Exposure, Metering and Filtration

Paul Franklin

Points to cover

- Exposure objectives
- Metering: to assess the exposure needed
- Filtration: strategy to get correct exposure
- Filters are essential for some image types to get a quality image

Correct Exposure: Objectives

- Appearance:
  - Colours and brightness look right
- In Technospeak:
  - Contrast range in subject mapped to contrast range of recording medium (film or digital sensor)

Contrast ranges

- Transparency Film: 4 to 5 stops
- Negative Film: 6 to 7 stops
- Digital sensors: design dependent – up to 9 stops possible

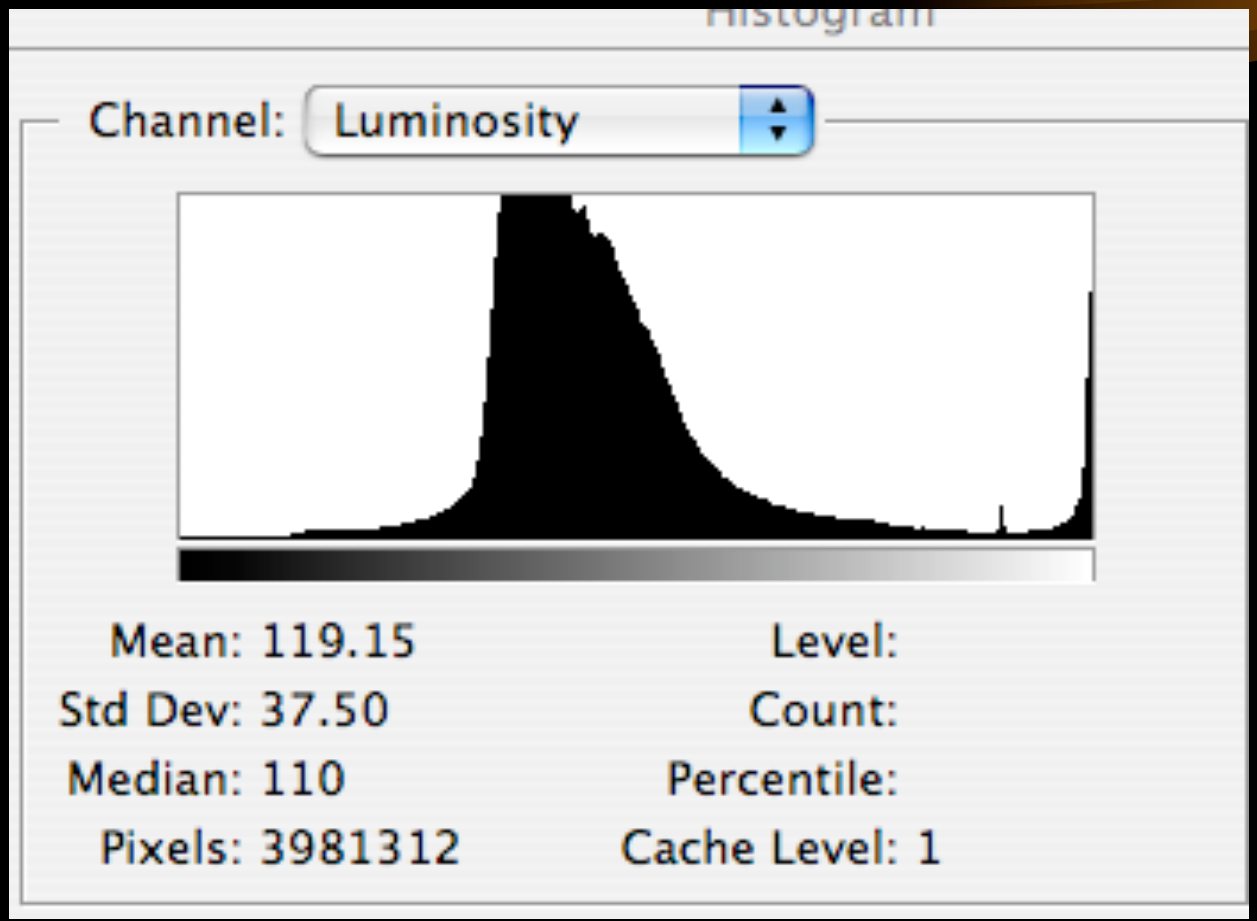
What happens if we are wrong?

- Transparency film
  - Overexposed highlights = no highlight detail
- Negative film
  - Underexposed = no shadow detail
- Digital sensors
  - Underexposed = loss of shadow detail and noise effects

Subject contrast ranges

- Can be far greater than sensor/film range
- Stunning sunrise and sunsets often the most difficult (and changing second by second)

Image Contrast Range



Why Metering and Filters

- Metering
  - To measure the subject contrast range
- Filters
  - To adjust the image contrast range arriving at the film/sensor (ND grads)
  - Also – to adjust colour balance and contrast if desired

Neutral Density Graduated filters

Exposure setting process

- Appraise (and anticipate) subject contrast range with meter system
- Develop filtration strategy
  - Where to place exposure levels in sensor contrast range
  - What filter(s) to use
- Set up filters on camera
- If possible, measure image contrast range (histogram on digital camera)

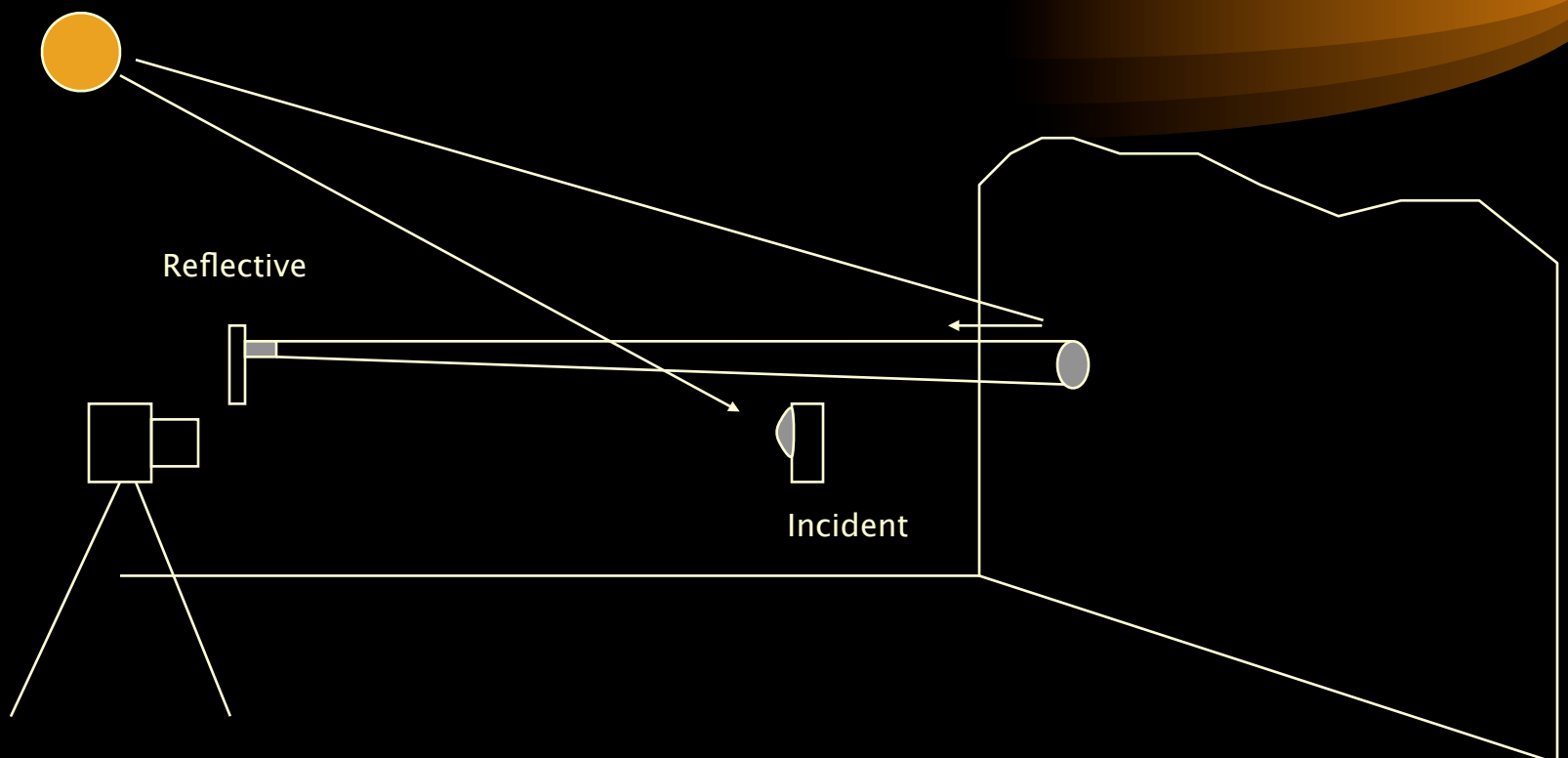
Metering options

- Incident and reflective
- For reflective:
  - Spot
  - Centre weighted
  - Matrix sensoring

Incident and Reflective

- Incident
  - Measures light approaching the subject
- Reflective
  - Measures light reflected from subject

Incident and Reflective



How does reflective meter work?

- It measures light intensity
- It assumes the subject area reflects 18% of light on it (grey card)
- It tells you the exposure needed to make a grey card look that grey when you make the exposure (NB In camera matrix modes do more than this)

Incident: Pro' and Con's

Incident	Reflective
Simple process	Spot mode or camera histogram enables us to assess contrast range of subject
	Generally more accurate
No "subject failure"	Requires development of skill to spot "grey card" in picture to avoid "subject failure" (when using to assess mid tone).
Does not enable us to measure subject contrast range	Spot mode enables us to map the extremes of exposure to the sensor contrast range

Meter types

- In camera [reflective]
  - Spot, centre weighted, average, matrix
- On camera [reflective]
  - Centre weighted, average
- Separate/hand held
  - Spot, centre weighted – reflective
  - Incident

How to take pictures of snow?

- Use an incident meter if you have one...otherwise:-
- Meter on the snow
- Increase exposure by 1 2/3 stops - otherwise the snow will look 18% grey!

Hand held meters

- Examples of hand held meters

What do we need to do with the meter system?

- Measure light intensity of the entire intended subject
- Measure the extremes of light intensity in the subject (contrast)
- So we can assess
  - What filters may be needed to make the image
  - What the right exposure should be

Main Filter types

- Density adjustment
  - NDs
- Colour balance
  - Warm ups (eg 81B, 85C)
- Contrast adjustment
  - Polariser
  - ND Graduates
  - Colour filters (for monochrome)

Neutral Density Graduated filters

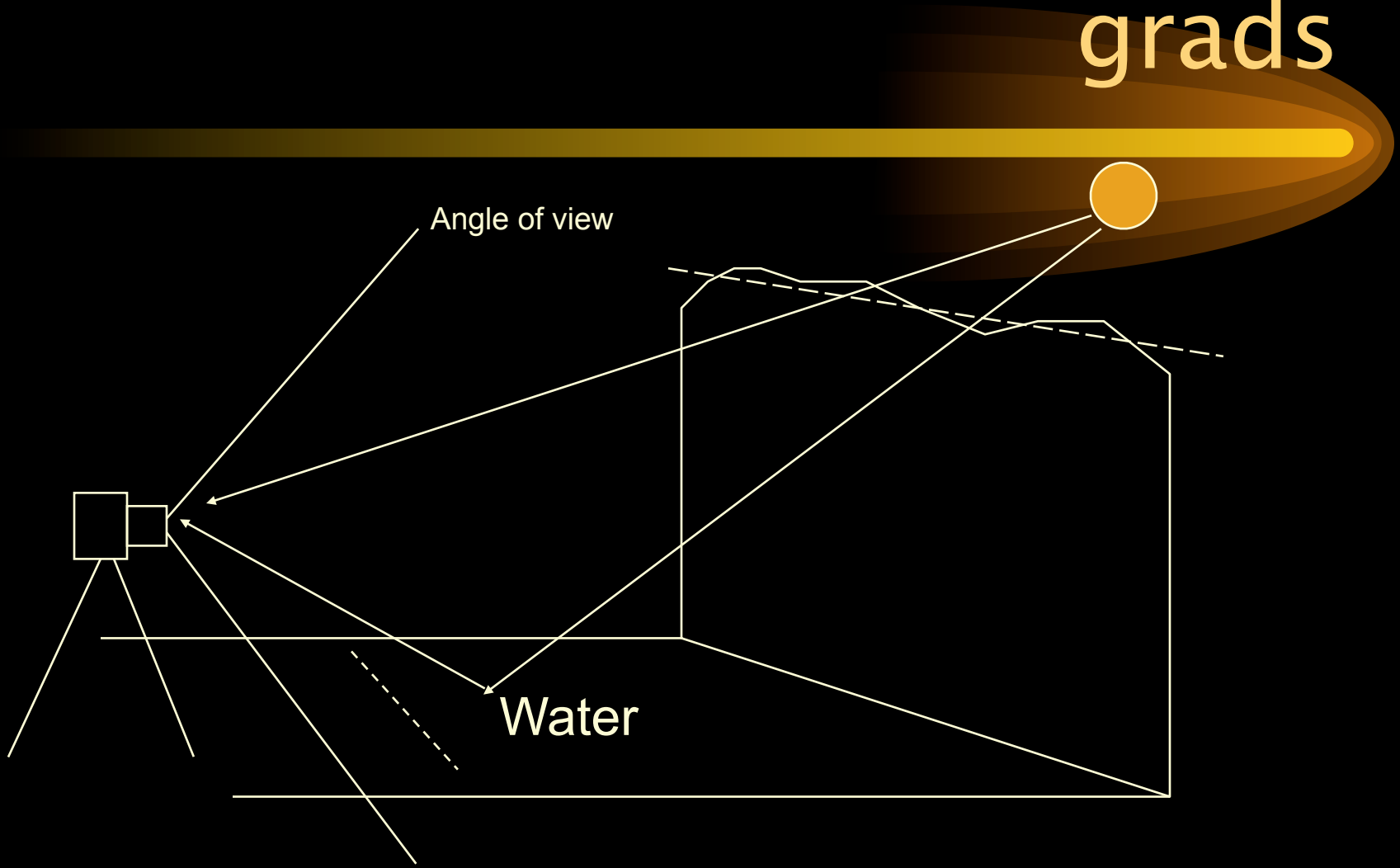
- Half ND of particular strength, other half clear
- Hard or soft transition zone

Neutral Density Graduated filters

ND set up process (landscapes)

- Measure sky brightness
- Measure land brightness
- Choose ND grad number of stops to bring sky in brightness range of sensor –making sure sky is still brighter than the land

Typical situations for ND grads



Typical ND grad uses (hard and soft)

Typical ND Filter Collection

- Hard Grads
  - ✳ 1 stop, 1.5 stop, 2 stop, 3 stop
- Soft Grads
  - ✳ 1 stop, 1.5 stop

Exposure setting process

- Appraise (and anticipate) subject contrast range with meter system
- Develop filtration strategy
  - Where to place exposure levels in sensor contrast range
  - What filter(s) to use
- Set up filters on camera
- If possible, measure image contrast range (histogram on digital camera)

Thanks for listening

What is a stop of exposure?

- A 2 x change in the amount of light
- eg a halving or doubling of the shutter speed at a given aperture