



Australian Government

Australian Radiation Protection and Nuclear Safety Agency

# **SOLAR UVR and SKIN CANCER IN AUSTRALIA**

Dr Peter Gies

**The Australian Radiation Protection  
and Nuclear Safety Agency**





# INTRODUCTION

- ARPANSA is an Australian Govt Agency in the Department of Health
- MISSION : Protecting people and the environment from the harmful effects of radiation
- ARPANSA is a WHO Collaborating Centre for Radiation Protection and a member of the WHO Intersun Project
- 2009: IARC reaffirmed UV Radiation as “carcinogenic to humans” (Group 1). *(Ref: IARC 2009)*
- “Exposure to UVR is considered to be a major factor for all three forms of skin Cancer” ICNIRP *(Ref: ICNIRP 2004)*

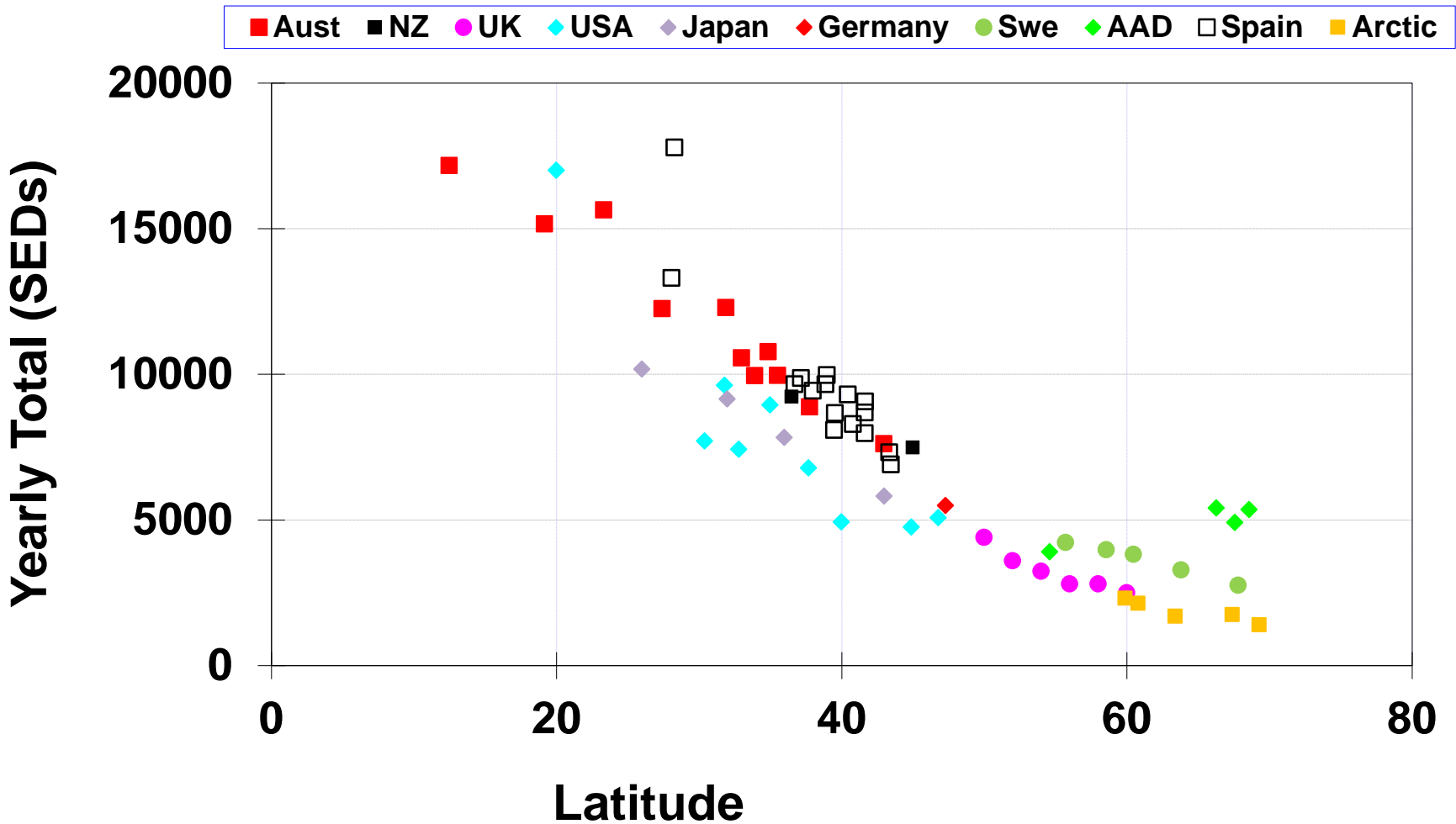


# ARPANSA UV Activities

- Has a network that monitors solar UVR levels at major cities around Australia since the early 1990's > <http://www.arpansa.gov.au/uvindex/>
- Has collaborative research programmes to measure UVR exposures of at risk groups such as children and outdoor workers
- Provides services to test the UV protective capability of clothing, sunglasses, shade items, materials see <http://www.arpansa.gov.au/uv/>
- Development of Standards and guidance > (*Ref RPS12*)



# UVR Levels around the World

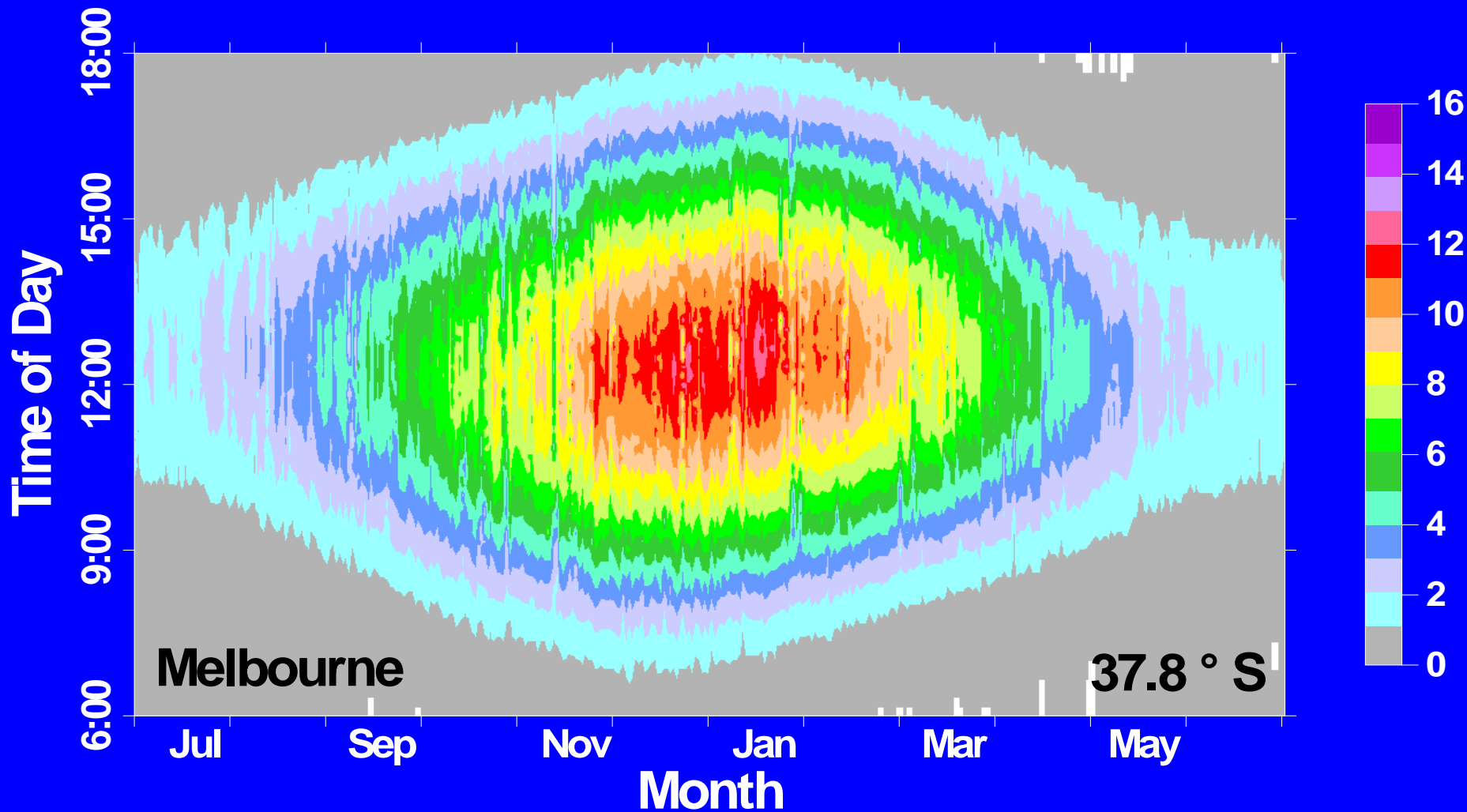




Australian Government

Australian Radiation Protection and Nuclear Safety Agency

# UV Index MELBOURNE 37.8°S

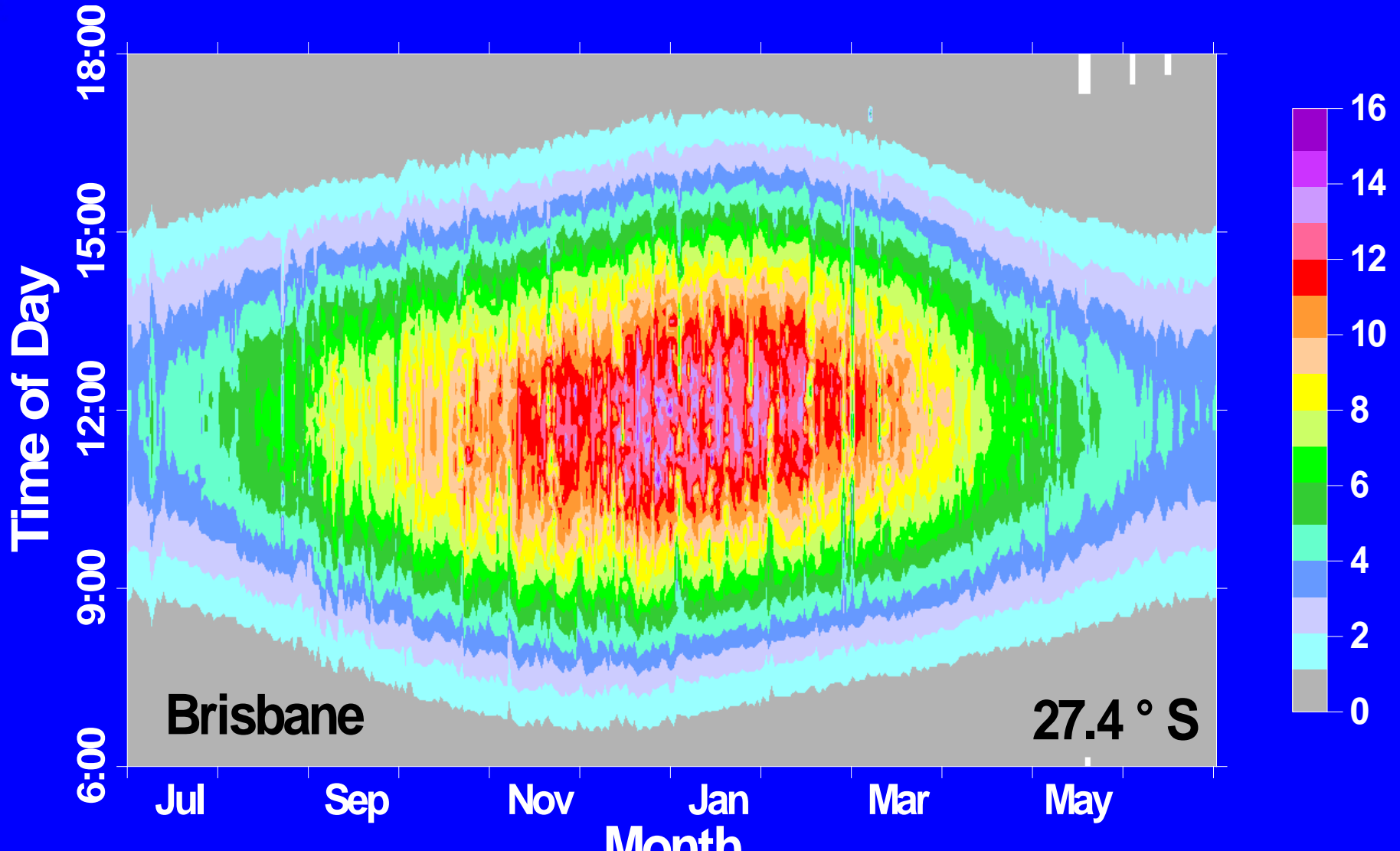




Australian Government

Australian Radiation Protection and Nuclear Safety Agency

# UV Index BRISBANE 27.4°S





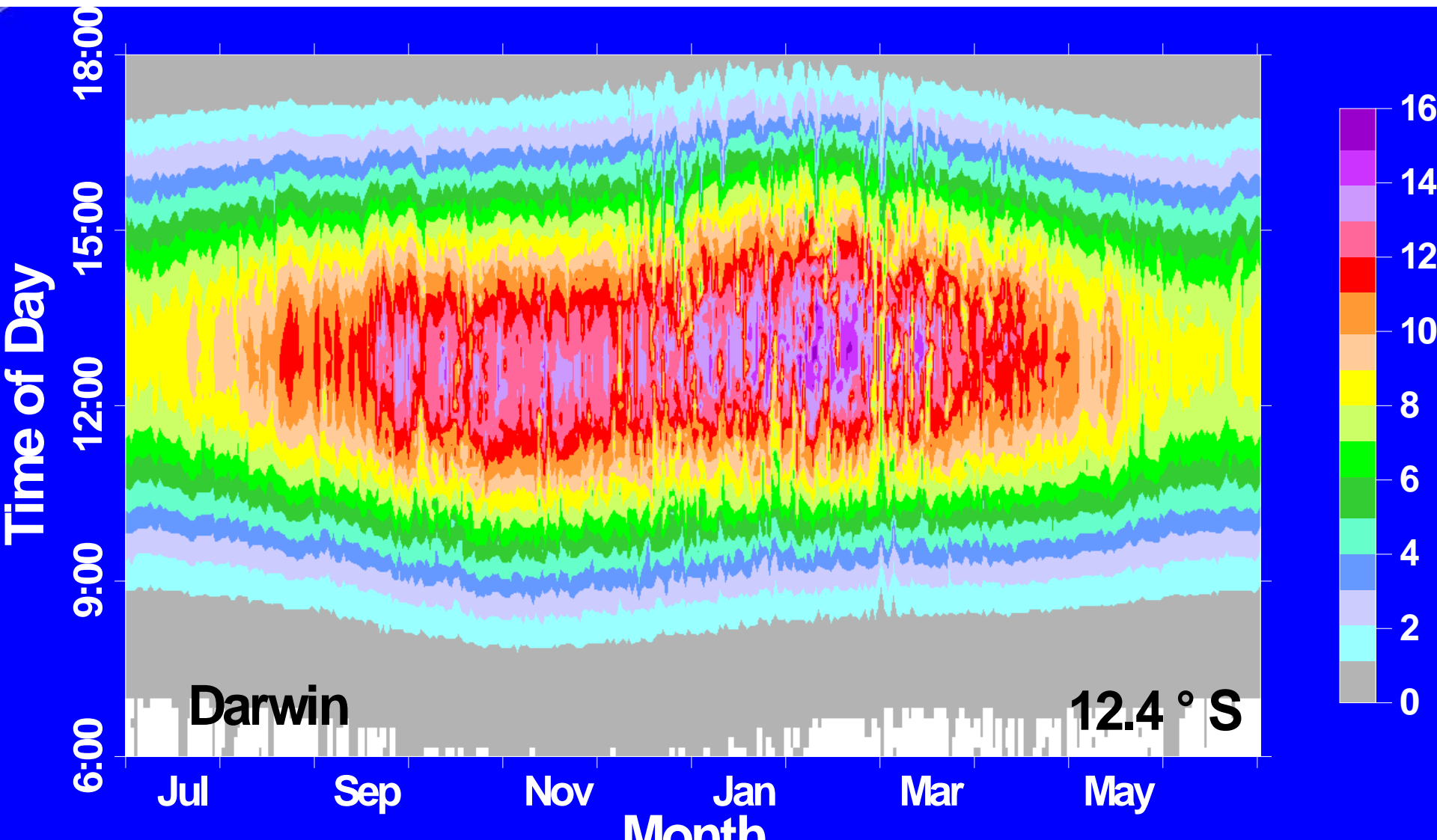
Australian Government

Australian Radiation Protection and Nuclear Safety Agency

# UV Index

# DARWIN

# 12.4°S





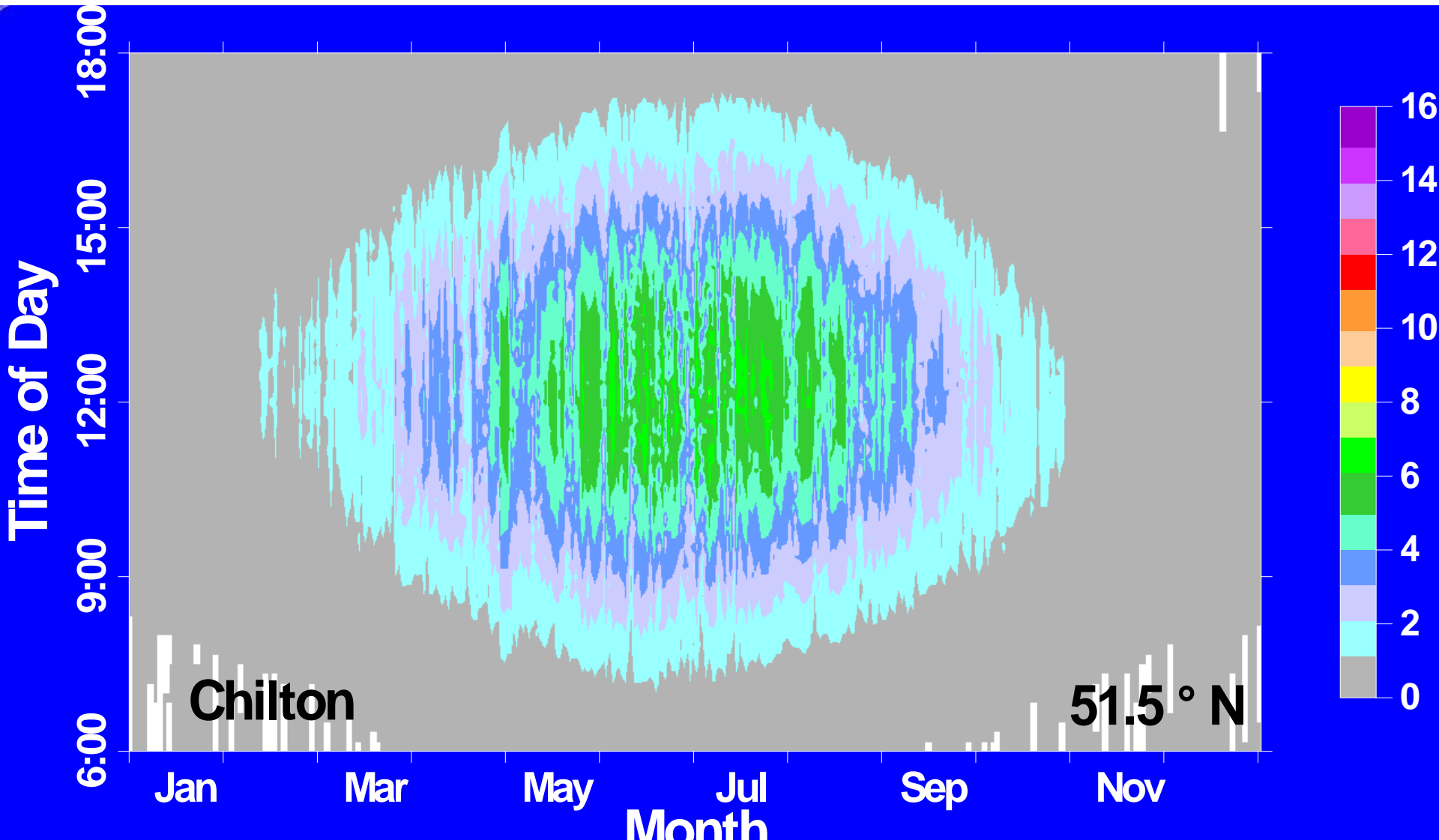
Australian Government

Australian Radiation Protection and Nuclear Safety Agency

# UV Index

# OXFORD, UK

# 51.5°N







# SKIN TYPE MATTERS

- People with fairer skin have higher risk from UV exposures
- Fitzpatrick Skin Type Chart *(Ref Fitzpatrick 1988)*

Australian Government  
 Australian Radiation Protection and Nuclear Safety Agency

## Fitzpatrick Skin Type

The most commonly used scheme to classify a person's skin type by their response to sun exposure in terms of the degree of burning and tanning was developed by Thomas B. Fitzpatrick\*, MD, PhD. Examples are given below.

\* Fitzpatrick, T.B. (1988) The validity and practicality of sun reactive skin types I through VI. Arch Dermatol 124: 869-871.

<b>Eye colour</b> 0. Light colours 1. Blue, gray or green 2. Dark 3. Brown 4. Black	<b>Do you turn brown?</b> 0. Never 1. Seldom 2. Sometimes 3. Often 4. Always	<b>Score</b>	<b>0-6</b>	<b>Skin Type I</b> 
		Always burns, never tans (pale white skin)		
<b>Natural hair colour</b> 0. Sandy red 1. Blond 2. Chestnut or dark blond 3. Brown 4. Black	<b>How brown do you get?</b> 0. Never 1. Light tan 2. Medium tan 3. Dark tan 4. Deep dark	<b>7-13</b>		<b>Skin Type II</b> 
		Always burns easily, tans minimally (white skin)		
<b>Your skin colour (unexposed areas)</b> 0. Reddish 1. Pale 2. Beige or olive 3. Brown 4. Dark brown	<b>Is your face sensitive to the sun?</b> 0. Very sensitive 1. Sensitive 2. Sometimes 3. Resistant 4. Never have a problem	<b>14-20</b>		<b>Skin Type III</b> 
		Burns moderately, tans uniformly (light brown skin)		
<b>Freckles (unexposed areas)</b> 0. Many 1. Several 2. Few 3. Rare 4. None	<b>How often do you tan?</b> 0. Never 1. Seldom 2. Sometimes 3. Often 4. Always	<b>21-27</b>		<b>Skin Type IV</b> 
		Burns minimally, always tans well (moderate brown skin)		
<b>If you stay in the sun too long?</b> 0. Painful blisters, peeling 1. Mild blisters, peeling 2. Burn, mild peeling 3. Rare 4. No burning	<b>When was your last tan?</b> 0. +3 months ago 1. 2-3 months ago 2. 1-2 months ago 3. Weeks ago 4. Days	<b>28-34</b>		<b>Skin Type V</b> 
		Rarely burns, tans profusely (dark brown skin)		
		<b>35+</b>		<b>Skin Type VI</b> 
		Never burns (deeply pigmented dark brown to black skin)		

\* The information published here is not intended to take the place of medical advice. Please seek advice from a qualified health care professional.



# SUMMARY

- Higher UV exposure > higher skin cancer rates
- UV levels are higher in Australia than most overseas sites
- Skin cancer is preventable
- Increasing public awareness of the need to protect against UV will contribute to reducing skin cancer rates
- ARPANSA works with the Cancer Councils to promote UV protection



Australian Government

Australian Radiation Protection and Nuclear Safety Agency

Skin cancer in Australia  
Submission 20 - Supplementary Submission

# THANK YOU

## CONTACT ARPANSA

**Email:** [info@arpansa.gov.au](mailto:info@arpansa.gov.au)  
**Website:** [www.arpansa.gov.au](http://www.arpansa.gov.au)  
**Telephone:** +61 3 9433 2211  
Freecall 1800 022 333  
**General Fax:** +61 3 9432 1835

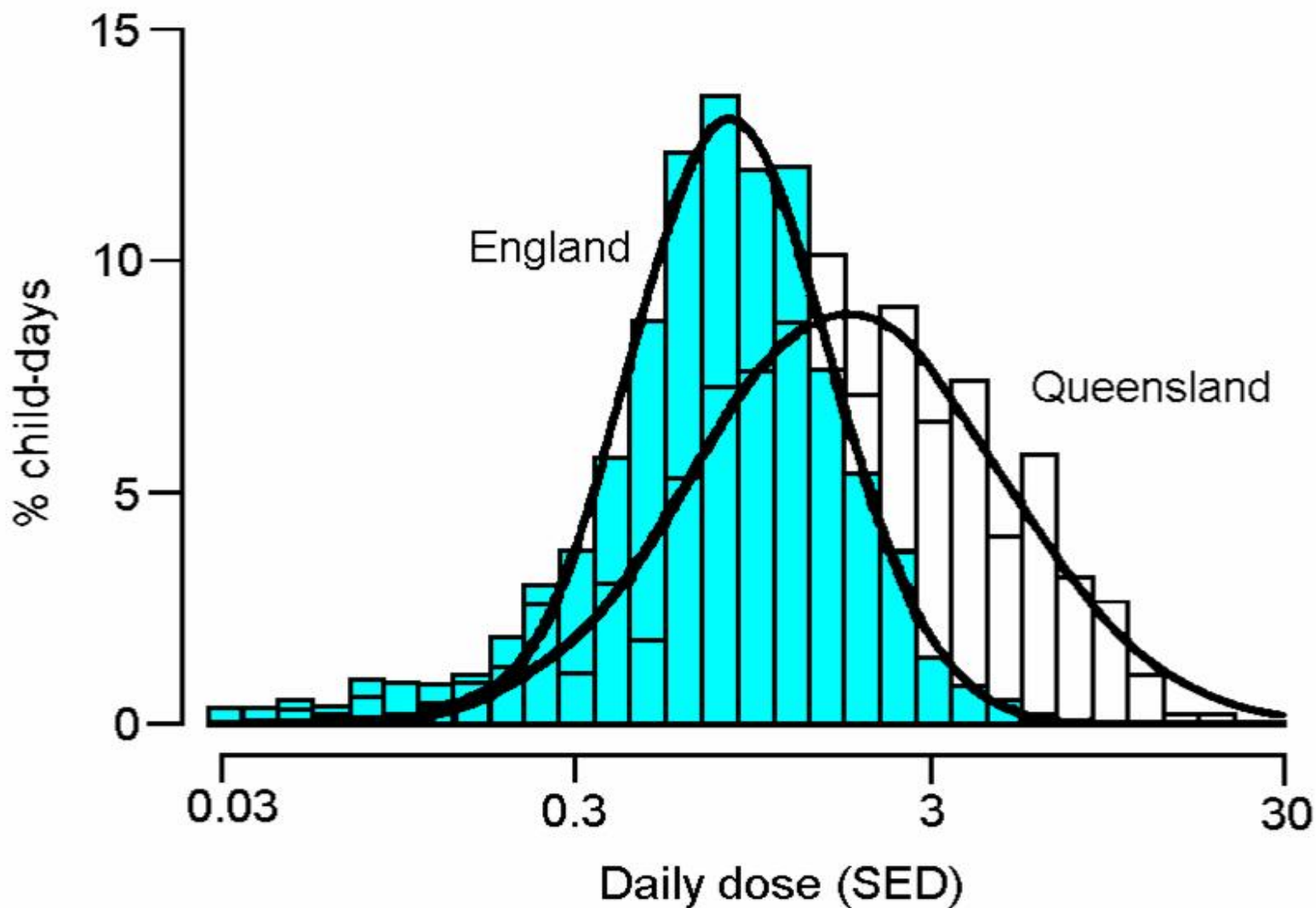




Australian Government

Australian Radiation Protection and Nuclear Safety Agency

# Distribution of Solar UVR Exposures

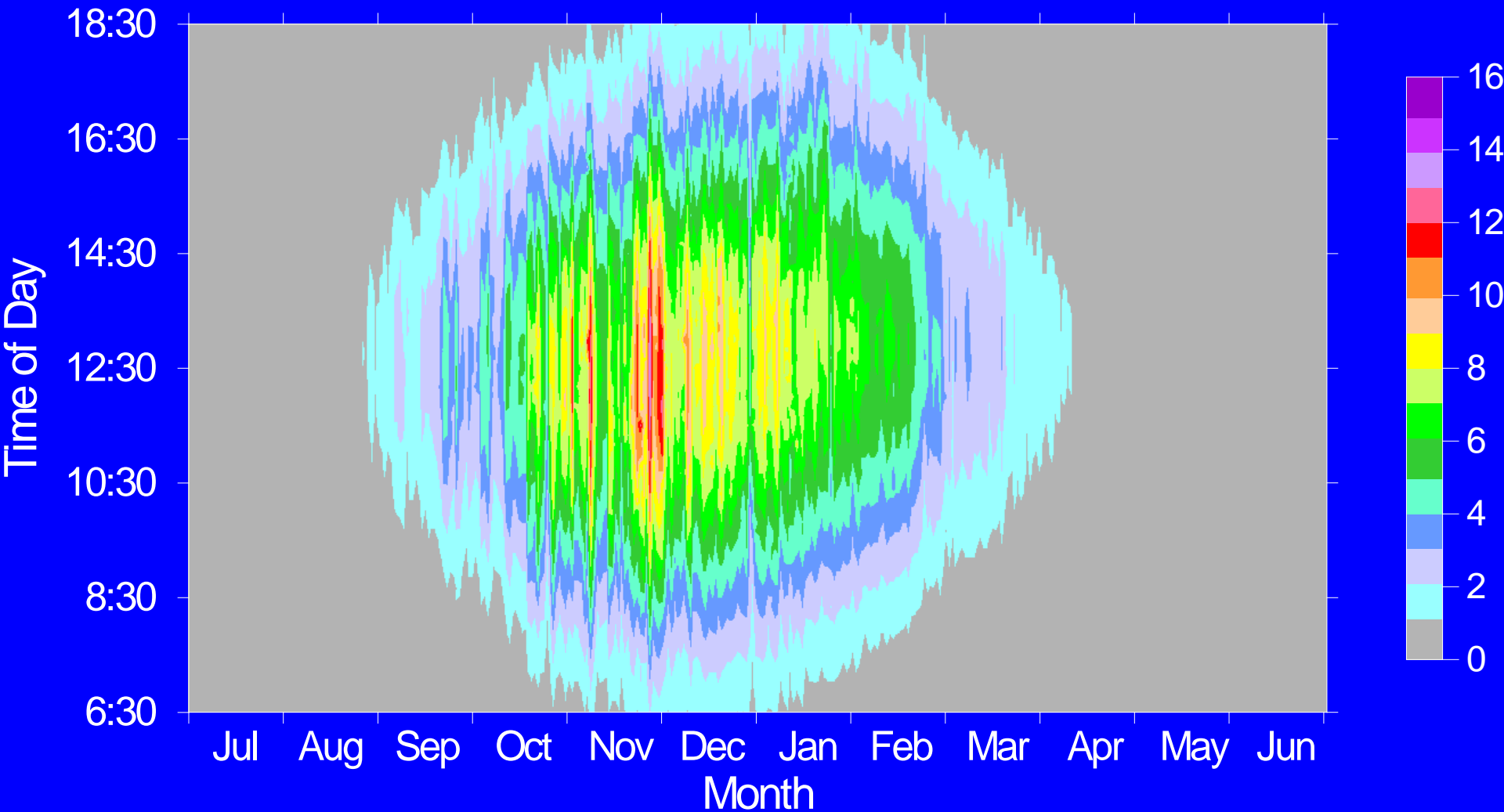




Australian Government

Australian Radiation Protection and Nuclear Safety Agency

# CASEY STATION



# Measured Solar UV Levels



Australian Government  
Australian Radiation Protection  
and Nuclear Safety Agency



In the U.K.  
the UV Index  
doesn't exceed

6



UV Index Maximum

ARPANSA Measurement Sites

[www.arpansa.gov.au/uvindex](http://www.arpansa.gov.au/uvindex)



Australian Government  
Australian Radiation Protection  
and Nuclear Safety Agency

# Fitzpatrick Skin Type

The most commonly used scheme to classify a person's skin type by their response to sun exposure in terms of the degree of burning and tanning was developed by Thomas B. Fitzpatrick\*, MD, PhD. Examples are given below.

\* Fitzpatrick, T.B. (1988) The validity and practicality of sun reactive skin types I through VI. Arch Dermatol 124; 869-871.

## Eye colour

- 0. Light colours
- 1. Blue, gray or green
- 2. Dark
- 3. Brown
- 4. Black

## Natural hair colour

- 0. Sandy red
- 1. Blond
- 2. Chestnut or dark blond
- 3. Brown
- 4. Black

## Your skin colour (unexposed areas)

- 0. Reddish
- 1. Pale
- 2. Beige or olive
- 3. Brown
- 4. Dark brown

## Freckles (unexposed areas)

- 0. Many
- 1. Several
- 2. Few
- 3. Rare
- 4. None

## If you stay in the sun too long?

- 0. Painful blisters, peeling
- 1. Mild blisters, peeling
- 2. Burn, mild peeling
- 3. Rare
- 4. No burning

## Do you turn brown?

- 0. Never
- 1. Seldom
- 2. Sometimes
- 3. Often
- 4. Always

## How brown do you get?

- 0. Never
- 1. Light tan
- 2. Medium tan
- 3. Dark tan
- 4. Deep dark

## Is your face sensitive to the sun?







- 0. Very sensitive
- 1. Sensitive
- 2. Sometimes
- 3. Resistant
- 4. Never have a problem

## How often do you tan?

- 0. Never
- 1. Seldom
- 2. Sometimes
- 3. Often
- 4. Always

## When was your last tan?

- 0. +3 months ago
- 1. 2-3 months ago
- 2. 1-2 months ago
- 3. Weeks ago
- 4. Days

Score		
0-6	Skin Type I	
Always burns, never tans (pale white skin)		
7-13	Skin Type II	
Always burns easily, tans minimally (white skin)		
14-20	Skin Type III	
Burns moderately, tans uniformly (light brown skin)		
21-27	Skin Type IV	
Burns minimally, always tans well (moderate brown skin)		
28-34	Skin Type V	
Rarely burns, tans profusely (dark brown skin)		
35+	Skin Type VI	
Never burns (deeply pigmented dark brown to black skin)		

\* The information published here is not intended to take the place of medical advice. Please seek advice from a qualified health care professional.