STARGAZING

A Photo Journal from the Camera and Pen of

NICO STAUFER

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ABOUT ME



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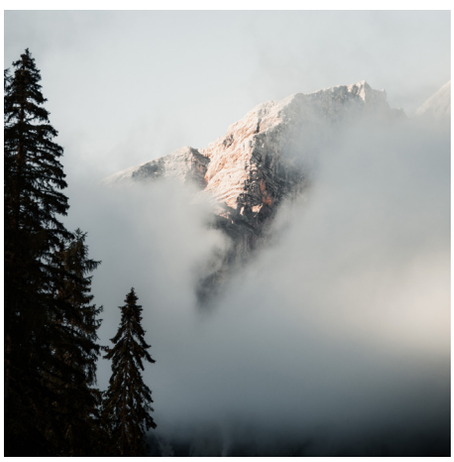
Hi, I am Nico. I am eighteen years old and I am a photographer from the county of Aargau in Switzerland. I currently study at the ‘Kantonschule Wohlen’ and in my spare time I play volleyball. My main passion however is capturing the night skies.

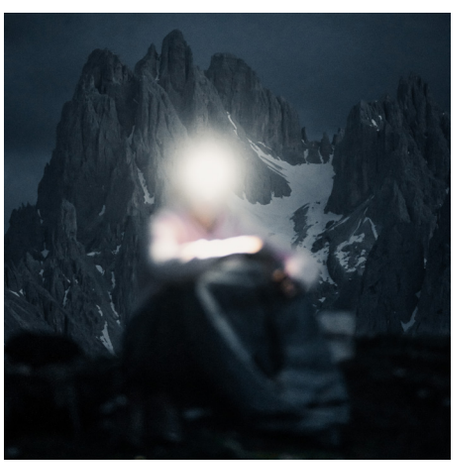
I stumbled upon photography about 3 years ago when experimenting with my mother’s old camera. Quickly I fell in love with it and I bought my first own camera, the Nikon Z6. My love for the outdoors soon ignited!

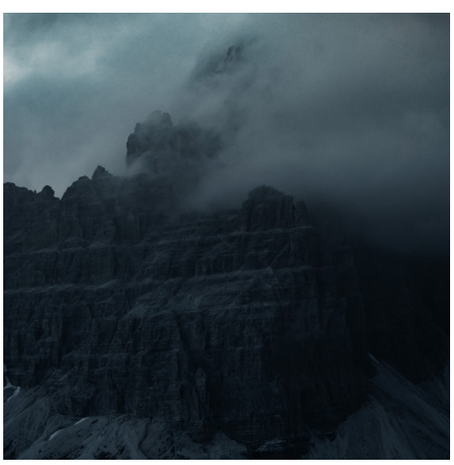
I have always admired the beauty of the mountains and the wild. I have visited many amazing places in Switzerland including mountain ranges to capture their beauty. This still is my main hobby that keeps me busy and excited, however, at times I find it hard to get to focus as much as I would like to, especially when it involves hiking up mountains.

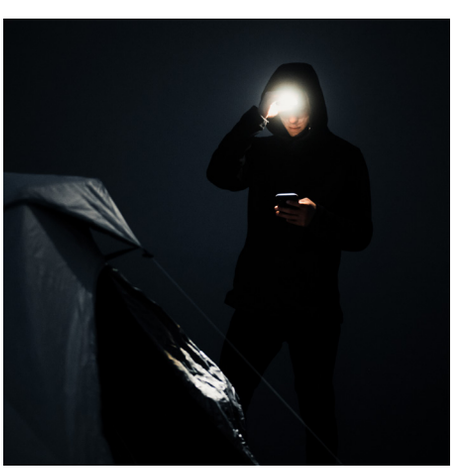
My love for the stars has always been within me. Stargazing is the most mind-nurturing thing I know. The beauty that lies in the vastness of space captures my imagination and I marvel at the night skies. Astrophotography is not yet a very popular topic and photobooks are rare. This has inspired my first book. You may have noticed that my favourite time to photograph is the stunning ‘blue hour’ and, of course, the ‘golden hour’. I hope you will enjoy the collection.






RADIX




TIPS AND TRICKS

Whilst making this book, I obtained a lot of field practice in astrophotography. I gathered some experience and want to share some tips and tricks here.
Trying to focus a lens during the night can be extremely frustrating; to ensure an entirely focused image of the night sky I advise two options: a) focus on the image or a place furthest away during the day or b) focus on a lit object or light furthest away during the night. This should help you to achieve a good focus on the image.
It is important to reverse to manual focus mode after each session. This ensures that the focus will not change until you actively turn the focus ring on the lens. For beginners, it can be hard to find the right settings during the night. After gaining some experience, I made myself a kind of preset for all camera settings. Using these presets should give you a good starting point.

20″-25″ *f*/ 2.8-4.0 ISO 4000-6400 K 4000 +/- +0.5

▼ **QR Code.** Each chapter in this book comes with a QR code linking to Flickr. On this website is an album with all images in a digital form that are free to download. All pictures are full size, uncropped and are free for personal use. Enjoy!

◀ **Colorful.** Sunset is my second favourite time of the day, right behind nighttime. As the day finishes with a sunset, the skies become colourful and often awesome. This picture of me, taken by my brother, is one of the first pictures we took of the stars.

Sony a7II 28mm 1/250 *f*/3.5 ISO 1600





◀ **Foreground.** The key to making your photography stand out from others is to choose an interesting foreground. It is about telling a story and for me, the best story is about a hike.
Choosing places you wouldn't usually visit during the night is key. And of course, you must never forget your tripod.
Despite the vast amount of equipment you may carry - such as camping gear and photography equipment - do not assume that the tripod is a luxury item, it is not, especially for astrophotography. It is an essential item to be able to achieve the quality you are after.

Nikon Z6 70mm 1/6 *f*/4.0 ISO 320



STARGAZING IN SWITZERLAND

Swiss night skies. Our night skies are famous as well as mind-blowing - most of the time. With the Alps covering around 58% of the country, Switzerland is home to some of the most stunning places in the world. There is a reason why Switzerland is so famous and it‘s not alone thanks to cheese and chocolate. Alone in 2019, 12 million tourists visited this beautiful country. What most visitors don‘t see, however, are the night skies. The nights in Switzerland are some of the clearest on earth, thanks to all the desolate high peaks. Swiss citizens enjoy the Alps as their playground and are quite familiar with many of the over 65,000 km of marked hiking paths. Luckily, almost anywhere above the treeline camping is permitted. Sleeping outdoors under the skies without a tent is no problem and is always legal.
I am an avid camper and in this chapter, I want to share some photos I took whilst camping during summer 2021.

◀ **Looking Up.** Stephen Hawkins once said: „Remember to look at the stars and not down at your feet“. This book will hopefully illustrate what you could see if you looked up after night has fallen.

Nikon Z6 20mm 20″ *f*/2.8 ISO 6400





◀ **Bettmersee.** This location has a warm place in my heart; when the night skies are clear it is simply stunning, despite the freezing temperatures, which at times can be a little troubling. I had my first go at astrophotography in this spot.

Nikon Z6 19mm 2965″ *f*/9.0 ISO 50



▲ **Stealing a Star.** Whilst taking pictures for the scouts, I noticed some random people walking along a ridge. Quickly snapping a photo of these strangers, I caught that girl stealing a star - red-handed. Because the shot was handheld the quality is not the best yet I very much like the story it tells.



▲ **Stealing a Star.** This photograph is one of my favourites and inspired me to get creative with my friends and reenact this type of shot, some of which you can find later in this book.

Nikon Z6 70mm 1/50 *f*/4.0 ISO 51200



▲ **Camping under the Stars.** There is something calming about camping under clear night skies. Right beside the Bettmersee the atmosphere is perfect: a mixture of silence, a lot of stars and my own company makes for an extraordinary night!

Sony a7II 50mm 10″ *f*/4.0 ISO 2000

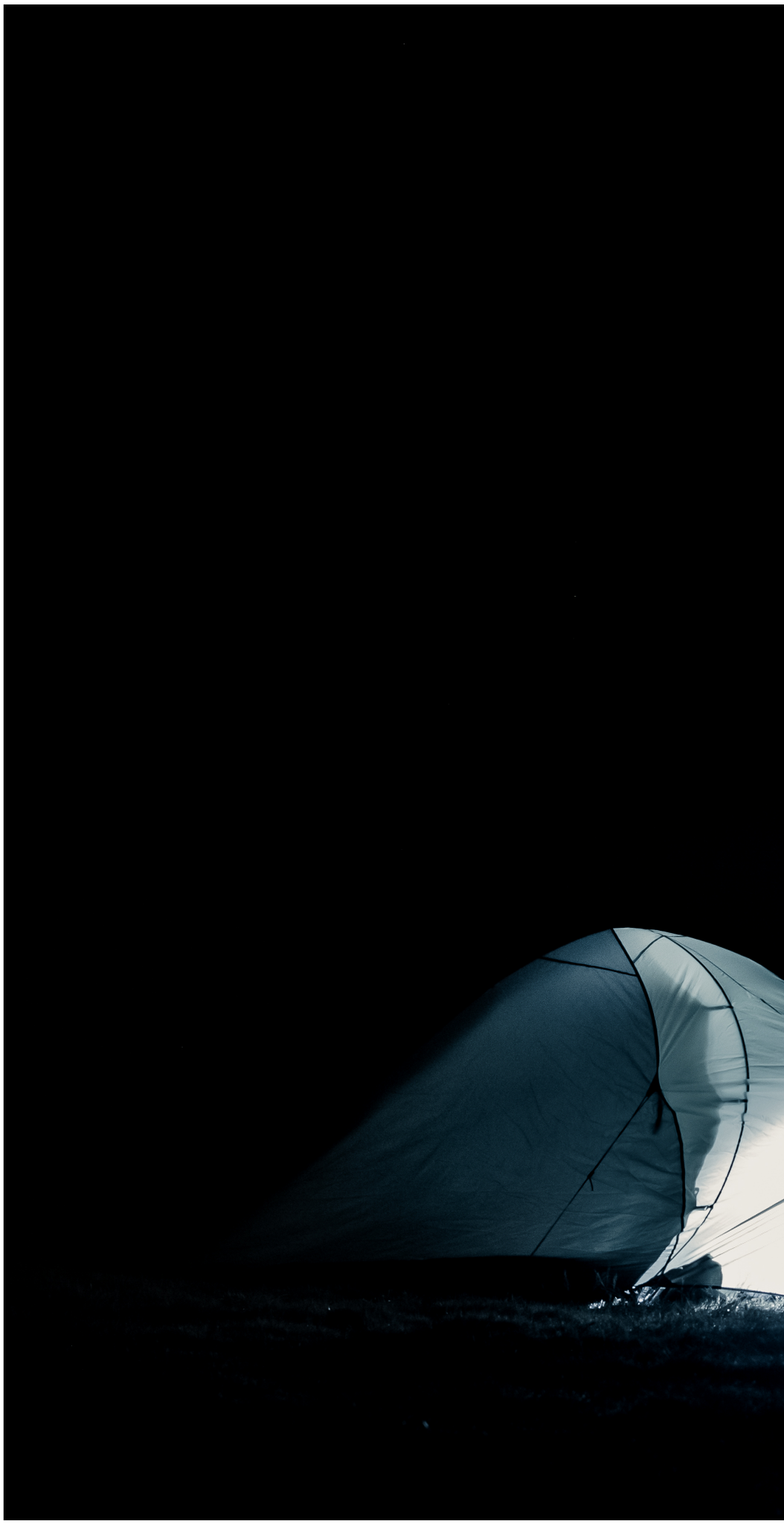
▶ **Starry Portrait.** With the lens open wide, the stars become beautiful balls of light, perfect for a portrait. To capture enough light, a 10-second exposure is needed, resulting in a subject having to remain completely still for a very long time - which is almost impossible. So more often than not you may end up with a blurry image, but that may have its charm too. An image that looks perfectly focused will almost always have been 'photoshopped'.

Sony a7II 50mm 10″ *f*/2.0 ISO 4000







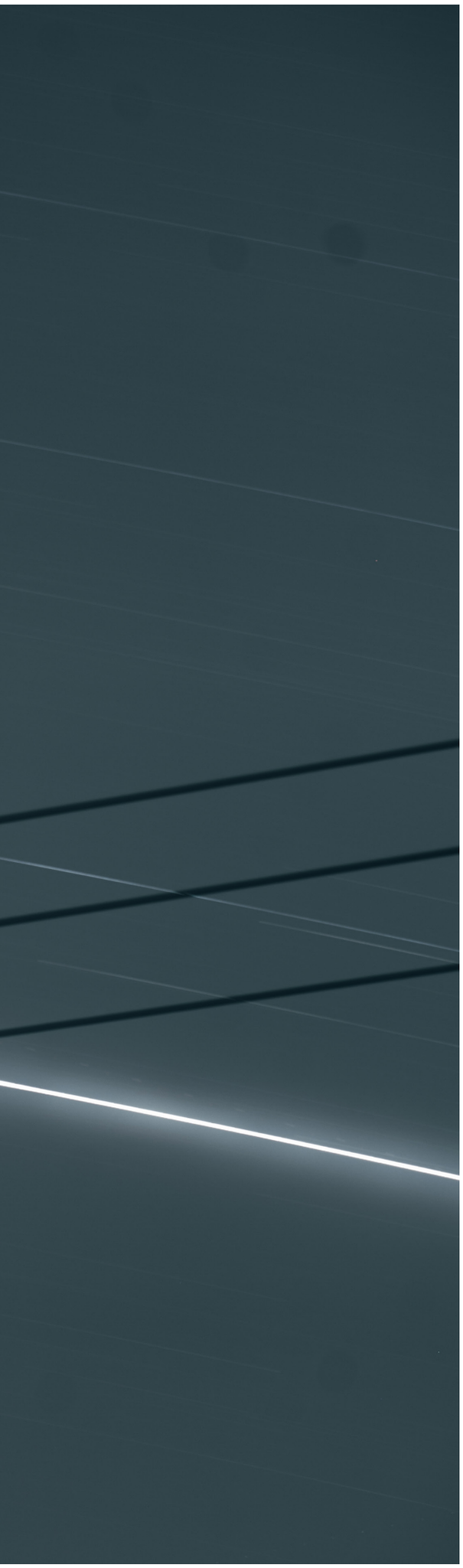


▶ **Pitch Black.** With only the stars illuminating the landscape around you, it can get dark really quickly. Stumbling around in total darkness is dangerous, so be prepared and have a light at hand at all times.

Sony a7II 50mm 10″ *f*/3.2 ISO 2000









◀ **Planets.** A lot of people don‘t know that planets can be seen among the stars in the night skies. Planets disguise themselves quite well but with enough training, you can spot them. The two bright lines shown here are Venus and Jupiter drifting through the sky.

Nikon Z6 105mm 1884″ *f*/4.0 ISO 50

▲ **Jupiter.** As the third brightest „star“ in our night sky, Jupiter can easily be seen with the naked eye. The easiest way to differentiate between a planet and a star is to look for the characteristical ‘twinkling’ of a star. If the pinpoint of light you are looking at doesn‘t twinkle you are looking at a planet. Of course, you can use one of many apps to confirm what you are seeing.

Nikon Z6 85mm 803″ *f*/4.0 ISO 50



▶ **Startrails.** The night sky over the peak of Haut de Cry in the Canton of Wallis is moving at speed. This exposure of only 26 minutes shows the movement of the stars. You can identify the Equator in the middle of the photograph. This photo was taken during my vacation in Nendaz.

Nikon Z6 24mm 10″ *f*/3.2 ISO 2000







◀ **Glitter.** The night skies over these stunning peaks look like they contain a handful of glitter thrown in the air. Paired with the snow-covered peaks it is almost unreal. This edit is inspired by the popular Instagram photographer Justin Wirtalla.

Nikon Z6 14mm 25″ *f*/2.8 ISO 4000

▲ **High Up.** This amazing peak caught my attention during my vacation in Nendaz. The problem was that the peak could only be seen from a specific station of a ski lift, so this is a composition. I still wanted it to be as realistic as possible, therefore I compiled the two as if the skies had been sitting over the peaks. I put my own spin on it.

Nikon Z6 14mm 25″ *f*/2.8 ISO 4000





◀ **Flachsee.** A lake is always a good subject for a photographer and having one on my doorstep is perfect. Edited in a way that the stars look like glitter, accompanied by a satellite, this shot captures the calming nature of the Flachsee.

Nikon Z6 24mm 20″ *f*/4.0 ISO 6400



▶ **Lonley.** High up in the mountains there are only a handful of people around. Especially in the dark, it can get pretty lonely. Although I never camp alone to stay safe, none of us ever feels the urge to leave the tent during complete darkness.

Nikon Z6 14mm 20″ *f*/2.8 ISO 4000





▲ **Round and Round.** Polaris, otherwise known as the North- or Polestar, is very close to the north celestial pole, making it look stationary in comparison to the other stars. This stationary trait was and is used to roughly determine where 'north' is.

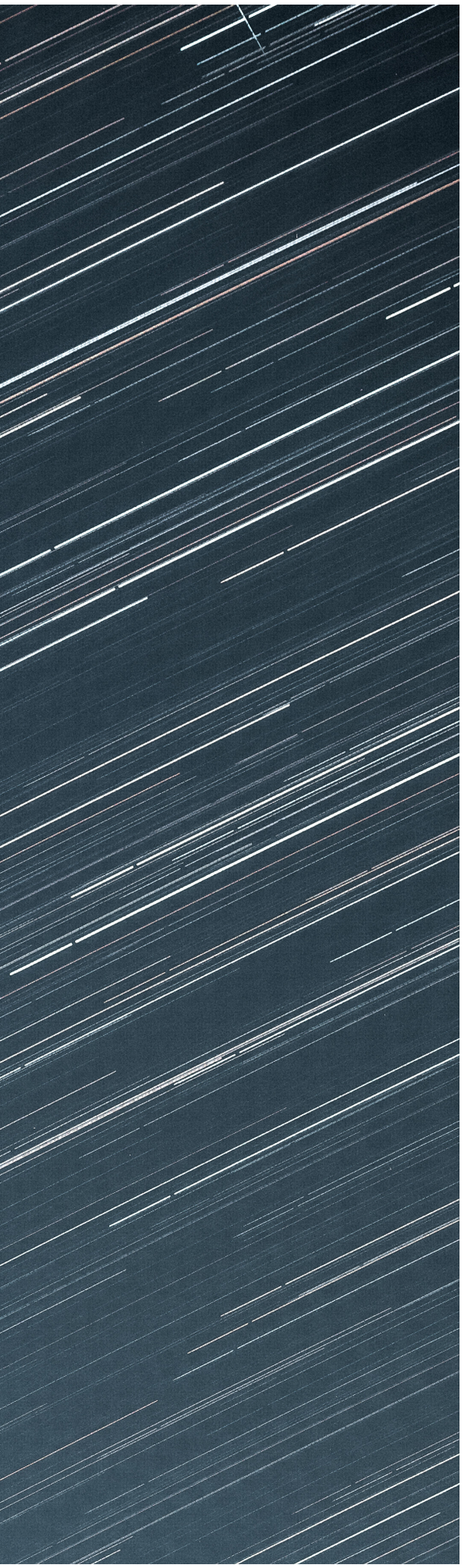
Nikon Z6 86mm 1650″ *f*/10 ISO 50

▶ **Orientation.** With the help of apps like Google Earth, it is quite easy to know your location at all times. Back in the day, when we did not have any fancy technologies, the stars were a viable and reliable option to determine the current position or rather to set course whilst sailing. Thus looking up at the sky was a common practice for sailors.

Nikon Z6 85mm 4″ *f*/1.8 ISO 800









◀ **Modern Art.** Without any context, it would be hard to determine what can really be seen in this photo. Of course, these are stars drifting through the night but without this information what else could this be? Shall we just call it 'modern art'?

Nikon Z6 50mm 10″ *f*/3.2 ISO 2000

▲ **Davos.** The highest peak visible here, the Schwarzhorn, is situated quite a distance away, so I used a telephoto lens. Therefore, the area of sky visible isn't very large and as a result, startrails can be visible much more frequently. Instead of having to expose for about an hour to get startrails of this length, I only had to keep my lens open (exposed) for about 25 minutes.

Sony a7II 50mm 10″ *f*/3.2 ISO 2000





◀ **Bokeh.** The technical term for blur in the background is ‘Bokeh’ - and it is beautiful. Having bokeh stars with a person as the foreground is one of my favourite compositions. I am trying to avoid using Photoshop and merge two exposures together. A side-effect is that people appear a little out of focus.

Nikon Z6 85mm 2″ *f*/1.8 ISO 2500





◀ **Everywhere.** Astrophotography can be practised everywhere but the outcome varies significantly. Being surrounded by trees that block the light really helps. This photo was taken next to the city of Wohlen, which of course, as a city, shows large light pollution.

Nikon Z6 14mm 30″ *f*/2.8 ISO 1600

▲ **Every Time.** There is always a little time for astrophotography. I shot this image after a party in a forest lodge through an opening in the dense treetops.

Nikon Z6 14mm 30″ *f*/2.8 ISO 1250







◀**Light Cones.** Inspired by the previous picture „Stealing a Star“, I recreated a similar picture during a hike to the Illhorn. This time, as it happened, there were no visitors to the ridge top and therefore I placed them in, after the event - to tell the story. This was a very hard shot to achieve without my tripod.

Nikon Z6 85mm 1/100 *f*/1.8 ISO 5000

▲ **Under the Moonlight.** Hiking during the night can be dangerous however the moonlight, if available, can show the way.

Nikon Z6 85mm 1/100 *f*/1.8 ISO 5000



▲ **Stars and Fire.** Stargazing whilst sitting at a warming fire is certainly one of my favourite activities. It can get quite cold up here at 2400 meters above sea level. Warm clothes are vital and as the fire slowly settles down, we huddle close around the embers before going to bed. Needless to say that I have often missed the best campfire stories whilst wandering around looking for stars.

Nikon Z6 14mm 3″ *f*/2.8 ISO 800

▶ **Tree Line.** Making a fire up in the mountains is wonderful, but remember that, because of the tree-line, there will be no firewood higher up. So bring your own. The fact that one of us could start a fire at all was quite an accomplishment.

Nikon Z6 14mm 3″ *f*/2.8 ISO 800







◀ **Illhorn.** To get to this beautiful spot we had to hike a fair bit. Even though in distance it was only 4km, the ascent took us beyond 900 meters in altitude. With a backpack weighing around 20 kg, the hike was extremely exhausting, yet unforgettable.

Nikon z6 14mm 15″ *f*/2.8 ISO 125





◀ **Faded Milky Way.** With the moon shining at 66.9% it mostly overpowers the rather faintly shining Milky Way. Take a closer look and you can just about spot the Milky Way faded in the picture.

Nikon Z6 14mm 20″ *f*/2.8 ISO 100

▲ **Night into Day.** A lovely characteristic of the moon is that it casts a lot of light and this, in turn, can be used to change the night into day. With a long exposure shot, the moon casts enough light to bring out every colour. The grass appears green and the flowers yellow. This of course could never show up without the mightly light of the moon.

Nikon Z6 24mm 15″ *f*/2.8 ISO 125



▶ **Kesch SAC-Lodge.** This was one of the clearest nights I have ever witnessed. High up in the mountains of the Alps sits a little lodge called Kesch. It is extremely remote and away from civilisation. It takes approximately 6 hours to conquer the 13 km long hike with over 1300 meters of altitude but it is well worth the view and experience.

Nikon Z6 14mm 20″ *f*/2.8 ISO 6400









◀ **To the Top.** This little man-made stone tower stands at the top of the little hill where the Kesch-lodge sit. The hill is surrounded by large mountains on all sides. It is like a little 'Garden of Eden' for hikers.

Nikon Z6 14mm 20″ *f*/2.8 ISO 6400

▲ **Retrospective.** Looking down at the path you climbed up certainly gives a feeling of accomplishment. Yet seeing this way, with the Milky Way and the Andromeda Galaxy above, tops everything.

Nikon Z6 14mm 20″ *f*/2.8 ISO 6400





◀ **Cozy Lodge.** The Kesch lodge belongs to the SAC, the Swiss Alp Club and it offers very comfortable and modern accommodation. Beyond the lodge we can see the last remains of the sun as it slowly sets, ending the day and starting the night.

Nikon Z6 14mm 20″ *f*/2.8 ISO 6400



▲ **Porchabella Glacier.** What can be more typically Swiss than a clear night view above a glacier? The Porchabella Glacier is one of the many beautiful glaciers in Switzerland. Due to its remote location the night sky is extremely sparse in light pollution.

Nikon Z6 14mm 20″ *f*/2.8 ISO 6400

▶ **The Photographer.** Usually, I hide behind the camera; but in this instance, I crawled out of my hiding space during this night and sneaked into the picture, just this once.

Nikon Z6 24mm 20″ *f*/2.8 ISO 6400





▶ **Blowing in the Wind.** This photo is perceptive as what we really see here are the bright outskirts of the Milky Way. Accompanied by the Andromeda Galaxy, these little windmills make for a simple shot of our galaxy.

Nikon Z6 14mm 20″ *f*/2.8 ISO 6400







◀ **Drifting through.** This picture captures the story of an exhausting yet exciting day: after having been outside almost all day, I crawled back into the warm lodge for a rest. Before collapsing into my bed, I set up the camera against the window and started this timelapse.

Nikon Z6 50mm Stacked *f*/2.8 ISO 6400



▲ **Grindelwald.** Night panoramic scans take an awfully long time to set up which can be tedious. With each exposure lasting about 30 seconds and then having to readjust the camera, this picture took about an hour. I was worried that I couldn‘t get another shot, as clouds were sneaking in from the right, but I managed it.



▲ **Grindelwald.** In this picture we can see three peaks: Wetterhorn to the left, the Schreckhorn in the middle and the famous Eiger to the right. As luck would have it, the Milky Way rose right over the Eiger and I managed to capture this amazing shot.

Nikon Z6 24mm 25″ *f*/2.8 ISO 6400





◀ **Not Alone.** Sometimes it is great to be in the company of friends to share an awesome shooting star session, and it always raises a smile on everyone's face.

Nikon Z6 24mm 25″ *f*/2.8 ISO 5000

▲ **Change of Plan.** During the day we talked about getting a shot of my friends with the Milky Way in the background. This was asking for a lot and things did not go to plan. We improvised and I am quite happy with the outcome.

Nikon Z6 24mm 10″ *f*/2.8 ISO 5000





◀ **Old and Rusty.** The cinematic-looking lodge takes centre stage in this picture. I was able to make it the protagonist (but it also became my light blocker). The clouds had rolled in and for one reason or the other, this one cloud over the Eiger had no intention of leaving

Nikon Z6 14mm 25″ *f*/2.8 ISO 5000



▲ **Grindelwaldglacier.** Hidden behind the peaks sits a little glacier. It may look small here but when seen in real life it is awesome. For this shoot, I anticipated that the Milky Way would be visible but as this didn't happen, I simply took a scenic shot.

Nikon Z6 14mm 25″ *f*/2.8 ISO 5000

▶ **Eiger.** Everything lined up on this shot: The Milky Way lining up almost vertically right above the Eiger - lovely.

Nikon Z6 14mm 30″ *f*/2.8 ISO 4000







◀ **Altenalp.** This place offers one of the most stunning sceneries in the Swiss Alps. After a hike from the Ebenalp up to the Schäfler and then a little way down the Altenalpsattel, it is a perfect little place to set up camp.

Nikon Z6 14mm 13″ *f*/2.8 ISO 6400

▲ **Perseids.** There is a lot going on in this picture. Besides the beautiful foreground, there is a lot 'to read' in the sky. Apart from the plane on the left, every stroke of light seen here is a shooting star. And right above the most beautiful shooting star, I have ever photographed, sits the Andromeda Galaxy. Above one of the peaks, you can spot the beautiful Cassiopeia.

Nikon Z6 22mm 10″ *f*/2.8 ISO 5000



▶ **Cassiopeia.** The constellation of Cassiopeia is one of the most recognisable constellations in the night sky. Its distinctive „W“ shape formed by 5 bright stars can be seen almost every night. Its often used to search for the North Star.

Nikon Z6 22mm 8″ *f*/2.8 ISO 640





▲ **Sattel.** Finding a place to set up camp and lay to rest in this mountainous landscape can be a challenge. The Altenalpsattel offers a solid base especially as the nearest next place would be all the way on the other side of the Altenalptürm mountain.



▲ **Sattel.** The photo shows a nice comparison of the size of our tents against the massive Altenalptürm. The beautiful Milky Way makes for one of the best panoramas that I have managed to capture to date. It is interesting to see how Saturn totally outshines every star in the night sky.

Nikon Z6 24mm 20″ *f*/2.8 ISO 5000





◀ **Warp Speed.** Shooting startrails can be a lengthy process and it often takes hours. You could take a single long exposure but this has some serious drawbacks. For one, you have to guess every aspect of your photo. This includes aperture, Iso, and exposure. It is often easier to just take multiple shorter exposures and stack them together.

Nikon Z6 14mm Stacked *f*/2.8 ISO 5000



▲ **Campside.** With limited space on the Sattel, one doesn't always have the luxury of being picky about where to set up your camp. Surrounded by nettles you can see that we had to choose each step carefully, especially at night.

Nikon Z6 14mm 20″ *f*/2.8 ISO 3200

▶ **Next to the Trail.** One of the difficulties of being an outdoor photographer can be meeting the public. When you set up a tent at night, all may seem well, however when at sunrise visitors pass by your camp, you may encounter some unpleasant remarks. But please be wise to ignore these as they do not know what beauty you have seen at night.

Nikon Z6 14mm 20″ *f*/2.8 ISO 5000









◀ **Warp Speed.** For those wondering, there are two ways of stacking these multiple exposures. The first photo with startrails from the Sattel was stacked in Comet-Mode in comparison to this which was stacked in Normal-Mode. With this brightnes of a night sky, the stacked version results in a completely white sky with many strokes of lights.

Nikon Z6 14mm Stacked *f*/2.8 ISO 5000

▲ **Comeback.** This was one of the finest adventures I have had in a while and I must return. You should give it a go. If you are not the „sleeping in a tent" type, you can always spend the night in the Schäffler-lodge.

Nikon Z6 14mm 20″ *f*/2.8 ISO 3200



STARGAZING IN DENMARK

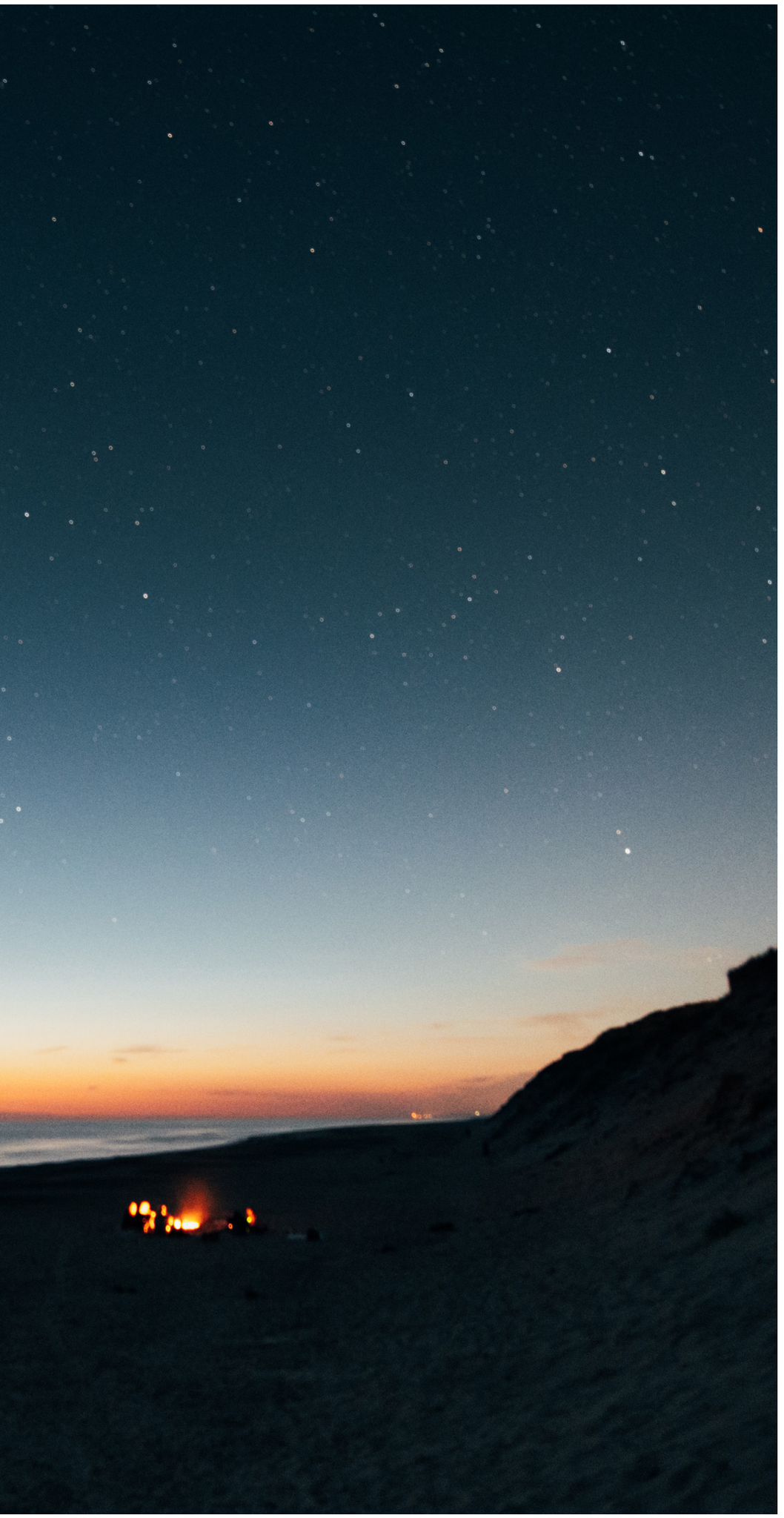
Did you know that there isn't a word for 'please' in the Danish language? Well despite this, the Danes are a very friendly bunch indeed. Known for their clear night skies, they venture to the best spots to stargaze. One is never more than 52 km from the ocean, and so a stargazing spot over the sea is only ever 30 minutes away. There is even a Dark Night Sky Park on the islands of Møn and Nyord in the Zealand Region of southeastern Denmark. In the past, I have been lucky to spend 10 days in Denmark, right by the coast and I managed to take some photos.

Unfortunately, we visited during waxing gibbous and full moon, however as the moon was shining or rather reflecting at full power, the Milky Way was visible. Rising above our little lodge and also over the sea, the Milky Way unfolded its beauty above our heads.

◀ **Over the dunes.** As we were located right next to the ocean, with only a single dune between us and the sea, the Danish night sky unfolded its full glory right above our little house.

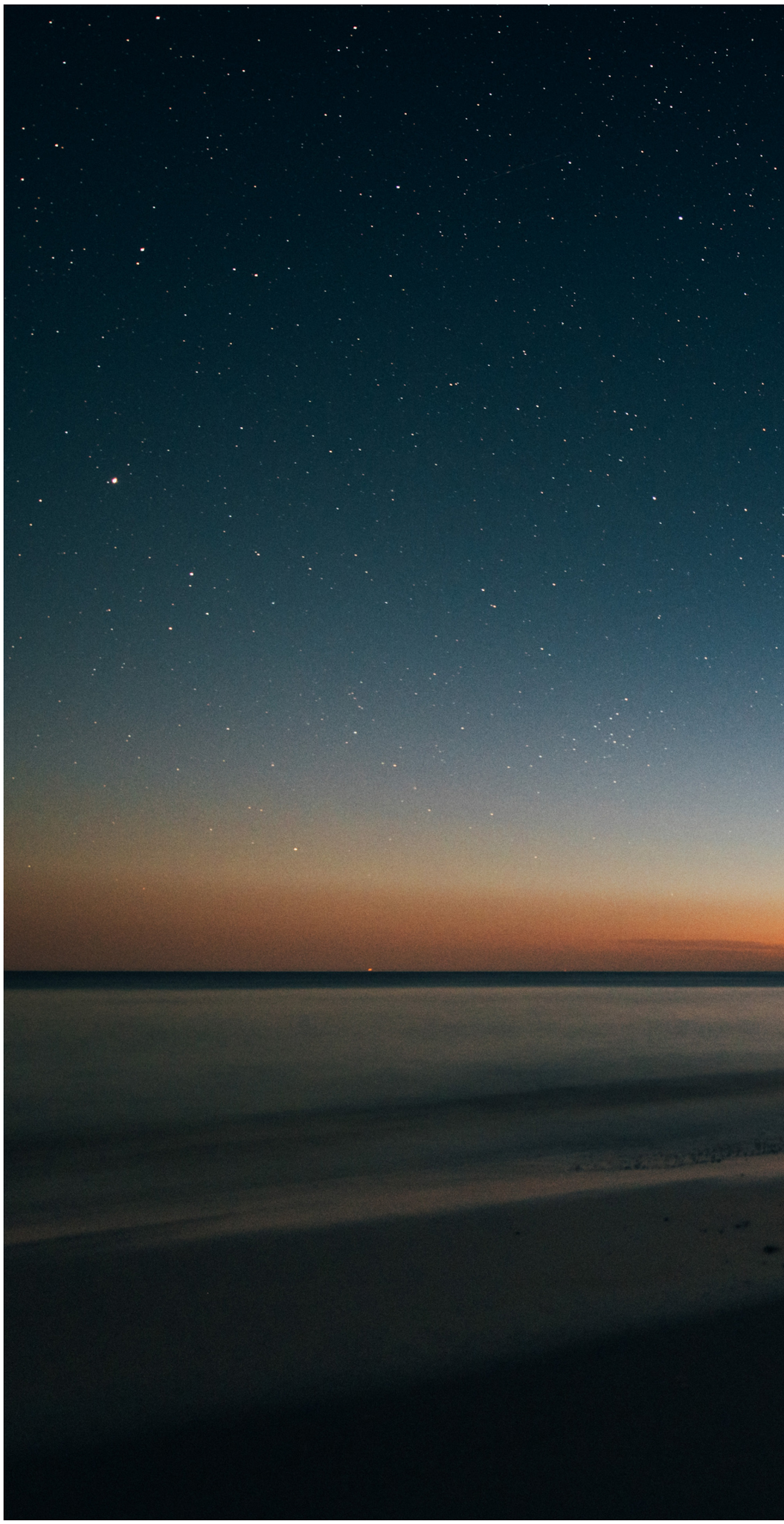
Nikon Z6 14mm 10″ *f*/2.8 ISO 2500





◀ **Togetherness.** Stargazing is always a treat but sharing this experience with your loved ones makes it a whole lot better. Seeing these people having fun under the stars is a must-take shot for me.

Nikon Z6 14mm 10″ *f*/2.8 ISO 2500



▶ **Fading.** Denmark has one of the most beautiful coastlines I have seen. The sunsets are amazing and as night falls a beautiful fade from sunlight to darkness can be seen in the sky.

Nikon Z6 14mm 15″ *f*/2.8 ISO 1250





▲ **Sunrise?** What looks like sunrise is actually light pollution. Compared to the clean night sky over the sea, the city looks really bright. The problem in terms of astrophotography is that Denmark is extremely flat and city lights can be seen from far away.

Nikon Z6 14mm 15″ *f*/2.8 ISO 1250

▶ **Seaside.** Despite it being almost full moon the seaside view of the night sky in Denmark is so powerful one can still see the Milky Way, although it being quite faint in comparison to if it would have benn a moonless night.

Nikon Z6 15mm 20″ *f*/2.8 ISO 1250





▶ **Midnight Sun.** Here the full moon could easily be confused with the sun. The moonlight completely illuminates all of the dunes and so there is no need for a torch.

Nikon Z6 24mm 13″ *f*/2.8 ISO 1250



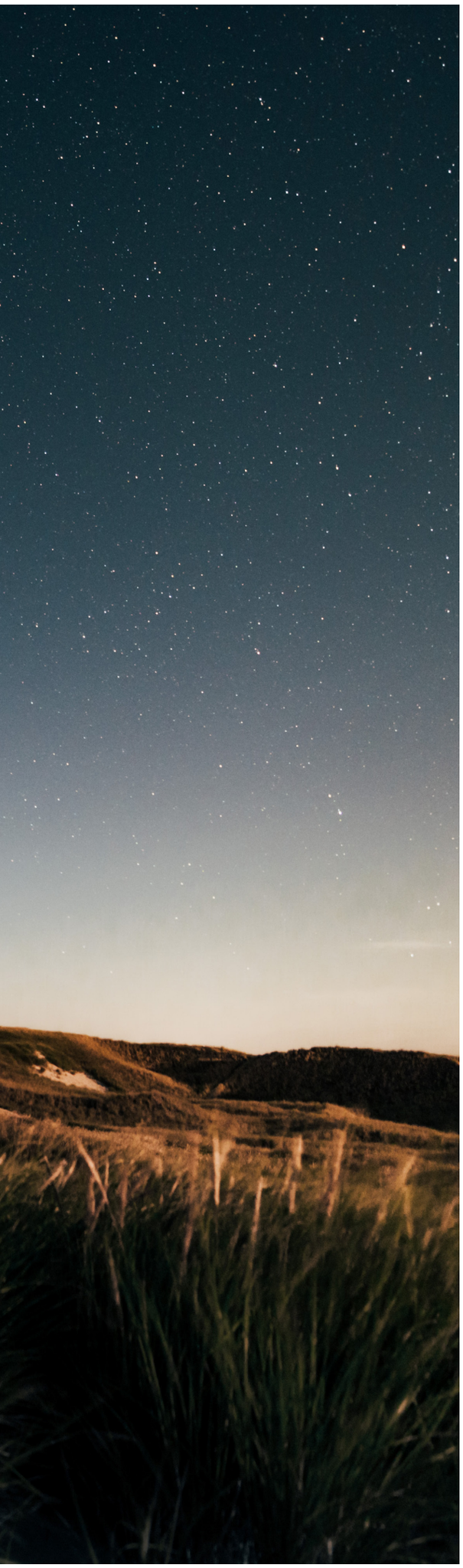




◀ **Stereotypical.** I love this shot as it is so stereotypically Danish, especially for an astrophotographer like me: dunes covered in thick beach grass, waves crashing onto the shore and the Milky Way glaring across the sky. The photo catapults me back to this beautiful spot every time I look at it.

Nikon Z6 14mm 25″ *f*/2.8 ISO 1250







◀ **The Dunes.** Illuminated by the moon the beach grass on the dunes are rich in colour - a mix of cold blue night sky and warm orange-green dune. Looking closely, you can just about make out the Big Dipper right over the sandy landscape.

Nikon Z6 14mm 20″ *f*/2.8 ISO 1250

▲ **Denmark.** I encourage anyone visiting Denmark to take some time and spend under a night sky as it is an amazing and unforgettable place, especially at night.

Nikon Z6 14mm 25″ *f*/2.8 ISO 1250



STARGAZING IN AUSTRIA

The Alps are one of the best places to observe the stars. Like Switzerland, most of Austria consists of mountains. It is a perfect place for astrophotographers. Luckily, I spent a night in beautiful Austria on my way to the Dolomites in Italy. It was only supposed to be a stopover, but it turned out to be much more than that. To my amazement, it was to be the clearest night of my holiday. This section is about that incredible night when everything came together to take some of the most superb photographs.

◀ **Verwall.** The Milky Way rising just above a mountain peak is a wonderful opportunity for an astrophotographer. On this occasion it had risen above the Verwall peak

Nikon Z6 14mm 25″ *f*/2.8 ISO 5000



▲ **Panoramic.** With almost perfect condition I thought I could try my first night-panorama shot. As I look back on it, I think I could have been more patient and capture more of the landscape surrounding us.



▲ **Panoramic.** Nevertheless, the shot turned out really nice. It also shows the impact of every single light source surrounding you during the night. Every single light flare that can be seen - especially to the very left and very right of the picture - comes from either street lamps or houses.

Nikon Z6 24mm 25″ *f*/2.8 ISO 5000



▲ **Core.** After some hours of stargazing the Milky Way's core finally showed up in this little gap between the two peaks. The Core is very special to any astrophotographer. Due to the fact that we live about 45 ° N, the Core is unfortunately very low above the horizon and is often obscured by some mountains.

Nikon Z6 16mm 25″ *f*/2.8 ISO 4000

▶ **Light hearted.** The Milky Way is 'light-hearted', literally. The more you go to the heart of the Milky Way the more stars and other things you will find. Luckily for us, we don't live in this chaotic centre of it. We peacefully live in the Local Spur Arm located between the Perseus and Sagittarius Arm.

Nikon Z6 22mm 25″ *f*/2.8 ISO 6400





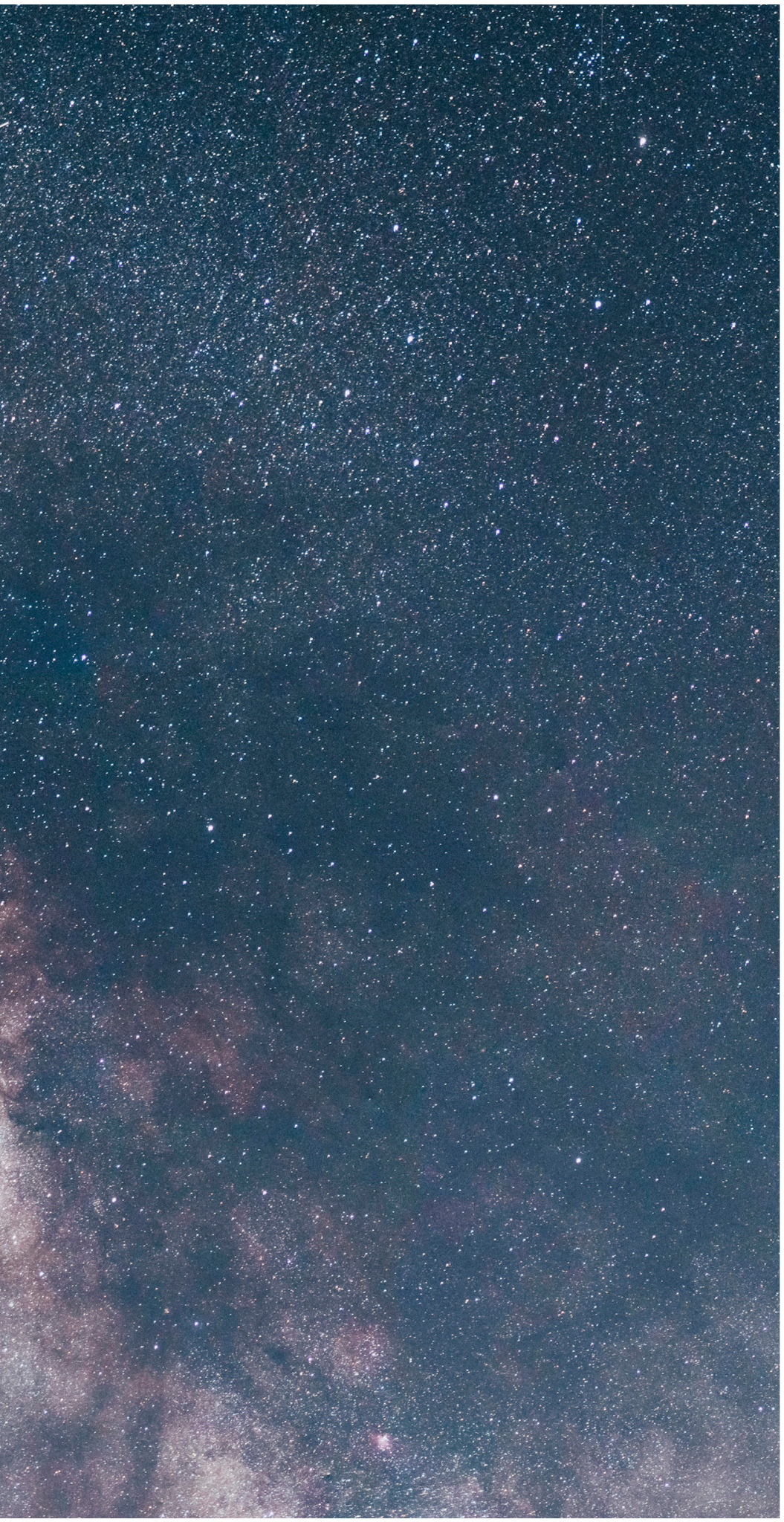
▲ **Deep Sky Panorama.** This panorama of the Milky Way above the Verwall was shot with my 85mm lens so it is actually a deep sky image. Printing the image doesn‘t do it justice as it is very wide. It contains so much information whilst also being a gorgeous mix of fore- and background.



▲ **Deep Sky Panorma.** So many gems are hidden in this picture. To the right, there is the stunning Rho-Ophiuchi-Cloud with Antares in its middle. Above the right peak lurks the wonderful pink Lagoon Nebula. A little below to the right of the Lagoon Nebula is the faint blue Butterfly Cluster.

Nikon Z6 85mm 6″ *f*/1.8 ISO 6400





◀ **A Closer Look.** The beauty often lies in the details. This is especially true for the Milky Way. The Milky Way on a whole is magnificent, but every single part is even more gorgeous. The mixture of this galactic gas and these uncountable stars is the definition of breathtaking.

Nikon Z6 85mm 6″ *f*/1.8 ISO 6400



▶**The Details.** Zooming into the photo, we can make out that there are some strange pink lights in the sky. These two fascinating spots of light are the Lagoon and the Trifid Nebula.

Nikon Z6 85mm 6″ *f*/1.8 ISO 6400





STARGAZING IN ITALY

Italy is known for its warm climate, sunny days and sandy beaches, but also for its magnificent peaks in the mountain range of the Dolomites. Known for their spiky and rough nature, the Dolomites are a popular destination for hikers and nature lovers.
The Dolomites are otherworldly, they look like they‘re straight out of a fairy tale. Like the Alps, the Dolomites count as one of the most stunning places to stargaze, and I just had to go and visit. I stayed for 8 days, far too little time to see it all. Being mobile whilst driving and camping helped us be agile. In this chapter, I want to take you on the journey through some of Italy‘s most iconic summits and lakes during the night.

◀ **Italy at Night.** Here you see one of the most iconic places in Italy: the beautiful Lago di Braies in South Tyrol, one of the most photographed lakes. I challenged myself to see this at night.

Nikon Z6 14mm 25″ *f*/2.8 ISO 6400



▲ **Tre Cime.** This is our view from our camper when looking up to the iconic Tre Cime, the most famous mountain of the South Tyrol. Of course, an even better view of this stunning mountain would have been from the other side, but as it was quite a way away, I decided not to chance my luck and capture this moment here.



▲ **Tre Cime.** The issue with a panoramic picture is that everything gets out of perspective. The peak looks kind of small when in real life it is massive. It is a roughly 400-metre vertical cliff and from this perspective, the top isn't even visible.

Nikon Z6 24mm 15″ *f*/2.8 ISO 6400





◀ **Stardust.** The faint side of the Milky Way looks like someone just spilled glitter over the night sky. I will never get over the fact of how many stars there are in the sky.

Nikon Z6 14mm 25″ *f*/2.8 ISO 6400



▲ **Cadini di Misurina.** The lesser known Cadini-Group is right next to the Tre Cime. For me, the Cadini di Misurina are the most beautiful mountain peaks I have ever seen. When walking along the ridge, seen here to the left, the peak‘s entire beauty is revealed and they are nothing less than breathtaking.



▲ **Cadini di Misurina.** Paired with the Milky Way this panoramic shot tops it all. In the picture, you may spot some familiar objects: The Rho-Ophiuchi-Cloud to the right and the Lagoon Nebula right over the biggest peak.

Nikon Z6 85mm 6″ *f*/2.8 ISO 6400





◀ **Magic.** Stargazing above this kind of peak is truly magical. I have fallen in love with these peaks so seeing them united with the Milky Way felt like a dream come true.

Nikon Z6 85mm 6″ *f*/1.8 ISO 6400

▲ **The full Picture.** A close-up of the peaks may be pleasing but seeing a view in its entirety is just the best and nothing short of amazing. At this point, the fog had stayed in the valley but a change of weather was soon on the cards.

Nikon Z6 14mm 25″ *f*/2.8 ISO 6400



▶ **Updraft.** As the fog lifted from the valley it started to slowly cover the mountain peaks and create a coat around the base.

Nikon Z6 15mm 25″ *f*/2.8 ISO 6400





▲ **Fog and Clouds.** Then clouds started to form and I managed to capture a perfect shot.

Nikon Z6 14mm 25″ *f*/2.8 ISO 6400

▶ **Foggy Peak.** The mystical peaks pushing through the dense fog only lasted about 10 minutes. Anticipating a good shot may have been quite stressful but worthwhile.

Nikon Z6 14mm 25″ *f*/2.8 ISO 6400





▲ **Lago di Braies.** Known as the „Pearl of the Dolomites“ the Lago di Braies is probably the most iconic lake in Italy. It was always a dream of mine to photograph this stunning lake right in the middle of the almighty Dolomites.



▲ **Lago di Braies.** When stepping out of the camper I could not believe my eyes when realising we were just in the right spot for a breathtaking stroll along the lake. Seeing the Milky Way rising at this exact location, it was the cherry on the cake.

Nikon Z6 16mm 15″ *f*/2.8 ISO 6400





◀ **Iconic View.** After conducting some research and testing out different angels during the day, I set out to revisit this location during the night. It was worth it! Having achieved to take the picture I had in my head, I slept well that night even if only for a couple 2 hours. Sunrise was calling!

Nikon Z6 14mm 25″ *f*/2.8 ISO 6400



▲ **Another Angle.** With the lodge being illuminated by the nearby hotel, it was hard to find the right angle and exposure to avoid the lodge from vanishing into the dark. I also wanted to show as many details as possible within the sky. I am becoming much more routined as I experiment along the way.

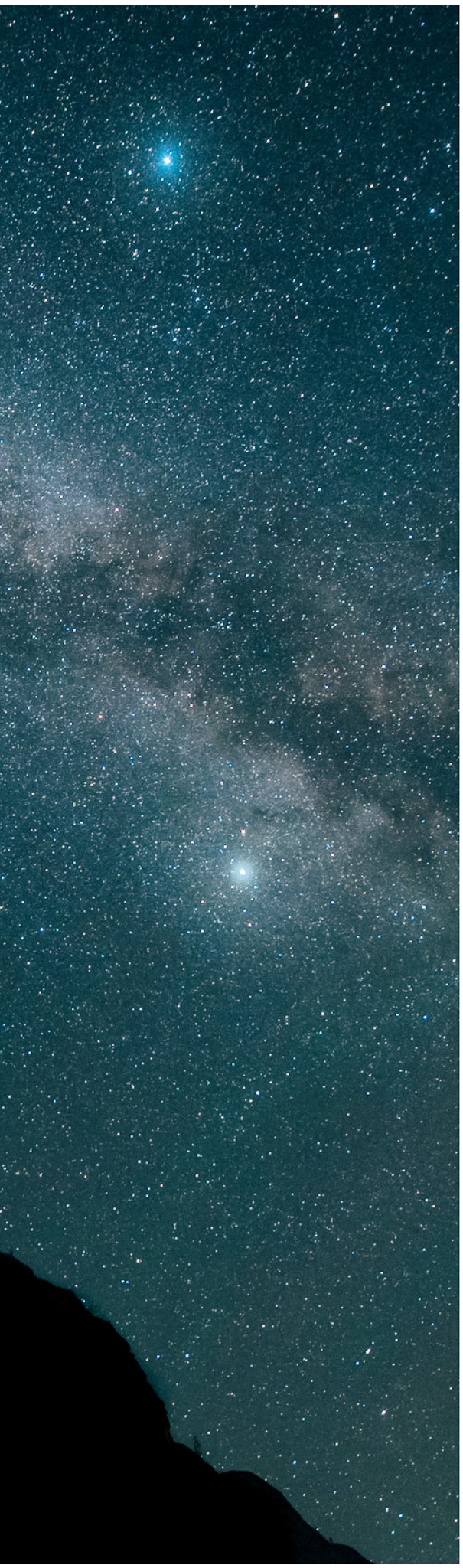
Nikon Z6 14mm 25″ *f*/2.8 ISO 6400

▶ **Reflection.** The water of the Lago di Braies is usually very calm as it is surrounded by huge mountains. When I took this shot things were slightly different and I risked my camera and tripod hovering over the choppy water whilst capturing this beautiful scene.

Nikon Z6 14mm 25″ *f*/2.8 ISO 6400







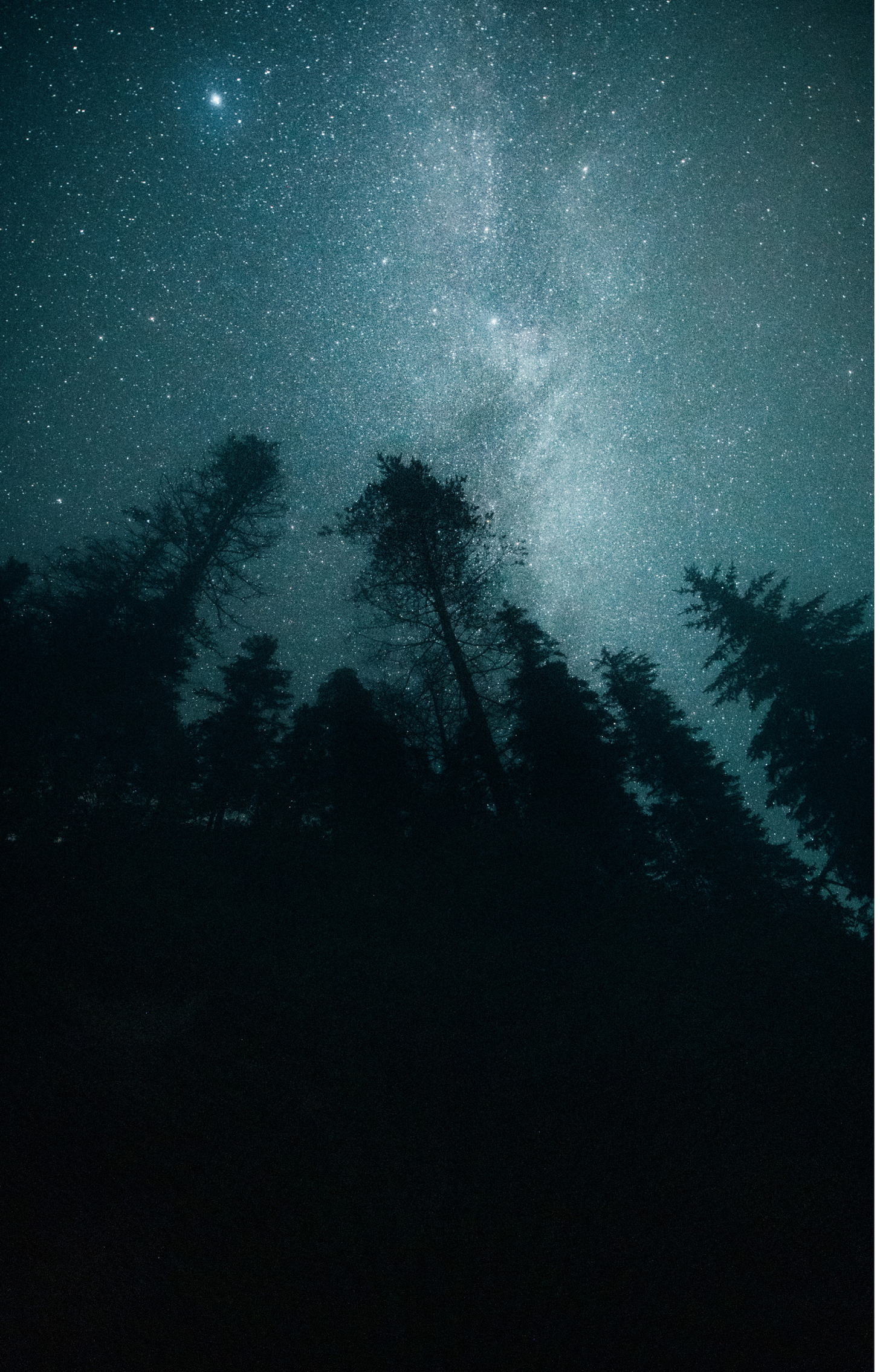


◀ **The Summer Triangle.** This simplistic Asterism can be seen during summer right above our heads. It is composed out of the stars Vega, Deneb, and Altair.

Nikon Z6 16mm 15″ *f*/2.8 ISO 6400

▲ **Seekofel.** I had a perfect picture in my head for this shot: The Milky Way suspended above the Seekofel mountain peak, with the Lago di Braies in the foreground. The plan worked, but in the end, I decided to eliminate the lake in the foreground as it was distracting.

Nikon Z6 16mm 15″ *f*/2.8 ISO 6400





◀**Galactic.** Star after Star after Star. Our galaxy is full of them. Every star we see is inside our galaxy but that doesn‘t mean all points of light are stars. In fact, there are a lot of „stars“ that are actually whole galaxies so far away that this whole galaxy looks like a single point.

Nikon Z6 14mm 25″ *f*/2.8 ISO 6400

▲ **Galaxias.** The origin of the word for a galaxy lays in the Late Latin word „galaxias“ which actually means Milky Way.

Nikon Z6 14mm 25″ *f*/2.8 ISO 6400



PHASES OF THE MOON

As you are well aware, the moon constantly changes its appearance in the night sky. This shape-shifting of the moon is called the Lunar Cycle, also known as the phases of the moon. Obviously, the shape of the moon doesn‘t change. As the moon doesn‘t produce its own light but only reflects the light of the sun, its appearance is determined by the angle it faces to the earth. The sun‘s light comes from only one direction, always illuminating one half of the moon, the other side remains dark. In addition to this illumination of one side of the moon, its orbit is bounded to earth. This means that the same side of the moon will always face earth. Due to this, we will never see the backside of the moon from the Earth. Often referred to as the dark side of the moon, the backside actually gets as much light as the front.

◀ **Shift.** The moon changes its appearance every night and goes through all of its phases in roughly 29 days. The moon is a true shape-shifter and that is exactly what this picture shows with the word ‘shift’ interpreted a little differently.

Nikon Z6 200mm 3″ *f*/32 ISO 50



▲ **18.5%.** Even though in this photo the moon may not be very bright, with just above 18% illuminated, this is still one of the most typical forms we associate with the moon.

Nikon Z6 200mm 1/640 *f*/4.0 ISO 640

▶ **Waxing Crescent.** In the second phase of the moon right after the new moon, the waxing crescent is gorgeous. It is the first shift into a new phase of the moon. Again I wanted to emphasise this shifting with a literal shift.

Nikon Z6 200mm 1″ *f*/32 ISO 50







◀ **Supporting Cast.** What makes this portrait interesting is the balance between foreground, subject, and background. Without the moon, this balance wouldn't work as the sky would be too empty. Using the moon as a supporting cast can be useful when shooting portraits.

Nikon Z6 44mm 1/160 *f*/4.0 ISO 800

▲ **Complete.** This photo is pretty nice but the moon, even if a little blurry, adds to the composition of the shot.

Nikon Z6 34mm 1/160 *f*/4.0 ISO 1400





◀ **In Focus.** Using a low aperture can cause the foreground or background becoming blurred quickly. This difference in focus can be used to highlight certain objects and my preference is to focus on the moon.

Nikon Z6 58mm 1/250 *f*/4.5 ISO 100

▲ **Above our Heads.** A simple portrait during sunset never lets you down. Gorgeous colours, a low aperture, and an interesting, yet not too distracting background can create a magical shot.

Nikon Z6 46mm 1/250 *f*/4.0 ISO 200



▶ **Vibe.** What a view! Let me just take note - and time - to appreciate how lucky I am to be here, at this moment in time to shoot this stunning scene. Moments that you cannot forget - ever!

Nikon Z6 35mm 1/6 *f*/4.0 ISO 400









◀ **40.3%.** As the moon is almost halfway to being a full moon it acts like a natural light source, dim enough to illuminate the sky but leaving it dark enough to properly expose the foreground.

Nikon Z6 85mm 1/100 *f*/4.5 ISO 1250

▲ **Moonset.** At this stage, the moon falls below the horizon roughly 3 hours after the sun does. This gives us 3 hours to photograph the moon before handing over the stage to the Milky Way for the rest of the night.

Nikon Z6 85mm 1/100 *f*/1.8 ISO 64



▶ **First Quarter.** During the first quarter the moon rises at midday and starts to set at nightfall. This is a good time to take photos of people without having darkness on the figures.

Nikon Z6 85mm 1/100 *f*/4.5 ISO 1250









◀ **Waxing Gibbous.** Almost a full moon, but not quite there. During all waxing moon phases, the moon rises roughly at sunset which creates an opportunity to photograph beautiful silhouette shots.

Sony a7II 400mm 1/400 *f*/5.6 ISO 400

▲ **88.3%.** This waxing gibbous is on the verge to become a full moon. To the human eye, everything above 90-95% looks like a full moon. Capturing a nice waxing gibbous is actually pretty hard as it is only really like that for about two to three days.

Sony a7II 400mm 1/400 *f*/5.6 ISO 400









◀ **Full Moon.** The full moon is finally here - legendary and mystical. There's no coincidence that it is being used in so many fairy tales and horror stories. The light that it casts on the earth's surface is just about visible yet hard to grab.

Nikon Z6 200mm 1/250 *f*/4.0 ISO 1000

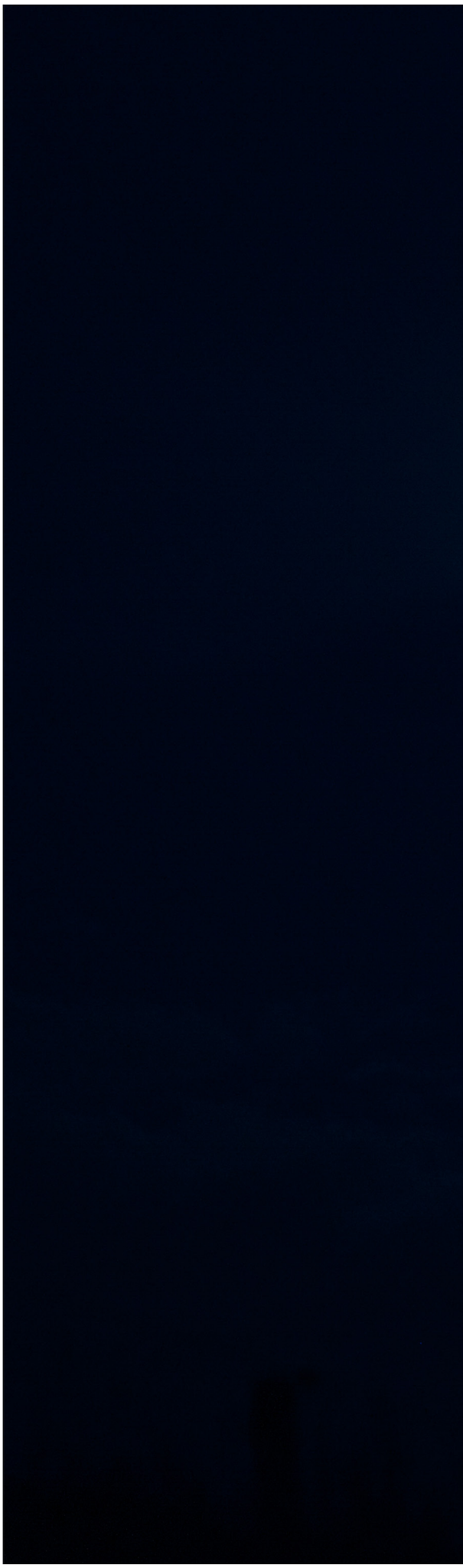
▲ **96.3%.** Is it full moon - or is it not? A fully visible 100% moon is very rare. Normally it is about 98% visible, but nobody really notices it as the moon is so bright.

Nikon Z6 200mm 1/160 *f*/4.0 ISO 2500



▲ **Blue Moon.** The term „Blue Moon“ infrequently describes the colour of the moon but it ought to actually describe a period. There are two correct answers to the question of which period it is describing: either it‘s the third full moon in a season that has four full moons or the second full moon within a single calendar month.

Nikon Z6 200mm 1/250 *f*/4.0 ISO 125

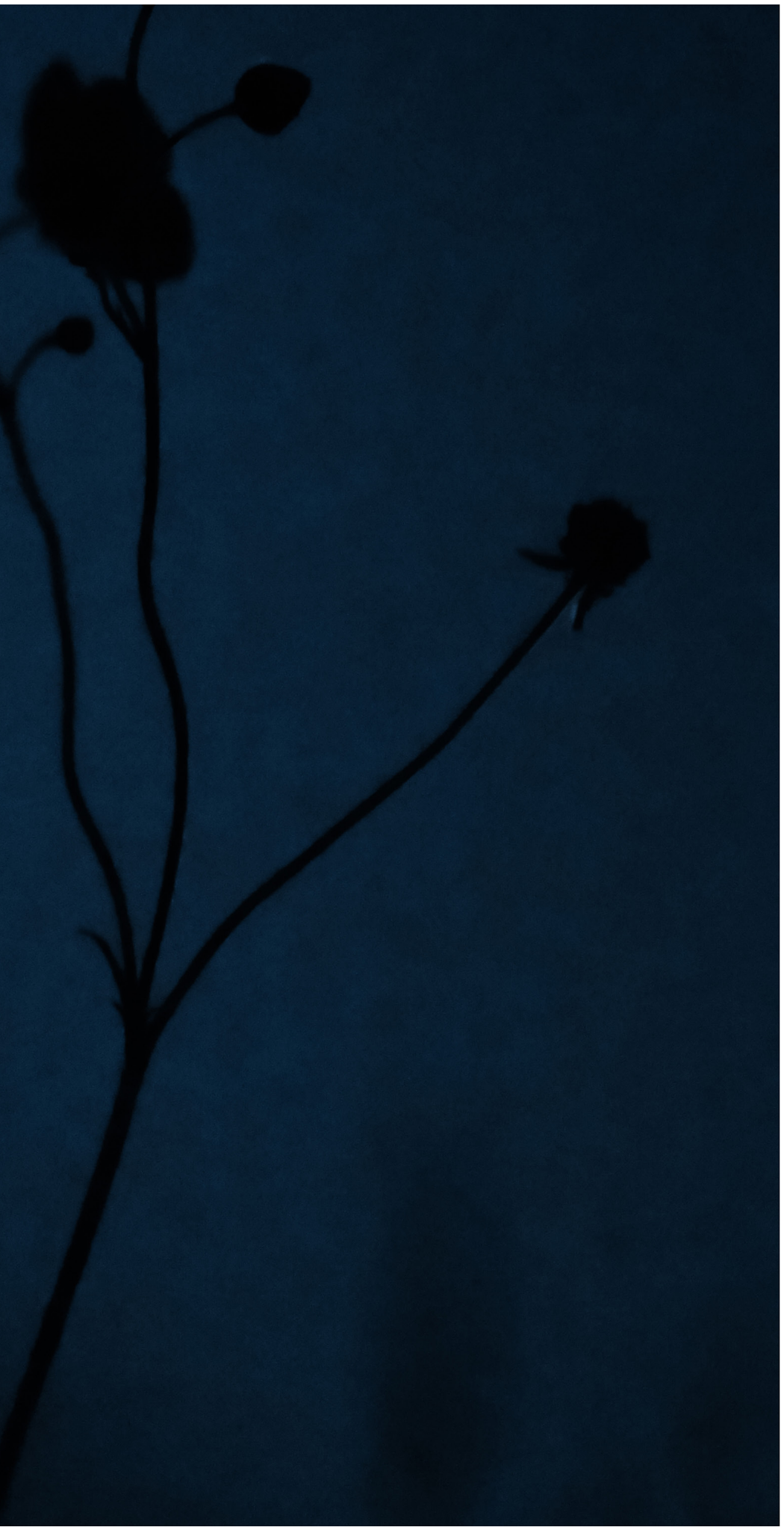


▶**Atmosphere.** These pretty colours of the moon during moonrise or moonset are caused by our atmosphere. The different wavelengths of light are scattered by the atmosphere. Some lengths get more or less scattered creating the difference in colours of the moon.

Nikon Z6 200mm 1/250 *f*/4.0 ISO 125







◀ **Double Exposure.** As the moon is so bright, it is hard to expose it with a foreground. The moon being so far away makes it hard to photograph with a focused foreground. In this photo I applied double exposure to achieve the focus and Photoshop was not used in this shot.

Nikon Z6 200mm 1/320 *f*/4.0 ISO 25600



▶ **Waning Gibbous.** After the full moon, the earth‘s satellite slowly loses some of its reflecting power again. With 71.9% illuminated this waning gibbous is on the edge to the last quarter.

Nikon Z6 85mm 1/100 *f*/4.5 ISO 1250





▲ **61.1%.** As the moon becomes the waning crescent, it hits the stage known as the Last Quarter, where only half the moon is visible.

Sony a7II 400mm 1/500 *f*/5.6 ISO 160

▶ **Last Quarter.** In Switzerland, the last quarter of the moon usually rises around 11 p.m., but remains until 11 a.m. the next morning. This gives us the chance to photograph the moon during the day.

Sony a7II 400mm 1/1000 *f*/5.6 ISO 100







◀**Illumination.** I took the pictures of the last quarter of the moon and the waning crescent only a few days apart and so the illuminated side seems to have moved quite a bit. This is due to the time it actually took me to create the shot. As this was taken early in the morning the sun hits the moon at a very low angle. This will change throughout the day.

Sony a7II 400mm 1/500 *f*/5.6 ISO 400





◀ **Early Morning.** I was awakened by a warm glow through my window on the roof. As I looked outside a beautiful sunrise greeted me. Ironically the perfect time to shoot the moon.

Nikon Z6 200mm 1/640 *f*/4.0 ISO 140

▲**12.8%.** The waning crescent usually rises in the morning. Because of the early time in the day, it is unusual for it to be photographed, at least at our rough coordinates.

Nikon Z6 200mm 1/640 *f*/4.0 ISO 100



DEEP SKY ASTROPHOTOGRAPHY

The most demanding form of astrophotography is deep-sky astrophotography. Photographing distance nebulae, galaxies, and star clusters is very complicated. Processing the image can easily take up to 2 hours. All this effort is certainly worth it. Deep-sky objects are a completely different world. Photographing a full galaxy rather than photographing the one we are in, puts everything into perspective. Exploded stars and gas clouds can be just spectacular.

In this chapter, I show the images I took as a complete beginner. Deep-sky astrophotography is a science in itself and there is so much to learn.

◀ **Pointing at Orion.** I shot this photo whilst searching for Orion in the sky, purely accidentally. The arrow pointing right at Orion was really helpful. Searching for deep-sky objects usually needs to be done with a camera; seeing the object with the naked eye is almost impossible.

Nikon Z6 200mm 2″ *f*/4.0 ISO 5600





◀ **Orion Nebula.** Also known as M42 the Orion Nebula is one of the most famous nebulae. About 1300 lightyears away, the nebula gives birth to dozens of new stars. The four brightest stars, also known as the Trapezium, illuminate the core of the 40-year light-year wide nebula.

Nikon Z6 200mm 1″ *f*/4.0 ISO 6400





◀ **Rho Ophiuchi.** The Rho Ophiuchi cloud complex is one of the most colourful and stunning areas of the night sky. It's a popular object for astrophotographers due to its beautiful nature. Unfortunately, it sits rather low over the horizon which makes it hard to photograph from this current position.

Nikon Z6 85mm 6″ *f*/1.8 ISO 6400

▲ **Antares.** The most famous star of this complex is Antares which belongs to the Scorpius Asterism. Antares is also known as the Rival of Mars, due to its red-orange glowing nature.

Nikon Z6 85mm 8″ *f*/1.8 ISO 4000

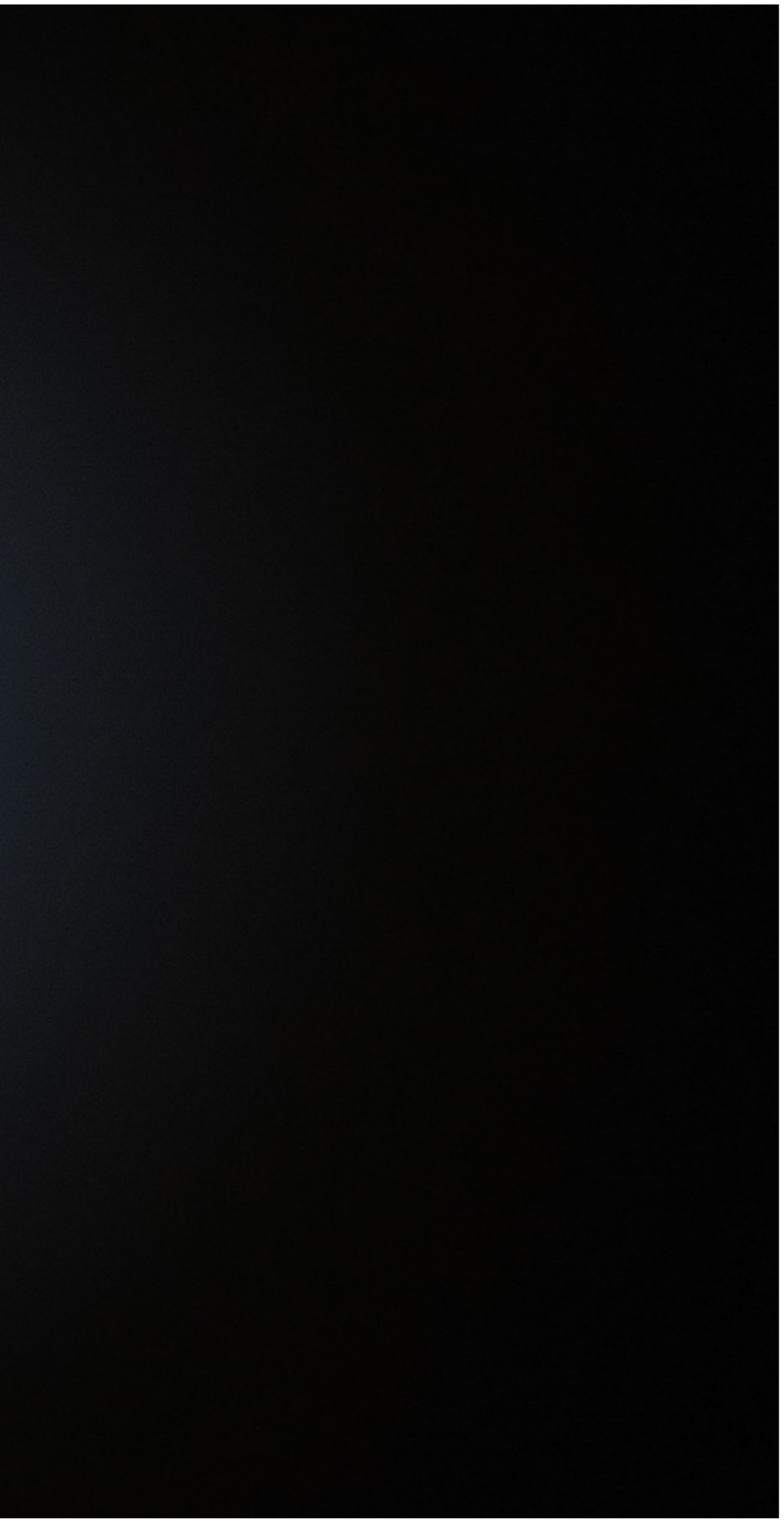


▶ **Distorted.** While stacking this image I became aware of the importance of tracking. The centre of the image doesn't contain much of a story, but the peripheral part of the image became distorted due to a mix of tracking and the distortion of wide-angle lenses.

Nikon Z6 24mm 25″ *f*/2.8 ISO 4000

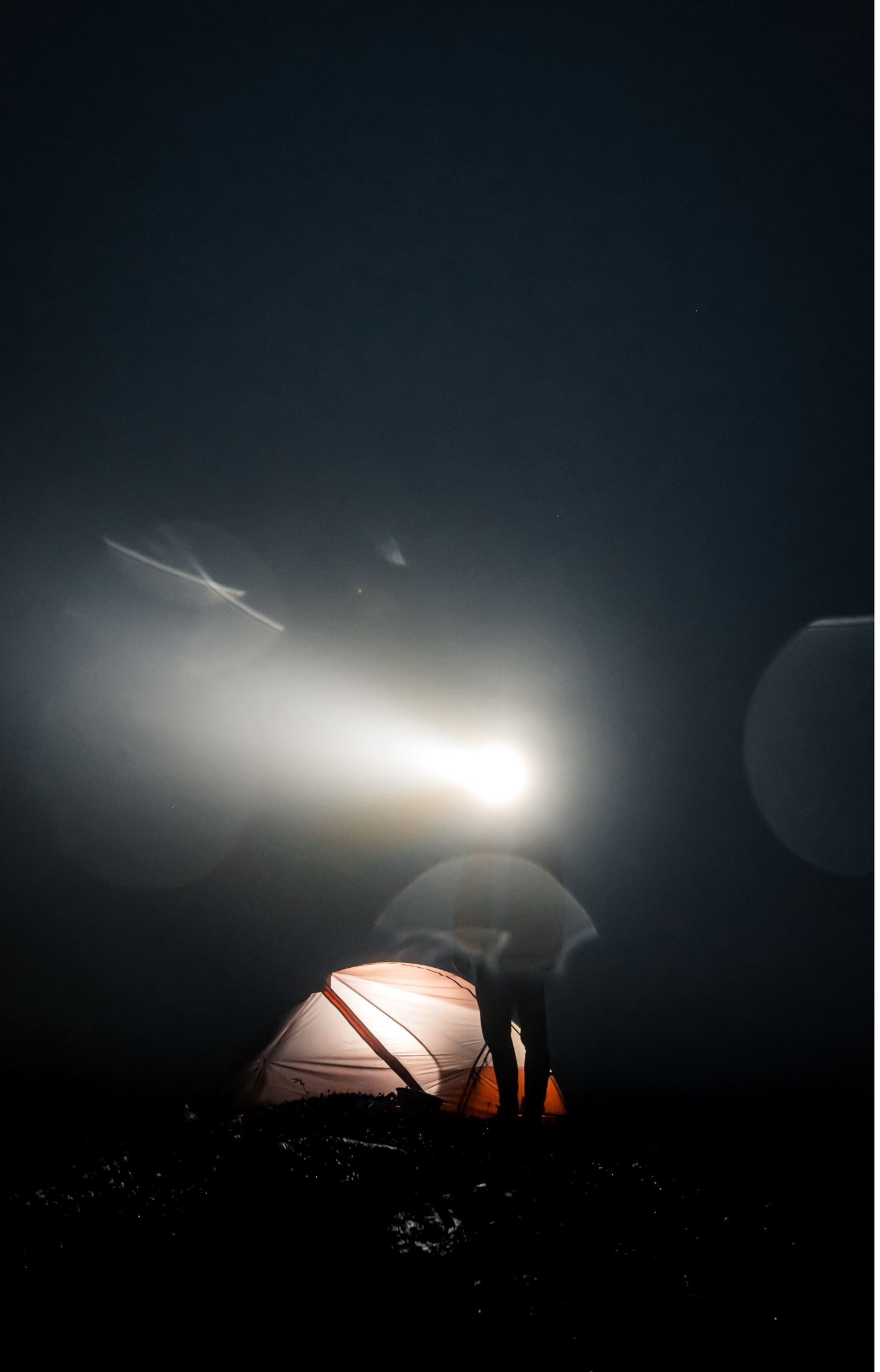






◀ **Deep Moon.** High-resolution pictures of the moon are always pretty cool. With mixing two different exposures the spherical shape of the moon can be displayed quite beautifully.

Sony a7II 400mm 1/400 *f*/9.0 ISO 1250



ADVENTURE FOR NOTHING

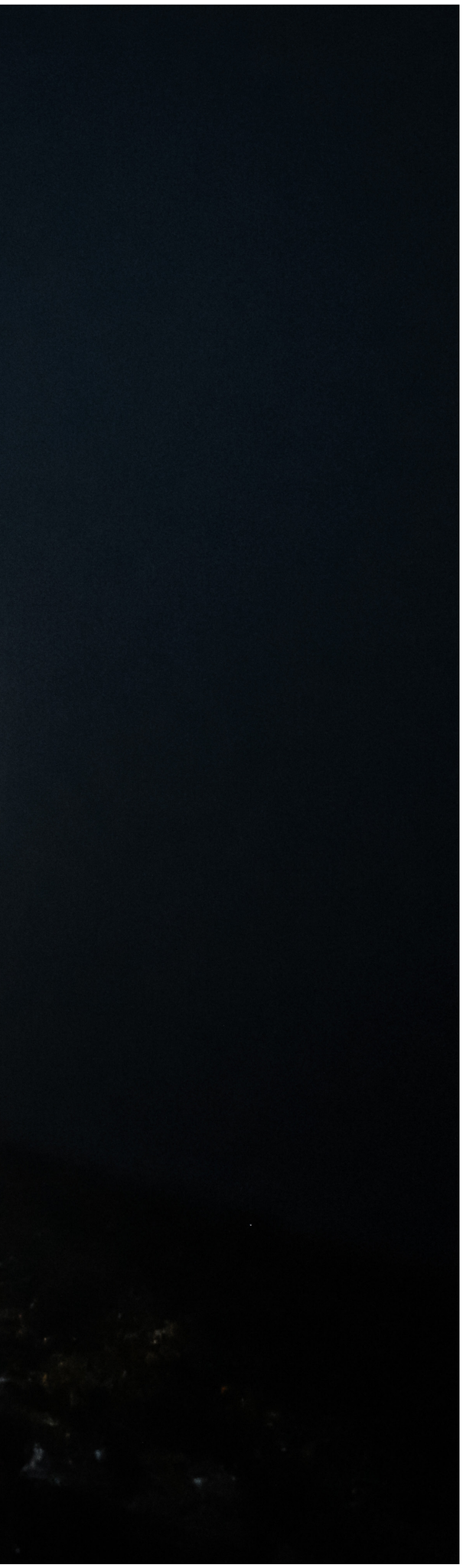
Astrophotography carries a high risk of uncertainty; the best images can happen accidentally and one of the biggest risks, of course, is the weather. Despite checking the weather forecasts prior to your departure, clouds can suddenly appear and change the scenery completely - especially in the Swiss Alps as the weather changes rapidly. The best option is to be prepared for harsh weather at all times whilst being prepared to make the most of every situation given.

In this paragraph of the book, I have compiled some shots that may not have been used in the book, nevertheless, these are still very interesting shots and moments in time. They also give you an idea of the rough terrain and conditions I sometimes found myself in. This should help educate you to make sure you are always aware of dangers that come with being in the mountains, especially at night. I myself may not have always taken the utmost care in situations, however, just be aware of the risks of cold weather and uncertain conditions - and that things can change so quickly, especially in the Alps.

◀ **Maderanertal.** This trip certainly did not go to plan. Set to be one of the most amazing shots with a view that promised to be straight out of a movie, the Maderanertal didn't want to play along. A moody shot with a headlamp is all I got this time.

Nikon Z6 21mm 0.3″ *f*/2.8 ISO 8000







◀ **Prepared.** With no internet access to check the weather forecast, we were prepared for rain. The reason was that we did not want to take any risk and that is always my advice: be prepared. A rain jacket and rain cover for your backpack should always be part of your gear, no matter what the forecast is.

Nikon Z6 21mm 0.3″ *f*/2.8 ISO 8000

▲ **Propper Gear.** With darkness comes danger so proper gear is necessary to ensure safety. For a hike or biwak, this includes a first aid kit, weather-appropriate clothing, headlamp or other lights and camping gear. You should always have enough water with you.

Nikon Z6 85mm 1/20 *f*/1.8 ISO 1000





◀ **Danger.** Camping during bad weather is extremely dangerous. On this trip for example, I first encountered light rain which then changed into a storm. Lightning strikes would light up the landscape while we were hiding in our tents. I urge people to respect the force of nature as it can be brutal and unforgiving.

Nikon Z6 85mm 1/25″ *f*/1.8 ISO 1600





◀ **Saxer Lücke.** The trip to the Saxer Lücke in the Alpstein in the Kanton Appenzell was harder than expected. After more than 10 km of pure hiking, we were exhausted and happy to finally settle at this exceptional view.

Nikon Z6 14mm 5″ *f*/5.0 ISO 160

▲ **Cloud Cover.** Unfortunately, a thick cloud layer covered the night sky on this trip. I was so tired and couldn't stand up straight any longer. We were lucky it didn't rain as we would have not been prepared for it. What a mistake! Always be prepared for bad weather.

Nikon Z6 24mm 1/50 *f*/2.8 ISO 1250



▶ **Inside the Tent.** The view from out of this tent was phenomenal. We barely had space for it but we made it work. As always there were some complaints about the spot. It is important that either you should be certain you can get a good night's rest. In case of an emergency, a shelter nearby is very important. Sleeping in a SAC-Hut or other mountain hut makes everything easier and safe.

Nikon Z6 14mm 1/60 *f*/3.2 ISO 2500





▲ **Fog.** Visibility is key up in the mountains and fog can really impede visibility. Whilst on this trip, we took some photos and then walked through thick fog. We got really lost on our way back because there was confusion over 2 different lights in the distance. Luckily for us, it all worked out.

Nikon Z6 24mm 1/60 *f*/4.0 ISO 10000

▶ **Abyss.** Standing on this plateau was calming. Right after our dreadful hike in the dense fog next to an abyss, this plane was a welcome break.

Nikon Z6 34mm 1/50 *f*/4.0 ISO 4000





▶ **Little Gap.** For a really short time, a little gap opened above the Tre Cime. It made for a nice shot but also teased me and showed me what could have been without clouds. However I now believe the fog really adds that magical touch.

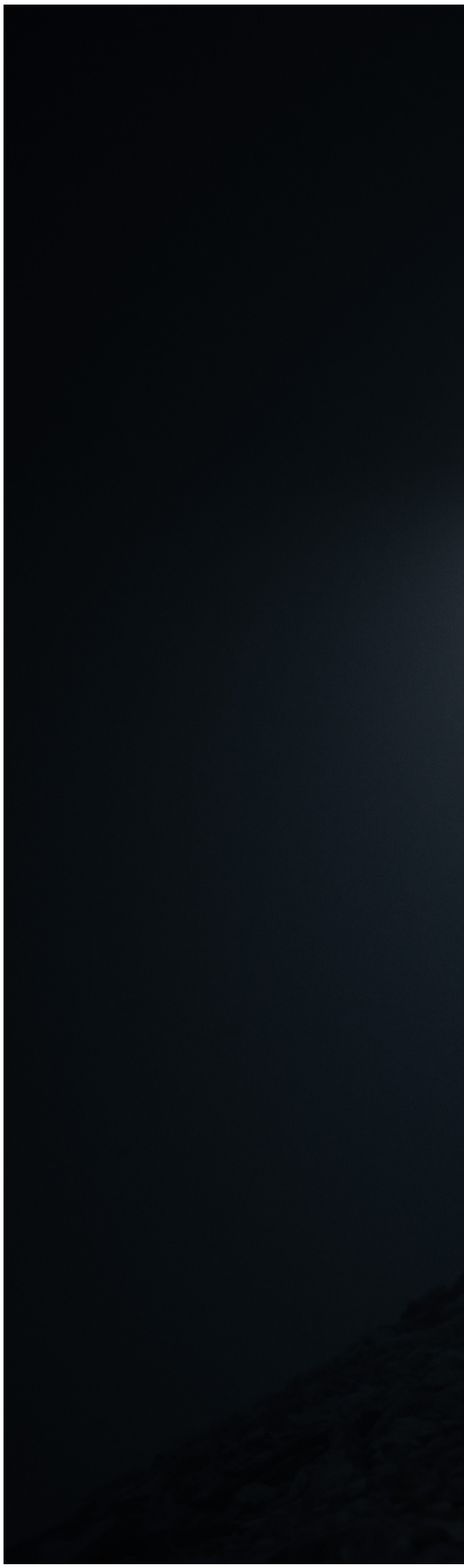
Nikon Z6 24mm 1/10 *f*/2.8 ISO 4000





▲ **Bad Conditions.** he grim atmosphere that is apparent in this picture is a good representation of what it felt like. As a photographer, I loved the vibe but deep down knew how dangerous it was. Do not walk around the mountains you don‘t know in such conditions.

Nikon Z6 35mm 1/10 *f*/4.0 ISO 5000

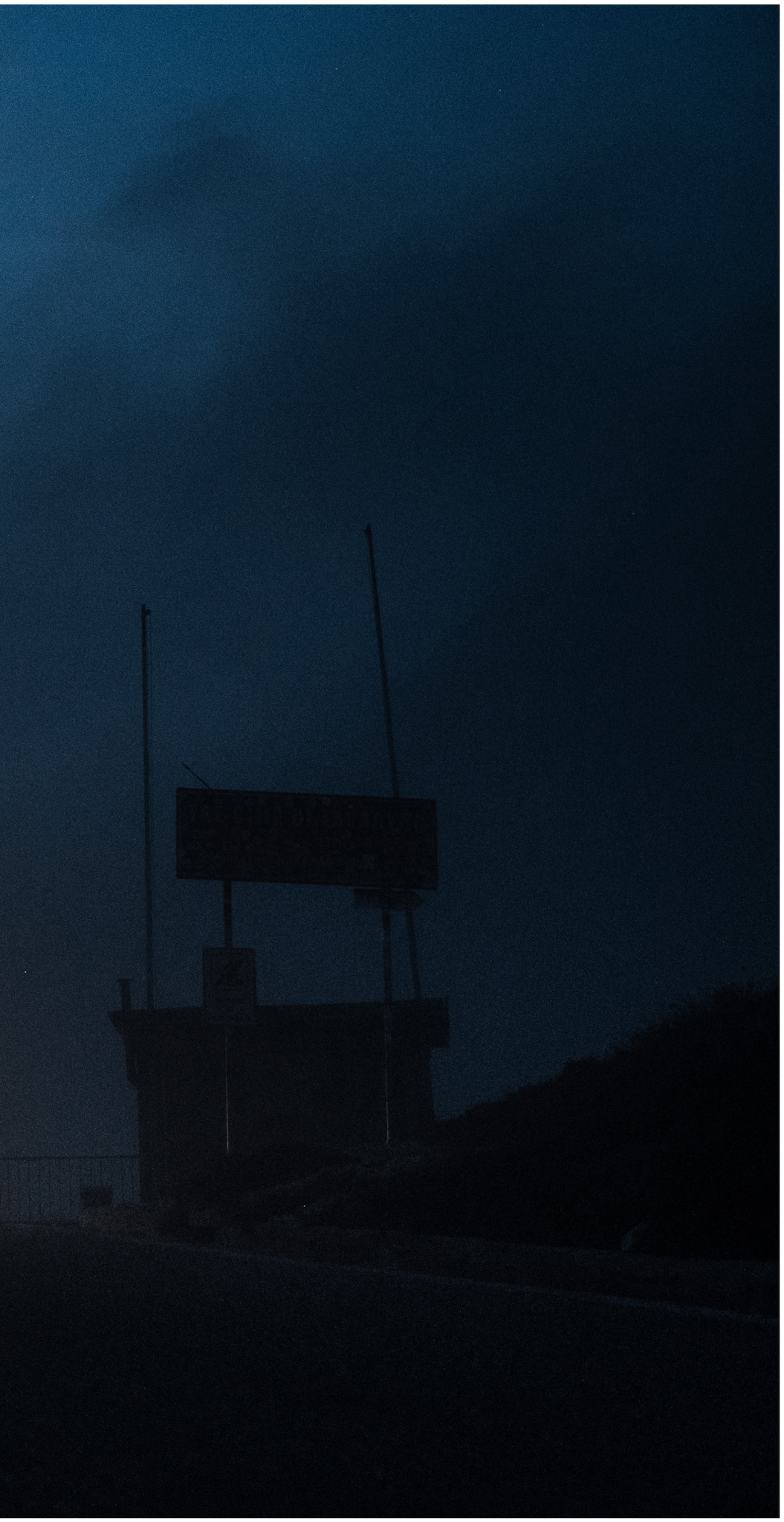


▶ **Visibility.** And so this brings us to one of our worst and sillliest ideas we had: walking over loose rocks on a treacherous path with visibility of 5 metres, a steep drop to the right of us - how idiotic!

Nikon Z6 85mm 1/125 *f*/1.8 ISO 800







◀**Pushing through.** We found ourselves in dense fog and it was very hard to see anything. However, like magic, periodically a little gap would open up and stars would shine down to us, making for a very lovely shot with a strange dark and mysterious feel.

Nikon Z6 48mm 4″ *f*/4.0 ISO 2500



ACKNOWLEDGEMENTS

Thanks! I would like to thank the following with my project, for staying up late, hiking for ages, being a model, giving ideas and sharing your vacations with me. Thank you for keeping me company during the night. So many people were involved during the making of this book. So many people joined me for an adventure in the Alps or even for a trip to the Dolomites. I love being out there with you! The memories created on these trips are unforgettable and - fortunately - I captured a lot of photographs to forever remember every detail. Thank you Aline, Anna, Benjamin B., Benjamin K., Bettina, Celine, Christoph, Franzi, Jan, Jolanda, Leonie, Lia, Lisa, Lynn, Matthias, Michelle, Mika, Nicola, Noel, Noemi, Pascal, Sandra, Sibylle, Silvan, Stephan, Sven, Till, Tim and Tiziana - you were exceptional!

◀ **Thanks.** Thank you, friends, for being there and keeping me company, day or night. Astrophotography can be a loner's game, but thanks to my friends, I was hardly ever alone.

Nikon Z6 85mm 1/100 *f*/4.5 ISO 1250

