



# Ultraviolet Radiation, Skin Cancer and Sun Protection Facts

Educational resource for New Zealand schools



**SLIP**



**SLOP**



**SLAP**



**WRAP**



**SHADE**



## UV radiation facts

- ☀️ UV radiation cannot be seen or felt. What is felt as heat from the sun is caused by infrared heat waves. This means that on cooler, cloudy days in summer you can still get sunburnt. In general terms, UV radiation is on one side of the rainbow and heat is on the other.

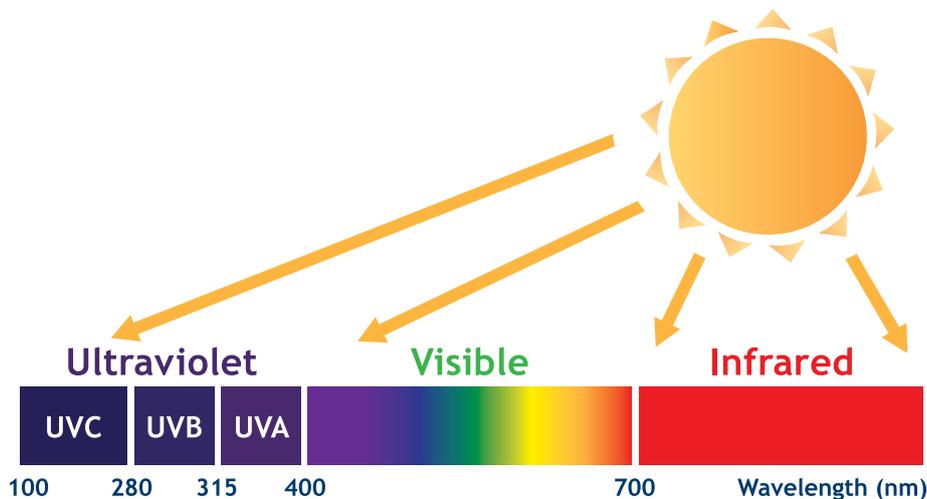


Figure 2

New Zealand has 40% higher levels of UV radiation than countries at similar latitudes in the northern hemisphere. The reasons for this are:

- ☀️ Our clear skies due to lack of pollution.
- ☀️ The springtime ozone hole is over the Antarctic and will continue to recur for the next decade or two. But it has very little effect on UV levels in New Zealand. Because of the success of the Montreal Protocol in controlling the chemical that leads to ozone depletion, the worst is now behind us. However, even without ozone depletion, UV levels in New Zealand will remain elevated compared with similar latitudes in the northern hemisphere. Generally UV radiation is highest when your shadow is shortest, which is around the middle of the day.
- ☀️ The elliptical orbit of the earth around the sun means the southern hemisphere is closer to the sun in our summer than the northern hemisphere is in theirs – the perihelion effect (Figure 3).

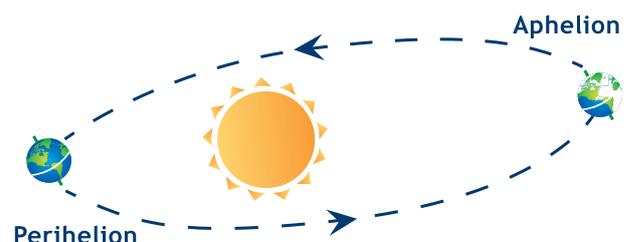


Figure 3

## When to be SunSmart

Sun protection is needed from September (Term 4) to the beginning of April (Term 1), especially between 10am & 4pm.

This includes on cooler, cloudy days when the UV Index is 3 or more.

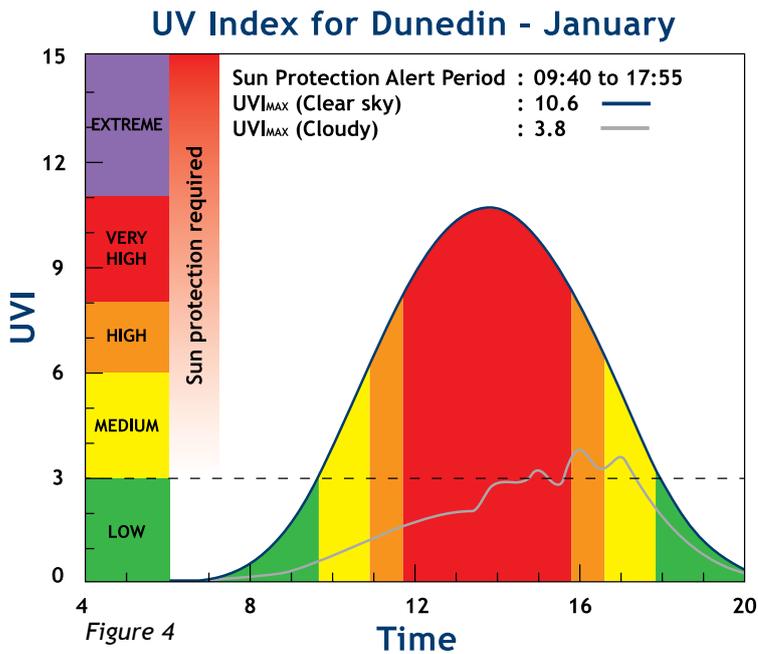
In winter, sun protection is required when at high altitude, e.g. skiing, tramping and mountaineering.

To find the UV Index for your area go to [www.niwa.co.nz/UV-forecasts](http://www.niwa.co.nz/UV-forecasts)

# UV Index

## How do we measure UVR?

UV radiation is measured by the UV Index. An example is below.



For more information about the UV Index in your area please go to [www.niwa.co.nz/UV-forecasts](http://www.niwa.co.nz/UV-forecasts)

## Two useful clips from NIWA

### Why are UV levels high in New Zealand's summer?

Dr Richard McKenzie, Senior Research Scientist at NIWA, Lauder, outlines three main reasons why UV levels in New Zealand during summer are higher than at an equivalent latitude in the northern hemisphere during its summer.

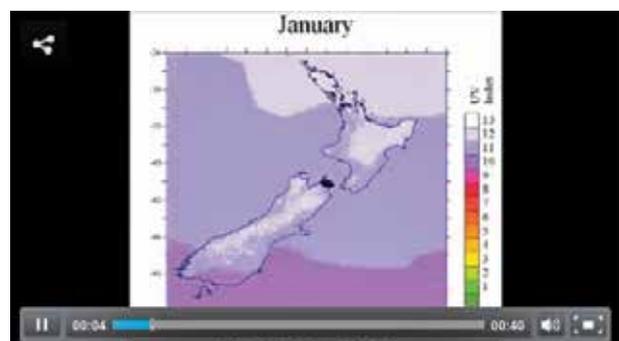


1 minute 13 seconds

<http://www.sciencelearn.org.nz/Contexts/You-Me-and-UV/Sci-Media/Video/Why-are-UV-levels-high-in-New-Zealand-summer>

### UV Index time-lapse map for New Zealand

Combined measurements of UV intensities across New Zealand during 2000 enabled this day-by-day map of clear-sky maximum UV Index to be compiled.



40 seconds

<http://www.sciencelearn.org.nz/Contexts/You-Me-and-UV/Sci-Media/Video/UV-Index-time-lapse-map-for-New-Zealand>

## Skin penetration of UV radiation

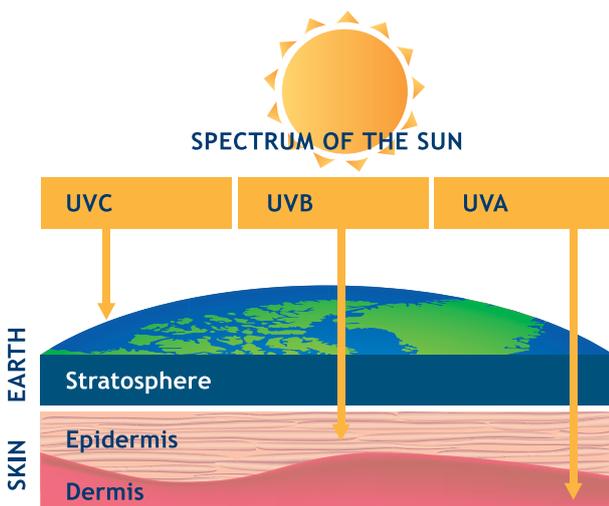


Figure 5

## Protection for your skin

- ✦ The effects of over-exposure to the sun on our skin are cumulative and builds up over a person's lifetime. It cannot be reversed.
- ✦ UV radiation damage is largely responsible for ageing of the skin – wrinkles, freckles and sun spots.
- ✦ **Clothing** – tops with collars and sleeves are best. Longer shorts and skirts are recommended. If wearing singlet tops while competing in sport ensure good sunscreen coverage of exposed skin. For students where there is a family history of melanoma, parents may wish to negotiate with the school about their child wearing long sleeves.
- ✦ **Shade** – seek shade from trees, verandas, shade sails, gazebos, etc. Take breaks in the shade.
- ✦ **Sunscreen** – this should be encouraged for those who burn easily and for those times when students are outside for extended periods. Sunscreen (at least SPF 30 broad spectrum) needs to be applied thickly 20 minutes before going outside. It should be reapplied every two hours. Ensure any sunscreen meets the standard AS/NZS 2064.
- ✦ **Wear a hat** – wide-brimmed or bucket hats with a 6cm brim are recommended. A hat will also protect your eyes. *Caps are not hats. They don't protect the sides of the face, neck or ears, which are all common sites of skin cancer.*
- ✦ **Wrap on sunglasses** – this is part of the SunSmart message but needs to be kept in context for schools. If education outside the classroom takes place in Terms 1 and 4, a hat with a brim of 6cm or more will offer some eye protection. However, if students wish to bring sunglasses from home they should be able to do so. Teachers and other school staff are also encouraged to look after their eyesight by wearing sunglasses. Choose sunglasses that meet the standard AS/NZS 1067. Close-fitting, wrap-around styles are best. Over exposure to UVR is associated with a number of eye conditions such as the development of cataracts, macular degeneration and growths on the eyeball called pterygium or pinguecula.
- ✦ **School ski trips** – students and supervisors on ski trips will need to use sunscreen on all exposed skin, wear goggles/sunglasses and a helmet or beanie.
- ✦ **Storage of sunscreen** – keep sunscreen in a cool place. If outside, keep it in the shade. Sunscreen that has been left out in the sun or near other sources of heat will degrade and will not work as intended. Check the expiry date on the label and replace outdated sunscreen. For more information check the label on your sunscreen.

## Additional resources

### SunSmart Schools Accreditation Programme

Currently this programme is for primary and intermediate schools and can also be taken up by composite schools with Year 1-8 students. This Cancer Society programme accredits schools that have developed and implemented a sun protection policy or procedure for Terms 1 and 4. The policy/procedure must be approved by the Board of Trustees and meet minimum criteria that ensure students and staff are in a sun-safe environment.

Please see [www.sunsmartschools.org.nz](http://www.sunsmartschools.org.nz) for more information. Curriculum Resources 2014 are also on this website.

### Useful websites

[www.cancernz.org.nz](http://www.cancernz.org.nz)  
[www.sunsmartschools.org.nz](http://www.sunsmartschools.org.nz)  
[www.sunsmart.org.nz](http://www.sunsmart.org.nz)  
[www.undercovercody.co.nz](http://www.undercovercody.co.nz)  
[www.niwa.co.nz/UV-forecasts](http://www.niwa.co.nz/UV-forecasts)  
[www.niwa.co.nz/our-services/online-services/uv-ozone](http://www.niwa.co.nz/our-services/online-services/uv-ozone)



### Useful resources

A series of “ad fillers” are available from the Cancer Society to use in school newsletters. They are supplied as high resolution JPEGs ready to import into MS Word documents, to fit size A4 newsletters and other publications. Some examples are shown below.

These can be ordered from the Cancer Society. Please ring (03) 477 7447 or email [admin@cansoc.org.nz](mailto:admin@cansoc.org.nz)

**SUNSMART FACT**



### Cover-up 10 until 4

Protect yourself from the sun between 10am and 4pm during school terms one and four.



**SUNSMART FACT**



### Caps don't cut it!

Caps do not provide enough sun protection to your cheeks, nose, ears and neck. These are all common places for skin cancer. Bucket or wide-brimmed hats are best.



A wall poster is also available (shown below), illustrating the risks of exposure to UVR in a variety of climatic, geographic and lifestyle situations. This poster comes in a choice of sizes A3 and A4.

## UV radiation in our environment

The sun creates ultraviolet radiation (also called UVR or UV radiation). We cannot see or feel it. **The sun's heat is from infrared rays but it is UV radiation that burns our skin.**

Some sun on our skin is good for our health because we make Vitamin D this way. However, too much UV radiation can cause our skin to age, develop skin cancers, and damage our eyes and immune systems. **About 90% of skin cancers are caused by too much exposure to UVR.**

**Clouds**  
You can get sunburned on cloudy days. Cloud usually reduces UVR, particularly in overcast conditions. However, when there is broken cloud and the sun remains visible, clouds can scatter UVR so that total UVR may be greater than under clear sky conditions. White clouds also reflect UVR.

**Working outdoors**  
Working outdoors means more time in the sun, more exposure to UVR and a greater risk of skin cancer.

**Glass**  
Windows do not protect you from skin-damaging UVA. Long wavelength UV radiation (UVA) goes through glass.

**Shade**  
Shade can reduce UV radiation. To reduce UV radiation by more than 50%, most of the sky needs to be blocked by the shade structure.

**Sun elevation**  
The amount of UVR varies with time of day and time of year. The higher the sun is in the sky, the higher the UVR radiation. The shorter your shadow, the higher the UV index is. *Be SunSmart during daylight saving months (September to April), especially between 10am and 4pm.*

**Altitude**  
In clean air, UVR increases by about 5% for each 1000 metre rise in altitude (going uphill). On our ski fields, the UV radiation can be 20-30% more than at sea level. Snow also reflects UVR. *Be SunSmart both summer and winter when up in the mountains.*

**Reflection**  
UVR can be reflected or scattered by different surfaces. White sands can reflect up to 25% of UVR and snow can reflect 80% or more. Water also reflects high levels of UVR. Even under 1/2 a metre of water the UVR is still 40% of what it is at the surface.

**Latitude**  
UVR levels are higher the closer you get to the equator.

**Cancer Society**  
Te Kāhui Matepukupuku o Aotearoa

[www.cancernz.org.nz](http://www.cancernz.org.nz)

Cancer Society 2014, ref. AA4255

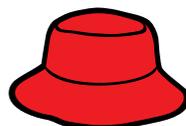
## The SunSmart solution for Kiwis in the sun:



SLIP



SLOP



SLAP



WRAP



SHADE



# Cancer Society

Te Kāhui Matepukupuku  
o Aotearoa

Cancer Information Helpline 0800 CANCER (226 237)

[www.cancernz.org.nz](http://www.cancernz.org.nz) • [www.sunsmartschools.org.nz](http://www.sunsmartschools.org.nz) • [www.sunsmart.org.nz](http://www.sunsmart.org.nz)