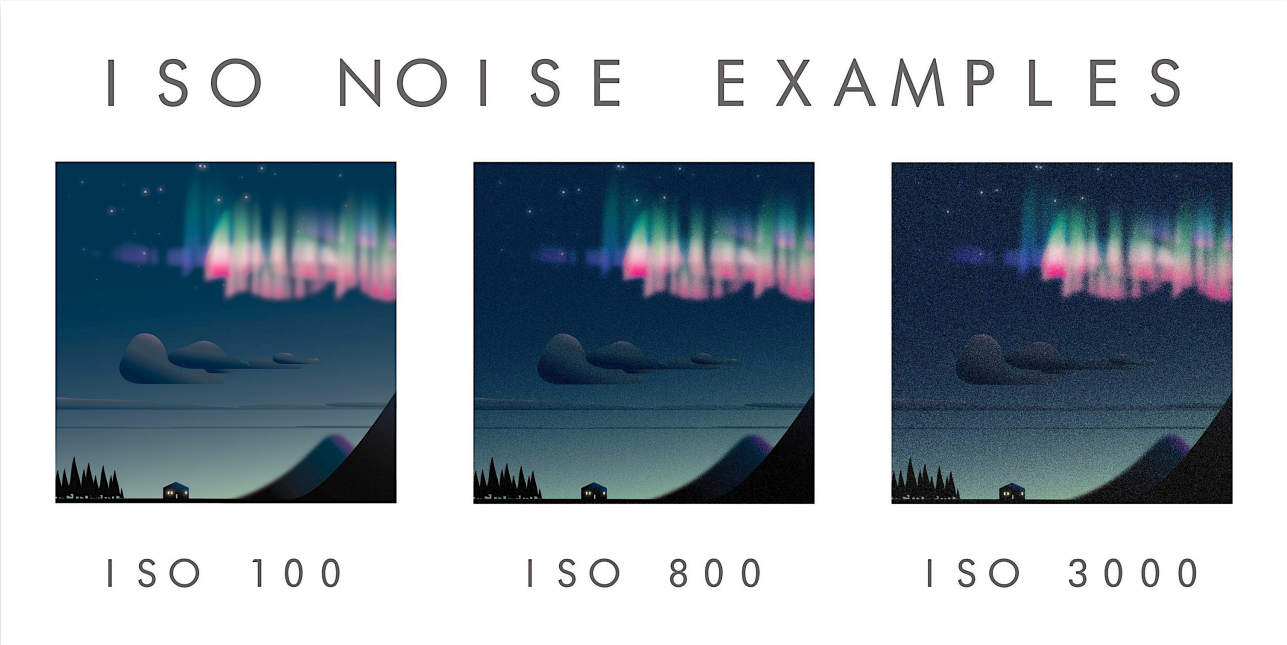
I S O

The ISO is the sensitivity of the camera sensor to the light conditions. If you are more familiar with analog photography, this was called ASA back then, when the film cameras where the big thing!
Nowadays, the film is replaced by a digital sensor, and basically, this means that the higher is the ISO, the more sensible to the light it is. We can simplify this even more:

Bright environmental light = need low ISO
Low environmental light = need high ISO

Another thing you should consider, is that the higher the ISO, the higher the “noise” on the picture will be. The “noise” is the grain that you get on a photo, which will in a way lower the quality of a photo itself. I usually consider some noise as a natural part of photography, and I recommend not to get over stressed because of this factor. However, if there is a way to avoid this interference as much as possible, obtaining a good quality photo, why not to do so?

Take a look to the following illustration (first thing on the next page) to understand the effects of ISO on your photos.



As you can see, the more the ISO increases, the more noise you will get. This is just an example with an illustration, of course the low light performances will vary a lot, depending on the quality of your camera sensor.

How should we put all this together for the Northern Lights photography?

Most of the photo guides will immediately provide you a number for the ISO value. In that way it would be much simpler to explain things, but we know now that each camera has different results, and the combination with different lenses will also provide different results. This is the reason why I needed to explain to you first what ISO is, since every camera will need to be set with its proper ISO value.

To answer the question about how to put all of this together for the Northern Lights photography, I will need to avoid this kind of easier explanation and, in the following chapters, you will find my “rule” on how to make all the settings interact for the best Northern Lights photography possible, tailored specifically for your tools!

FAQ:

- **How do I know when the “noise” is too much and it is ruining my photo?**

Luckily, there is not a fixed answer for that. The amount of acceptable noise on a photo completely depends on you. The quality of photos in general depends on you, because it is your your photo and you should like it! Of course if you plan to make big prints of the photo or you are planning to make some profit selling the photo, you should probably care some more about this aspect, however, this guide is not for professionals!

- **On my camera I only see very big stops of ISO (you do not have a real fine choice of ISO values), what should I do?**

This is really common when you are using very entry level cameras, especially compact cameras. Unfortunately, you will have to deal with this; in the chapter about the rule for the settings, you will learn how to deal with settings, and you simply have to follow that rule. Do not expect miracles, but you can for sure get some results. So, again, **never give up** before you have tried!

SHUTTER SPEED

The shutter speed is our second last setting to be explained, before going into the correlation between all of them. The shutter speed, in short, is the amount of time your camera will use to take a photo.

In a slightly more detailed way, the shutter is like a little curtain that covers your camera sensor, and in order to take a photo you need to expose your

sensor to the exterior light; when you press the shutter button you will raise your shutter, allowing the light to hit the sensor and expose the photo properly.
Here the results are pretty straight forward (given that the other settings are unchanged): the longer the time, the brighter the photos will look.

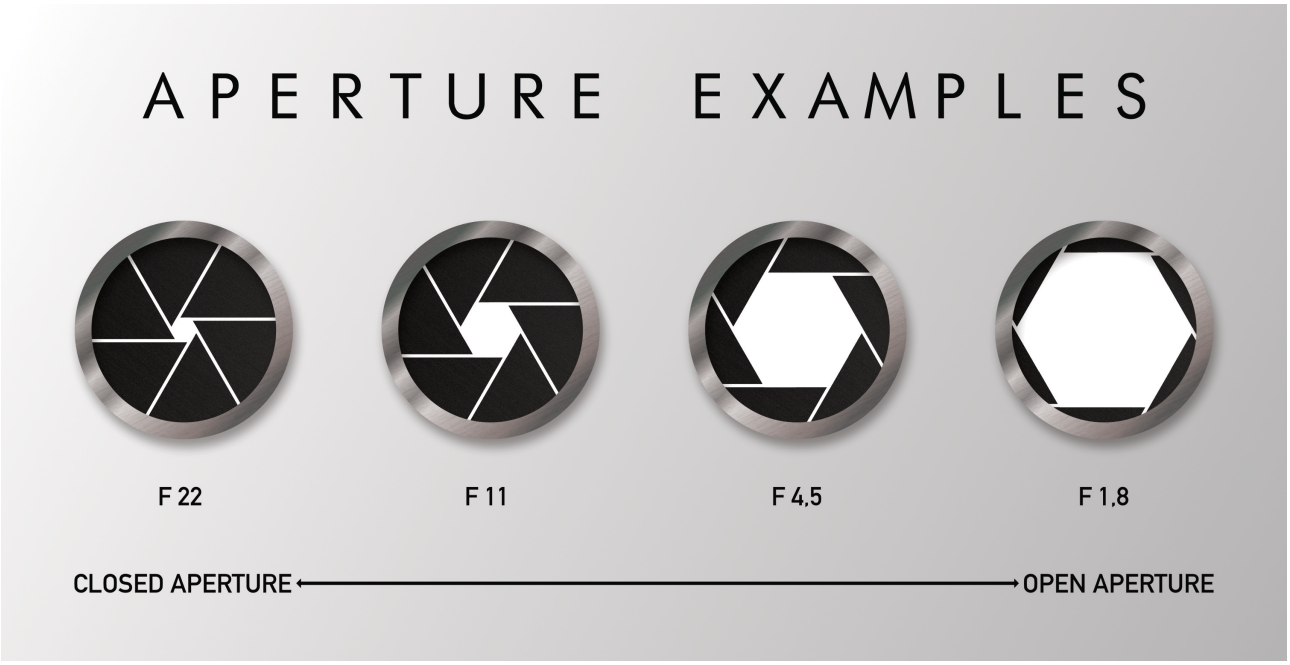
When you take a picture during the daytime, you usually do not even think about the shutter speed, because it looks like it is an instant thing: you click and the picture is taken. But when it comes to shoot in darker condition, you will definitely notice the difference: if you shoot a photo during the night with the same settings you use during the daytime, you will get just a pitch black photo!
Talking about Northern Light photography, you will usually need a shutter speed of several seconds, depending on many other factors (see the “rule” chapter), it could go from 1 to 20(+) seconds!

A P E R T U R E

The aperture is our last setting to deal with, and it is easy to understand and to master, as long as you pay attention now, otherwise it could be very tricky and misleading! Let’s start by saying what the aperture is: the aperture is actually a lens setting, and not a camera setting. This has to be specified, since it is, most of the times, controlled through the camera menus and/or dials.

Your lens works like an eye, it has an iris inside, which closes and opens according to what you want to see. Hence, when it is dark it opens as much as possible and when it is too bright it closes as much as possible. The aperture is modified by some “blades”, which are modulating how much light can go through your lens and hit the sensor, to actually form the image on it. Remember that the sensor on modern cameras is like the film in older cameras, it has to be hit by external light to a certain degree to impress an image on it and then store it in the camera memory.

In this next image you can see how the aperture changes the way the light can easily go from your lens to your camera sensor.



The wider the aperture, the more light will pass through your lens, and hit the sensor. It is important to notice the reverse notation that this setting uses: the bigger the number, the smallest the aperture, and vice-versa.

This mechanism is pretty simple, but it has a double effect:

1. FIRST EFFECT

- the more you close it, the less light will go though the lens
- the more you open it, the more light will go through the lens

2. SECOND EFFECT

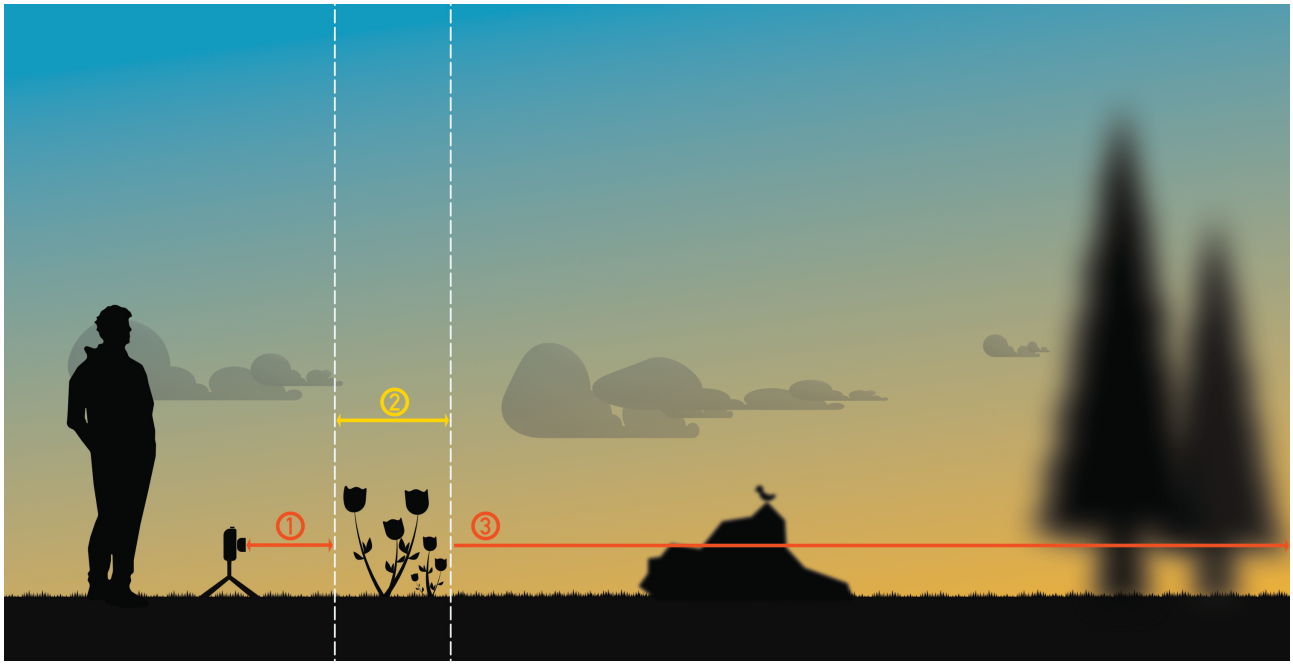
- the more you close it, the deeper the depth of field will be
- the more you open it, the shallower the depth of field will be

So, which option should we prioritize when going out for a Northern Lights photography session? Should we keep it opened or closed?
This is where thing can get a little bit ***counterintuitive.*** For this reason we will now proceed carefully in this way: at first I will give you the answer to these latter questions, so that you know it straight away and there are not misunderstandings. Then, I will explain how aperture works and why in the specific case of the Northern Lights we are (mainly) choosing one option over the other.

The answer is: **we will mostly (almost always) use a fully open aperture**.

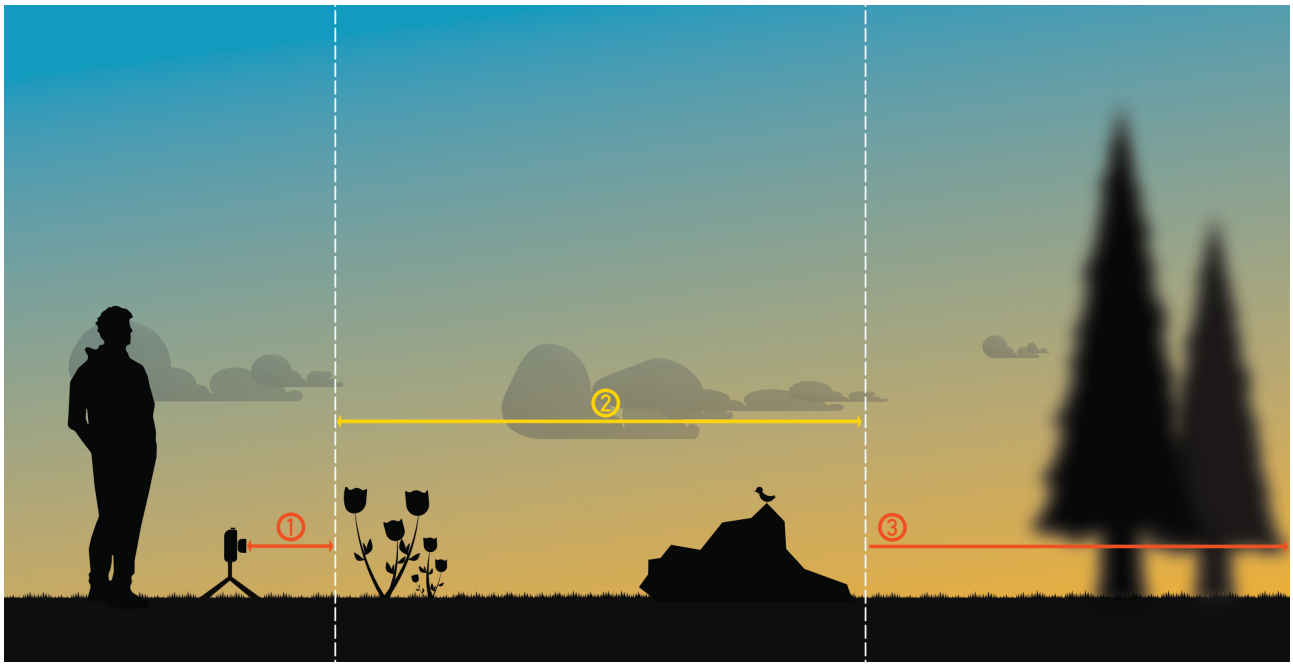
Let's see now some practical examples of how aperture effects your photos depth of field with some illustrations, and then try to guess why this is the most used one for the Northern Lights photography.

EXAMPLE 1: FULL APERTURE



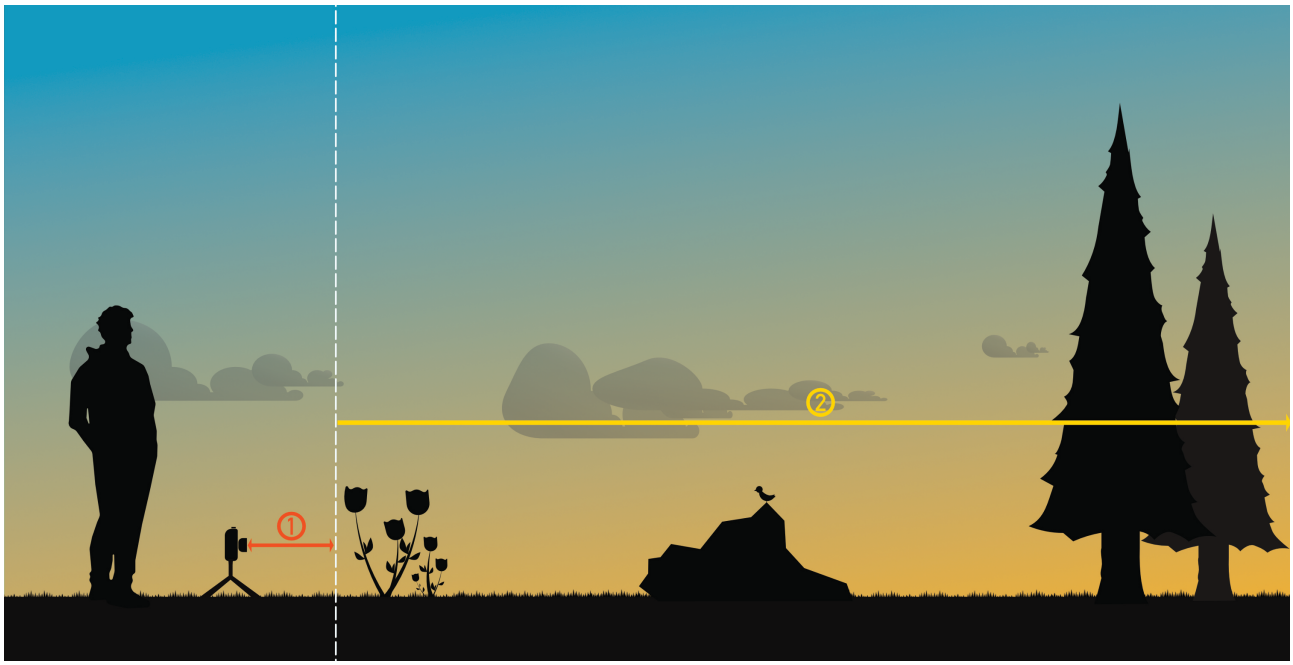
As you can see here, we focus on the flowers with a wide open aperture, and we have a sharp flowers group, while the rock is beginning to be blurred already, and the trees, which are even further way, are completely out of focus, and totally blurred.

EXAMPLE 2: MID-CLOSED APERTURE



In this case, we still focus on the flowers, but this time we use a slightly more closed aperture; as a result, we will get a sharp flowers group, a sharp rock, but the trees are still out of focus and blurred.

EXAMPLE 3: FULLY-CLOSED APERTURE



In this last case, we keep on focusing on the flowers, and we use a completely closed aperture; as a result, we will get all the scenery sharp from flowers group on.

Now that you saw these examples, can you guess why are we using most of the time the widest aperture possible for the Northern Lights, even though from these illustrated examples it looks like we will be getting the background out of focus?

Well, given that this is of course also because we will be shooting in the darkness, so we want as much light as possible to hit the sensor to get a properly exposed photo, we also have to understand a further important factor: using wide angle lenses, we can avoid the DOF issue since it will allow to focus to infinity already at a short distance from your lens. This is very useful, as you can put your subject pretty close to your camera, and yet having both the subject and the background both in focus.

As usual, there are exceptions to this way of using the aperture, and we will see them later going through other chapters.

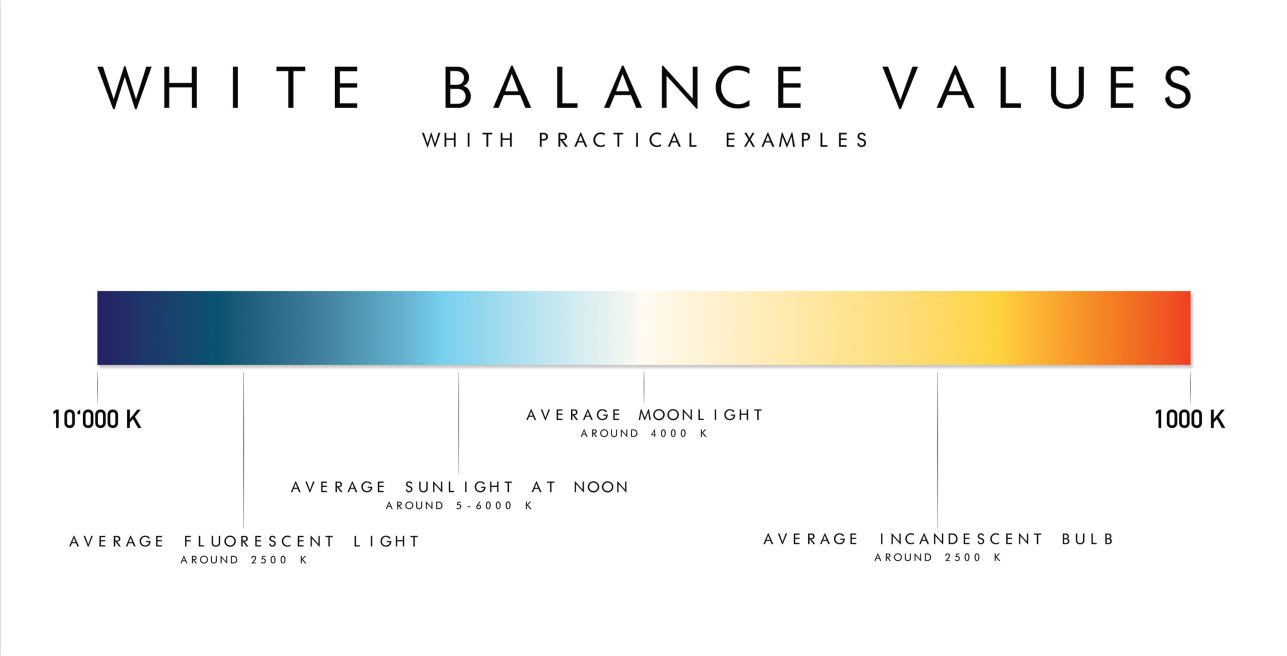
WHITE BALANCE

What is the white balance? It basically is the “temperature” of the average colors of a photo.
And what does this mean? Well, if you look at a photo, you will notice that there will be some predominant tone, so the photo will tend to cold blue colors or, vice versa, to warmer yellow tones. Using a correct white balance will help avoiding unrealistic colors in your photos, so let’s see what we can do with it and when.

White balance is expressed in K (Kelvin), and it goes through a range that can be different on each camera; usually, this range goes from 1000K up to 10000 K., where the **values close to 1000 produce a warm light (orange-red),** while **the ones closer to 10000 represent a very cold light (blue-violet)**.
When we set the white balance on our camera, we have to think about it as a **compensation for the external light** (that’s why it is called “balance”) so if outside we have a prevalence of cold blue light, we will choose one of the higher values we have on or settings, to let our camera know what is going on outside, so that it can balance it by changing its “perception” of colors.

There are pre-sets on most of the cameras for most of the outside conditions, such as cloudy skies, sunny days, and so on. You can choose one of those pre-sets to roughly tell the camera how to operate. If you use auto settings, the camera will make an estimation based on a software based “perception”. If you want to get what you exactly are planning, manual settings are anyway the way to go.

This is an example of how the white balance works:



Usually, if you shoot RAW, you could almost forget about this and leave it automatic; it will probably do some “good enough” job, and you can always fix it later during the editing process.

Anyway, I would recommend to learn how to set it properly, so that you will avoid wasting your time in post production, trying to uniform the results of the same evening (as the automatic white balance will change for each photo, resulting in different tones for each one of them).

As an average, the most common values for the white balance used for a night out are from 2000 at least, to a highest number of 5000. As you can already guess, having street lights, of light pollution from far away cities or villages will influence these settings a lot, so you will need to find the best solution for each place you will visit.

THE SETTINGS "RULE"

Having explained all the camera settings that you need to work with means a big step forward towards your very first successful Northern Lights photo! However, knowing the settings is not enough: we do also need to have a good understanding of how to deal with these settings, and this is going to be different every time, depending on many factors.
Luckily, I have developed a very simple "rule" in order to give you a very straight forward way to deal with all of the settings in all of the situations. Before going into it, let's go through the different variables that we have to consider when we are photographing in the darkness.

First of all, we are going to face very different light conditions, and this will depend on several factors, as just mentioned above:

- Weather conditions
- Possible artificial lights we will have in the surroundings

- Intensity of the moonlight
- Intensity of the Northern Lights

Moreover, the Northern Lights are not always the same, and they will vary in:

- Kind of colors,
- Shape
- Speed of movement
- Sharpness of the curves

Most of the guide you will find will recommend a starting ISO of over 1000; this is a typical suggestion to keep things simpler for who is teaching, and there is a working logic behind it anyway: the light condition is generally low, so a high ISO is helping in most of the cases.

As we previously learn, however, the highest the ISO, the more the noise, and this is something that, when possible we would prefer to avoid as much as possible in order to get a photo that is as crisp as possible.

Now, let's see my rule and, when you will be able to test it, you will notice it is going to give you the best possible results for your gear. We will see this full in steps.

1) "**THE STARTING POINT**" (meant to be for no/weak Northern Lights): here we need to find our starting settings for the evening, and to do that we

will follow very simple steps (remember to lock your camera on the tripod, and to set the focus as you learned, as a first thing!):

- Low ISO (i.e. 400)
- Aperture (the f-number) as low as possible (i.e. f 2.8); this will depend on you lens specifications
- Now you take a test photo, gradually increasing the exposure time until the photo is properly exposed (so you can see the landscape on your camera screen)

2) At this point we can see the actual "**RULE**"

___

The more the Northern Lights will increase in intensity and speed of the movement, the more you will INCREASE the ISO, and at the same time DECREASE the exposure time.

___

This applies always, and this is also true the other way around:

___

The more the Northern Lights will decrease in intensity and speed of the movement, the more you will DECREASE the ISO, and at the same time INCREASE the exposure time.

___

The reason why we want to keep the ISO low at the beginning, and we gradually increase the exposure time, is that we can keep quality of the photo as high as possible. This is because the Northern Lights at the beginning are themselves very weak and blurred already; so, having a long exposure will not only avoid to create any blurriness issue, but it will help getting some green light on the photo, even when the Northern Lights are not very colorful yet.

When the Northern Lights get stronger and faster, instead, they also usually get sharper, and we want to try to freeze as much as possible this sharpness. At this point, when the Lights are moving faster, to freeze the shape of them we need to shoot faster (shorter exposure time), and so to increase the ISO to compensate the brightness loss.

Only as an extremely general recommended ISO range, we can say that:

1) **Weak/absent Northern Lights**: 400-800 ISO - 20 seconds exposure (25 to 30 seconds are also possible with wide-angle lenses, as you will not get an extreme star trail effect, but I would say to go so high only if really needed).
2) **Mid-lev Northern Lights with visible movement**: 800-1200 ISO - 10 to 19 seconds exposure.
3) **Intense/dancing Northern Lights**: 1200-2000 ISO - 3 to 9 seconds exposure.

Again, it is crucial to keep in mind that these are just **very general suggestions**, and a lot will vary, depending on your gear, general light

conditions (including moonlight/no moonlight), clouds and everything we have already mentioned in the previous chapters.

FAQ:

- **Don't I get stars trails with such long exposures?**

As briefly mentioned before, this is a possible issue of long exposures with some kind of lenses. If you are using some 24mm lens (or above), the longer the time, the more trails the stars will leave on your photo (due to earth rotation). This is happening because longer focal lengths have a narrower field of view, and it is easier to spot these movements. With wide angle lenses, especially if around 14/15mm, it is very hard to actually spot these trails, unless you really push your exposure times extremely long.

- **Isn't this photo too bright/dark?**

Another very common doubt for people when they firstly shoot in the darkness, is how to get the correct exposure. This is mostly happening because what we see with our eyes do not match with what the camera shows. The answer is simple, you have to get to a point where you have as less black or white areas as possible and, generally speaking, you have to see almost everything in the photo, but not as if it is daytime! (exception made for full Moon nights, as we will discuss in chapter 8, completely dedicated the Moon).

- **Why do I get blurry/shaky photos with the long exposure?**

This is 99% because your lens or camera have a vibration control system while you are using a tripod. When you use a tripod, you must switch off your vibration control. That mechanism is meant to be used with handheld cameras, otherwise it will actually create vibrations, and it will lead to these kinds of shaky photos (and also some star trails, which is not, in this case, due to long exposure, and can be misinterpreted and lead to wrong and non efficient solutions, such as reducing the exposure time for no reasons!).

5. MOBILE SETTINGS

Nowadays, almost everyone has a smartphone, and more and more people are keen to know more about mobile photography.
While this is quite easy to learn online just “googling” the words “mobile photography”, the Northern Lights photography for mobile is quite a bit a different situation, and is not easy to find a lot of focused information regarding this topic.

Why would you use a mobile phone for Northern Lights photography when you can shoot better photos with a camera?
Well, first of all not everyone has, or can afford, a camera which, especially if if it going to be used seldom, it is not worth the price.
Working with Northern Lights excursions for travelers/tourists for many years, I have also realized that most of them like to travel light, and do not like to bring heavy camera and lenses with them.

Non the less, it is convenient and fast if you are outside to just enjoy the Lights and take a quick shot, as a memory, of a nice dancing Northern Light, without playing too long with settings.

So, let’s see the pros and cons of mobile photography in this specific field, without making it too complicated. In here, we will stick to the two main points people are mostly interested in, which as we can see just now are:

1) **Is it possible to take photos of the Northern Lights with a mobile phone?** Yes. But we have to be honest, do not expect miracles with most of them, and remember that it really makes a huge difference the phone you have (or to better say it, the camera system that your phone has): lately, more and more phone companies are featuring famous lens brands in their phones, such as Leica and Zeiss, however, this alone is not enough to assure a perfect low light performance.

To give you a name or a specific model is just impossible, since the market is extremely fast evolving but, per now, the better performing brands are Huawei, Samsung, Apple, and Google. This does not mean that each phones from these brand are the same, so each one has better performing models.

Even though Apple, in the recent past, was not good for any kind of night photography, with Phone 11 Pro things got really better, and it is making low light photography very easy, as it is quite automatic. If you prefer to have manual access to each single setting, I would still recommend as a first choice either Samsung or Huawei; this is because of their settings selection and a certain degree of freedom of use. Simply, with these brands, if you have one of the top of the line models, you can freely change all the settings needed (see the next point for more specification). such as ISO, shutter speed, and aperture. With the newest Apple models (starting from iPhone 11), instead, you will get a “night mode”, which is not exactly giving you the freedom you are looking for, but it is really doing a surprisingly good job, both with a handheld phone (thanks to an incredibly good software image stabilization), and even more with a little phone tripod.

Having said this, however, I always recommend to try to shoot with whatever phone you have, because what you will get might surprise you anyway, and might be anyway a “good enough” memory. Remember, since “something is always better than nothing", try even if you think your phone will never be able to capture the Lights, because in the worst case scenario you will not get a good photo, but if you could and you didn’t even try, you will regret it later.

2) **What settings should you change on your phone?** Given that you have one of these “good for Northern Lights” phones, you can basically follow the same steps for the common cameras listed in the chapter 4, including the “rule” (see chapter 4.2), even though you will need to play with that rule a bit more carefully, due to the probably more limited freedom of movement among the different settings. Usually (this is true now, could be a different thing when you will read this page, technology is going pretty fast nowadays), the most advanced models allow you to set the exposure time not longer than 10 seconds, which means that if you will need brighter photos after that amount of time is set, you will need to increase the ISO.

6. HOW TO FRAME A NORTHERN LIGHT

Even if you have never been in a place with Northern Lights, you have surely see a lot of photos and videos (or time lapses) of Northern Lights, and you surely have noticed that they are always different: different shapes, different colors, different degrees of intensity and so on.
This is because the Northern Lights are a natural phenomenon, and such as all the natural events, they are 100% unpredictable. This also means that planning ahed how to shoot might be difficult, but luckily for us, not impossible. So, let's see what we can do, and how we can do it.

As a general knowledge, it is good to read and learn something about the Northern Lights characteristics and "behavior" before planning a trip to take photos of the Northern Lights (you can find a free in depth explanation on my website www.nevraarts.com, in the "Downloads" area"), and this is because we need to understand how what we are going to see (and hopefully to capture) works, in order to make a better and most efficient planning.

Once you have read and understood that, we can now give for granted that you have enough knowledge about it, and so you know, within a certain degree of accuracy, where the Northern Lights will be appearing in the sky for each place (find some free help about the orientation of your position just checking and reading constellations and stars at www.nevraarts.com, "Downloads" area again).

HORIZONTAL OR VERTICAL FRAMING?

By now, you should now know everything about cameras and camera settings, you know what to bring with you and how to choose where to go; you star driving, you reach your spot, set your gear, you are ready to shoot, you wait (sometimes you will need to wait a long time, patience is a key skill!) and… a Northern Light starts appearing!

Well, is it just a point and shoot now? Not really, but the solutions are pretty simple, if you learn just a few things.

As you can learn on my free guide about Northern Lights on my website (highly recommended to set your expectations and to know how to deal with your possible waiting time, not to mention that you have to know how not to give up when it looks like it could be a no-lights night!), the Northern Lights are not behaving always in the same way. Moreover, depending also on your position, you will be more likely to see the Northern Lights from different perspectives. This could mean that you could see the Lights from a “side”, and in this case you will see the stream of lights going roughly from east to west, or you could see them from the “front”, in which case you will see the stream of lights coming towards you.

As a general rule, we can say that this two cases have a different approach, and we can translate it as follows:

1) “**Side Northern Lights**”: usually, this requires an horizontal frame

2) “**Frontal Northern Lights**”: it usually gets better results with a vertical framing

Why is that? Well, we will see this very shortly with a practical example and some photos to get a better idea, but to understand this just imagine that, when we shoot at the Northern Lights, we want to give some dynamic to the photo, and to do this, we want to avoid “cropping” the Northern Light shape as much as possible, therefore we want it to follow the framing direction as much as possible as well.

Let’s see this now in a couple of examples:

As you can see, this first example shows how a side Northern Light can appear on a photo: framed this way, you get the sense of how majestic this phenomenon could be, while the person is looking straight into them, not into the camera.

In these images you can, instead, admire the magnificent power of a strong Northern Light developing into a wave of intense brightness and colors, coming “towards you”.

In this case, even though the Lights are coming from the front, they develop sidewise, so we apply the same framing as before.

Now you probably already got the reasons behind a choice of a framing compared to another, however, before we move on, let's just see a last example.

This example has the only purpose of making you understand the consequences of a correct or a wrong framing even more, but as usual I leave to you the final word.

Take a look also at the following photo comparison; I have willingly modified two of my photos to transform them into "wrong" photos; this is because I would like to show to you what not to do, and to underline how big of a difference you can have just by framing the Northern Lights in a non-optimal way.

WRONG PHOTO

ORIGINAL PHOTO

As you can see, the image on the left has something missing, somehow it does not give justice to the whole scene. You can compare it with the original image on the right.

ORIGINAL PHOTO

WRONG PHOTO

In here, you can see the opposite situation: the image on the right has something missing, while the one on the left shows the whole scene, and it seems like a completely different scenario.

As usual, this is not a strict rule, as you can change it accordingly, if you think it will result balanced and it will give the feeling you want to achieve, like in the following example.

In this case, even though the framing does not follow the Northern Lights direction, you can see that the photo is anyway balanced.

A special mention, outside the classical framing styles, must be done for another kind of framing, which is not too usual, but It can be very effective in some cases: the “**right under it**” framing. When you see the Northern Light dancing over your head, you can try to shoot straight above your head, getting a unique “all sky” frame, which is a very beautiful way to show only your main subject, the Northern Lights.

It could be difficult at first to manage to properly frame this way, but I would say that once you manage, you will surely get some very unique looking photo, resembling some modern art painting.

One examples of this framing follows now, but keep in mind that it is up to you how to frame the Lights in these cases.

This photo was taken directly from under the Northern Lights, with the camera pointed straight up, and quick exposure time in order to freeze the moment (the bright line you can see close to the center is a shooting star).

A last suggestion to properly frame a nice photo of the Northern Lights, might appear obvious, but often I realized it is not: **frame from a low position**. This means that in most of the cases, it is better to keep your tripod close to the terrain level.

There is a very common tendency to keep the camera (and the tripod) in an eyes-line position; this is because it is very comfortable not to have to kneel down, and because we are very commonly used to think the way we see things from our perspective first.

But photography is not only about eyes perspective, it is also about new and more convenient perspectives, which in this case this means lower is better (not a rule, as usual)!

The reason behind this choice, is that framing in this way you will be able to get a vantage viewpoint, which will allow you to get some of the surrounding area and terrain (good thing to get a contest), and an ultra-wide portion of the sky, where the Northern Light will appear. Not to mention that, if you are close to the water, you will get some very nice reflections of the Lights on the water, without renouncing to get the whole thing in the sky!

FAQ:

- **What if the Northern Lights will appear only shortly, or very weakly?**

It is impossible to give a universal answer to this question, since many different things could happen: Northern Lights can appear and disappear frequently in one night, they can come back or not, and there is almost no way to know it in advance. Also, the intensity and the evolution of the Lights are basically unpredictable, so you just have to be ready, apply the “settings rule” you can find in chapter 4, and be patient!

- **How long will the Northern Lights last? Will it become stronger / will it come back if it disappears?**

As mentioned just above, and as you can read into details on my free guide (download available at www.nevraarts.com), the Northern Lights are basically unpredictable, so there is no answer to this **very common** question. There are information and some details that can help us guessing and forecasting Northern Lights in a short term, but also with these datas, we will not be albe to exactly know what it is going to happen, so just be ready! (and keep in mind that things can change **very** suddenly.

7. AURORA PORTRAIT

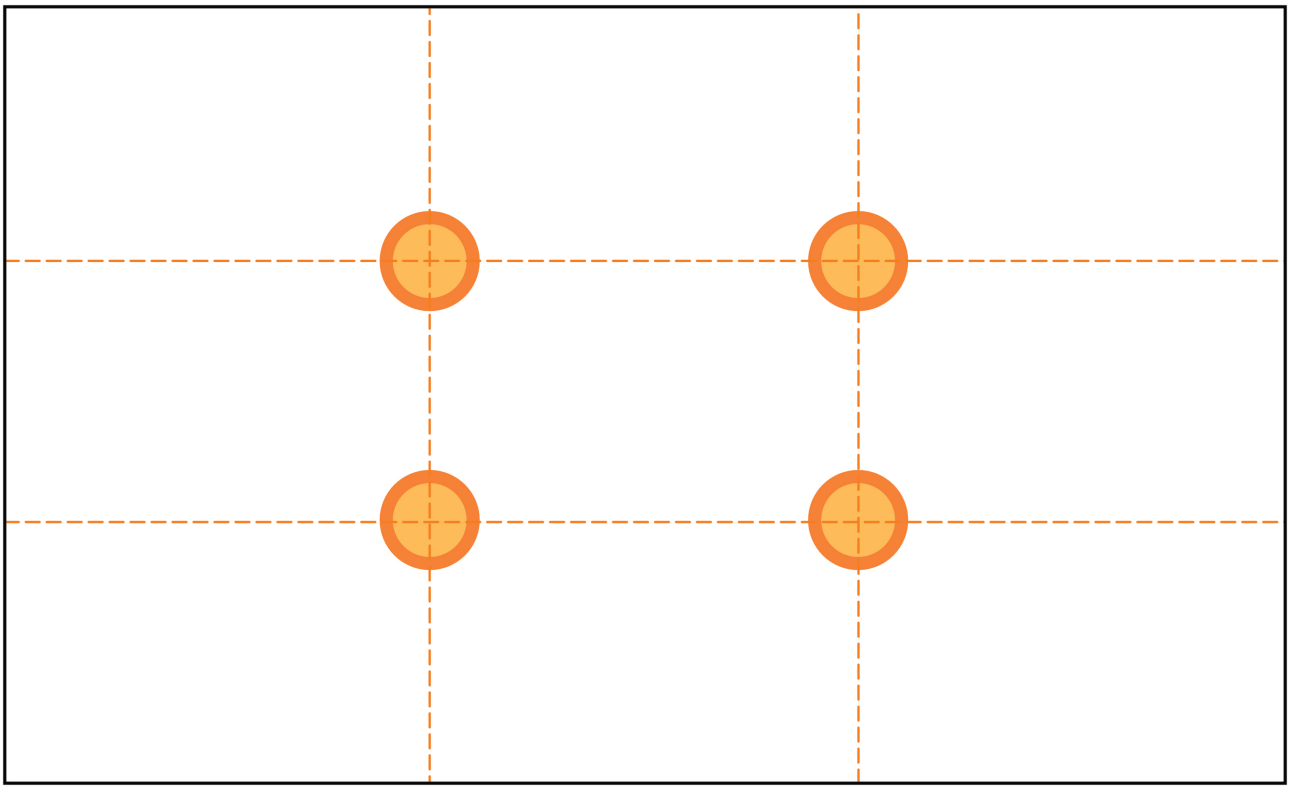
Yes! You did it! You just got your first photo of this beautiful Light! But I am pretty sure that now you also want to get a nice memory of this night (or nights) with you, your family, your friends on the photo. This is not too difficult, but also, it is not as easy as it would be to take a portrait during the daytime, with plenty of sunlight, and with also some practical limitations due to the unpredictability of the Northern Lights.
For these reasons, we will now go into details to better understand night portrait photography, and we will see several possible cases, as usual, step by step.

HOW TO FRAME A PERSON

In this paragraph, we will need to divide the several framing possibilities in different areas, keep in mind that we are now only talking about how to frame a person, later on we will discuss illumination.

One thing we have to mention before going into details is the famous "**rule of thirds**": this rules is meant to help you positioning your subjects in an organic and balanced way into your frame, and it basically does it by subdividing your frame into 9 areas, tracing imaginary lines over it, and suggesting to place

your subjects focus point over the intersections of these lines (you can see an example just here below at the end of this section).



In this illustration, you can see a grid, in which the intersections shown by the dots have to be considered as the recommended point of interest of your framing. We will shortly see more practical examples in this paragraph.

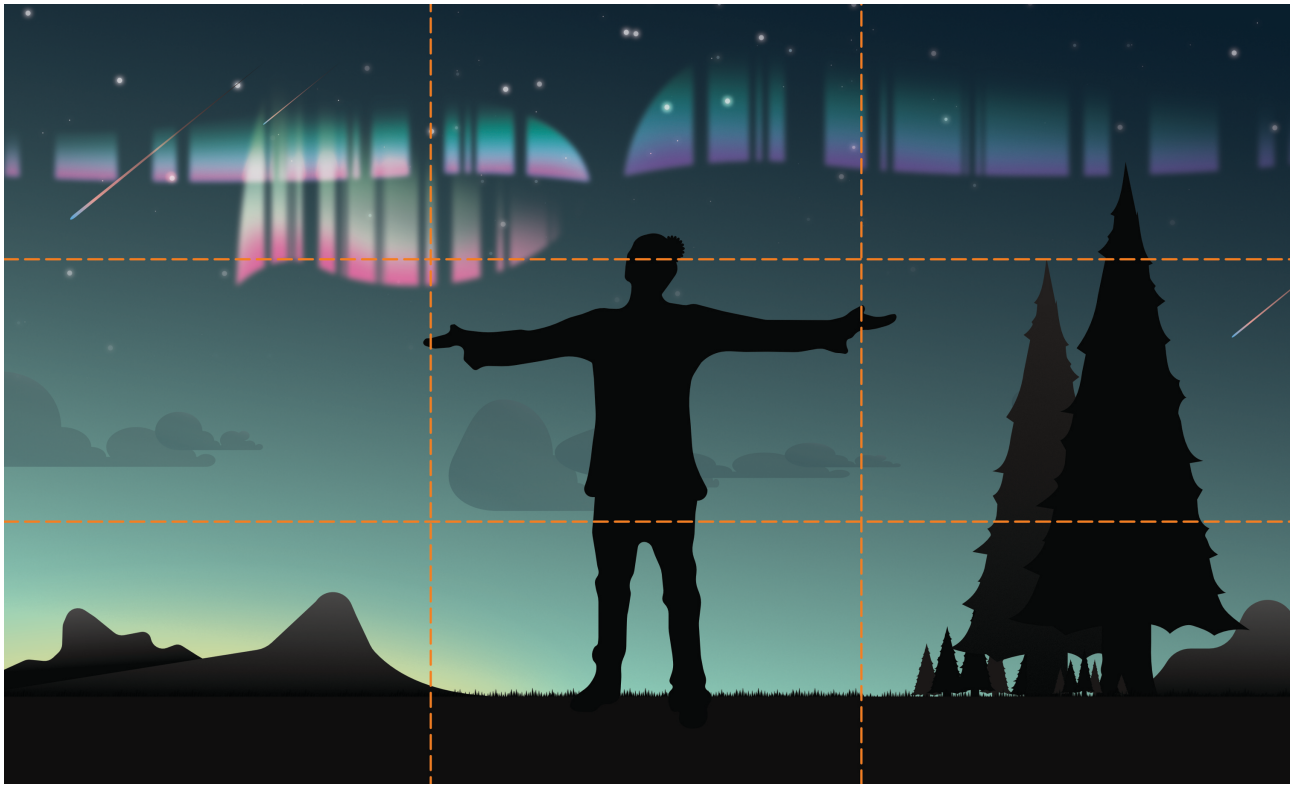
This rule is also strictly connected to the “**golden ratio**" concept, which you might have heard of, but we do not need to go so much into details for the purpose of this book. You can surely follow this rule when you want, but as always, free choice is also a way to go, and can lead to unexpected nice outcomes.

Let’s start now by reviewing the possible framing situations that we might experiment with, and at the same time try to understand why we could prefer one instead of the other, sometimes.

1) **FULL BODY PORTRAIT**

- ***LOW-CENTRAL***: this is when you put your subject at the very center of f the frame, close to the bottom border. Even though this is “breaking” some of the most common photography rules (the rule of third and the golden ratio), it can result very pleasing in the specific case of the Northern Lights portrait, and can also be very useful to avoid some unpleasing side effect of using a wide angle lens, the barrel effect. More than this, you could also need this position when, for instance, you have other objects in your field of view that completely or partially block the view over the Northern Lights; The results you can get from this kind of positioning, is a very symmetric photo, with some kind of balanced composition and, as just mentioned above, you avoid also the barrel effect; this effect is a lens distortion effect, which causes “rounded distortion” close to the edges of the frame, and it is mostly emphasized when we are using wide angle lenses.

  The first illustration on the next page shows an example of this central framing.

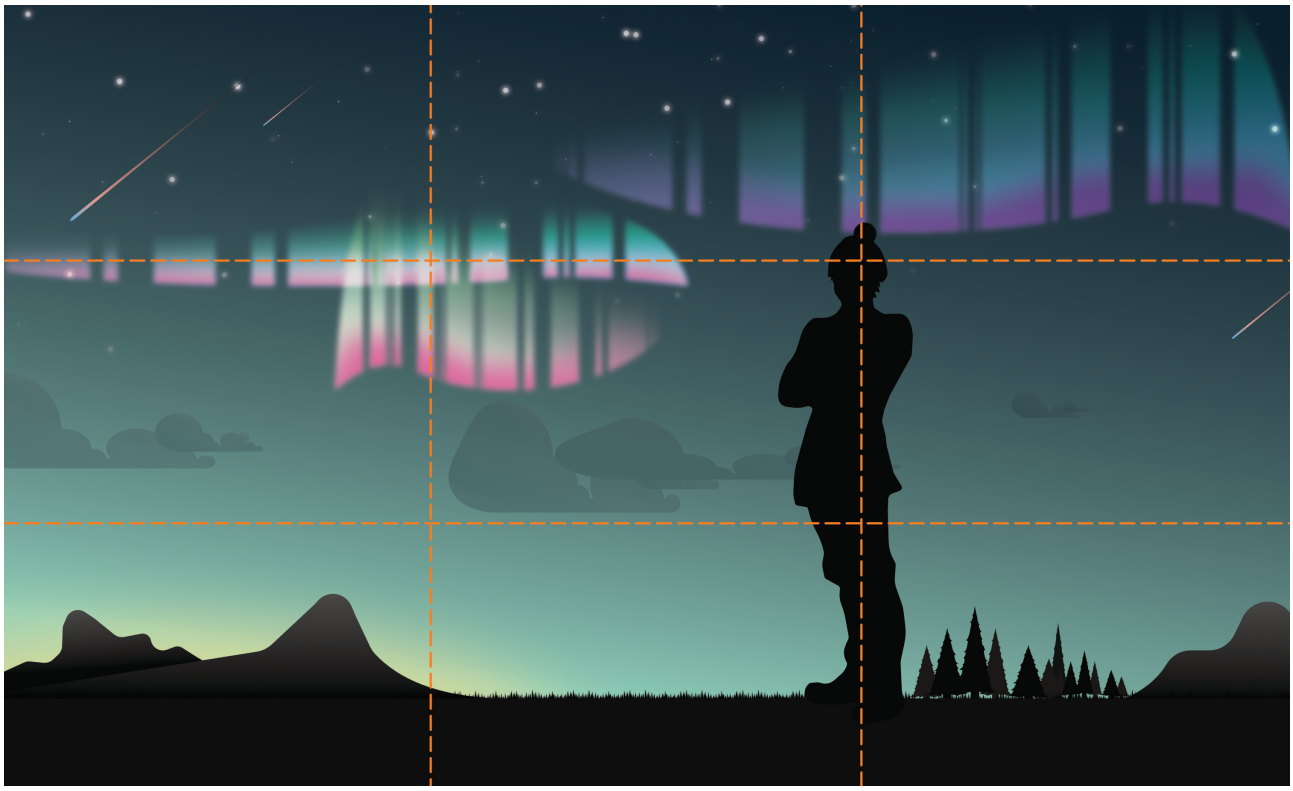


In this image you can see an example of central positioning: in this specific case this is also useful because you have trees on your right, and the Northern Lights are high in the sky, but you can need this kind of framing also for other reasons, as just explained.

- ***MID-CENTRAL***: this is basically the same as before, but this time you also put your subject(s) at the very center of the frame, so the horizon line too. This is particularly useful if you are using a fish eye lens (from 10mm and below), which are stressing the barrel effect to the edge, but they still preserve a quite balanced result at the very center of the image.

- ***SIDES***: if you do not like symmetry, you can try to get closer to the rule of third by putting your subject close to the “guide lines”; in this case, usually, the face of the person goes in one of the lines crossings, it does not really matters which one of them, the subject

can stand or crouch, it will depend on the single situation. As usual, you can see one examples here below.

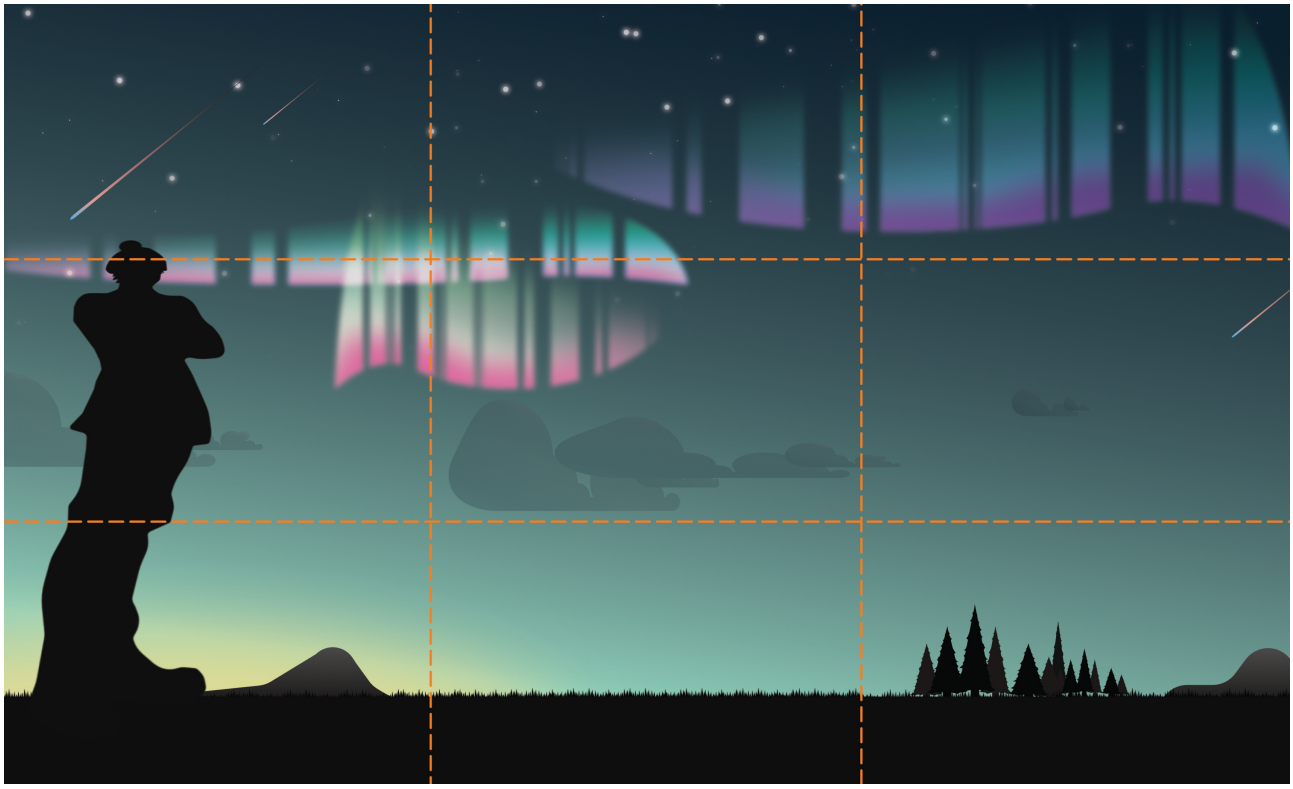


You can see this framing follows the rule of thirds, not pushing the subject too close to the edge, and not covering the Northern Lights in the background.

- ***CORNERS***: this is the case that we have to consider only in precise cases, e.g. when we do not have a choice, or if we are planning to do something this way for a precise reason.

  We do not want to use this framing as a main method because we will get some really unpleasant effect. If you decide to put your subject(s) close to the far left/far right of the frame, and maybe close to the border, in fact, you have to consider the following things. First one, consider what lens you are using: if you are using a lens with a focal length of 24mm and below, I would **avoid** this kind of framing, if not really needed for some unforeseeable

reason. This is because with very wide focal length you will have a very distinctive distortion, with a really unpleasant wavy shape for your subjects (see illustration below).



As you can see in this illustration, putting the subject too close to the edges of the frame will most likely create some distortion, in most of the cases with stretched people with big feet and legs, and very small shoulders and head. Depending on your camera position you can get different distortions, but it is almost never going to be a nice effect, unless it is exactly what you want to achieve, or you cannot avoid doing this for some reason.

- ***FRONT VIEW***: most likely the first one you think about, a subject in front of the camera, facing your lens. This is clearly useful to bring home a memory where the subject of the photo is easily recognizable. It could not be the most creative one thou, so, in this case, you can try something else, let's see what.

- ***BACK VIEW***: this is the firs step to get something slightly different than usual; your subject is not facing you and your camera this time, but is giving a look at the landscape in front of you, so you will get his/her shoulders towards you. This might not seem like a big difference, but in fact it is, as it is giving a more realistic sense of what is going on that night. If you think about it, if you are outside looking at the Northern Lights, it is a bit unusual to look at a camera, instead of looking at the Lights!

  With this framing the subject can easily be recognizable anyway, since the hairstyle, the clothes, the poses, and especially the memories are still there!

- ***SILHOUETTE***: one last suggestion, which does not mean you cannot experiment even more, is the silhouette. You cannot always do this, but if you can, framing your subject from close or far away will give a sense of majestic and mystery to your photo. How? Let's say that you have a strong Northern Light, you can put your subject in front of it, use a shorter exposure time than usual (given that the Lights are strong, so bright enough, which will allow you to use a shorter exposure time, in order to avoid blurred silhouettes, due to the impossibility of a person to stand still for a long time), and you use no lights on the subject. You will get a nice black silhouette in front of a colorful Northern Light! This works, in my personal opinion, even better if you have your subject(s) a bit far from you, and possibly on a higher position compared to where you place your camera: this will give a really cool effect to your composition,

and it will also give justice to the immensity of this phenomenon, as you can see on the example here below.

In this picture you can notice that, even though you have some people in the frame, the main subject here is again the Northern Light, but you can freeze these moments with you and your friends or family also in this way!

2) **CLOSE UP**

- Another technique you can consider, not to only shoot classic full body photos, is the close up. This simply means that you mainly frame the face of your subject, and you get only a small portion of the background Light in the photo, with a niche bokeh effect (blurred, “creamy” background). This works at its best if the Northern Lights are strong enough, and maybe you have some far away light from a distance village, to get those nice blurred bright spots in the background, that always give some magic to the photo vibes!

3) **FUNNY / EPIC POSES**

- At last, we can take this framing into consideration: should we alway look serious/staged on our photos? I guess not, and that is when this comes in handy. Have fun! Make strange poses, try light painting. Is it cold? Take away your shirt (shortly, do not get sick!) to bring home a fragment of a unique night! And this is also helping you to make your waiting time more entertaining!

On the side, we should also consider few other factors when we take a photo of someone:

1) **“LOOK”**: this is a 100% never missing photo; your subject is facing your camera and looking straight into it. This is not wrong, and makes almost people look more comfortable when “posing” for a photo. However, this makes the photo look a bit too much static, planned, in other words, not too much natural and spontaneous. With this I am not saying not to do this, but to also consider something else, afterwards!

2) **“NO LOOK”**: this is the best alternative to the first point, as it makes the photo look more natural. What I recommend you to do is to ask your subject(s) to look a bit over your shoulder, or to turn around and look at the sky and at the Northern Lights. This will capture a moment of “real” Northern Light gazing, which actually is the reason why you are out there that night.

3) **FOCUS ON PEOPLE AND BOKEH EFFECT (+ hyper-focal sweet spot)**: as we mentioned earlier in this same chapter, getting the person on focus could be nice to bring the attention to the main subject, while the nice blurred background gives a magical effect to the surrounding, which is visible to give a context, but undefined enough to provide a “sense of wonder”.

4) **FOCUS ON THE BACKGROUND**: Mainly for close up photos, you can focus on the background and get it star on focus, while the person in the foreground is part of the photo, but not the main subject. In this way you get an unusual memory, you know you were there, but the main point of it was the Northern Light, and you are getting “merged into the nature”.

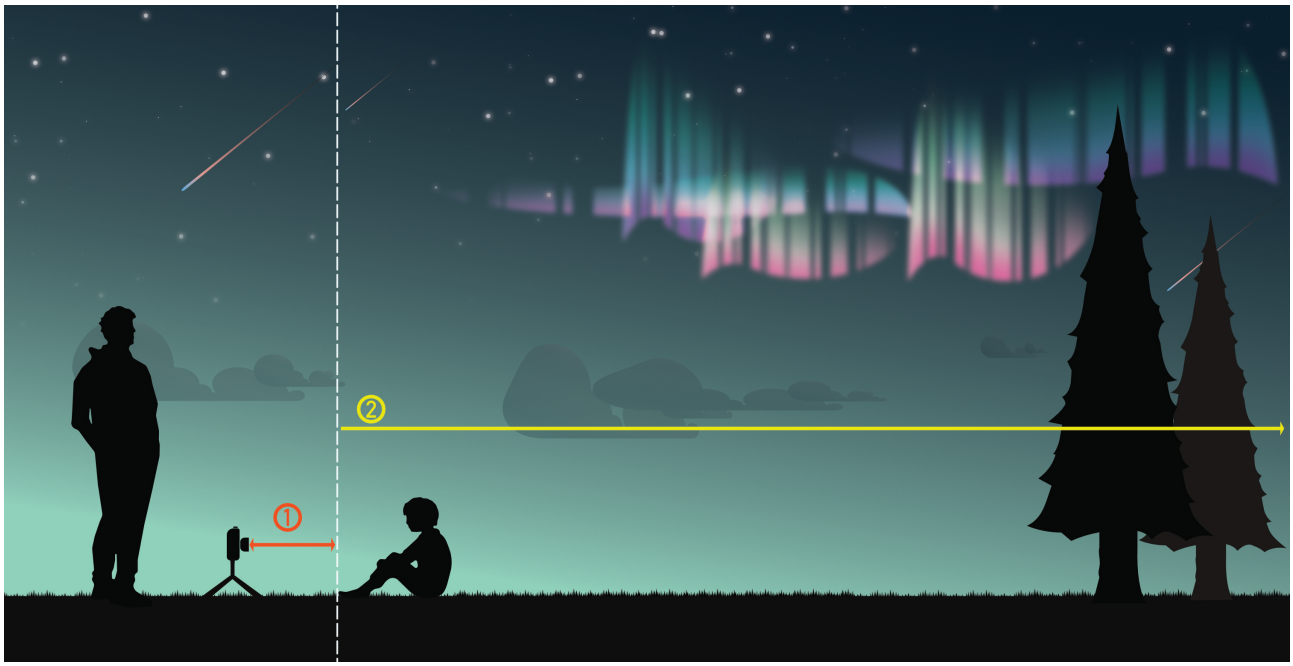
HOW TO FOCUS ON A PERSON

Let’s see now how we focus on a person, and how we get everything in the landscape sharp at the same time: as you read previously in the chapters about focus and aperture, we do have several things connected with depth of field, and sharpness on a photo.

In order to understand how to focus on people, we just need to explain how to set the focus in two different scenarios. Once you know this techniques, you will be able to apply them also to other kind of framings.

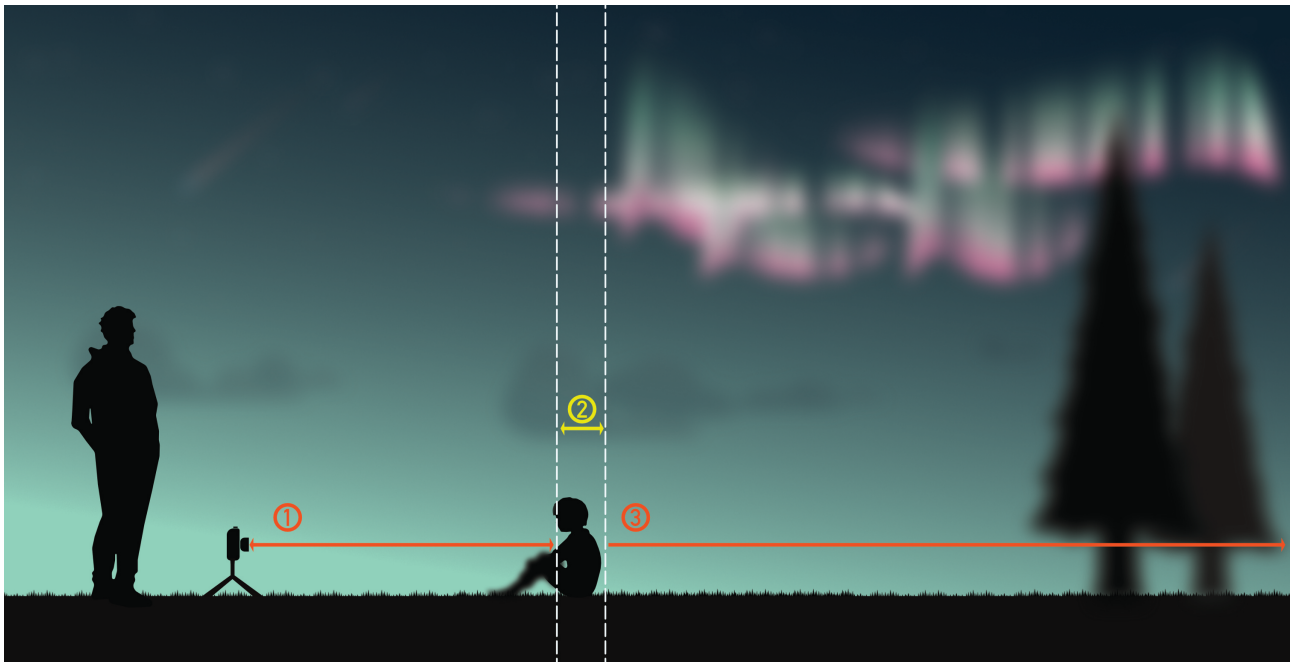
The two cases are: full body portrait, and close-up (and we split this in two sub-cases: focusing on the person, and focusing on the background).

1) **Full body portrait**: in this case we use the same wide angle lens we are using for landscapes. As you already saw in chapter 4 about aperture, using a wide angle lens, will allow you to focus to infinity within a pretty short distance from the camera lens; this means that you can have almost everything sharp from already 1/1,5 meters from your lens. You can so ask your model(s) to stand at this distance, and you will get him/her/them and everything behind them sharp and focused. (Check again also the hyper-focal concept you find in the chapter about “focus") .
   We can see how this works in the following illustration.



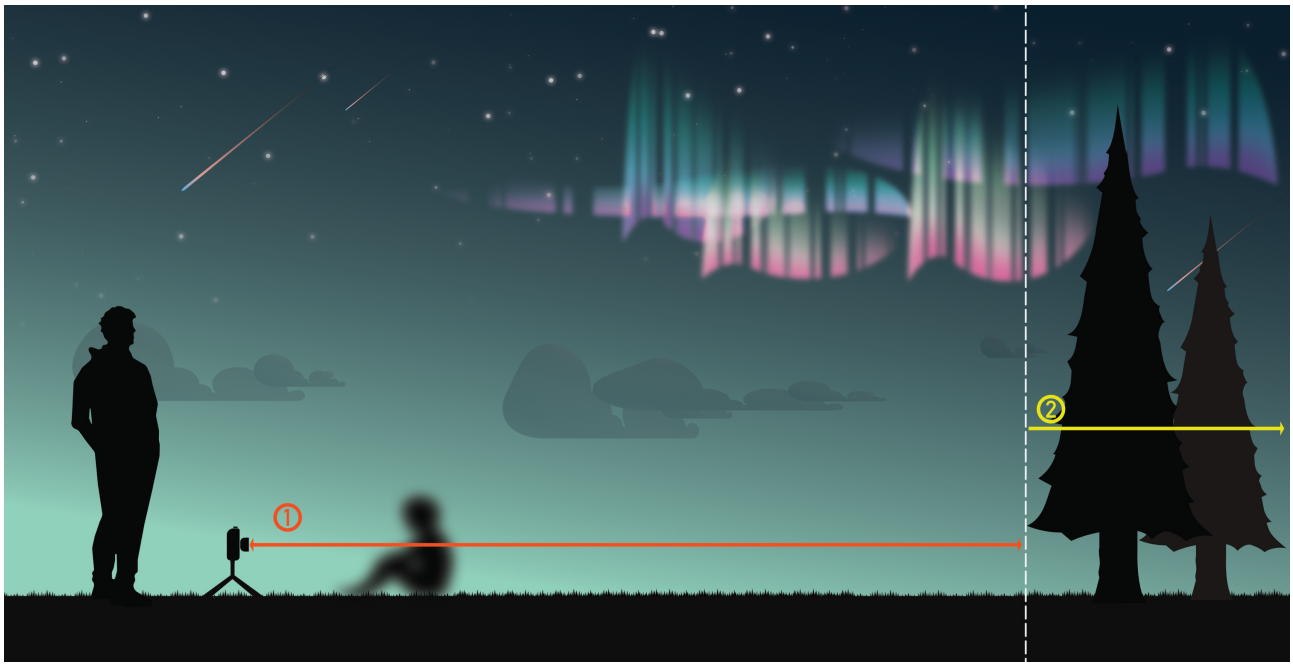
In this case, the n° 1 shows the minimum infinity focus distance from the lens. The white line is where the focus plane begins, and the n°2 shows from where the focus area (depth of field) starts, and as you can see it just does not end.

2) **Close-up (focus on the person)**: in this case you want to put your subject at the center of the viewer attention. You will need to stay further away from you subject compared to previously, and focus on the person's face, choosing always the eyes as a focus point. You will get the face (or a part of it) of your subject sharp, while the rest of the photo will appear blurred. To do this, you should change your lens, and use a shorter focal length lens, for example something starting from 50mm at least. This is because if you keep using a wide angle lens, to get this same effect, you will need to get way closer to your subject, and this will result in a huge distortion of the person face, for a not pleasing final effect. Check the following illustration for a visual help.



In this case, the n° 1 shows the minimum focus distance from the lens to the eyes of the model. The white lines indicate where the focus plane begins and ends, and you can see everything is out of focus also before the first line this time. So, the n°2 shows depth of field, while the n° 3 shows where the out of focus area begins again.

3) **Close-up (focus on the landscape)**: this is not one of the most common way to take portraits, since you get the person out of focus on purpose, and for some this can result a little bit too unusual. However, it can produce very interesting photos, so it is important to mention it. It is working exactly as the previous case, same lens as well, but you have to focus on the background instead. This will of course produce an inverse effect on your final photo compared to the previous case, as you can see in the image below. This technique is very useful if you wan to keep the attention on the Northern Lights, but at the same time you want to show that someone is gazing at them in a mystical/contemplative way.



In this final case, the n° 1 shows the focus distance of the lens from the background. The white line indicates where the focus plane begins, and the n° 2 shows the area in focus; you can see everything is in focus from that point on.

These were all the possible recommendation for you, but as always I warmly encourage all of you to experiment and to try whatever your mind is suggesting, within reasonable and safe borders!

I leave you now with some frequently asked questions related to this topic, to then proceed to the next topic: how to use the light for night photography portraits.

FAQ:

- **We have a fire on our waiting site, can we take a nice photo of that, with the Northern Lights in the background?**

Yes, you can. But… there are a few thing you must consider and take care of. As you know now by yourself, the fire and a long exposure will for sure create a central point where everything is over exposed, white. To prevent this to happen, we have at least a couple of solution. A first solution, the easiest, will be to partially cover the fire with something, a person, a rock, whatever you thing does the job; after this, you can apply all the usual techniques, and shoot your portrait. The light coming from the fire will be visible, but not overexposed, and in this way you can also have a well exposed background, so the Northern Lights as well. A second solution will be photo stacking: you take one foto exposing the fire, and a second one exposing the sky and the Lights, and in post production you will need to put them together nicely.

- **I always get people blurred/ghosted on my photos, what is happening?**

This could be caused by several factors, the most common ones are that the “models” are walking away before the photo is finished (or are entering the frame after the photo already started to be taken), or, another possible reason is simply that the “models” are not standing still enough. The solutions are pretty simple: you have to have each subject in front of the camera before the photo starts to be taken, and you can decrease the exposure time to prevent people to star moving too much!

HOW TO USE ILLUMINATION ON A PERSON

When you take a photo of someone during the daytime, that's easy, you point at the person, shoot, and that is it!

Sometimes, especially with the automation level that we have, we just rely on the automatic flash, which will make everything brighter at the right moment.

So, that is simple isn't it? We just do the same when we are outside in the dark nature and we are good to go!

Wrong.

If we use the integrated flash of a camera (or a mobile phone) in such a situation, we will only get, in the very best case scenario, very bad photos. Most of the time you will get a very overexposed subject, a spotlight around him/her and on the close ground area, and a pitch black background.

This is happening because the integrated flashes are meant to make only close/small areas brighter, by also reflecting the light over the closest surfaces.

Outside this will not work, since the light produced by these flashes is too wide and too harsh for these purposes; it will "hit" the person and the terrain, forcing the camera to try to balance the exposure, and the person will appear either flat because of no shadows (if frontal flash is used), or with very sharp and unpleasant shadows (if side flash is used), not to mention that the sky will result as a black background.

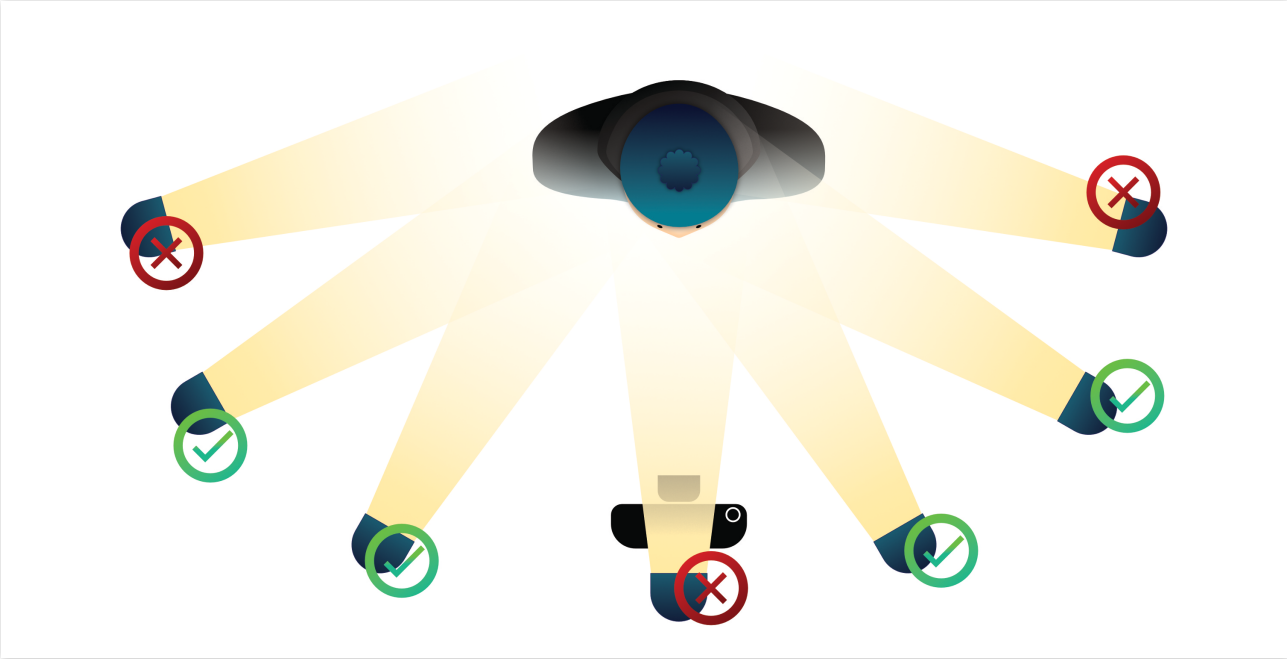
To avoid this, we have to reconsider the way we use light and exposure; this is not difficult, but we need to pay attention to a few things. We are now going

to see and understand the theory behind this first, and later we will go through the different kind of lights and techniques that we can use.

We previously saw in several chapters how the exposure works and how to get to an optimal exposure, but we were talking about exposing the landscape and the Northern Lights, following the “rule”.
This time we have to think about the person as well, which might sound tricky, but luckily it is not too much, if we just consider this: as a main thing to do, we will still expose the photo thinking about the landscape, but what is different so? What is different is that if you take a photo thinking ***only*** about the landscape, the person will result completely dark and probably blurred because of a long exposure; we consequently need to find a way to make the person visible and still. Here we are at the point where we need an external light source, to point a precise beam of light only over the subject we are photographing in front of the Northern Lights.
This is because a short and precise enough light at the right moment will “freeze” the traits of the person on the photo in the very best way.

1) **THE BEST TECHNIQUES**: before going through which kind of lights we can use for this purpose, we now must understand some important techniques that are usually ignored, but which are crucial to get a better result. It is also important to underline that we are not going to explain how to set up an open studio light-set for a professional photo shooting, but we are keeping this real by giving you correct and useful information for a normal life situation, which is the purpose of this entire book.

- **Angle of illumination**: we have to consider carefully where to put our light source, as we already mentioned, we want to avoid harsh shadows and/or flat faces with no shadows at all; the best angles (as shown in the image below) are to be considered from a 30% to a 70% angle in relation to the subject position. Less than this will result in a frontal light that will produce no shadows on the subject; more than this, it will be a side light with the result of sharp edged shadows on the subject. Of course, you can do this if your idea behind the photo needs these kind of shadows for some reason, but the usual idea is to prevent this kind of result, to prefer a softer contrast and a natural look.



As you can easily guess, this simplified scheme shows which are the recommended angles for your subject illumination. With a clear red cross you can see what you should not be doing, while with the green check-mark, what is recommended. The position of the camera is just an example, you can move your camera around where you want, as long as you remember these angles.

- **Movement of the light**: as we are using small light sources, we are able to control them manually also in a three-dimensional space, which basically means that we can hold the light with our hands, position it where we want, and also moving it while we are taking the photo. If you are familiar with a technique called “light painting”, you can already guess what we are going to do, but let’s see this step by step.

    1. At first, you frame your photo and position your subject where you want it to be in the frame.
    2. As a second step, you need to ask him/her/them to try to stand still as long as they can, while you are taking the photo. (It can be cold and windy out there, so try to consider also this when you choose your exposure time in these cases!).
    3. Pre-plan your light position in your favorite “angle of illumination-range” before shooting, and consider also if you have some other lights around you, to understand if other lights will already illuminate your subject, and create some shadows towards some specific direction.
    4. You can now start shooting as usual, using a timer if possible, so that you can move away from the camera while taking the photo, so we can position ourself in a good place to use the light, if our arms length is not enough. Countdown to make your subject understand when it is the

time to “freeze”, and as soon as you press your shutter button, go and position yourself where you planned.

5. Position now your light (simply holding it with your hands) on a mid-low position, something around 40/50 cm from the ground, and point it **up straight to the sky**, and hold it like this until the exposure time is almost close to the end of the shooting time. This is important to avoid getting your light beam to illuminate too much the surrounding area before it is the right time.
6. As you see that your exposure time is close to an end (let’s say, as an example, that you have an exposure time of 10 seconds, this point is around 8 seconds into the exposure) you lower your light over your subject with a quick and precise movement, for a very short amount of time. Then, you either switch the light off, or you you move it back to the initial position, pointed to the sky. This technique, will freeze a very precise moment on your photo, so that all the small movements of the person should not appear, and the subject will be sharp.
7. Be very careful, especially if you have snow around you, not to point your light to the ground, or you will get a very strong white area around your subject. Stop the hand movement when you see that the light is illuminating the feet of the person.

All of this, especially because it is explained into details and split into several steps, might look very complicated, but it will appear pretty organic and fluid when you do it. I will not lie, it needs some practice, but it is nothing you cannot learn quite shortly on the field. For this reason, I always recommend to practice this also ***before*** the Northern Lights appear, to get used to this in time for when you will really need it.

2) **KIND OF LIGHT TO USE**: we already anticipated this at the very beginning of this book, but we will now expend this knowledge by going into details, and we will se the different kind of lights that we can use for night portraits, with their pros and cons.

    - **Mobile phone flashlight**: this might sound weird, but it actually is probably the best solution on the go, for this purpose. In the recent past, mobile phones did not have the best solutions for photos, including the flashes, but nowadays, almost all the most known mobile phones brand are putting some huge effort to provide a good photo quality, and this includes the flashlight. So, even though most of the mobile phones, as already discussed, are not the best option for night photography, their flashlight can be very helpful, and this is why: the light coming from the mobile phones flashes are meant to be used for tanking photos of people, so the color warmth (basically the color of the light), and the intensity of it, are just perfect for getting a natural skin tone and a balanced exposure from a “portrait distance”. There is a catch anyway, and that is that you do not have to use it as a flash, but as a constant

light source, so you can plan ahead the positioning, the timing and the movement of it (as explained just above in the previous paragraph about the techniques). The best case scenario in this case is when/if you can choose the intensity of the constant light, so that you can fine adjust the amount of light for each specific situation.

- **Average flashlight**: you can of course also usa a “normal” flashlight, which is something you can find everywhere and it is pretty cheap as well, but if you decide to go for this solution you have to pay attention to few things: the color warmth of the flashlight is usually cold, which means that the skin tones on the photo will result in a very unpleasant white/blue tone, and this is something you do not want. Therefore, be extra careful when you choose one, choose or pick one with a warm light color. Another thing that is usually not the best about these lights is that they show some kind of light pattern/texture over the surface they are projected on, and this usually is due to a plastic textured layer placed on top of the led lights that helps spreading the beam of light; so be aware of this, and choose flashlights without this issue, or you will get some weird wavy shadows texture all over the place!

- **Headlamps**: another solution is to use a headlamp, but this is not my most recommended option, if possible. The reason why is that these lights are usually very tricky to use, to start and to stop, as they most likely have a functions-cycle though which you have to

manually go each time, and they produce either a blue light or a red one. Of course, it is up to you to evaluate this, as you can find thousand different types of headlamps on the market.

- **External flashlights (through remote activation)**: a last option is also the least recommended one, unless you are doing a complex set up on the field. External flash lights cannot be used for this purpose if attached to the camera, for the reasons we already discussed previously when we discussed why we should not use the flash of cameras and mobile phones. They can, however, be used if put on the sides of the planned shooting position, as for the other lights, and they will need a remote activation, not to mention a quite deep knowledge for the specific light, intensity and, possibly, an in-depth planning before the use of it. Also, consider these lights as quite expensive purchase, and not the most comfortable tool to bring along, if you are just planning to have a quiet nice night out, enjoying the time out and the Northern Lights.

To conclude this chapter, just few more points that must be known, as a useful reminder and knowledge.

1) a very unusual “tool” you can use, if you really do not find a warm color light, is to put a thin layer of baking paper over your light. Yes, it sounds strange, but it works quite well, transforming any light in a warmer tone light. Of course, there are cons to this technique: your light will be also

dimmed down, and diffused, which brings to a lower control over the spreading of the light beam all over the area.

2) Keeping the track on the “do it yourself” line, we have another quick fix for a common problem, the light that spreads everywhere. Most of the cheap (but not only the cheap ones, honestly) lights, tend to have a very wide spotlight area, and this is because it is usually a good thing to have a wider area cover by the light, when you are in the dark. But in this specific case, we do not want that to happen, since we do not want the light to hit too much the terrain around our subject. What we can do, so, is to just tape a small piece of cardboard on one side of the flashlight, so that the light beam will be cut flat on one side, and it will be easier not to hit the ground.

3) A final important note to underline is the intensity of the light. Do not use a too much bright light, it will not be useful, at the contrary it will blind and annoy the person being portrayed, and it will overexpose the person, without helping you to get a nice and balanced photo.

8. MOON OR NOT?

One of the main concern for most of the people that travel to the North to see the Lights, after the weather and the general probability to spot the phenomenon itself, is the Moon phase and how it influences the visibility of these colorful Lights. A lot of people actually plan the trip in advance not to have any lights from the Moon, as the new Moon could actually make a real difference.

Let's be clear, the Moon can actually help and not only disturb our photos. Not very clear why? We will now see why and in which ways.

1) **PHASE:** first of all, the amount of light coming from the Moon is different depending on the Moon phase.
2) **ANGLE**: depending also on how high the Moon goes, you will see brighter or darker, and this is because of the angle of impact of the light reflected from the Moon when it hits the ground.
3) **POSITION**: depending on where you are, you might have or not have the moonlight in the same evening; you are in a flat open area, you have it all. You are in a valley surrounded by high mountains, you have a much lower moonlight, since you will not get the light pollution effect directly coming from the snow around you.
4) **CLOUDS**: do you have clouds in the sky? High clouds will diffuse most of the light coming from the Moon, and make everything brighter, while low clouds will block most of the light coming from the Moon, and it will be mostly as if you had a new Moon night.

5) **SNOW**: is there snow around you? If there is no snow around, the light coming from the moon will almost be irrelevant, as it will not reflect much from the ground back into the sky, and there will not be (almost) any light pollution.

As you can see, there are too many variables to predict the effect of the moonlight, and mainly the issue is not the brightness of the moon, whereas the light reflected back into the atmosphere, which creates light pollution.
Regardless of all this, ***we do have good news***: no matter what, if the Northern Lights will appear, you will see them with or without the moonlight.
There will be some differences for sure, especially if you have the Moon right in front of you, and so right behind (for perspective reasons of course) behind the Northern Lights. In this case, it is a good idea not to directly stare at the moon not to get color blind for a while because of the contrast, and the same applies to the camera. So, how can you take a photo of the Northern Lights if they appear to be in front of the Moon? If the Northern Lights are very strong, the issue will not be too big, as you will just shoot very quickly (i.e. 1 second) and you will get both the Northern Lights and the Moon in your photo.
If this is not the case, and the Northern Light are not too strong, here you have a bit of a problem, and you will need what is called an HDR (high dynamic range) shot, so a multiple exposure to fix the issue. You will need to shoot two (or more) photos: in one photo you will be exposing the general landscape, and this will make the Northern Lights too dimmed to appear in this photo. A second exposure will serve the only purpose to make the Northern Lights visible. At this point, you will need to go home and do some editing in post production, by stacking the two photos together, and you will

see the “impossible” photo becoming possible, with a bit of technological help.

If the moon is behind you, instead, there are no issues, as you will just need to apply the “rule” as you would normally do. However, the good part is that you will need much lower ISO values, and a much shorter exposure than usual, getting in this way a higher quality photo. Not only this, if you are taking portraits you might not even need to use any artificial light to lit your subject, as the Moon will serve the purpose.

A side effect of having the Moon in the sky, especially with snow on the ground, is that the general brightness will make the stars almost invisible to the naked eyes, and only few will appear in the photo as well. This is very normal consequence of a general exposure balance, and there is not much you can do without using very advanced and expensive equipment, and an impressive amount of time in post production, using likewise expensing softwares and requiring specific editing skills. All of this is something that goes way beyond the purpose of this book, as it would not be of any help while you are out and shooting at the Northern Lights during your trip. At the contrary, this would take away all the fun and lightheartedness of your experience.

9. EDITING/POST PRODUCTION

We are eventually approaching the final part of this book, and it is time to talk about photo editing.

Is editing necessary? Is editing difficult? Should I do something special?

All these are questions that you probably have, but one more question is something you should also ask yourself, and depending on the answer you will give to that question, the outcomes of your work will be very different: **is a photo the reality**?

Before going into the technical discussion, let's do some theoretical introduction to this.

There is not a correct answer to this question, but I have my own answer, which is "no". A photo is never the reality, no matter what you do, the reality is not something we can capture. This is simply because the "reality" does not exist, generally speaking, and I tell you what I mean with this, and why this is important in this case.

Think now about a very simple practical example: let's take two random persons, one is ready and already packing to leave for a lifetime trip, planned for years and dreamed for an even longer time; the second person is a Northern Light guide, the one that will probably help the first person to get to see the Lights. This guide already saw hundreds of Northern Lights in his/her lifetime, almost every night.

No matter how exciting this always is, the expectations for these two persons will be very different, the excitement for a successful night, and also the disappointment if something goes in a not planned way, will not be comparable. For the guide, it will just be a matter of waiting another day maybe, while for the other people might be the last chance lost. Going back to the story, these two person will go out together, and luckily see the Northern Lights. The guide will be happy and excited, sure, but the other person… well, probably (and hopefully) will be overexcited, somehow confused, full of different and contrasting feelings, a little bit lost in thoughts, and with a quite unique memory that will last forever.

Same night, very different experiences, isn't it? If the day after we meet these two persons separately, and we ask them to describe their previous evening, you can bet you will get two extremely different (both positive of course) stories.

Why are we discussing this? Because both these stories are real, true, but at the same time these are two very distinct realities. And the same applies to photography, in both a theoretical and a practical manner. In a way, as just explained, we perceive different experiences, and this will also influence the way we approach the photography of that experience. In a practical and technical way, different cameras, different lenses, different perspectives and different editing softwares will provide a very different outcome of the same exact second, of the same exact night, in the same exact place. We do also have, as human beings, personal biological differences, which will lead us to perceive and to see things in a very different way sometimes; colors can be

seen and perceived differently, our mood, tiredness, and many other factors can influence the way we build our memories.

Why is all this introduction important before we discuss editing softwares and suggestions? Because it is a first and essential introduction to the mental approach we should always have when we go out to take pictures of someone or something. You should edit your photos in the way you think it will reflect what ***you*** experienced and the way ***you*** think will communicate the most authentic feelings ***you*** had. What ***you*** saw. It does not matter if other experienced something different, focus on ***your own experience*** in its whole.

WHICH SOFTWARE?

There are several available softwares to edit photos, some of them are free, some are not, and it is up to you to choose your best solution, but here we are now going to shortly talk about some of them, and to discuss some of the major characteristics.

As we previously discussed, to properly edit photos, we need to have RAW native files, and this is something you have to set on your camera ***before*** you go out shooting. If for some reason you only have .jpg files, you might need to keep your editing to the minimum, and we will see why in the next paragraph.

1) **PAID SOFTWARES**:

- **Camera Raw**: this is, arguably and in my humble opinion, the best option for editing raw files, and the reasons are few and simple. This software is completely integrated into Adobe Photoshop (with a monthly or yearly subscription), as a plugin, and it offers all the tools you need to do a great editing. It is less famous than the bigger and older brother Adobe Lightroom, but It includes everything Lightroom has, and you won't regret using this one instead, as it also present a cleaner and simpler user interface (recently renewed and made it even clearer).

- **Lightroom**: probably the most famous and used among the others, it is a complete suite, still from Adobe, and it comes for a monthly or yearly subscription fee, and it includes absolutely everything you need for photo editing (developing as it says). In my opinion it has a more (and without a real reason) confusing interface, and a complex system for importing and auto-organizing your photos, and divide them into folders. This is for some a big selling point too, for me this is not as simple as it should, and it is not rare, especially for a beginner, to find ghost or double folders spread somewhere in your computer. All this "auto-organizer" could be improved, but as previously said, it is up to your personal choice and taste, and however many, many people find it just perfect, I could not avoid to mention this software here in the list of recommended softwares.

- **Photoshop**: I am pretty sure that the vast majority of the readers knows already Adobe Photoshop, at least in some way. It is so famous that it gained a verb just for itself, “to photoshop”. Photoshop has a subscription plan, which you can pay monthly or yearly. Even though it is so famous, many still think that it is meant to “edit photos”, but this is only partially true, and this is why: Photoshop ***is not meant to edit raw files*** in the software itself; it is, instead, meant to help you fixing several things on your photo, ***after*** you already edited it in a RAW processing software, and ***then*** imported it into photoshop. Let’s make a quick example: you have a beautiful photo of the Northern Light and your friend in front of it, you edit your photo in, for example, Camera Raw, and when you are happy with the colors, the tones, the noise grain (the amount of grainy pixellation created but several factors, such as ISO, performance of your camera sensor at night, and so on) and everything, you will import the photo into Photoshop. Now it is time to fine tune it and maybe to adjust/remove few things. In here, you can easily remove, modify areas of the photo (i.e. you have a beautiful composition, but a backpack stands in the middle of the frame because you forgot it there to take a quick photo, you can remove this with several tools), you can easily remove the “ghosting effect” on people (the small and blurred lines around the people that appears if the move too much during the exposure time), you can stack photos together, and do all of the adjustments you need. Of course, we are not here now to make a full tutorial of the Photoshop possibilities (maybe it will happen in a future book),

but it is important to know just a little bit of what you can do with it. Check carefully also the following sub-chapter about some editing tips for more information about this!

- **Affinity Photo**: this is the last one of this series, it comes with a one time payment, so no subscription are needed, and it is a bit of a mix of Camera Raw and Photoshop together. It can do almost everything they do, but it still lacks some useful functions (or it has them, but not as much intuitive as the other softwares). It is, generally speaking, not so powerful as the bigger and older brothers, but it is very close. It is getting better and better constantly, due to a constant flow of free updates, and it is very cheap.

2) **FREE SOFTWARES**:

- **Gimp**: one of the, if not the most famous freeware out there. It is a very close relative of Photoshop, it resembles it in many ways, and it has its own RAW files editor as well. It might be slightly less performing in terms of speed and power, but also the sone is in constant development.

  And again, this is free, so you can simply try, and see what happens.

3) **OTHERS - PARTIALLY PAID**

- **Miscellaneous:** there are several softwares with this payment system, and they are increasing on a almost daily basis: you get a basic version of a software for free, with a given amount of limitation in functions or time, and then you can pay to unlock more complete versions. It could be a nice way to try something, but I honestly would not recommend this way unless you already saw the full program in action, and you know the correct total price of it.

U S E F U L E D I T I N G T I P S

When it comes to editing your work, it might be difficult to know where to start and, especially when you begin to learn how to use the editing tools, it is very common to experiment a bit of everything you can do, by pushing it to the limit, probably getting some “strange” results.
You might even like it at first, since it is something new, or you might get frustrated because this is not what you expected.
This part of the book is to help you understanding a little bit better what kind of approach you can start with, and what to do and what not, given that your personal taste will always have the final word about this, and it is the most important recommendation, you have to like what you do.

Let’s see some of my main recommendation in key-points:

- **Play it safe**: as already mentioned, it is ***very recommended*** to shoot RAW instead of jpg. Jpg files have, without any doubts, a lot of pros to be chosen for: they are ready to use, ready to be shared on your social media pages, they are read by basically every software in the world, you can print them straight from your camera/internal memory storage, and they are smaller files, since they are already compressed files.

  So, why should we prefer RAW files instead? RAW files are uncompressed files, literally a collection of data and information, more that an image. These information will be read and interpreted by your editing software, and transformed into an image. The reason why you prefer to use this file is that it allows you to edit the image in a non-destructive way. This literally means that you can edit and re-edit your image, going back and forth with your editing process and steps, and the image will never loose any quality, since this kind of file has a much deeper level of information compared to a jpg. If you choose to edit a jpg file, you will definitely and almost immediately loose a lot of the picture quality. We do not need to go too much into details about this now, but just to give you an example, think about pixels: pixels in a jpg image are just… a bunch of pixels, which means that if you have a black pixellated area in a certain position, those pixels are just black. A black area in a RAW file, instead, is pure information, so it could be that behind that black, you actually have some information to retrieve. Just by, for example, increasing the brightness of that area, you could start to see some terrain appearing, terrain that it was just

less visible because in hidden in a deep shadow. This is not possible to be done with pixels. And, of course, you can always go back to the original file if you need, since it is not the file that is being modified, but the editing software will create a complementary file, while you are editing, with the information about your changes. Keep in mind that, no matter what, also RAW files have limitations, and you cannot reinvent a photo just by editing a RAW file; you need to get it done as close as possible to what you want as a final result, and then you can tweak things in post productions.

A RAW file usually has a way bigger file size compared to the other kind of files, so prepare your camera with a bigger storage memory. Understanding this is crucial to understand also the following points.

- **Do not "overdo"**: do not edit using every single slider and tool you see in front of you. Do not create a "monster picture" because you cannot resist seeing those extremely colorful Northern Lights, even though in your original photo you only had a pale greenish light. Also, is it worth having a photo that does not resemble at all what you actually experienced? In general, do not stress any of the settings you see, you can edit your photo but never go to far from what you got (that is why is good to carefully read this book and practice a lot, so you can get the best out of the camera, and you will need less editing). This is because the more you edit, the more you will anyway loose quality to a point, and this applies also to

RAW files, because it is true they do not loose quality compared to jpg files, but they are still not capable of miracles.

- **Know your camera**: this is referred to what we just said: if your camera specifications do not allow you to get to a certain level of quality, do not push it or you will only get a bad result. As an example, if your camera does not have a top-end color depth, especially in the darker areas, it is not a good idea to try to recover visible areas where it is too dark, since you will only get a very high level of color-noise, simply because there is no information in the RAW file for that area.

- **Noise reduction**: use it, but be be aware that, as mentioned in the “do not overdo” point. If you push it too much you will get an unpleasant painting effect, where everything looses details and get to a point where it does not even look like a photo. Also, keep in mind that grain (usually called “noise”) is part of photography since ever; in the film-era, depending on the ASA and the kind of film, and also the developing process, grain was part of photography and nobody complained, it simply was there. Nowadays, we all are a little bit spoiled, since all the digital progress allows us to fix a lot of things easier, but remember, it is better to have a photo with some grain, than to have a surreal or unnatural look.

  You can avoid having too much noise by following my “rule”, explained in chapter 4 of this book, but it is important to learn to adapt, each night and situation will be different.

10. COMMON MISTAKES
IN SHOOTING AND EDITING

This final chapter is strictly related to the previous one, but it not only connected to editing, but to shooting in general, from start to finish. We are now going to see what are the most common mistakes people do when preparing the shooting, while shooting, and when post processing an image. As usual, to keep it clear, simple, and well organized, we will proceed by points.

1) One of the most common mistakes is that **people do not read any camera instruction**. This is incredibly common, and it is not a good trend, as by doing this, you are going to be missing a lot of useful information about how to use your camera, and what you camera is actually capable of doing. For example, it is happening almost all the times to see that people with high end cameras are using them with fully automatic settings. This can be comfortable at first, but it is not going to help you in many situations, not to say that it is a waste of possibilities.

2) Another pretty common mistake is **not to program your shooting** properly. This is also very understandable, since we are very used to just go out and take some pictures on the go, while we walk with our phones. When you want to go out to take some photos of the Northern Lights, however, you must take into consideration several factors: you are going to be outside for a long time, and you never know for how long, and for

how long of this time you will be actually shooting. Outside is usually cold during the Northern Lights period, since it is mainly happening in the autumn/winter season, and during the night time. It is important to bring extra batteries with you, spare batteries will save your night given the shorter battery life in the cold. It sounds obvious, but remember to charge your batteries prior your night out! Bring with you some good clothes, so that you can lay down comfortably, bring some cover for your camera, in case it is raining or snowing during the night. And even though it is not related to photography, remember some snacks and drinks!

3) **Going to random places, and not considering the environment around**. Unless you want to have some weird light on purpose, avoid light polluted places. What usually people do not think about is that car lights (also from your car), street lights, and cars passing by close to you, are not only dangerous, but are also creating light pollution, which will produce usually very unpleasant and hard to fix red and yellow lights on your photos.

4) **When ready to take a photo or a portrait**, many people **do not pay attention to details**; one of the most common things that usually happen are the wrong use of light (usually used bottom-up, creating a stream of strong light on the ground in front of the people), or the subject of the photo being in a rush and move before the photo is captured. The outcomes can be funny, if not disastrous (“ghost people”, people wearing only half jacket, extremely blurred people, and so much more).

It is important to pay also attention to the surroundings: check if you have some signs around you, especially street signs, since they are reflective and they will shine as lights in front of you if you use any light when you take a portrait. Do not leave things around on the ground, for example backpacks, tripods, other cameras and anything that can interfere with the composition of your photo.

Regarding this, I take this opportunity to mention a very unfortunate but frequent habit that I saw happening too many times: do not leave anything behind when you leave a place, everyone likes to find a clean and untouched area when they stay in the wilderness. Please remember not to leave any garbage and/or leftover when you leave a spot, and keep the environment clean.

5) **Cropping people randomly**: this is extremely common. It is a matter of just a second more and you could get a very beautiful picture, but most of the time people do not think about this, and end up with people on the photos without feet, without an arm, or some other random area of their body. This happens because in the darkness it could be hard to see exactly what you are framing, but you need that extra second to verify that. It is a good idea to pay extra attention to that in order to avoid photo-mutilations that you did not expect (and which are not nice at all). It might seem like a small details to someone, but it makes a huge difference, as you can see in the next photo comparison (on the following page).

ORIGINAL PHOTO

WRONG PHOTO

You can easily get why the original photo is much more balanced: not to cut any part of your subject is important not to get this kind of unpleasant effect.

6) When editing, many people do a couple of errors: one is **over editing just to try everything**, the other one is **following the trend of the moment**. Both these things will not bring to anything good. Few years ago there was a trend (born over time on Instagram) of very unnatural blue Northern Lights. A famous instagram account was showing almost all its Northern Lights with an extremely ice-blue color.

   This can be nice to see once or twice, if you really want to try, but it looks absolutely unnatural and far from whatever you will ever experience, so why should you do this? First of all, if it is not your style, there is not your touch in your work, and this will quickly make it boring for you. Moreover, this habit also creates false expectations and, consequently, a lot of disappointments in many other people for no real reason.

   I alway had many people coming out with me to see the Northern Lights asking me when these kind of icy Northern Lights were going to appear, and being disappointed in front of magnificent Northern Lights only because they did not get to see something that does not even exist to that degree (because blue Northern Lights could very rarely appear, but still it is a very different thing).

   In the next page you find another photo comparison that shows you a classic photo of the Northern Light, compared to an icy blue edit. And to be honest, this edit is not even pushed to the limit that often you could find online just a few year ago.

ORIGINAL PHOTO

WRONG PHOTO

This has been a huge trend on Instragram for a while, very unnaturally blue Northern Lights. Not a real thing, not really pleasing, in my opinion.

7) **Over-saturation** is another very common mistake, as people tend to be subject to the social media pressure, and want to show something always more spectacular than what actually happened. Check the next photo comparison, over saturation is most of the time extremely unnatural, and very ugly as well (the wrong editing is based on actual photos I saw online very often).

ORIGINAL PHOTO

WRONG PHOTO

Read my free guide about Northern Lights to understand why also in the original photo you see this vivid red color, even though you do not see that with your naked eyes; it not because of editing, there is an optical reason behind it; get my free free guide at www.nevraarts.com

Moreover, these kinds of editing create false expectations in others who do not know what a Northern Light is, and create false memories in you! But more important, why? Northern Lights are beautiful whatever colors they have!

8) We are getting closer to the end. Another thing which is incredibly common is the **crooked horizon**: you might have a stunning photo, but a lot of times, always because it can be hard initially to understand exactly what you see on your camera in the darkness, people end up having very steep inclination of the horizon, and sometimes this looks even weirder when you have a “steep sea level”.

   This effect is also very common because you are focused on the Northern Lights, and you do not notice the horizon line. However, with most of the modern cameras, you can easily avoid this by using the virtual horizon on camera screen that tells you the inclination of your camera in the exact moment you are shooting. If you do not have this option, most of the tripods have the old-style (but always working and very reliable) "bubble system”, which tells you precisely how to adjust your camera inclination in order to get a straight horizon. Notice that you have to refer to the bubble you find on the attachment you use to tighten your camera to the tripod (usually a little metal or plastic plate).

   Also here, you can find another photo comparison to better understand the consequences of a not straight horizon.

ORIGINAL PHOTO

WRONG PHOTO

Almost the same, but now quite the same. And the only difference is the horizon line.

9) At last, another very frequent error is the **under/over exposure**; remember, on your photo you should be able to see everything, but never too much (if you have a full Moon, sometimes it will look almost like daytime, but this is very normal).

   We have discussed already the possibility of photo stacking if you have very different illuminations (e.g very strong Northern Lights in a new Moon day means that you need a short shutter speed for the Lights, but then you will get a very dark landscape), but in the case of a generally balanced illumination, it is a good idea to just follow the “setting rule” (see chapter 4).

   Overexposing is particularly easy in days when you have a full Moon and a snowy landscape; as mentioned just few lines above, it is normal to get a much brighter photo during a full Moon period. In fact, also with your eyes you will be able to see pretty sharp shadows casted by the moonlight on the snow, but you have to be anyway careful not to get a photo which is too bright (especially when the Northern Lights are weak, and you will need a longer exposure to make them visible on your photo).

   In both of these cases, you will be able to fix most of these exposure issues in post production during the editing process, given that you have not exaggerated with your exposure time experiments .

   We close this chapter with a last photo comparison, and a small advice right after.

ORIGINAL PHOTO

WRONG PHOTO

In the second photo you can see the Northern Lights, but the surrounding landscape is clearly too dark.

You will surely find other possible errors during your Northern Lights photographer career, and it is ok to do them, because it is always a way to learn. In fact, the aim of this chapter was to help you finding possible mistakes to improve your skills. You are more then welcome to to experiment with whatever technique you prefer, just remember to enjoy it, and do not just shoot, **watch the Northern Lights too**!

11. CONCLUSION

To conclude, we can recap the whole thing in this way: when you decide to go out for a Northern Lights photography session, it is very important to plan it carefully, and to know what you are going to do, and what you need to bring with you.

Knowing your equipment, and the useful tools, is crucial not to waste a possibly unforgettable night; do not forget to always bring, together with your camera, a tripod and a light. These things will be necessary to get some nice photos and to deal with the darkness.
The best recommendation is to know your gear: study your camera before you go out, test it during night time just to see how to deal with all the settings in low light and dark conditions. It is also very important to understand how all these settings work, in order to be able to deal with unplanned situations. Regarding this point, it is necessary to stress the key role of the major settings (focus, iso, aperture, exposure time) in order to achieve some good result; you found on this book several guidelines and in depth explanations, followed by examples but remember not to be shy, try and experiment as much as you can, but do it before the actual shooting night, so you do not have to improvise anything and get frustrated if something goes in an unplanned way.

If you have a group of friends with you and you are planning a portrait shooting, take your time to take some extra portrait even before the Northern

Lights appear, you will test and refine your skills, and you will anyway get some more nice memories of the night!

Bring with you always extra gear if possible, so you will not run out of batteries, of tripod or anything brakes (we always hope not, but it can happen in the wilderness, and you do not want to be caught unprepared). When you pack your things, include some food and drinks, and most important, write down and bring with you some important telephone numbers (such as local health service, police, road assistance) and notify your friends and relatives about where you are going; this will help a lot in case you get stuck somewhere in the middle of the night. With simple softwares nowadays it is very simple to be trackable, many chat programs also include a “share live position” option, and it is a good idea to activate it for at least the whole night, so that your position is always updated; this is not related to photography, but it is an extremely important point for you to know if you are planning a shooting in areas you do not know.
Do not forget to plan the night also in relation to the area you are going to shoot, if possible do some scouting the previous days, if not just start in time, quite early in the afternoon, so you can check if everything goes as expected. You need time to re-think your plan if some roads are closed, if some places look inaccessible or overcrowded, if there is any other reason why you cannot stop where you wanted to stop.

I am now sure you know what to do and how, and I wish you the best of luck for your Northern Light night!

THANK YOU!

We have now eventually reached the end of this book, and here I would like to **deeply** thank you again for purchasing this book.

Every single content you have read and seen in this book, including photos and illustrations, is created my me; I have put a lot of time and efforts in this book, and I honestly hope that it was helpful for you. I hope it gave you a good and practical introduction to the Northern Lights photography, and I hope it helped to clarify your doubts, to improve your skills, and to increase your passion for photography as well!

I really enjoyed writing this guide, producing all the needed material for this book. For this reason, if everything goes well and this book sells enough, I will be more than happy to keep working on other guides and useful material.

Every feedback is more than welcome, and you can always contact me through the website www.nevraarts.com, both for feedbacks and suggestions.

If you liked this book, do not forget to recommend it to your friends, and to leave a review on Amazon as well!

NORTHERN LIGHTS PHOTOGRAPHY

A complete and step by step guide to the Northern Lights photography

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