

Mysteries of Photography #20: Polarised Light

Here we go on again about the nature of light. This time it is in relation to a phenomenon we call Polarisation.

Let's start with a common usage of polarisation in optics. After all, where would Joe have been without his aviator glasses?



Of course, other than for aviators and politicians, there are a lot more uses for polarised lens in glasses. Fishermen, for example, love to use polarising lens in their sunglasses so they can see below the surface of the water more easily.

Even photographers use it with polarising filters in front of their lens. Imagine that!

So what is a polarising filter do and why does it have the effects that it does? Let's look at a few common examples. Fit your lens with a polarising filter and rotate it, looking at the sky. At one point, the blue will be darker and, if you have a hazy day, distant objects will be more defined. Rotate it further and the effect is lost.



A polarising filter is also essential if you are photographing from a plane or helicopter. Keep rotating it and glare and reflections “magically” disappear.

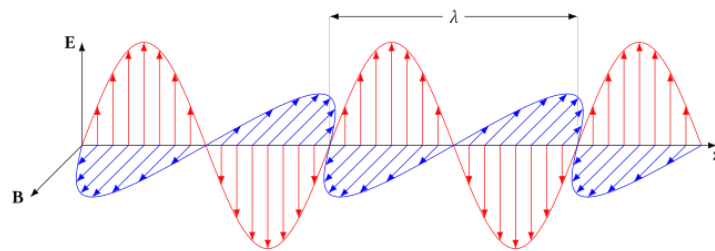


Also, if you are photographing through the plane window, it is often possible to remove reflections from the window glass. (Photographing from a helicopter with doors off is highly recommended, if somewhat scary, especially when the helicopter banks into a turn.)

How does this magic happen?

Take two sunglasses with polarising lenses and rotate one at 90 degrees to the other and the light is completely blocked.

Remember light is a wave with two components at 90 degrees to each other. Light sources typically produce a mix of light waves with a completely random mix of orientations. When light is reflected off water or the ground, light waves with one set of orientations is preferentially adsorbed and the opposite set reflected. Sunglass makers set their polarising lenses in such a way as to adsorb the waves with the correct orientation for reflected light off a horizontal surface.



However, this also means that half of the light from a typical light source is adsorbed by a polarising filter. So when you attach a polariser, you will need to increase your exposure parameters by a minimum of 1 to 1.5 stops.

A polarising filter is a useful tool for use in specific circumstances but not something you would want on your lens all the time. In fact, on a dull overcast day, it is completely useless!

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