EXPOSURE

Basics: calibration, the histogram….

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ISO

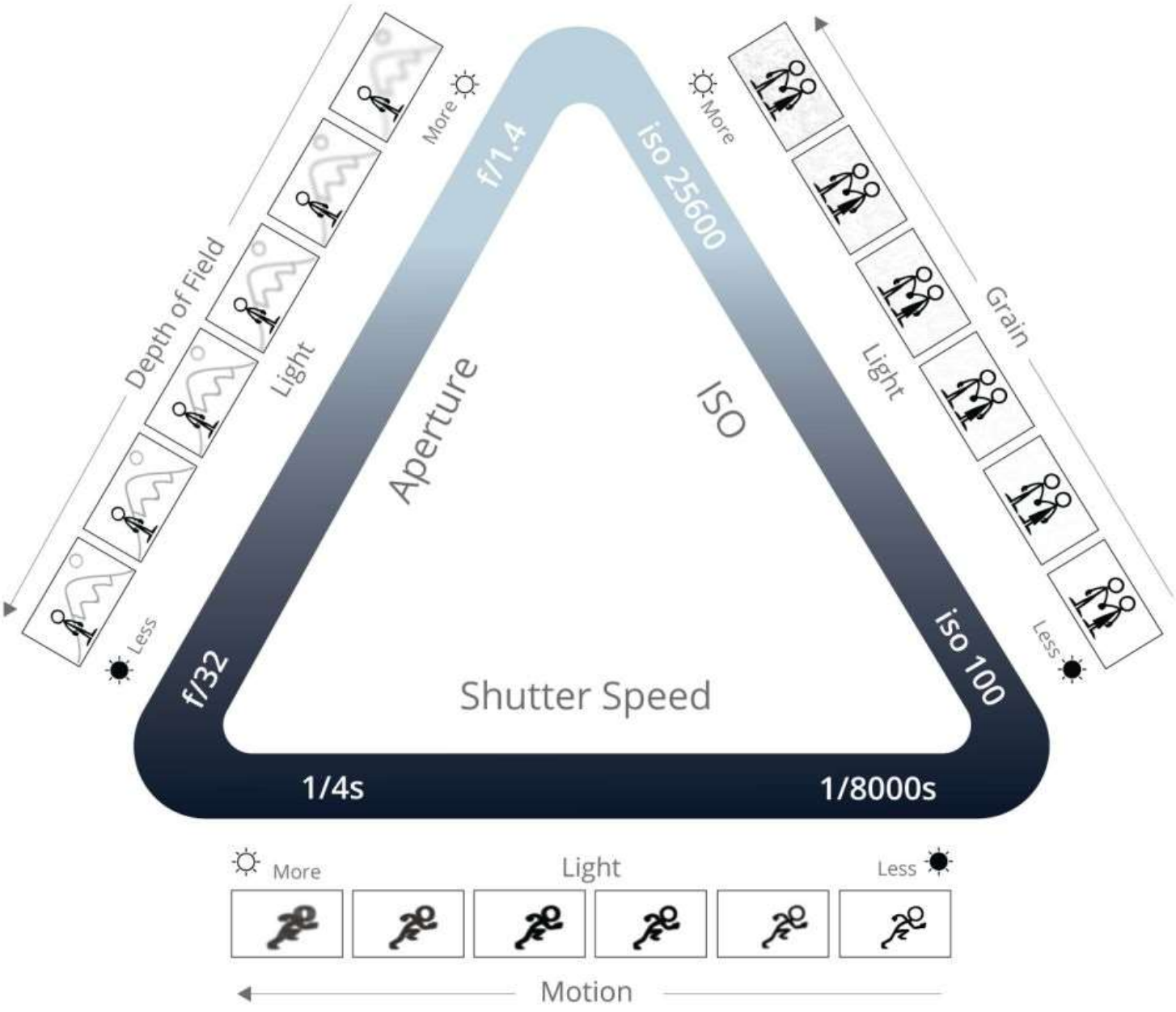
- ISO is the abbreviation of the International Organization for Standardization
- In the photographical context ISO means the sensitivity of the sensor (or the film)
- Doubling the ISO number means a doubling of the sensitivity to light
- A high ISO number increases the noise of a digital image and reduces the dynamic range
- Many cameras have the setting auto ISO, often combined with setting of the limits of the shutter speed.

EV Exposure Value

- **Exposure value (EV) in photography is a value common for all combinations of the shutter speed and the aperture giving the same exposure.**
- **EV 0 defines an exposure using the aperture f/1 and the shutter speed of 1 second at the sensitivity ISO 100. The EV value increases if the aperture is reduced or the shutter setting is shorter. Each step upwards means half the the amount of light [" number of photons"] getting into the camera.**

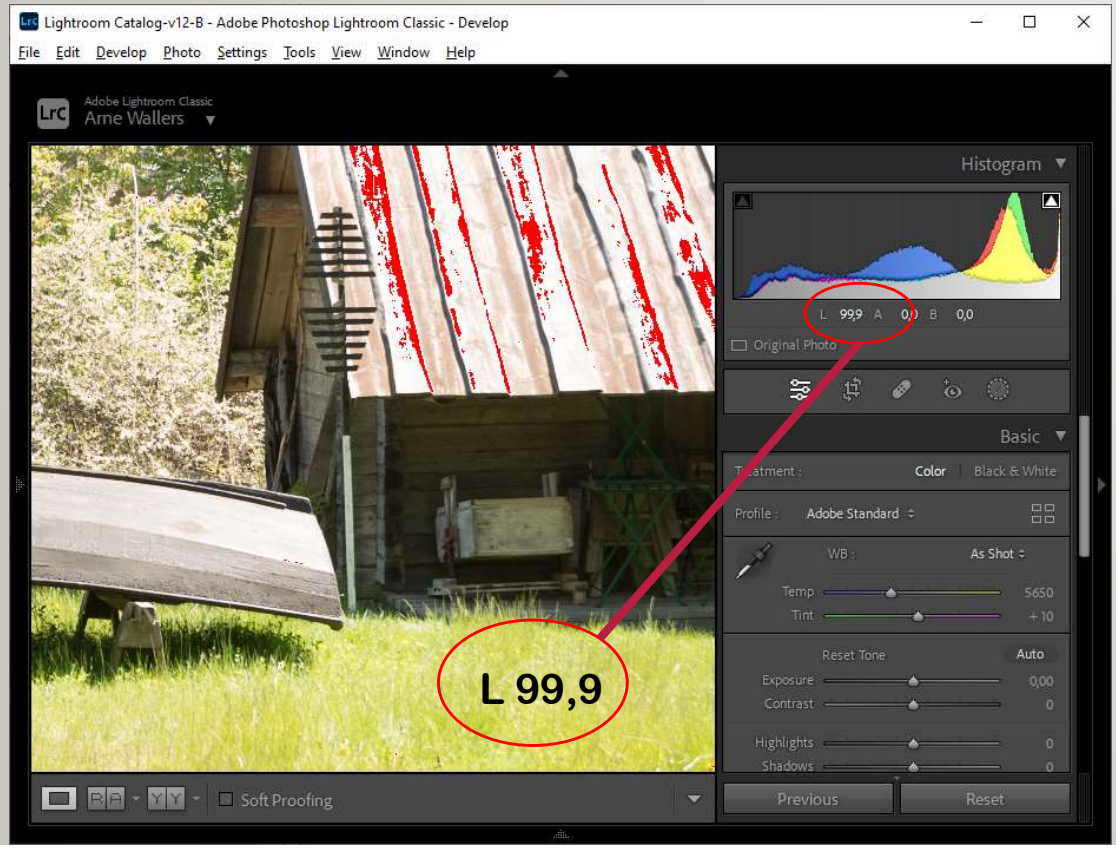
The photographic triangle

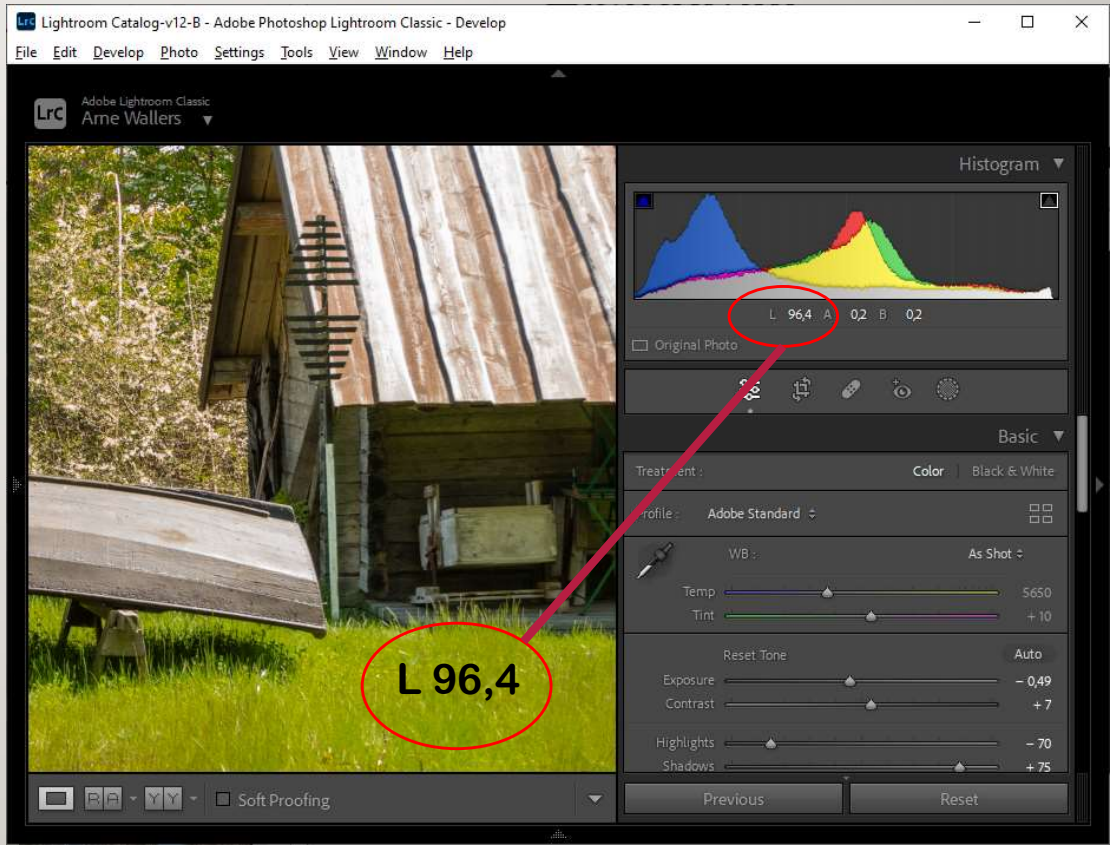
- Aperture, shutter speed and ISO depend on each other!
- Aperture, shutter speed and ISO can be selected for each image in a digital camera



Histogram

- Almost all histograms are based on jpg-images, in camera or in the computer software
- In Lightroom you can display RGB or Lab values of the image you are editing below the histogram



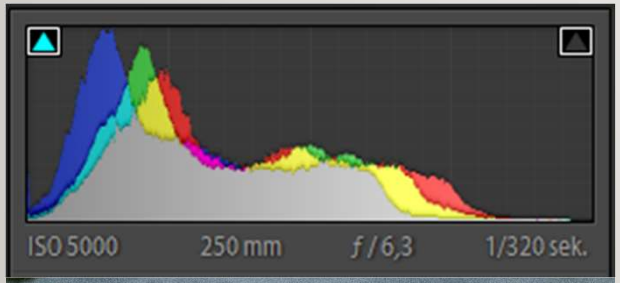


Bracketing

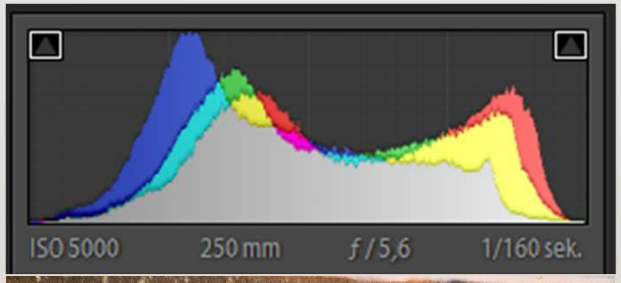
Set the camera for continous shooting as an example: +/- 1 1/3 EV
A Canon 70D will then capture 3 images in a row

The histograms show

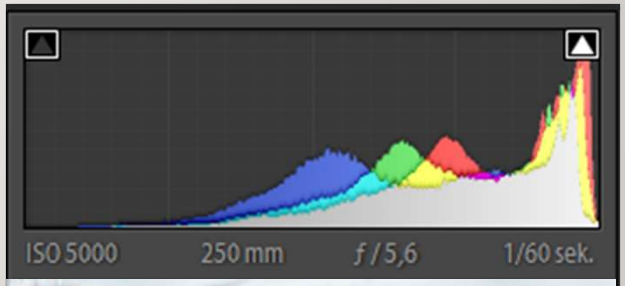
Too dark
-1 1/3 EV
1/320 @ 6,3 @ ISO 5000



Correct
0
1/160 @ 5,6 @ ISO 5000



Over exposed
+1 1/3
1/60 @ 5,6 @ ISO 5000



The camera sees a gray environment

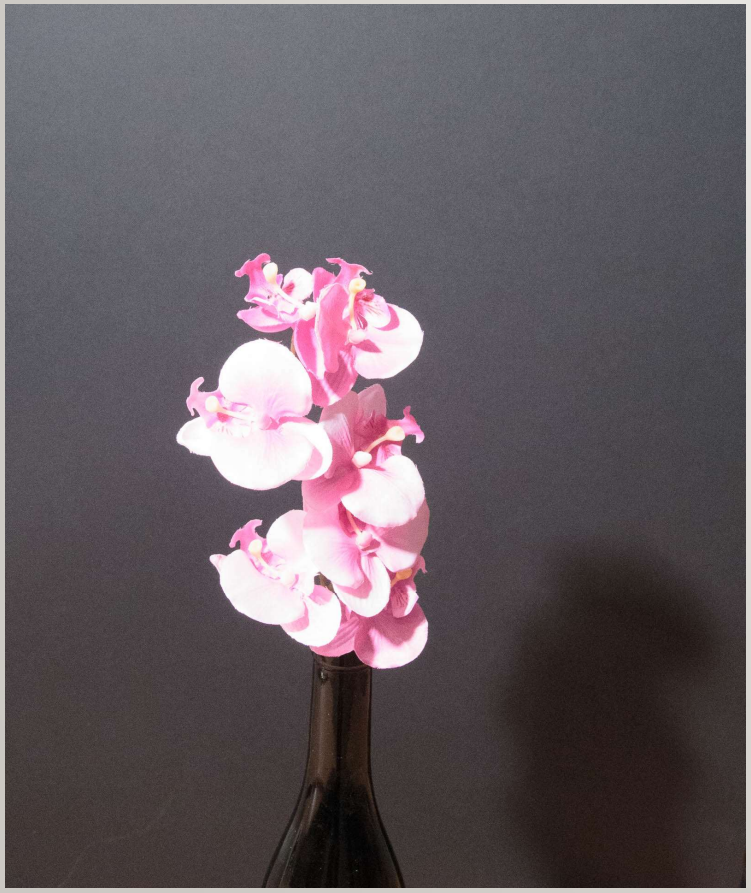
- When using a smart phone or the green square on the camera, i.e. fully automatic, you loose all possibilities to adapt the image to your wish
- The light measurement is in most cases calibrated for objects that reflect 18 % of the incident light. You don’t know the intensity of the incident light, only the reflected light
- You can use a gray card to check the camera calibration
- Dark or bright scenes will not be correctly exposed
- Computer editing can improve an image
- To capture Jpg-files directly in the cameran is equivalent to the transparency film of yesterday, you can’t change the result
- Raw-files in camera is like negative film, you can improve your images in post.

Gray card

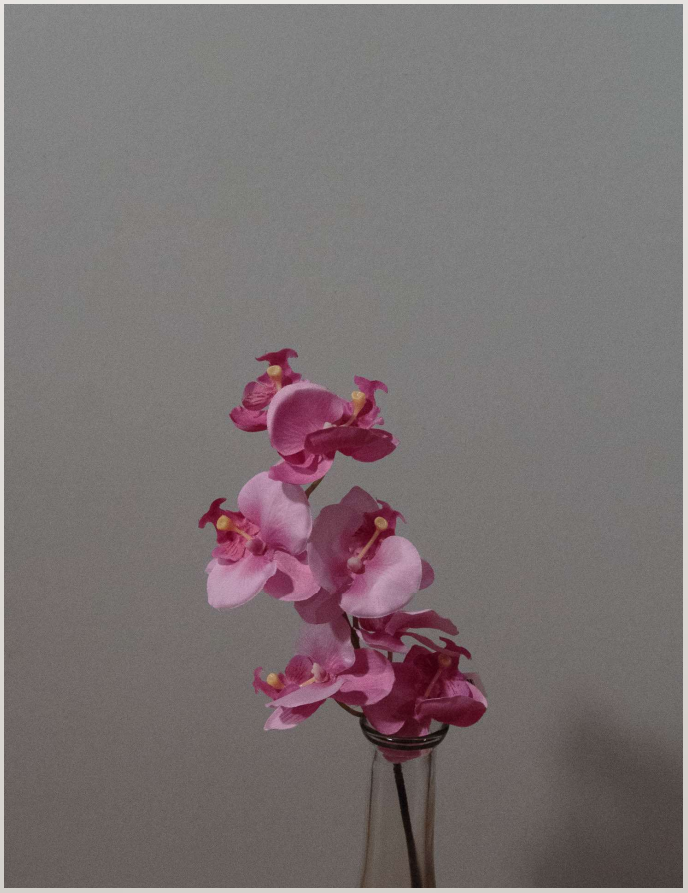
Practice:
Capturing flowers during a November evening garden society meeting

Impact of the background
average measurement like a smartphone

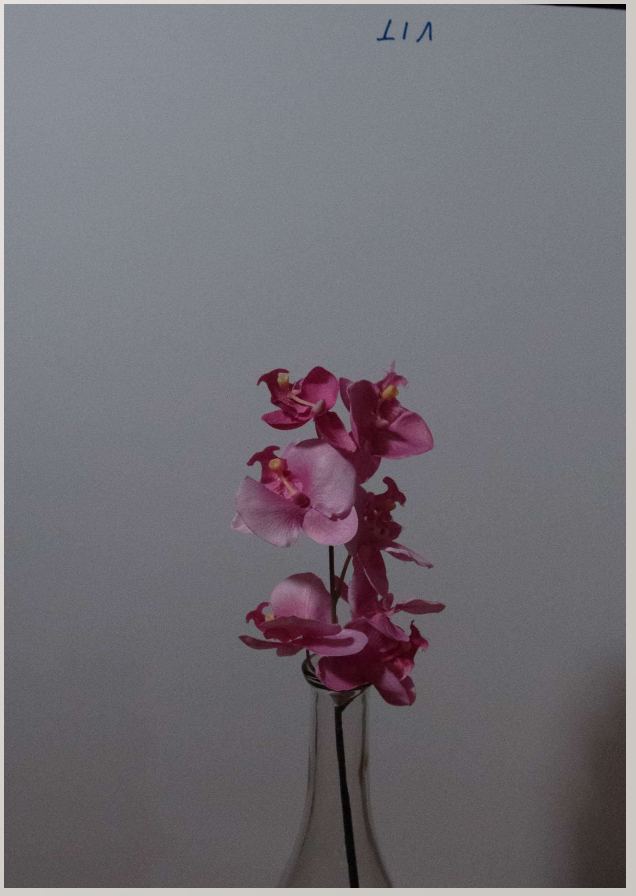
Black, L= 40 - 45



Gray, L= 50 - 55



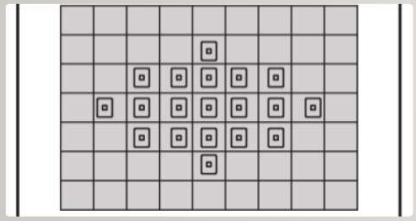
White, L= 50 - 55



Four measurement modes

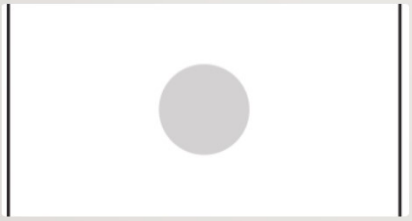
Canon 70D

Inside the gray measurement area, the camera aims to expose 18 % reflexion correctly



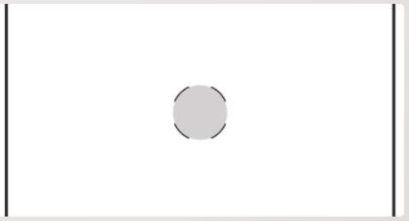
Evaluative

A general-purpose metering mode suited even for backlit subjects. The camera **sets** the exposure automatically to suit the scene



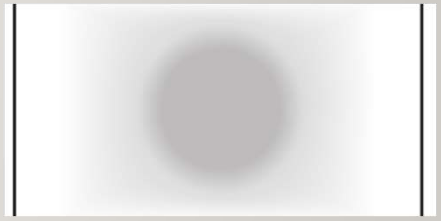
Partial

Effective when the background is much brighter than the subject due to backlighting, etc. The metering is weighted at the center covering about 7.7% of the viewfinder area.



Spot

This is for metering a specific spot of the subject or scene. The metering is weighted at the center covering approx. 3.0% of the viewfinder area.



Center-weighted

The metering is weighted at the center and then averaged for the entire scene

Cameras are different.

Check YOUR camera in various lighting conditions!

Four measurement modes, one cow-house

Evaluative

Center-weighted average

Partial

Spot

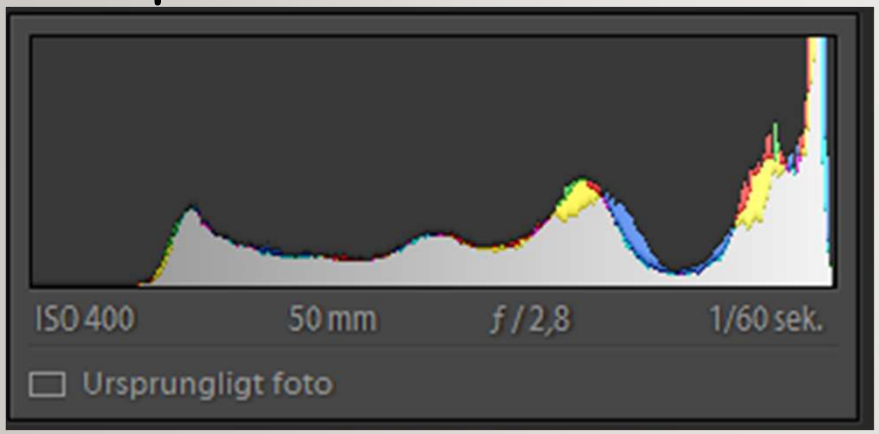
Are all cats gray?

A scene with a gray center, the white houses are white and the black cat is black

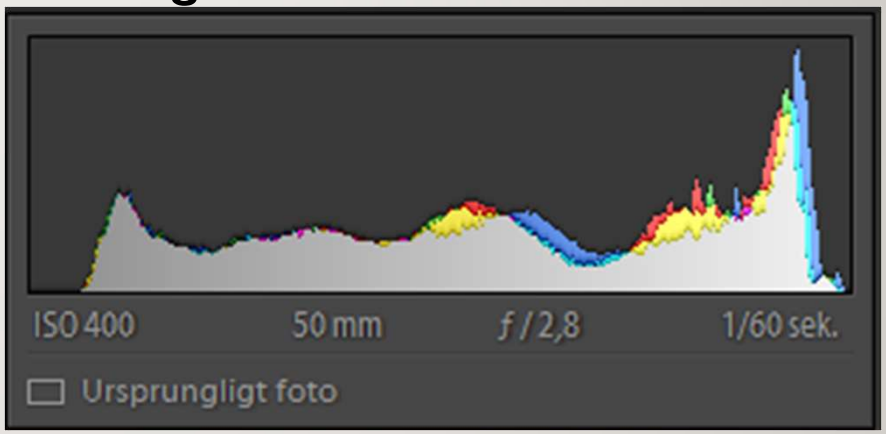
The black cat in the image center is not really black anymore, +3.5 EV

Black cats may be gray!

As captured



Edit in Lightroom



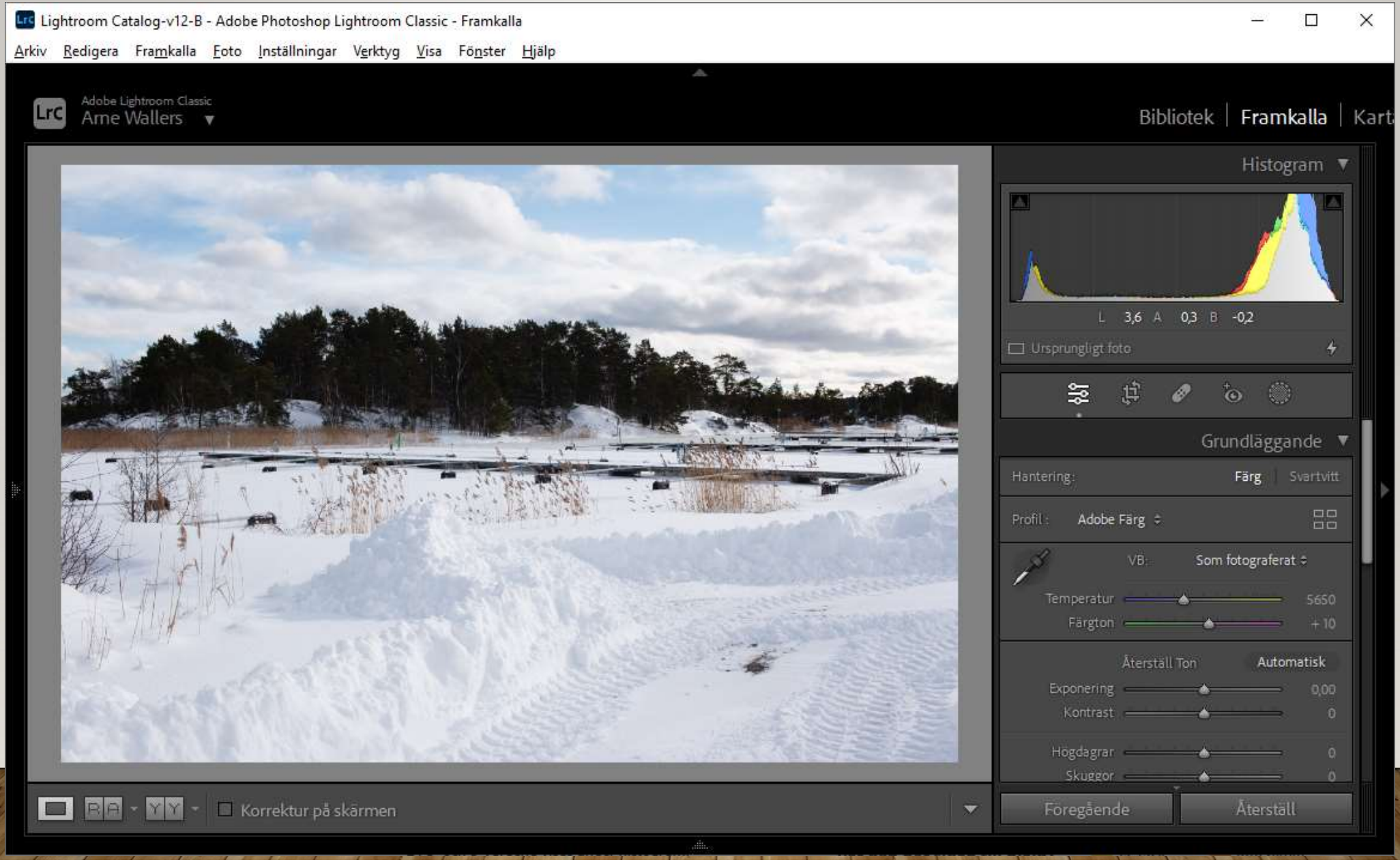
Where should I measure the light?

Towards the ground?

Towards the sky?

MAXIMIZING THE DYNAMIC RANGE
COURTESY THOMAS EISL (THOMASEISL.PHOTOGRAPHY)

- Set the camera in exposure mode Manual
- Set the measurement mode to Spot
- Measure the brightest area of the image
- Adjust the exposure of the brightest area to +2 EV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Arkiv Redigera Framkalla Foto Inställningar Verktyg Visa Fönster Hjälp
Adobe Lightroom Classic
Arne Wallers
Bibliotek | Framkalla | Kart
Histogram
L 3,6 A 0,3 B -0,2
Ursprungligt foto
Grundläggande
Hantering: Färg | Svartvitt
Profil: Adobe Färg
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Färgton + 10
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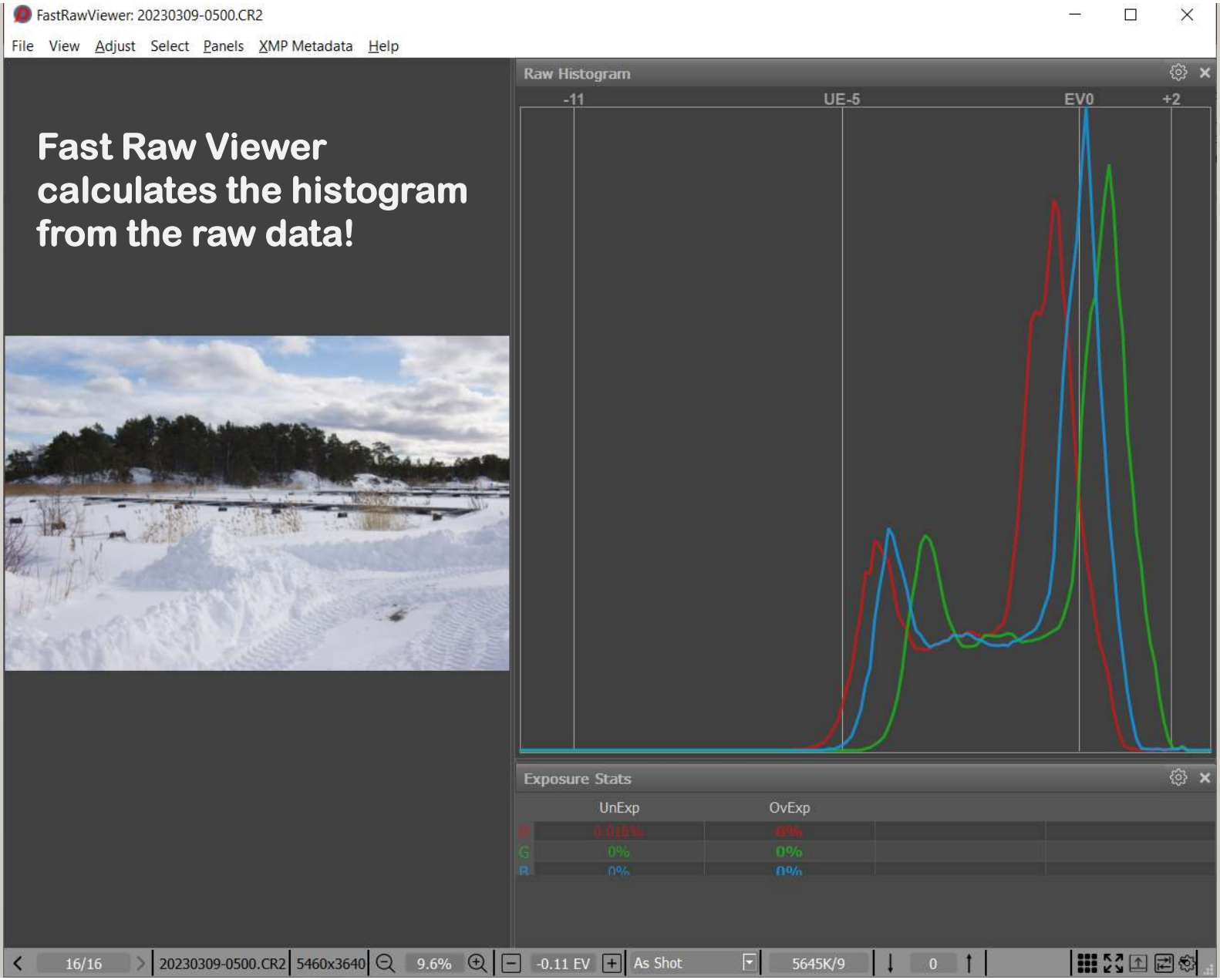
Föregående
Återställ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Fast Raw Viewer calculates the histogram from the raw data!
Raw Histogram
-11
UE-5
EV0
+2
Exposure Stats
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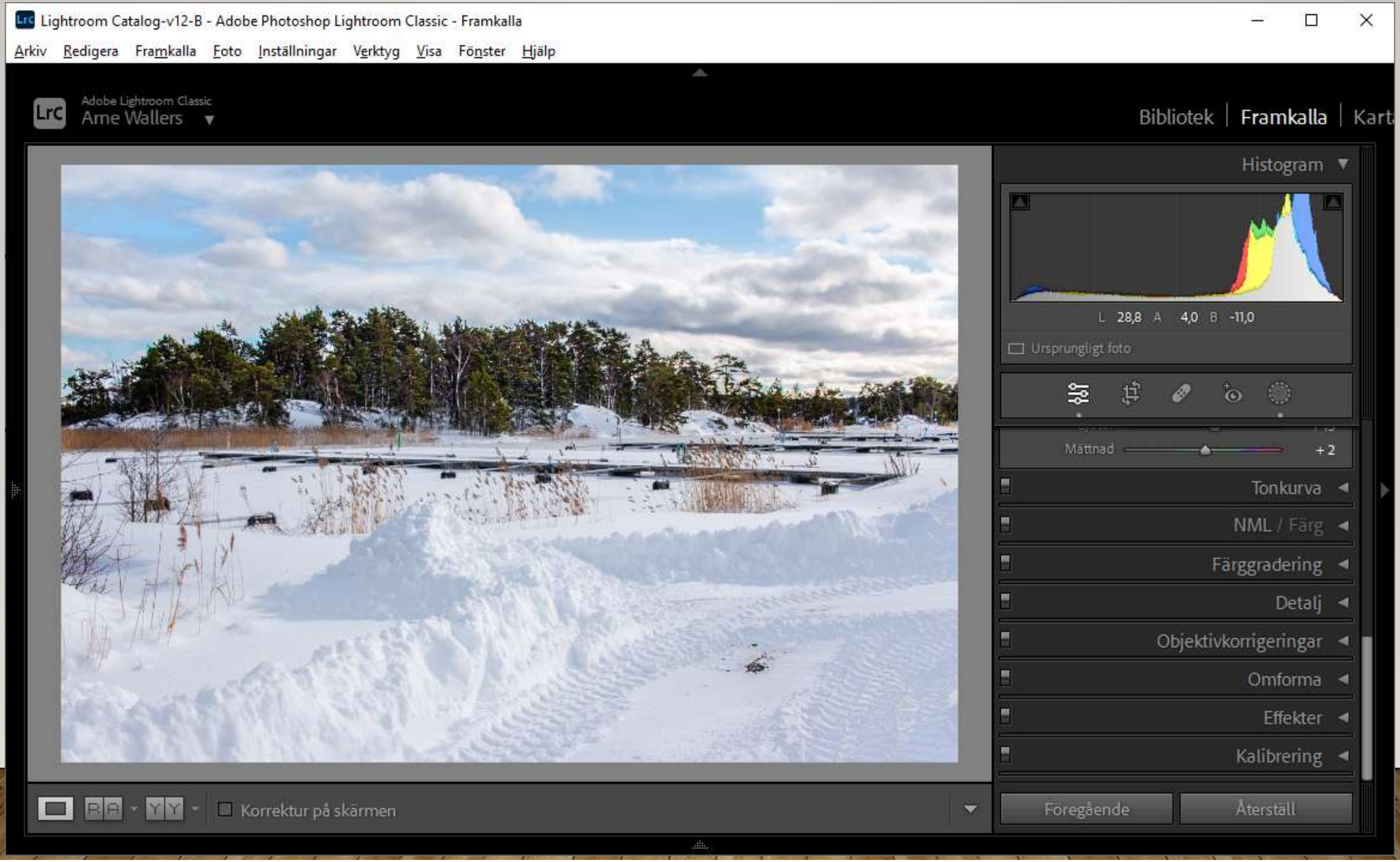
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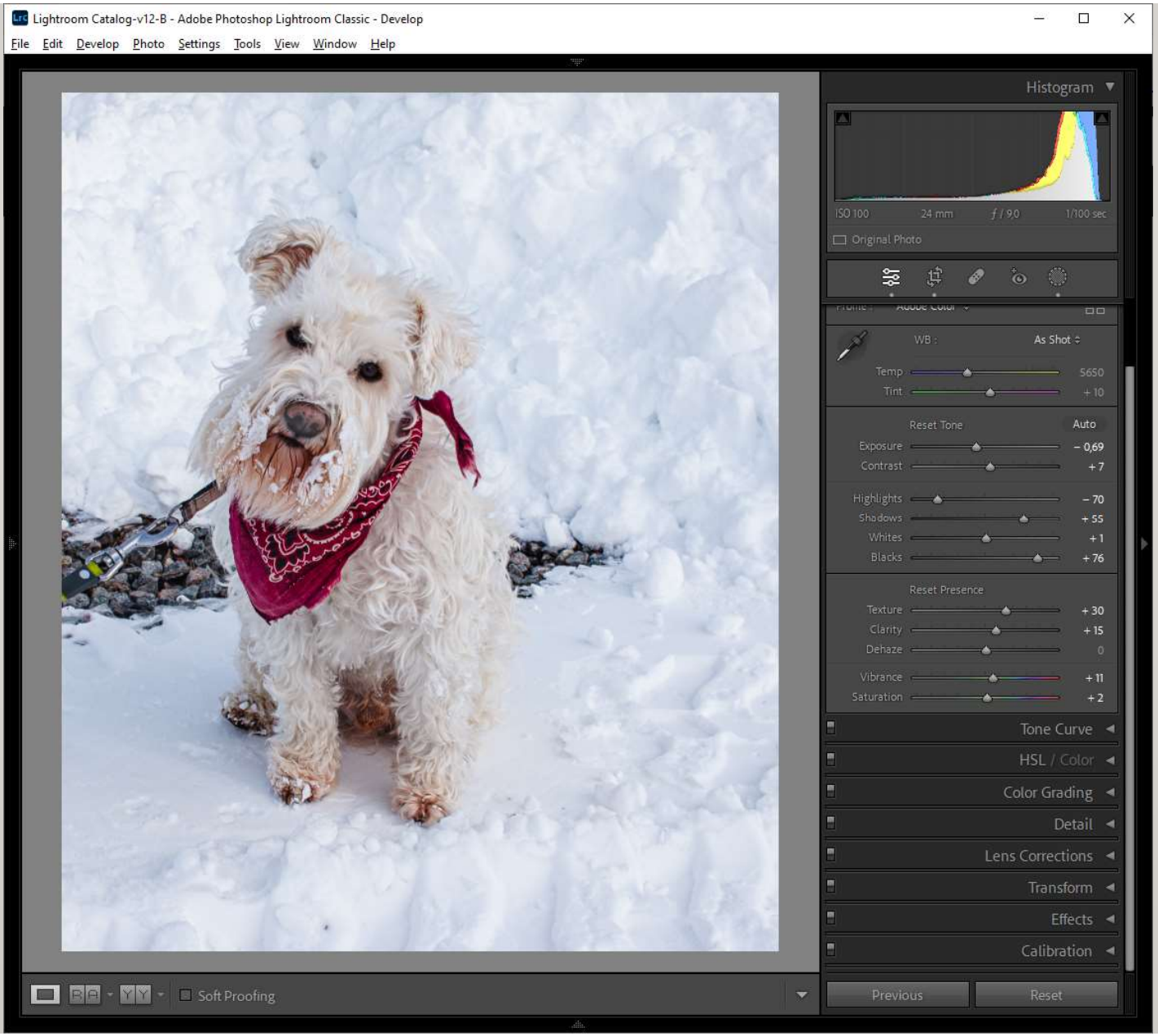
Histogram
L 28,8 A 4,0 B -11,0
Ursprungligt foto
Mättnad +2
Tonkurva
NML / Färg
Färggradering
Detalj
Objektivkorrigeringar
Omforma
Effekter
Kalibrering
Korrektur på skärmen
Föregående
Återställ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WB : As Shot
Temp 5650
Tint + 10
Reset Tone Auto
Exposure – 0,69
Contrast + 7
Highlights – 70
Shadows + 55
Whites + 1
Blacks + 76
Reset Presence
Texture + 30
Clarity + 15
Dehaze 0
Vibrance + 11
Saturation + 2
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HSL / Color
Color Grading
Detail
Lens Corrections
Transform
Effects
Calibration
Soft Proofing
Previous
Reset