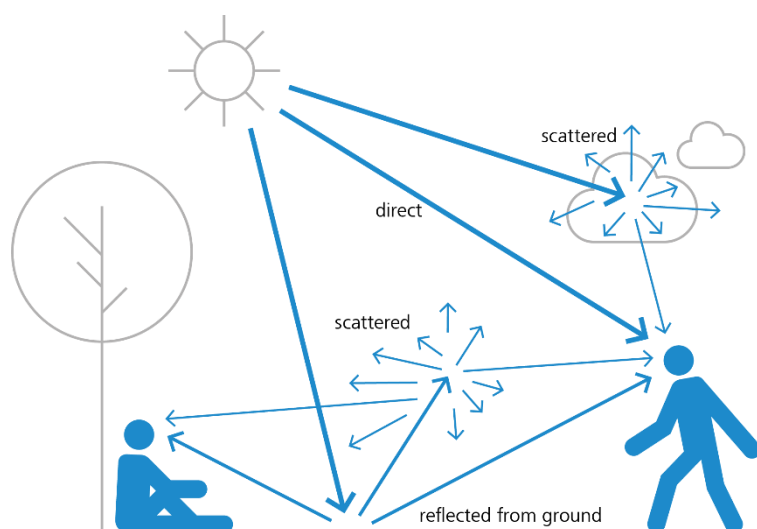




## The Underestimated Risk of UV: Scattered Radiation

**“Don’t go out in the sun in the middle of the day! Put your sunglasses on!” More and more people are heeding tips like these in order to protect themselves against the sun’s harmful ultraviolet (UV) rays. However, a few years ago Swiss scientists from the University of Lausanne<sup>1</sup> suggested that such measures simply aren’t enough to counteract the biggest UV problem: scattered radiation – and we’re particularly at risk at times when we normally don’t wear our sunglasses. This could be while taking a stroll along a leafy shopping street, or when gardening on a cloudy day.**

It’s true that direct UV radiation is normally stronger than scattered radiation, but over the course of the year we are exposed to considerably more UV through scattered radiation than direct sunlight. According to the findings of the Swiss researchers, the direct incident light we’re exposed to when we spend time out in the sun accounts for just 20 percent of our annual UV exposure. Scattered radiation can be responsible for up to 80 percent of our yearly dose, and we cannot avoid it completely – even when we keep to the shade.



### Clouds can increase our UV exposure

Direct UV radiation is reflected by objects and surfaces or scattered by clouds or other special molecules. A lot of people don’t know that certain cloud formations can actually even increase the level of UV exposure compared to a clear day. Some time ago, scientists from Kiel proved that fleecy clouds (Cumulus humilis) in particular can make UV radiation that much more dangerous<sup>2</sup>.

## **Climate change exacerbates UV risks**

In the years to come, experts predict that the problem will become even more acute. Climate change will cause temperatures to rise – and with them people’s need for refreshment outdoors. Preferably the shade, in the morning and in the early evening. So while people are getting out of the sun, scattered radiation and the growing risks associated with UV exposure can lead to serious eye problems.

Cataracts, which cause cloudy vision, is the most well-known affliction of the eyes that can be caused by UV exposure. We cannot yet rule out a link to macular degeneration, either, as our eyelids are also at risk of UV damage. Five to ten percent of all skin cancer cases relate to the eyelids.

## **Sunglasses are often removed when in the shade**

While most people have learned that they should also apply sunblock when in the shade, they often underestimate the risks for the eyes. Sunglasses protect our eyes, but in the shade their tint is often irritating and so we remove them – and thus expose the eyes to reflected and scattered radiation.



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## **Standard lenses often offer no more than basic UV protection**

Current industry standards define UV protection up to 380 nanometer (nm). Unfortunately, this means a large proportion of the lenses sold today do not cover the long-wave UVA range between 380 and 400 nm. Many sunglasses have protected up to 400 nm for a long time, while clear lenses have a lot of catching up to do.



## **New: Complete UV protection for your everyday glasses**

ZEISS has bridged this gap with its new ZEISS UVProtect technology, now featured in all clear plastic lenses by ZEISS. This important launch is designed to elevate the standard of care for all patients, to a level that fits the strict Australian Sunglass Standard.

ZEISS UVProtect safeguards the eyes from harmful UV rays around the clock – even when you don't have your sunglasses on hand.

(1) Vernez D et al., Anatomical exposure patterns of skin to sunlight: relative contributions of direct, diffuse and reflected ultraviolet radiation, *Br J Dermatol* 2012; DOI: 10.1111/j.1365-2133.2012.10898.x

(2) N.H. Schade, A. Macke H. Sandmann, C. Stick: Hochaufgelöste Strahlungs- und Bedeckungsgradmessungen während der Sommermonate 2004/2005 in Westerland (Sylt)  
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